

Optimization of Vocational Education Evaluation System Based on Pilot Work of "1+X" Certificate System

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Abstract: The "1+X" certificate system is designed to explore a talent cultivation model that closely integrates vocational education with industry demand, thereby deepening vocational education teaching reform and enhancing the quality of technical and skilled talent cultivation. This study centers on the implementation of the "1+X" certificate system in China's vocational education, with a particular focus on the challenges of aligning with industry needs and improving the quality of talent cultivation. Utilizing a mixed-methods approach, including literature analysis, case studies, interviews with educators, and surveys of students, the research examines the current status and effectiveness of the "1+X" certificate system. Several key issues in the implementation of the system are identified, such as inadequate top-level design, insufficient integration of teaching and industry standards, and limited access to practical training facilities. The study also underscores the necessity for stronger teacher training, closer collaboration between schools and enterprises, and improved social recognition of the system. The findings suggest that optimizing the "1+X" certificate system requires a comprehensive approach, including refining mechanisms to strengthen faculty expertise, enhancing curriculum design, and fostering deeper industry-school partnerships. Addressing these challenges can enable the system to better meet the demands of the labor market and contribute to the development of high-quality vocational education in China. In conclusion, the study provides valuable insights for improving the "1+X" certificate system and enhancing the quality of technical and skilled talent cultivation in China's vocational education sector.

Keywords: "1+X" Certificate; Vocational

Education; Optimization; Evaluation System; Talent Cultivation

1. Optimization of the Vocational Education Evaluation System

With the rapid development of vocational education in China, establishing a scientific and reasonable evaluation system has become a key link in improving the quality of vocational education. Since 2019, local governments at various levels have successively introduced a series of policy documents aimed at deepening vocational education reform and strengthening vocational education evaluation to promote high-quality development in vocational education. However, current practices in vocational education evaluation still face issues such as ambiguous evaluation orientation, singular evaluation models, and insufficient evaluation motivation, which urgently require resolution through the optimization of the evaluation system. This paper aims to explore the optimization path of the vocational education evaluation system by reviewing and analyzing relevant literature, providing theoretical references and practical guidance for the formulation and implementation of vocational education evaluation policies in China.

1.1 The Policy Evolution and Effectiveness of Vocational Education Assessment

The evolution of vocational education assessment policies and their efficacy are crucial components in optimizing the assessment system. Policy evolution not only reflects the developmental trajectory of vocational education assessment but also reveals the characteristics and effectiveness of the assessment system at different stages. Li ^[1], through an analysis of the evolution of higher vocational education assessment policies in China, identified four stages: initiation, standardization, deepening, and quality improvement, each with its specific

policy objectives and efficacy. Liu&Liu^[2] from a historical perspective, summarized four stages of secondary vocational education assessment policies, emphasizing the role of these policies in enhancing the quality of vocational education. Together, these studies highlight the complexity and diversity of vocational education assessment policy evolution, providing essential policy context for the optimization of the assessment system.

1.2 Construction and Optimization of the Third-Party Evaluation Mechanism

The third-party evaluation mechanism is a crucial component in the optimization of the vocational education assessment system, emphasizing the independence and objectivity of evaluations. Han^[3] noted that the third-party evaluation mechanism comprises four key mechanisms: the power mechanism, operational mechanism, incentive mechanism, and supervision mechanism. The construction of these mechanisms holds significant importance for achieving modernized educational governance. Through comparative research, Han^[3] identified notable advantages of third-party vocational education quality evaluation mechanisms in foreign countries, including the legitimacy and independence of evaluation entities, rational division of labor and effective collaboration in evaluation activities, safeguarding and balancing interests in evaluations, and the exertion of supervisory authority. These studies provide valuable theoretical and practical references for the development of third-party evaluation mechanisms in China's vocational education assessment system.

1.3 Diversification of Evaluation Models and Standards

The diversification of evaluation models and standards is a crucial direction for optimizing the vocational education assessment system. Long^[4] explored the application of value-added evaluation in vocational education, highlighting its positive implications for fostering positive psychology among vocational students and promoting teacher professional development. Sun & Pan^[5], from the perspective of an interest community, proposed that the assessment paradigm under the 1+X certificate system should meet the needs of the interest community, develop the connectivity of the interest

community, transcend technical rationality through multi-party data collection, and establish a continuous improvement assessment mechanism. These studies collectively underscore the importance of diversifying evaluation models and standards, offering new perspectives for the optimization of the vocational education assessment system.

1.4 International Comparison and Reference in Vocational Education Assessment

International comparisons and references in vocational education assessment serve as a crucial pathway to optimizing the evaluation system. Wang^[6] analyzed the EXPERO model for assessing the quality of vocational education learning outcomes in the European Union, noting that this model is characterized by comparing stakeholders' ideal "expectations" with their actual "perceptions." It emphasizes the evaluation of students' competencies and qualities, highlights the core attributes of vocational education, and aims for continuous improvement. Yang & Xia^[7], focusing on the UK Vocational Education and Development Assessment [VEDA] system, examined its framework, features, and limitations, proposing an optimized assessment approach driven by party leadership, industry-education integration, and data analytics. These studies provide valuable international perspectives and references for the optimization of China's vocational education assessment system.

