

Exploration on the Reform Strategy of Teaching Quality Evaluation System in Chinese Vocational Colleges

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Abstract

The teaching quality evaluation of vocational education is not only an important way to meet the national identification of technical talents, but also an objective reflection of the comprehensive management level and college running quality of vocational colleges. However, the teaching evaluation of vocational education in China has not formed a unified and standardized management system framework. Therefore, in the new era of Xi Jinping, China's research on the evaluation of teaching quality of occupation technology education is more important. PDCA cycle is Deming Cycle, which is a model of continuous quality improvement, including four repeated steps: Plan, Do, Check and Act. This is exactly the same as the process of teaching quality evaluation in vocational colleges. Based on the concept of PDCA cycle theory, this paper attempts to use PDCA method to increase the innovative potential of teaching quality evaluation, and construct a set of closed-loop evaluation management scheme of teaching quality in the whole process and all-round spiral dynamic cycle mode-a five in one pluralistic structural teaching quality evaluation and management system of vocational colleges, families, enterprises, third-party institutions and society. This paper also discusses how PDCA method will affect the design and reform of teaching quality evaluation of vocational education in China, and deeply analyzes the problems and countermeasures that vocational colleges may face after trying to implement the pluralistic structural teaching quality evaluation and management system.

Keywords: education, vocational college, teaching quality, evaluation, PDCA

1. Introduction

Looking at China's social and economic development and actual needs in recent 20 years, our country pays more and more attention to the role of technical talents in vocational colleges in China's economic and social development. Since 2007, the State Council has approved and transmitted the outline of the eleventh five year plan for the development of national education issued by the Ministry of Education (Tian & Xu, 2009), which proposed that we should speed up the training of skilled talents urgently needed in the front line of production and service, especially high-quality and highly skilled professionals in short supply in modern manufacturing and modern service industries. Our country has successively issued a number of decree documents, such as outline of national medium and long term education reform and development plan (2010-2020) (Luo & Shang, 2019), the decision of the State Council on accelerating the development of modern vocational education (GF [2014] No. 19) (Yan & Wu, 1998), the implementation plan of national vocational education reform (Liu, 2020), and other documents. In July 2016, the Ministry of Education issued them In 2020 (CNDRC 2013), the State Council issued the suggestions of the CPC Central Committee on formulating the 14th five year plan for national economic and social development and the long-term objectives for the year 2013 (Zhang, 2020), the overall plan for deepening the reform of educational evaluation in the new era (Liu, Yu & Wang, 2018), and other documents (Kong, 2020).

Policy advocacy and industrial demand directly urge people to pay attention to the reform of teaching quality evaluation of vocational education in the new era. Under the background of Xi Jinping's new era, people from all walks of life have gradually focused on the reform of teaching evaluation system in vocational colleges to meet the national needs for high-quality vocational education.

1.1 Research Background

After the outbreak of Xinguan epidemic in 2019, affected by the epidemic, all walks of life around the world have faced the dual dilemma of urgent shortage of funds and employment difficulties, while the demand for professional and technical talents with high comprehensive quality in vocational colleges is in short supply. According to the statistics of the Ministry of Education, the total number of graduates of secondary vocational colleges in China in 2019 was 5.1547 million in Table 1 (Lei & Luo, 2019).

Table 1. Employment Statistics of Graduates of Chinese Secondary Vocational Colleges in 2019¹

Statistical Item Type / Data	Type	Data	Type	Data	Type	Data
Overall situation of student employment	Total employment	4 million 964 thousand and 200	Rate of employment	96.30%	Counterpart employment rate	77.60%
Employment destination (excluding technical college data)	State organs, enterprises and institutions	52.04%	Legally engaged in self-employed business	16.27%	Others	11.67%
Employment channels	College recommended employment	73.32%	Intermediary employment	6.84%	Others	19.84%
Employment structure	Primary industry	10.87%	The secondary industry	32.93%	The tertiary industry	56.20%
Major categories	Processing and manufacturing	97.30%	Information technology	96.85%	Transportation, education, leisure and health care, finance and trade	Above 96.23% ²
Regional distribution of employment	Local employment / rate	2291900 / 70.75%	Non local employment / rate	936700 / 28.92%	Overseas employment / rate	10700 / 0.33%
Average monthly starting salary of employment	2001 ~ 3000 yuan	29.56%	More than 3000 yuan	12.02%	Others	58.42%

It can be seen from Table 1 that the number of graduates of secondary vocational colleges in China is huge, and the overall proportion of employment rate is very high. From the perspective of employment destination, the graduates' internship or employment in state organs, enterprises and institutions is still the main employment destination. From the perspective of employment channels, college recommendation is still the main employment channel. From the perspective of employment structure, the proportion of employment in the tertiary industry is high, that is, manufacturing and processing industries and service industries account for the vast majority. From the perspective of major categories, the major categories with good employment prospects for the graduates include processing and manufacturing, information technology, transportation, education, leisure and health care, finance and trade, and the employment rate is more than 96.23% (Xu, 2017). From the perspective of regional distribution of employment, most the graduates are still employed locally and are the new force of local economic development. The average monthly starting salary for employment is still low. However, in the past two years, according to the staff of the Employment Department of Chongqing agricultural school, although the employment situation of fresh graduates is severe, with the continuous improvement of the college's teaching level, fresh graduates' satisfaction with the jobs and salary allocated by the college is gradually improving.

