

A Study on the Connotation of Higher Vocational Teachers' Competence in the Context of Dual-Higher Education

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Abstract: Currently, research on the competence of "dual high" teachers is mostly focused on interpreting policy texts and analyzing the current situation, lacking systematic theoretical support and logical coherence. This article provided the basic principles for establishing the competence of vocational college teachers, including following strategic guidelines, grasping the laws of dynamic development, and the principle of effectiveness. In the study of the elements of the competency model for full-time vocational teachers, in-depth research on competency and teacher competency theories in some countries was conducted using methods such as behavioral event interviews and Delphi. By conducting interviews and compiling data on the importance of the competency characteristics of vocational full-time teachers, the general competency characteristics of vocational full-time teachers were summarized and extracted, and they were divided into six dimensions of competency quality: teaching ability quality, technological ability quality, practical ability quality, work attitude quality, professional quality, and self-management quality. In the student evaluation survey, the evaluation indicators for teaching ability were very satisfied with 20%, satisfied with 50%, and generally 30%. This article has certain reference significance for the establishment of a competence appraisal and evaluation system for vocational college teachers under the background of dual high education.

1. Introduction

University teachers are the backbone of implementing college education work. In vocational

schools, teachers are an indispensable force in implementing the Party's educational policies, implementing school training requirements, serving students, and managing students well. The Ministry of Education and the Ministry of Finance have put forward new demands and provided new ideas for the development of distinctive vocational colleges in China. In the transformation and development of schools, scientific positioning requires vocational school teachers to not only do their job well, but also further enhance their abilities, so as to better help the school fulfill its tasks under the background of the new era of dual high education.

The formation of "dual high" teacher competence inevitably goes through different stages such as growth and maturity. Young teachers who have just entered the workforce and experienced teachers have significant differences and focuses in their dual high competence characteristics. Therefore, it is necessary to conduct in-depth research on the ability structure of "double high" teachers. This article first presents the basic principles for establishing the competence of vocational college teachers under the background of dual high education, and establishes a competence model for vocational education colleges. This not only lays the foundation for the selection, assessment, and training of excellent teachers, but also delivers excellent talents to higher management. Then, the elements of the competence model for vocational college teachers are presented, and finally, the competence of vocational college teachers under the background of dual high education is further verified.

2. Related Work

The construction of a "dual high" teaching staff can help promote the standardization and scientificization of the construction of higher vocational teacher teaching staff. In order to clarify the ability factors required to be competent in primary and secondary education, Fan Wenxiang used a three-layer coding method of category analysis to establish a competency model for 26 excellent primary and secondary school teachers [1]. Fu Fang conducted research on the competency structure of nursing teachers formulated by relevant institutions and how to use it for teacher training and certification, in order to provide reference for the development of a complete, unified, and standardized competency building and teacher qualification certification for nursing teachers [2]. Wang Zhiqiang believed that teacher competence refers to the sum of the different characteristics that teachers must possess for entrepreneurship education. He established a multidimensional structural model for the abilities of entrepreneurship education teachers and made corresponding policy recommendations for improving the level of abilities of university entrepreneurship education teachers [3]. Starting from the competency characteristics of vocational school teachers, Li Danli selected 26 vocational school teachers who have won provincial-level or above awards in the past three years and conducted in-depth investigations to extract their competency composition [4]. Karim A believed that teacher competence is equally important in helping teachers or improving their performance. Competence itself means the ability to have a broad and in-depth grasp of learning materials [5]. However, their research only explored the value of teacher competence, lacking a plan for building teacher competence.

As a type of education, vocational education has significant differences from general higher education in terms of training objectives, methods, and other aspects. However, currently in China, the identification and evaluation of vocational college teachers mainly refer to the teacher qualification certificates of ordinary higher education institutions, and there is no unified understanding of their competency characteristics [6-7]. In this context, there are directionality and differences in the determination of teaching staff in higher vocational education colleges across different regions and regions.

3. Methods

3.1 Basic Principles for Establishing the Competence of Vocational College Teachers

To ensure that the established competency model can be scientifically and effectively applied to the construction of the teaching staff, the following principles should be followed when constructing the model [8]:

The first is to follow strategic guidelines. Establishing a competency model for vocational education colleges not only lays the foundation for the selection, assessment, and training of outstanding teachers, but also delivers excellent talents to the higher management level. Therefore, when constructing a teacher quality model, strategic principles must be followed. To establish a competency model, it is necessary to meet the recruitment, assessment, and training needs of teachers, and construct corresponding competency characteristics. Only in this way can the quality of hired teachers be guaranteed in a planned and planned manner, and play a role in future training and development work.