1.5 Conclusion

Current research on the optimization of vocational education assessment systems encompasses multiple levels, ranging from national policy orientations to specific evaluation models, highlighting the crucial role of vocational education assessment in enhancing educational quality and meeting societal needs. Studies indicate that optimizing the vocational education assessment system requires integrating internal and external quality assurance mechanisms, introducing third-party evaluations, establishing an assessment community, and developing diversified evaluation models such as value-added assessments to achieve scientific, professional, and modernized evaluation practices^[8]. Future research should focus on further refining the policy framework of vocational education assessment, enhancing its systematicity and effectiveness, while exploring

how to better apply assessment results to educational improvement and quality enhancement. Additionally, attention must be given to the internationalization trend of vocational education assessment systems, drawing on global experiences and incorporating Chinese characteristics to build a system with both international perspectives and local features.

2. Background of the Pilot Work of the "1+X" Certificate System

The "Plan for the Construction of Modern Vocational Education System (2014-2020)" has provided robust support for developing highly skilled talent teams in the new era. This strategic framework explicitly calls for establishing a comprehensive quality evaluation system for vocational education talent cultivation, while simultaneously strengthening the overall assessment of both educational quality and service contributions from professional training programs in vocational institutions^[9].

The plan emphasizes the critical need to build robust supervision and evaluation mechanisms for professional talent cultivation quality, with particular attention to vocational qualification assessments and professional skill level certifications. These measures aim to ensure that vocational education graduates meet industry standards and contribute effectively to economic development.

In 2017, the "Opinions on Deepening the Reform of Education System and Mechanism" further reinforced these initiatives by advocating for the improvement of work-study integrated education mechanisms. This policy document particularly stressed advancing the integration of industry and education, as well as fostering innovative school-enterprise cooperation models in talent development^[10].

Collectively, these policy documents form the top-level design for China's vocational education reform and development, charting a clear course for cultivating high-quality technical and skilled professionals. By establishing diversified evaluation systems, these reforms not only enhance teaching quality but also better serve industrial development needs, achieving seamless connection between educational chains and industrial chains. These comprehensive reform measures will propel China's vocational education toward greater modernization and specialization.

3. Current Status of Pilot Work on the "1+X" Certificate System

3.1 Non Diversified Evaluation Subjects

Among these responsibilities, the training evaluation organization is tasked with several key functions, including the development of standards, the creation of textbooks and learning resources, the construction of assessment sites, and the issuance of assessment certifications. Additionally, it assists pilot colleges in implementing certificate training programs. Vocational colleges are able to conduct training and evaluation activities based on the levels of primary, intermediate, and advanced vocational skills. According to the requirements of vocational skill level standards and professional teaching standards, the content of certificate training can be organically integrated into professional talent training programs. This integration allows for the optimization of course settings and teaching content, the coordination of teaching organization and implementation, the deepening of teaching methods, and the enhancement of the flexibility, adaptability, and pertinence of talent training. The government is responsible for monitoring and evaluating the organizational behavior of training evaluation institutions and the training quality of pilot colleges. However, it has yet to issue corresponding evaluation system rules and follow-up supervision measures that can be effectively implemented.^[11]

The education administrative department is mainly responsible for cultivating, managing, and supervising training and evaluation organizations. At the same time, other groups such as industry enterprises can participate in the standard setting and talent recruitment process of the certificate system operation.

At present, the evaluation subject is more inclined towards pilot colleges, which independently choose the majors, scale, number of participants, and relevant vocational skill level certificates to participate in the pilot, and specifically implement the connection and training between "1" and "X". Each pilot university actively cooperates with training and evaluation institutions to implement the certificate system, and does a good job in the integration of academic credentials, the reform of the "three educations", and the construction of the "dual teacher" teacher team, in order to

improve the level of teaching staff^[12].

3.2 Relatively Lagging Evaluation Theory

At present, there is a lack of theoretical research on the feedback and evaluation mechanism for the implementation effect of the "1+X" certificate system, and it lacks depth, without reflecting foresight and guidance^[13]. Most of the existing research focuses on the overall evaluation and feedback of policy implementation, without detailed research on the participation links in the implementation process. Moreover, there is a lag in the current development of the certificate system, and the evaluation theoretical research framework has not been fully constructed.

3.3 Poor Feedback on Evaluation Data

At present, most pilot colleges use the pass rate of certificate assessment as an important achievement reference indicator, and the data comes from the number of students obtaining certificates and the number of graduates. The feedback on this data does not fully reflect the operation of the "1+X" certificate system^[14]. Evaluation data is not simply a pile of data, but rather feedback on the evaluation results of various evaluation subjects to achieve diversified presentation. In the "1+X" certificate system, emphasis is placed on collecting, processing, and analyzing first-hand data.