From the above analysis, it can be concluded that, to a certain extent, the employment of graduates of vocational college is closely related to the teaching quality of vocational education. If the teaching quality evaluation and management system of vocational colleges is imperfect, the employment quality of the graduates will be difficult to guarantee, and the improvement of the teaching quality of vocational education will be seriously hindered (Zhang, Wang, Su & Zhang, 2013).

1.2 Significance

Under the background of the new era of Xi Jinping, people have basically reached a consensus on the reform of the teaching quality evaluation and management system in occupation colleges (Yuan, 2021): first, reform can promote the improvement of the quality of skilled personnel training, provide professional skilled personnel with social needs, and

¹ Information on: <https://www.chyxx.com/industry/202006/875262.html>

² 96.23% shows that the professional category or major category with good student employment rate, such as transportation, training and education, and the student employment rate of secondary vocational schools is more than 96.23%. This line is similar to other data.

meet the national strategic requirements of the new era. Second, the reform meets the needs of building a high-quality vocational education system, improves college teaching quality and deepens the integration of industry and education; Third, the reform can enhance the social adaptability and competitiveness of technical talents and alleviate the employment problem of technical talents.

The quality of teaching evaluation is not only an important standard to meet the national comprehensive evaluation of technical talents, but also an objective reflection of the comprehensive management level of vocational college. It is significant to improve the quality of teaching evaluation in China (Zhang et al., 2020).

2. Method

In the new era of Xi Jinping, the research on the teaching evaluation is more and more important. Vocational colleges can improve the scientificity, professionalism and objectivity of teaching evaluation, and it can enhance the systematicness, integrity and synergy of teaching evaluation that by improving teaching result evaluation, strengthening teaching process evaluation, exploring teaching value-added evaluation, perfecting comprehensive teaching evaluation, and making full use of certain research theories and technical routes (Li, Zheng & Shi, 2020). If you want to have an in-depth understanding of the teaching quality evaluation, which discussed in this paper, you may first need to understand the theoretical theory of PDCA, and the concept of overall design.

2.1 Theoretical Theory of Research

The PDCA cycle is Deming Cycle, which is a model of continuous quality improvement, including four repeated steps: Plan, Do, Check and Act. It is also called “Continuous Improvement Spiral” or “Deming Wheel”. The theory of PDCA cycle mainly reflected in that all levels and links of the whole management system are repeated in a continuous cycle, including Plan, Do, Check and Act (Lan, 2017). Plan is the starting point of the whole cycle, that is, the basic link of making plans and standards. Do is not only the main part of the cycle, but also the key link of the whole cycle. Check is a link to check and control the whole cycle. Act is an important link of timely diagnosis, and self-improvement in the process of circulation. PDCA cycle is characterized by big ring with small ring to continuously improve the quality of work (Cai, Zhao & Yang, 2013). This is exactly the same as the process of teaching quality evaluation in vocational colleges.

2.2 Concept of Overall Design

Teaching quality evaluation is related to the direction of educational development. What kind of quality evaluation baton, there is what kind of college running guidance. Vocational colleges should carry out the reform of teaching quality evaluation, which from the aspects of teaching result evaluation, value-added evaluation, performance evaluation and feedback evaluation. Figure 1 is the overall design concept of pluralistic structural teaching quality evaluation system.