The second is to grasp the laws of dynamic development [9-10]. After the establishment of the People's Republic of China, education in China has shifted from "exam oriented" to "quality oriented", leading to a significant transformation in people's educational concepts. With the development of society, the requirements for talents are also undergoing new changes, and the development strategies of universities have also undergone corresponding adjustments. At the same time, due to the changes in time, the characteristics of college students have also changed. Therefore, the demand for teacher competency characteristics has also changed, and the composition of teacher competency characteristics has been further improved and optimized in continuous research. Therefore, the competence of vocational education teachers is not static. It needs to be dynamically adjusted in a timely manner based on the needs of social development for talents, the strategic goals of school development, and the overall competence characteristics of teachers.

The third is the principle of effectiveness. Teacher competence is the sum of individual behaviors, and it can also be quantified. The fundamental purpose of its establishment is to improve the competence of teachers, promote their comprehensive development, and thus scientifically and effectively develop the effectiveness of student work [11]. Based on this, the construction of the competency model needs to be combined with the characteristics of teacher quality in specific quality content, reflecting scientificity and feasibility, and achieving operability and measurability in the operation process to ensure its scientificity and effectiveness [12-13].

Criterion related validity equation:

$$r = \sum_{k=0}^n T^k a^{n-k} \quad (1)$$

T: the criterion variable, usually an external criterion, is used to measure actual job performance or other standards. In the study of teacher competence, criterion related validity can be used to test the relationship between teacher competence assessment scales and actual job performance.

Structural equation model y:

$$y = b_i + x_i + e \quad (2)$$

x_i : the independent variable, representing different competency elements or indicators. Structural equation modeling can be used to analyze the impact paths and weights of different competency elements on teacher performance.

Factor analysis equation:

$$z = a + bX + cY \quad (3)$$

z: potential factors or structures represent key factors that affect teacher competence.

Regression analysis equation:

$$Y = b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n \quad (4)$$

Y: the dependent variable, typically representing teacher performance or other related outcomes.

3.2 Elements of the Competency Model for Vocational Full time Teachers

The general competency characteristics of vocational full-time teachers mainly include the following six aspects.

Teaching ability and literacy: In higher vocational education, teaching is the most important job responsibility. Therefore, the teaching ability and quality of teachers are essential conditions and qualities for doing a good job in education and teaching. It is the most important competency factor, mainly including advanced vocational education concepts, rich educational and teaching methods, flexible educational and teaching skills, clear language expression ability, solid professional knowledge, and strong practical guidance ability.

Technological competence and literacy: In the context of higher vocational education serving regional economic and social development, full-time teachers in vocational colleges need to not only possess good educational and teaching qualities, but also combine with the actual needs of industry and professional development to conduct innovative research in order to do their job well in their positions. This requires teachers to be able to discover new problems and find new methods to solve them, and to have certain scientific abilities, especially scientific research ability, technological research and development ability, pioneering and innovative ability, and practical exploration ability.

Practical ability and quality: According to the characteristics of "application-oriented and vocational" in higher vocational education, full-time teachers in higher vocational colleges must have strong practical ability to meet the needs of cultivating technical and skilled talents in higher vocational education. This requires vocational full-time teachers to master the corresponding job specifications and technical performance of the profession, and have proficient practical operation skills to guide students in practical training and other practical activities, and to solve the problems that exist in actual internships. Therefore, full-time teachers in vocational schools must have practical work experience in enterprises, good social practice experience, technical expertise (professional abilities and skills required for their profession), and obtain necessary skill level certificates in terms of actual ability and quality.

Work attitude and quality: Attitude is the specific manifestation of a person's outlook on life, values, and worldview on the individual, including the seriousness, sense of responsibility, and level of effort in work. It can affect an individual's behavior orientation and evaluation of surrounding things. It is a necessary quality for a qualified position and also a key factor in affecting work effectiveness. Therefore, full-time teachers in vocational schools should have a good work attitude and quality based on the teaching characteristics of vocational schools, mainly manifested as respecting students, being good at empathy, having good professional ethics and affinity.

