

DEVELOPMENT OF EFFECTIVE TEACHER QUALITY MANAGEMENT FOR VOCATIONAL UNIVERSITIES IN CHINA

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ABSTRACT

Against the backdrop of China's vocational education reform and high-quality development agenda, teacher quality has become a core determinant of vocational university performance, yet a systematic, context-adapted teacher quality management framework remains largely absent. This paper systematically reviews the conceptual evolution of teacher quality management, tracing its shift from standalone accountability-oriented evaluation to holistic, lifecycle-oriented governance. Grounded in Total Quality Management (TQM) and PDCA cycle theory, it identifies four foundational dimensions of effective teacher quality management: recruitment and selection, professional development, performance evaluation, and continuous quality improvement. The paper further examines current management practices in Chinese vocational universities, including teacher qualification systems, dual-qualified teacher development, continuing education, and performance appraisal, and highlights key challenges such as insufficient industry experience, one-sided evaluation indicators, poorly targeted training, and fragmented governance mechanisms. Building on gap analysis, it proposes seven core directions for future framework construction, covering strategic leadership, competency standards, professional development, developmental evaluation, digital transformation, industry collaboration, and continuous improvement. This study lays a solid theoretical foundation for developing an indigenous Teacher Quality Management Framework for Chinese vocational universities, with practical implications for institutional workforce enhancement and national vocational education policy implementation.

Keywords: Teacher Quality; Quality Management; Vocational Universities

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INTRODUCTION

Against the global backdrop of industrial upgrading and changing skills ecosystems, technical and vocational education and training (TVET) has become a strategic pillar of national human resource development. Teacher quality is increasingly regarded as the key driver of high-quality TVET, while international research has shifted from isolated competency assessment toward holistic, lifecycle-oriented teacher quality management. Li's (2025) Quality Vocational Teacher (QVT) model proposes that vocational teachers should integrate pedagogical competence, workplace practice, stakeholder engagement, future orientation, and professional values. This perspective indicates that teacher quality governance should extend beyond single-point evaluation to a systematic process covering recruitment, training, assessment, feedback, incentives, and career development.

In China, the revised Vocational Education Law of 2022 and the national Outline for Building a Leading Education Country have made the development of a high-quality “dual-qualified” teaching workforce a national priority. Vocational institutions are required to build faculty teams with strong academic qualifications and substantial industry experience, particularly in the rapidly developing vocational university sector. However, teacher quality governance in Chinese vocational universities still faces structural challenges. Ge (2022) observed that current research and practice mainly emphasize evaluation indicator systems for dual-qualified teachers. Evaluation standards differ among institutions, and a pattern of “prioritizing evaluation while neglecting management” remains common. Assessment results are seldom transformed into targeted professional development, institutional support, or incentive mechanisms. More importantly, there is still no systematic and context-adapted Teacher Quality Management Framework specifically designed for Chinese vocational universities.

International frameworks, such as the technology-driven professional development management framework proposed by Alkhalil et al. (2024), offer useful process-oriented ideas. Nevertheless, frameworks developed under Western TVET governance and industry – education partnership systems cannot be directly transferred to China because of differences in institutional governance, dual-qualified teacher policies, and industry – education integration.

Grounded in Total Quality Management theory and teacher professional lifecycle development theory, this study focuses on undergraduate-level vocational universities in China. It aims to clarify the meaning of vocational teacher quality management, compare domestic and international frameworks, identify gaps between theory and practice, and propose directions for developing an effective and context-responsive framework. The study is expected to enrich Chinese TVET teacher-development theory, contribute a Chinese perspective to international scholarship, and provide practical guidance for improving whole-cycle teacher management. Its findings may also offer useful insights for other developing countries seeking to strengthen vocational teacher quality governance.

CONCEPT AND EVOLUTION OF TEACHER QUALITY MANAGEMENT

1.1 Teacher Quality

As a core determinant of educational outcomes and institutional competitiveness, teacher quality has long been a central focus of global education governance and academic research, with international organizations and leading scholars constructing multi-dimensional conceptualizations from complementary perspectives. Grounded in Darling-Hammond's foundational theoretical framework that frames teacher quality as a holistic integration of subject expertise, pedagogical competence and professional commitment, the Organisation for Economic Co-operation and Development (OECD, 2025) proposes a comprehensive taxonomy of high-quality teaching in its Unlocking High-Quality Teaching report, identifying five core dimensions: quality subject content, classroom interaction, cognitive engagement, formative assessment and

feedback, and social-emotional support. This framework anchors teacher quality in both professional knowledge mastery and practical instructional competence, emphasizing that high-quality teaching must translate subject expertise into measurable learning gains for diverse student groups.