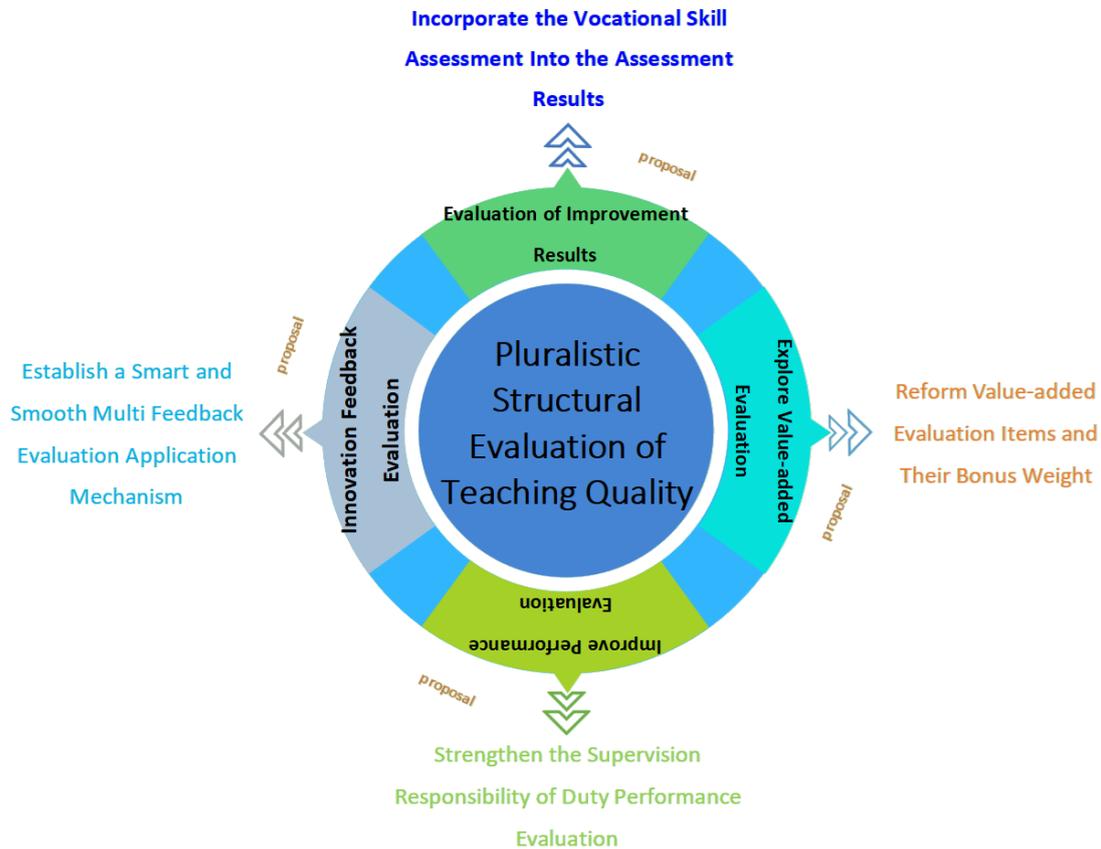


Figure 1. The overall design concept of pluralistic structural teaching quality evaluation system

The rationality of pluralistic structural teaching quality evaluation system is mainly reflected in: paying attention to the diversity of evaluation subjects, the diversity of content, the diversity of evaluation methods and tools, and the development and dynamics of the evaluation process. The evaluation system pays particular attention to the dynamics and development of the teaching evaluation process (Wang, 2017), pays attention to the effective and intelligent evaluation of all links of teaching, dynamically supervises and controls the teaching process, and ensures the integrity of the teaching system.

3. Discussion Analysis

In order to improve the teaching quality, this paper attempts to explore the pluralistic structural teaching quality evaluation and management system based on PDCA method in vocational colleges.

3.1 Structure of New Evaluation System

In all aspects of teaching in vocational colleges, the design, research and practice of teaching evaluation reform can be specifically tried from the aspects of clarifying the scheme, the implementation scheme, the responsibility implementation and the feedback evaluation; thus, the PDCA method is used to build a set of scientific and circular five in one pluralistic structural teaching quality evaluation and management system of vocational colleges, families, enterprises, third-party institutions and society. Figure 2 is the pluralistic structural teaching quality evaluation and management system based on PDCA method.