Professional competence: Professional competence refers to the behavioral norms that individuals should follow in the workplace. Education and teaching are a profession for full-time teachers in vocational colleges. In the teaching process of vocational colleges, they should have a positive spirit of initiative and dedication, and establish strong confidence in their work. This directly affects the self-worth, behavior, and habits of teachers. Teachers should also love vocational education and have a sense of responsibility towards students, schools, and the education industry; they should have a strong sense of responsibility, which is reflected in serious and responsible attitude towards teaching work, being honest and trustworthy, balancing fairness and efficiency in

their work, and having the courage to take on responsibilities.

Self-management literacy: Self-management, also known as self-control, refers to an individual's ability to manage their thoughts, psychology, and behavior through self-management, self-motivation, and self-restraint, in order to achieve their goals. It is the key to outstanding performance. In order to better complete their work, full-time teachers in vocational colleges must also plan their career, set learning goals for themselves, and persistently strive to achieve them. The self-management qualities of full-time teachers in vocational schools are mainly manifested in: learning ability, adaptability, organizational and coordination ability, good at summarizing and reflecting, and a sense of achievement.

3.3 Process of Teacher Competence

This article employs literature review, questionnaire survey, behavioral event interview, and Delphi method, and conducts empirical analysis on them. The steps are as follows:

The first step is to review and study relevant literatures on the competence of vocational college teachers, sorts out relevant research, and extract a vocational competence dictionary with general characteristics;

The second step is to distribute open-ended questionnaires in vocational colleges to collect vocabulary on the quality characteristics that vocational education teachers who implement the Excellent Talent Plan should possess;

The third step is to obtain typical scenarios through behavioral event interviews; there are significant differences between outstanding teachers and ordinary teachers in terms of knowledge, skills, personality traits, and learning motivation; a preliminary summary and organization of the teaching ability characteristics of this type of teacher are conducted, and a preliminary scale is obtained;

The fourth step is to conduct secondary interviews with relevant experts to obtain professional opinions and suggestions;

The fifth step is to establish competency indicators for vocational college teachers and establish a competency model for vocational college teachers. By combining behavioral event interviews with the Delphi method, a professional competency evaluation system suitable for national conditions has been established to address the subjectivity of teacher self-statements in behavioral event interviews and enhance the scientificity of the work competency evaluation system.

4. Results and Discussion

4.1 Teaching Cases

By investigating teaching cases of teachers from different vocational schools, teaching design, teaching methods, and teaching effectiveness are analyzed, and the connotation of their competence is evaluated.

The teaching experience, teaching design, teaching methods, and teaching effectiveness of teachers are shown in Table 1. Teacher Number 1: Teaching design is goal oriented and emphasizes practice, and teaching methods include case analysis and group discussions. The teaching effect is high student satisfaction and excellent grades.

The definition and proportion of competency indicators for vocational college teachers under the background of dual high education are shown in Table 2. Teacher's moral literacy accounts for 30%, and professional development ability accounts for 15%.

Table 1: Teacher's teaching experience, teaching design, teaching methods, and teaching effectiveness

Teacher serial number	Teaching experience (years)	Instructional design	Teaching method	Teaching effectiveness
1	10	Goal oriented and practical oriented	Case analysis and group discussion	High student satisfaction and excellent grades
2	5	Case teaching, emphasizing interaction	Role playing and group discussions	High student engagement and good grades
3	15	Systematic teaching, emphasizing theory	Lectures and classroom discussions	Students have a deep understanding and excellent grades
4	8	Project oriented and practical oriented	Case analysis and role-playing	High student satisfaction and excellent grades
5	3	New media teaching, emphasizing innovation	Online interaction and group discussions	High student engagement and good grades

Table 2: Definition and proportion of competency indicators for vocational college teachers under the background of dual high education

Index	Definition	Proportion
Teacher's ethics and literacy	Passionate about education, caring for students, rigorous academic pursuits, etc	30%
Ability in ideological and political education	The ability to guide students in their thinking and shape their values	20%
Teaching ability	Ability in course design, teaching methods, classroom management, and other aspects	30%
Professional construction capacity	Ability in professional development planning, integration of teaching resources, and other aspects	15%
Social service capability	Having social practice experience, able to provide technical services, training, and other services to society	5%
Internationalization capability	Having an international perspective and cross-cultural communication ability to promote the internationalization development of the school	5%

4.2 Student Evaluation Survey

On this basis, anonymous evaluation questionnaires from students are utilized to analyze the connotation of the competence of vocational school teachers from the perspectives of teaching ability, mastery of professional knowledge, classroom atmosphere, and interactivity.