4. Optimization of the "1+X" Certificate System Evaluation System

4.1 Expand the Scope of Evaluation Subjects

The "1+X" certificate system is an evaluation method that involves multiple stakeholders and deep cooperation with students, including training evaluation institutions, governments, industry enterprises, and pilot colleges. In order to clarify that training evaluation institutions are the main body of construction, it is stipulated that training evaluation institutions need to accept social supervision, school supervision, teacher supervision, student supervision, and parent supervision. To highlight the new requirements of the "1+X" certificate system for the reform of vocational education evaluation in China, and make evaluation an important channel for verifying whether the interests and demands of all parties can be realized, it is necessary to expand the scope and coverage of the evaluation subject in the vocational

education evaluation model that reflects the status and functional characteristics of vocational education types^[11]. Invite industry enterprises to participate in the evaluation, especially leading enterprises related to pilot majors. They can evaluate students' vocational skills and certificate value based on market demand and industry standards. Entrust a professional third-party evaluation agency to conduct an independent evaluation, ensuring the fairness and objectivity of the evaluation. Establish a feedback mechanism between alumni and employers, and regularly collect their evaluations of graduates' vocational abilities and certificate values as important basis for evaluation.

4.2 The Connection of Constructing Evaluation Methods

Generally speaking, evaluation has three stages: inspection, diagnosis, and improvement. Inspection is the self benchmarking stage, diagnosis is the self discrimination stage, and improvement is the stage described with actual improvement cases. The three stages achieve the promotion function of educational development. Establish evaluation criteria that are closely aligned with the needs of industry enterprises during the evaluation process, ensuring that the skills learned by students are in line with the demands of the job market. The evaluation criteria should be both objective and flexible, fully reflecting students' professional competence and innovation ability, and ensuring that the evaluation criteria are regularly updated to adapt to industry development and technological progress. Vocational education closely integrates industry enterprises, schools, students, and teachers, forming the logical system of vocational education. Pilot colleges need to clarify the specific goals of the "1+X" evaluation method, such as improving teaching quality, promoting students' comprehensive development, and enhancing vocational skills. According to the evaluation objectives, pilot colleges should develop scientific and reasonable evaluation standards that cover various aspects of academic education and vocational skills training, such as curriculum system design, education and teaching quality, skill teacher strength, student practical ability, etc. Evaluation needs to pay attention to the impact of continuous interaction among evaluation subjects, strengthen the connection

between evaluation subjects, promote mutual exploration and reflection, ultimately reach consensus on results, form a continuous improvement evaluation concept, promote the integration of industry and education, school enterprise cooperation, and thus enhance the social service capacity of vocational education.

4.3 Analyze and Evaluate the Data of the Content

The evaluation data may come from multiple channels, including the school's internal teaching management system, student evaluation system, reports from third-party evaluation agencies, feedback from industry enterprises, etc. The types of data collected may include quantitative data and qualitative data. Quantitative data such as exam scores, skill certificate pass rates, etc; Qualitative data such as student feedback, teacher evaluation, etc. Through the scientific collection of big data related to evaluation strategies, diversified information is used as evaluation content, and the data is integrated and analyzed to ultimately form an important foundation for optimizing the evaluation system. This enables all evaluators to make corresponding decisions on execution details through data, thereby truly promoting the integration of industry enterprises and schools, meeting the needs of social development, meeting the needs of enterprises for technical and skilled talents, and meeting the job seeking needs of students. It is necessary to clarify the specific objectives of analyzing the "1+X" evaluation content data, such as reflecting teaching quality, evaluating student abilities, analyzing teaching effectiveness, etc. This will make the subsequent data collection and analysis work more targeted and directional. By analyzing big data, we aim to improve the overall teaching level, assist students in enhancing their learning quality, and ensure that evaluation results are fair, scientific, and reasonable.

5. Conclusion

The vocational education evaluation system based on the "1+X" certificate system provides a foundation for the implementation of the "1+X" certificate system. The school strives to integrate and utilize resources through evaluation, grasp the changes in talent demand of industry enterprises, and make dynamic adjustments. Enterprises evaluate and recruit composite

high-quality technical and skilled talents who can adapt to job changes and technological upgrades.

Through the evaluation process, the school continuously identifies problems and improves on experience, choosing to retain vocational skills certificates that meet social needs, meet industrial upgrading, and match job demands. Finally, taking the implementation of the "1+X" certificate system pilot, improving the vocational education system, promoting the integration of industry and education, and jointly cultivating high-quality technical and skilled talents as an opportunity, we will closely cooperate with industry enterprises, implement the fundamental task of cultivating morality and talents, and achieve the goal of high-quality development in vocational education.

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