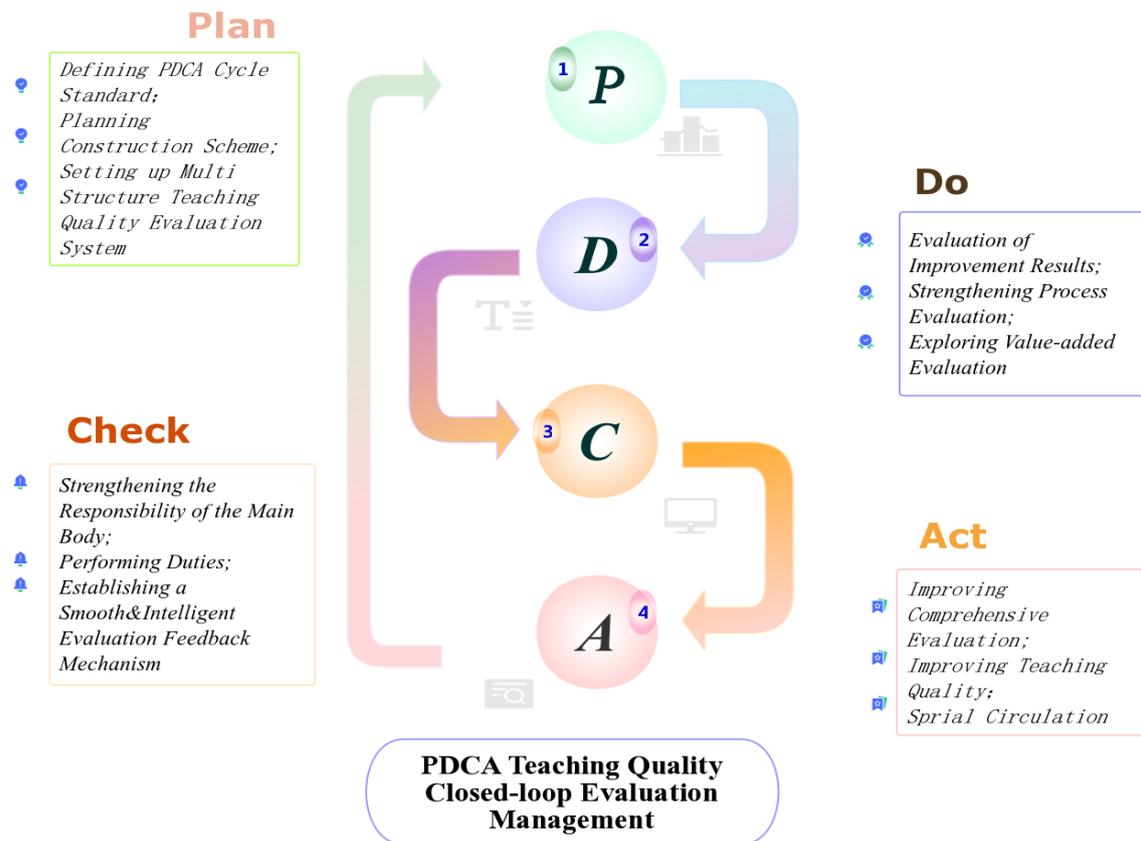


Figure 2. Pluralistic structural teaching quality evaluation and management system based on PDCA method

The new evaluation system scheme based on PDCA method mainly includes the following four-cycle stages:

- 1) PDCA cycle stage P - formulation of objectives and standards: define the scheme according to the training objectives of technical skilled talents in vocational education (mainly including the construction of pluralistic structural teaching quality evaluation and management system);
- 2) PDCA cycle stage D - process implementation: implement the scheme (mainly including main measures and actions such as improving result of evaluation, strengthening process evaluation and exploring value-added evaluation);
- 3) PDCA cycle stage C - monitoring and supervision: build and check the teaching quality evaluation and supervision mechanism (mainly including strengthening the responsibility of the main body performing duties and establishing a smooth and intelligent evaluation and feedback mechanism);
- 4) PDCA cycle stage A - adjustment and improvement: continuously improve the adaptability and training quality of national technical talents (mainly including the cycle of spiral quality improvements such as establish comprehensive evaluation).

In order to improve the teaching quality, vocational colleges can try to fully implement the evaluation scheme, boldly reform the traditional teaching evaluation system through real-time supervision, real-time implementation, real-time evaluation, real-time feedback, real-time improvement and real-time promotion, so that vocational colleges can truly form a pluralistic structural teaching quality evaluation and management system based on PDCA theory, and truly achieve the educational goal of vocational education (Xu & Guo, 2017).

3.2 Cycle Stage P

However, in the cycle stages of P, D, C and A, vocational colleges may face some bottlenecks of reform, such as: the traditional evaluation is too biased towards theoretical test scores, the lack of teaching value-added evaluation, the implementation of teaching performance evaluation is not in place, and the teaching feedback evaluation is mostly biased towards the traditional evaluation method of paper scoring, etc. The following will analyze the problems that need to be faced by the reform of teaching evaluation in detail, and provide corresponding solutions.

3.2.1 Improvement of Teaching Result Evaluation

Cycle stage P is the planning the new teaching evaluation system. Vocational colleges need to redefine the focus of teaching and the method of teaching result of evaluation. The traditional teaching evaluation system lacks the evaluation of skill teaching, or the proportion of skill teaching evaluation is too low (Wei, 2019). The traditional evaluation usually pays more attention to the theoretical teaching evaluation, and it takes the student attendance, usual homework performance and final theoretical examination performance as the main score composition of the teaching result of evaluation, and weakens the evaluation of students core comprehensive quality, professional quality, practical skills or innovation ability. Weakening its teaching process evaluation, leading to the fact that the organizations participating in the teaching result evaluation are mainly vocational colleges themselves, fail to form a diversified result evaluation organization, fail to combine skill summary evaluation with process evaluation, and most of the evaluation forms are theoretical examinations, which fail to reflect the professional and skilled teaching characteristics of vocational colleges, The evaluation of most professional courses is the hero of “Only Score”, and students pay more attention to the score of the final theoretical examination when evaluating excellent students or striving for national scholarships. Such a simple form of teaching result evaluation leads to the low enthusiasm of teachers for skill teaching, and the students vocational skill level always stays at the beginner stage. Enterprises are disappointed with the practical skills of fresh graduates from lots of vocational colleges. In short, vocational colleges should carry out the reform of teaching result evaluation.

3.2.2 Introduction of Vocational Skill Assessment Mechanism

To reform the method of teaching result evaluation, vocational colleges can introduce of vocational skill assessment mechanism. It is suggested to pay attention to the following five points.