The satisfaction of different evaluation indicators is shown in Figure 1. The evaluation indicators for teaching ability are very satisfied with 20%, satisfied with 50%, and generally 30%. Very satisfied with the mastery of professional knowledge is 30%; satisfied is 45%; generally 20%, and dissatisfied is 5%.

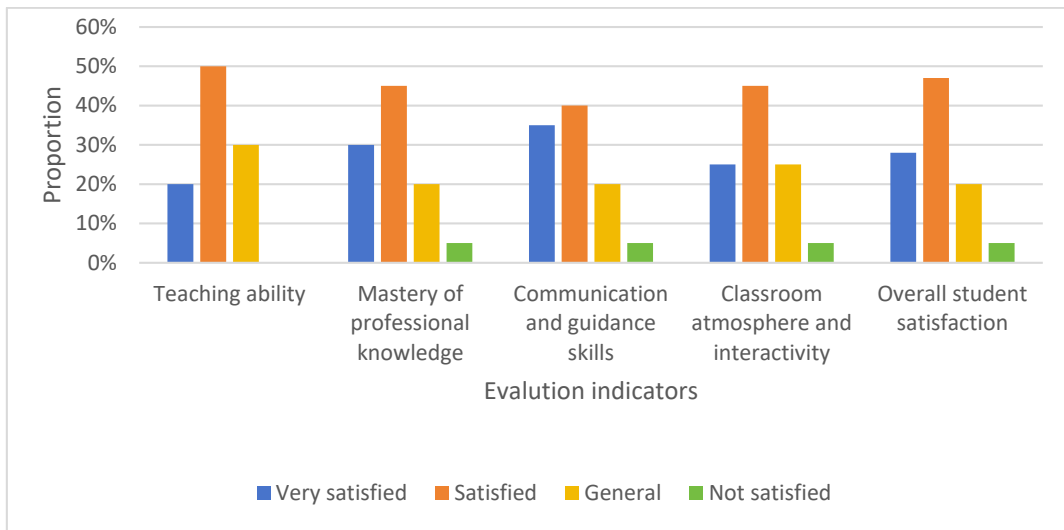


Figure 1: Satisfaction with different evaluation indicators

4.3 Student Academic Performance

By quantitatively analyzing students' learning achievements and evaluating their impact on learning progress through interaction between teachers and students, whether their ability connotations are effective can be determined.

The academic performance and improvement range of students are shown in Figure 2. Student 1 has an academic score of 85, and student 2 has an academic score of 78.

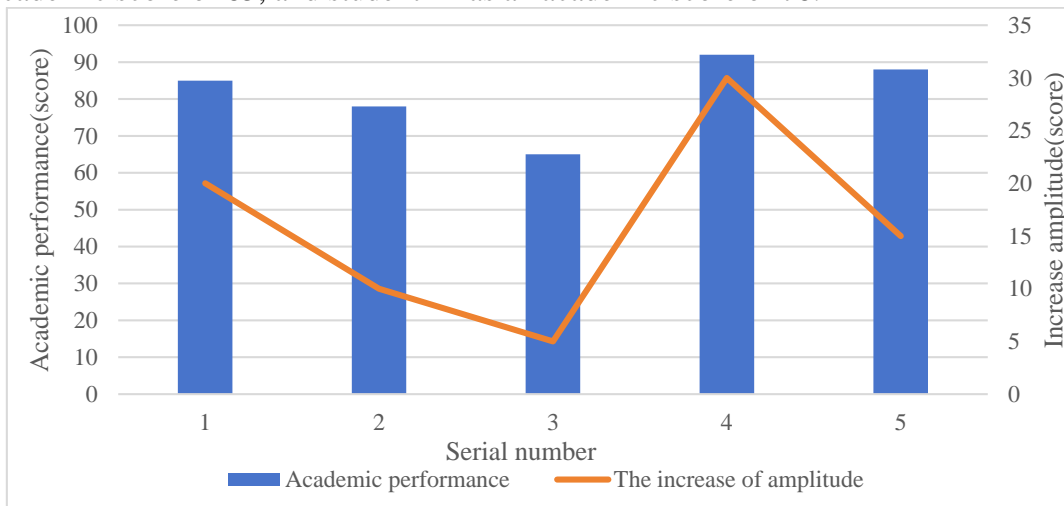


Figure 2: Student academic performance and increase amplitude

4.4 Interview Assessment

In the form of face-to-face interviews, a review team composed of experts is invited to evaluate the competence of vocational college teachers, and evaluate their connotations in teaching concepts, teaching methods, communication skills, and teacher professional qualities.