(1) Establishment of Pluralistic Assessment Organization

Establishment of pluralistic assessment organization, and forming a combination of skill summary evaluation and process evaluation (Ning, 2019), expand the type of skill evaluation and assessment method, not only using the final examination of practice skill test, but also using a variety of assessment methods such as situational dialogue, project development, simulation exercise, technical competition and so on. In addition, by comprehensively using the traditional scoring evaluation and intelligent evaluation means of computer science, and according to the relevant data collected by students in the learning process of the network platform, carry out the intelligent analysis of students learning and testing, so as to make the assessment more refined. For example, Helping Hands is mainly developed to meet the students needs for remote guidance of skills (Huang, Alem & Tecchia, 2011). It is mainly a distance learning guidance system to support students in clinical practice. Through distance teaching, assistance and supervision, the system can superimpose video images of students activity procedures and remote instructor hand actions. It can help students correct their skill actions, and ensures the standardization of their procedures (Mather, et al., 2017), so as to help students master more accurate operation skills. Therefore, vocational colleges can carry out all-round skill training and assessment of the teaching result with the help of AR system similar to "Help Hands". When students need specific guidance in professional skill learning, accurate mastery of advanced skills, or isolation from expert teaching in geographical location, AR reality enhancement technology can be remotely applied to the teaching result evaluation of students in remote areas, expand the space and geographical scope of teaching result evaluation, and improve the scale, remoteness, accuracy and modernize of teaching result evaluation.

(2) Adoption of Multiple Evaluation Forms

In the evaluation of skill teaching result, especially for the specific teaching modes in the form of (1 + X) skill assessment, social practice, teaching practice or post practice, the evaluation can adopt multiple evaluation forms such as student self-evaluation, student mutual evaluation, adjacent class mutual evaluation, between home and vocational college mutual evaluation, teacher evaluation, enterprise teacher evaluation, third-party organization evaluation and social enthusiast evaluation, improve the objectivity and comprehensiveness of evaluation (Shen, 2021). Only by evaluating students from multiple perspectives can we get the real and comprehensive feedback of skill assessment, which is conducive to problem's diagnosis and correction.

(3) Different Evaluation Focuses

The emphasis of skill teaching result evaluation should be different. The evaluation of vocational colleges and third-party institutions should focus on the proficiency of students' skills; The evaluation of enterprises mainly focuses on the evaluation of students' moral character, professional quality, working ability and development potential in their internship posts; Moreover, when participating in teaching evaluation, enterprises can evaluate by level and key points, consider the evaluation cycle and evaluation form according to the students' internship positions, and strive to make the result evaluation more objective and reasonable.

(4) Establishment of “Retrospective Evaluation” Archives

The student status file can set up a “Retrospective Evaluation” part of professional ability, that is, continuously track and evaluate students professional ability in terms of students on-the-job competitiveness, promotion potential and even job-hopping rate in the later stage according to the students career period of ten years (or even longer). Vocational colleges can standardize the collection and sorting of students retrospective evaluation files as important research information for vocational colleges to improve the quality of running a college, and keep them in electronic files for future reference at any time.

(5) Association of (1 + X) Certificate System

On the one hand, vocational colleges should break the traditional assessment methods of memorizing multiple points and focusing on the final examination paper score, and rather promote the pilot work of (1 + X) certificate system, deeply implementing the integration of course and certificate and reconstructing the curriculum system; On the other hand, teachers should strengthen learning, actively organize students to carry out “X” skill training and textual research, innovate boldly, and strengthen students’ skill levels in combination with multiple evaluation. If the teaching evaluation of vocational colleges can be related to the (1 + X) certificate system, the flexibility of students choice of learning methods will be greatly increased. Students can use the duration of learning “X” professional skill courses in vocational college to offset the total duration of enterprise internship, so as to avoid participating in internship in enterprises; They can also exchange the “X” skill certificate with the practice time of professional and technical post, so as to successfully obtain the academic certificate issued by the vocational college.

Excellent vocational skills make students basically have the core competitiveness of employment. In short, the core reform of teaching result evaluation is to focus on the cultivation and evaluation of students’ vocational skills, and let students have more control over learning - what to learn, where to learn, how much to learn and how to learn, so that students can become the main body of learning. Students can pay attention to continuous improvement. Therefore, vocational colleges should introduce vocational skill assessment mechanism into the evaluation of teaching result.

3.3 Cycle Stage D

3.3.1 Exploration of Teaching Value-added Evaluation

Education is the best way to improve human core literacy. Cycle stage D is the stage of implementing the new evaluation system. At this stage, vocational colleges should pay attention to the exploration of teaching value-added evaluation. Education is the best way for human beings to improve their comprehensive quality. The current teaching evaluation system of vocational colleges still tends to pay attention to the cultivation and examination of intelligence of students, but cannot well reflect core qualities of students such as moral quality, interest and specialty, appreciation, labor consciousness, willpower, self-control and creativity. High quality vocational education should better explore the teaching evaluation of morality, intelligence, physique, beauty and labor, and establish a more diversified value-added evaluation system of simultaneous development of five aspects of education in the new era, shape professional craftsmen with vitality, diversified development and respective strengths, and cultivate skilled talents with good core comprehensive quality.

3.3.2 Quantification of Evaluation Item Bonus Weights

Teaching value-added evaluation can focus on the reform of evaluation items and their bonus weight.

(1) Improvement of Recognition of Skill Competition

Vocational colleges can quantify the bonus provisions of various vocational skills competitions, improve the recognition of industries and enterprises for vocational skills competitions, exempt students with special skills from entrance examination, or work in well-known enterprises, or directly provide full tuition fees by their old colleges to subsidize the peer-to-peer entrance of students winning the skills competition, so as to help students return to their old colleges to teach after successfully completing their studies.

(2) Quantitative Value-added Evaluation of Implementing “Five Education Simultaneously”

Vocational colleges can pay attention to the implementation of the quantitative value-added evaluation of simultaneous development of five complementary educations, so that parents of students can understand other situations of students in vocational colleges other than their studies, and improve the judgment ability of enterprises and society on core comprehensive quality of students. For example, the full score of each student’s moral, intellectual, physical, aesthetic and labor education in vocational colleges each semester is 100 points, and the five education has a total of 500 value-added evaluation points (Zheng, 2020). According to the situation of the five education, the score of 1-10 points will be added or subtracted at a time. Quantifying the five complementary education, evaluation helps to cultivate and find skilled talents in vocational colleges with high core comprehensive quality, more comprehensively shows the teaching quality of vocational colleges, enables employers to better understand ideological character and professional quality of students, and effectively improves their employment competitiveness.

In addition, vocational colleges can also take more forms to explore teaching value-added evaluation, such as adding bonus points for specialties and bonus items for (1 + X) skill certificates, refining bonus rules and implementing specific bonus weights, so as to build a multiple vocational education teaching value-added evaluation system with Chinese characteristics in the new era.

3.4 Cycle Stage C

3.4.1 Improvement of Teaching Performance Evaluation

Vocational colleges in China usually unilaterally formulate and implement their own teaching quality evaluation. Most of the evaluators are teachers and students, while educational administrative departments, enterprises, third-party institutions and other organizations pay little attention to the teaching quality evaluation of vocational colleges, let alone participate in the construction of teaching quality evaluation systems. But society cannot objectively understand the teaching quality of vocational colleges. Therefore, the imbalance between supply and demand of skilled talents in the job market has gradually emerged. Enterprises are obviously short of technical talents, but they are often unable to recruit satisfactory technical talents. However, students in vocational colleges are often unable to find satisfactory jobs after graduation, even waiting for jobs at home. Even when many parents send their children to vocational colleges, they no longer expect their children to have the expected development in the future. The fundamental reason is that the national education administrative department does not perform its duties in place and ignores the education and training of national technical talents. Like higher education, vocational education needs the supervision of our country. It also needs the continuous improvement of teaching quality by the vocational college itself.

Cycle stage C is the stage in which the new evaluation system performs the responsibility of supervision and inspection. In this stage, vocational colleges should pay attention to the implementation of the responsibility of the main body of teaching performance and strengthen the responsibility of performance supervision.

3.4.2 Strengthen the Duty of Performance Responsibility

Vocational colleges can strengthen the duty performance responsibility of teaching quality evaluation from two aspects.

(1) Establishment of VEERSC

According to the specialty setting of colleges, the Ministry of Education can issue a decree; this decree can call on the most outstanding college, which is to take the lead in establishing a Vocational Education Evaluation and Reform Steering Committee (which can be referred to as "VEERSC" in English). The main responsibility of this committee is to strengthen the responsibility of local education administrative departments in the teaching quality evaluation of vocational education. The teaching quality evaluation of vocational colleges mainly involves Teaching, Learning, Superintendence and Assessment, their professional names can be called Teaching Supervision (TS), Learning Supervision (LS), Superintendence Supervision (SS) and Assessment Supervision (AS). VEERSC members shall be jointly established by experts from local education administrative departments, vocational colleges, third-party evaluation institutions and industry leading enterprises.

Teaching Supervision (TS) is engaged with VEERSC's needs to evaluate the teaching ability of the teachers, supervise the skills teaching situation of teachers inside and outside the college and the practice education integration projects, guide the cultivation of teachers teaching and research ability. VEERSC can establish a Teaching and Research Supervision Center (TRSC). The members of the center can be composed of teaching and research leaders, department heads, principals in charge and other personnel of various colleges and departments.

Learning Supervision (LS) is engaged with VEERSC's needs to inspect the learning atmosphere, learning attitude, learning effect and other teaching conditions of students in vocational colleges (Liu, 2012). The members of the supervision expert group shall be composed of the heads of each department, the leaders in charge of each department and the experts of the third-party evaluation institution, and undertake the supervision responsibilities.