The scores for teaching concepts, teaching methods, communication skills, and teacher professional competence are shown in Figure 3, with a maximum score of 5 points. The average score for teaching concepts is 4.4 points and for teaching methods is 4.42 points.

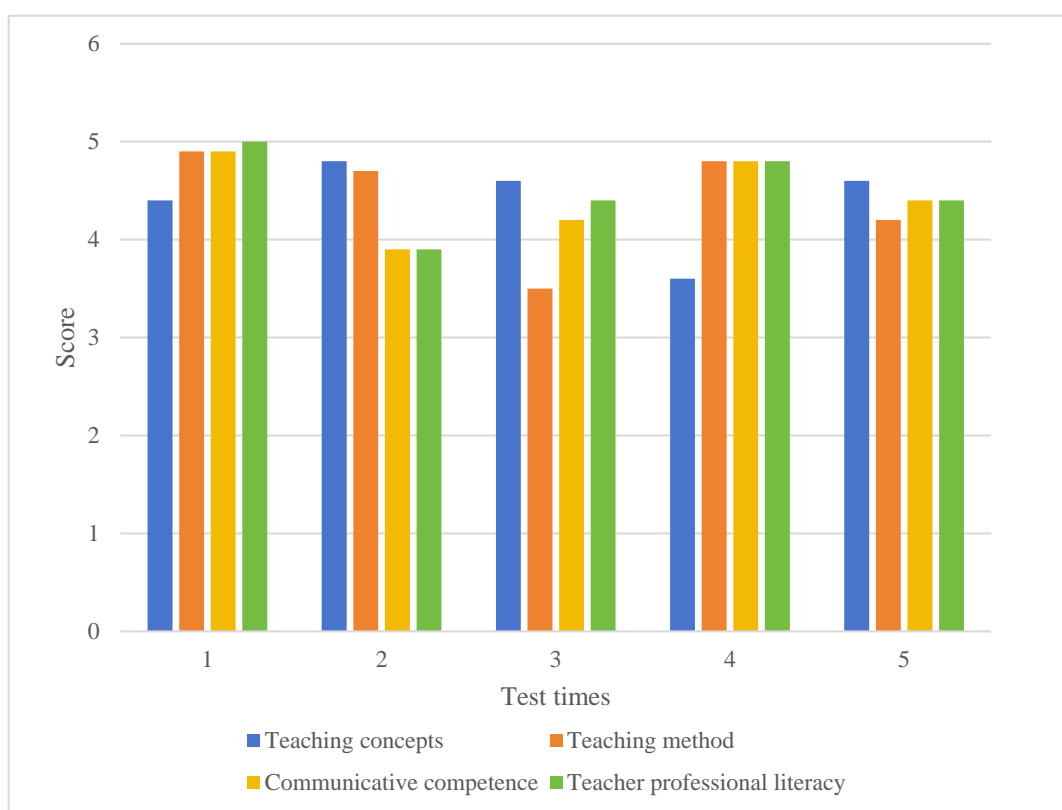


Figure 3: Scores of teaching concepts, teaching methods, communication skills, and teacher professional competence

5. Conclusions

Teachers play an indispensable role in education and teaching. To cultivate high-quality and skilled talents, teachers are indispensable. After the implementation of the "Double High Plan", how to cultivate a high-level "Double High" team with sufficient quantity, strong professionalism, and reasonable structure in accordance with the requirements of education, cultivate a group of influential and internationally influential leaders in the industry, and provide support for the construction of the "Double High Plan" is an important issue facing higher vocational education at present. The evaluation of teaching concepts, teaching methods, and communication skills in this article is very high. The theory of competence and competence model provides norms and guidance for the growth of vocational full-time teachers. Through this model, the professional status of vocational full-time teachers can be better understood. In the future, by improving and transforming the intrinsic qualities of teachers, they can fully unleash their potential, promote their development towards a virtuous cycle, and thus promote the quality of education and talent cultivation in vocational colleges.

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