Superintendence Supervision (SS) refers to the investigation and evaluation of the effectiveness and risks of teaching risk management of vocational colleges. The superintendence supervision expert group is the mainstay of VEERSC. Its members can be composed of college internship instructors, enterprise skill masters, members of the third-party evaluation institution, peer enterprise experts, etc. At the same time as these experts are the members of the teaching quality evaluation expert system, they need to assume the supervision responsibilities; they should actively participate in the special inspection of various teaching evaluation work in vocational colleges, and give full play to the main role of teaching performance evaluation (Shi, 2018).

Assessment Supervision (AS) is the process by which experts feed back the sorted evaluation information to VEERSC to promote reform through assessment. Its members are mainly composed of experts from educational administrative departments, the third-party evaluation institutions and teaching quality evaluation expert system, perhaps they may

undertake the responsibility of teaching assessment supervision in vocational colleges.

(2) Strengthen the Intensity of Performance Appraisal

VEERSC should establish a performance evaluation mechanism for teaching performance evaluation and strengthen the evaluation objectives, so as to strengthen the management level of vocational education.

VEERSC should vigorously support the implementation of the (1 + X) certificate system in vocational colleges, refine the college teaching quality evaluation standards, check the teaching quality compliance of each college one by one, and urge the college to continuously improve the teaching quality of professional skills courses.

The establishment of VEERSC can promote the construction of the new evaluation system in vocational colleges. Figure 3 combines the organizational structure and relationship network of teaching performance evaluation in vocational colleges.

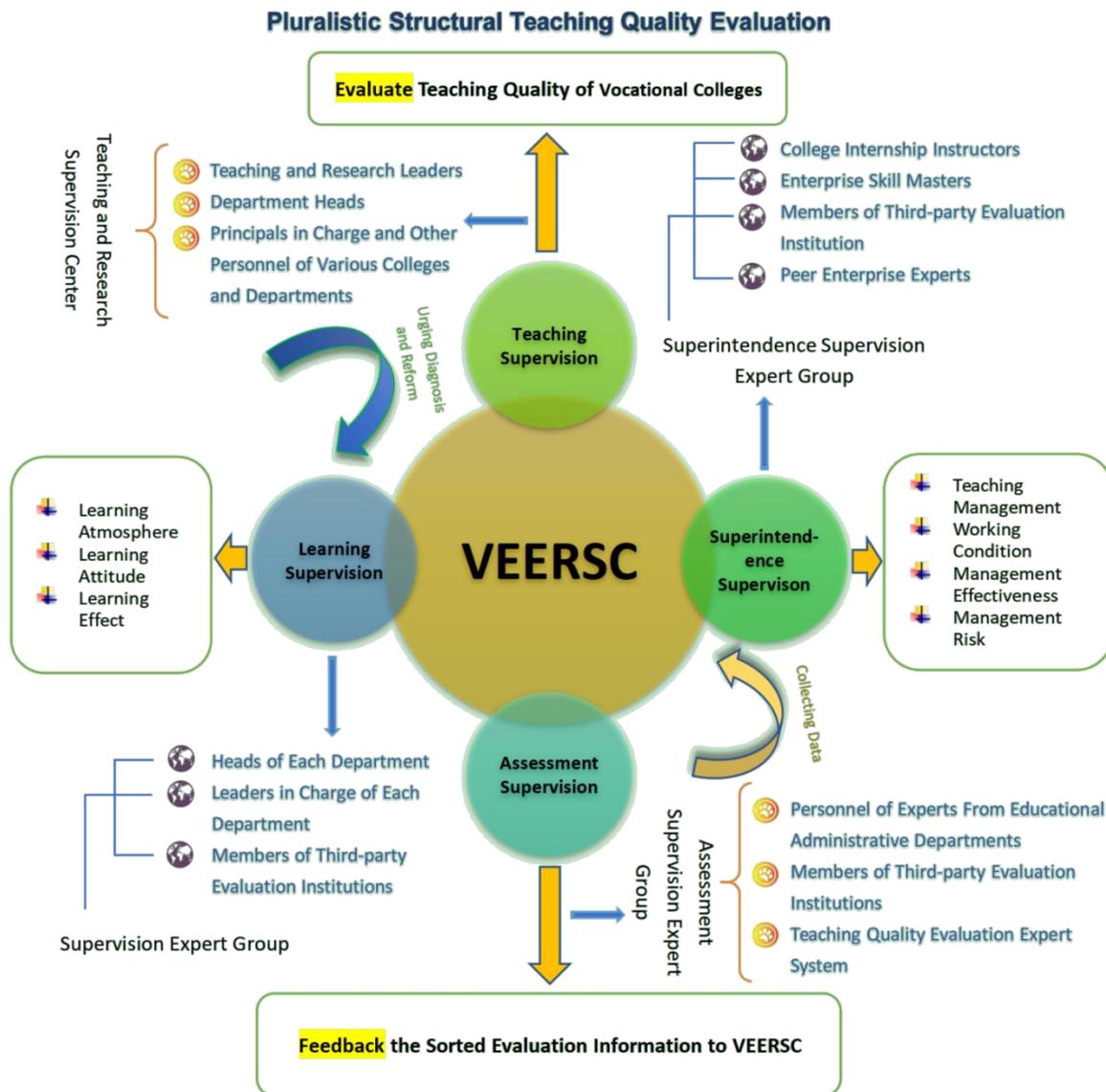


Figure 3. Organizational Structure and Relationship Network of Teaching Performance Evaluation in Vocational Colleges

3.5 Cycle Stage A

3.5.1 Innovation of Teaching Feedback Evaluation

Cycle stage A is not only the feedback stage of the new evaluation system, but also the feedback stage for vocational colleges to continuously collect all kinds of real-time evaluation teaching information, or the stage for vocational colleges

to improve teaching quality in a cycle. Feedbacks of the traditional evaluation in colleges often adopt the way of static presentation, which cannot be used for the interactive evaluation or dynamic diagnosis and the reform of teaching quality in colleges, which greatly reduce the utilization value of evaluation results. Therefore, in the feedback stage, vocational colleges should constantly innovate the feedback evaluation mechanism of teaching quality, and gradually improve the voice of student parents, enterprise personnel, personnel of third-party institutions and social people in the feedback evaluation. Higher vocational colleges should strive to make the social satisfaction with the teaching quality consistent with the social expectation of the training quality of technical talents.

3.5.2 Introduction of Intelligent Feedback Evaluation Application Mechanism

Vocational colleges can take comprehensive satisfaction from the pluralistic feedback evaluation of participants as the reform concept of teaching feedback evaluation, establish a smooth and intelligent teaching feedback evaluation channel with information technology, and realize an interactive form of teaching quality diagnosis and reform.

Firstly, vocational colleges can introduce the whole process of intelligent control system of teaching quality of third-party institutions to regularly monitor the teaching situation inside the college, and pay real-time attention to the external feedback and evaluation content outside the college. Secondly, the college can establish a live classroom for famous and excellent teachers, actively announce the viewing entrance, viewing methods and teaching quality evaluation methods of the course to the outside world, take the form of Bullet Screen real-time evaluation, and let the teaching teachers view the evaluation content at any time. Then, colleges can establish new voting channels such as official website, mobile APP or WeChat applet, etc. Within the 20 minutes of watching live broadcast, the viewers will anonymously evaluate the course. vocational colleges should innovate the forms of evaluation and reward, so that all teachers, students, parents, college leaders, third-party institutions, enterprises and social enthusiasts can participate in the evaluation, and they can get different rewards according to different social identities. The intelligent feedback mechanism of teaching quality should take into account the objectivity, real-time and randomness of evaluation, and the feedback channels must pay attention to smoothness and effectiveness, and vocational colleges must pay attention to the diversification of evaluation forms and reward methods.

At the same time, vocational colleges must also reform the collection methods of evaluation data. Vocational colleges can develop with enterprises- intelligent data statistics and analysis platform, such as technical talents evaluation system, skill level evaluation system, internship investigation and evaluation data analysis system, etc. Vocational colleges can continuously improve the intellectualization of tracking the teaching data. The experts will continue to carry out the evaluate the employment competitiveness of technical talents, so as to provide objective and comprehensive feedback information for the reform of teaching quality evaluation.

4. Conclusion and Prospect

Taking the development of high-quality vocational education as the goal, the reform of the teaching quality evaluation system of vocational colleges as the guidance, and the strengthening of vocational skills of students as the main line are the key points to the teaching reform of vocational education in China (Mao, Wu & Wang, 2019). Firstly, the first part of the paper combs the relevant policies of teaching quality evaluation reform in vocational colleges, and focuses on the analysis of the employment data of Chinese secondary vocational college graduates in 2019. Then, the second part briefly expounds the theoretical theory of PDCA, and carefully discusses how the PDCA method will affect the design and reform of teaching quality evaluation of vocational education in China. Next, the paper refers to the design concept of the closed-loop evaluation management scheme of teaching quality - how to use the PDCA method to build a scientific and circular "Five in One" pluralistic structural teaching quality evaluation and management system of "vocational colleges, families, enterprises, third-party institutions and society". Finally, the third part deeply analyzes each cycle stage of P, D, C and A, and then lists the possible problems and countermeasures in each stage.

The teaching quality evaluation of vocational education is not only an important way to meet the national identification of technical talents, but also an objective reflection of the comprehensive management level of vocational colleges. In Chinese vocational colleges, if these colleges can adopt pluralistic structural teaching quality evaluation and management system based on the PDCA method in the new era of Xi Jinping, after 5-10 years of efforts, the teaching quality evaluation of Chinese vocational colleges will gradually improve, and the teaching quality of vocational education in our country will be improved rapidly (Yuan, 2021). The ability of the government and the education administrative departments to perform their duties in education will be significantly improved in China, and the structural contradiction on the supply side of the technical talents will be gradually alleviated or even eliminated. China will gradually change from a big educational country to a powerful educational country.

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