From the perspective of technical and vocational education and training (TVET), UNESCO-UNEVOC (2024) further expands the connotation of teacher quality in its 2024–2026 medium-term strategy. It highlights that qualified TVET teachers should not only possess general pedagogical competencies and sound professional ethics but also maintain up-to-date industry practical experience and the capacity for continuous professional development, so as to keep pace with rapid technological progress and industrial transformation. This perspective is particularly relevant to vocational university contexts, as it directly links teacher quality to labor market relevance and the effectiveness of industry-education integration.

Empirically, Hattie (2023) provides the most comprehensive evidence base for teacher quality dimensions in his updated meta-synthesis *Visible Learning: The Sequel*, which synthesizes over 2,100 meta-analyses covering 400 million learners. The study demonstrates that the most impactful dimensions of teacher quality are not merely content expertise but the ability to deliver timely, targeted feedback, foster active student engagement, and conduct ongoing evaluation of teaching impact. Hattie's research anchors teacher quality in its measurable influence on student learning progress, bridging the gap between abstract competency standards and practical educational outcomes, and providing empirical support for the shift from static qualification assessment to dynamic development-oriented quality governance.

Synthesizing these international policy frameworks and scholarly findings, teacher quality in vocational education can be defined as a multi-faceted professional attribute comprising five core components: professional knowledge (including subject content knowledge and pedagogical content knowledge), teaching competence (instructional design, classroom management, and learning assessment capabilities), professional ethics (commitment to education equity and professional behavioral norms), industry practical experience (a distinctive and essential dimension for vocational education), and the capacity for continuous professional development throughout the entire career lifecycle.

1.2 The Evolution of Teacher Quality Management

Corresponding to the deepening understanding of teacher quality, the governance paradigm for teacher quality has also undergone a clear evolutionary path, gradually advancing from single-dimensional teacher evaluation to systematic, whole-cycle teacher quality management.

The initial stage of teacher quality governance centered on teacher evaluation, which primarily served administrative accountability purposes. It assessed teachers' work performance against fixed, often one-size-fits-all standards, mostly in the form of periodic summative assessments, with results mainly used for personnel decision-making such as appointment and dismissal. As research and practice revealed that purely accountability-oriented evaluation failed to drive sustained improvement in teacher quality, the paradigm gradually shifted toward teacher development. This stage repositioned evaluation as a diagnostic tool to identify competency gaps and support targeted professional growth, aligning with the core idea that teacher quality is a dynamic, developable attribute rather than a static personal trait. Building on this progress, the concept of teacher performance management emerged, which integrated evaluation results with incentive mechanisms, career advancement pathways, and institutional resource allocation, linking individual teacher professional growth with overall institutional performance objectives. In recent years, with the infiltration of total quality management theory into the education sector, the more systematic and holistic concept of Teacher Quality Management has taken shape. As Tan (2025) observes in an international comparative study, modern teacher quality management has moved beyond isolated evaluation or single-dimensional skill development to establish a closed-loop management system covering the entire teacher lifecycle, including recruitment, pre-

service training, in-service development, periodic evaluation, constructive feedback, performance incentives, and career advancement planning. This holistic framework treats teacher quality as a core strategic asset of educational institutions that requires continuous, systematic investment and iterative improvement rather than periodic inspection.

In summary, teacher quality management is far more than a routine teacher appraisal exercise. It is a comprehensive, process-oriented governance system that integrates teacher cultivation, performance incentives, professional development support, and continuous quality improvement mechanisms. Its core goal is not only to accurately assess the current level of teacher quality but more importantly to create supportive institutional mechanisms that promote sustained professional growth for teachers, thereby enhancing the overall quality of education provision and supporting the high-quality and sustainable development of educational institutions.

KEY DIMENSIONS OF EFFECTIVE TEACHER QUALITY MANAGEMENT

Grounded in Total Quality Management (TQM) theory, the ISO 21001 educational organization management system standard, and Deming's PDCA (Plan-Do-Check-Act) cycle framework, effective teacher quality management constitutes a closed-loop system covering the entire teacher professional lifecycle. It comprises four interconnected, progressively advanced core dimensions: recruitment and selection, professional development, performance evaluation, and continuous quality improvement. Together, these four dimensions form a complete logical chain from input-side quality control, process-oriented quality enhancement, monitoring-based quality assessment to iterative quality optimization, ultimately driving the systematic improvement of overall teacher quality.

2.1 Recruitment and Selection: The Input Gate of Quality Assurance

Recruitment and selection is the starting point of teacher quality management. It corresponds to ISO 21001 requirements for personnel competence and reflects the principle of upstream quality assurance. Educational organizations must define the competencies required for personnel whose work affects educational service quality and ensure that teaching staff are qualified through appropriate education, training, skills, and practical experience (International Organization for Standardization, 2025). In vocational universities, recruitment has distinctive vocational characteristics. In addition to academic qualifications and teaching credentials, institutions should emphasize candidates' industrial experience and technical application abilities. These requirements form the first threshold for developing a high-quality "dual-qualified" teaching workforce. A rigorous recruitment mechanism can identify suitable candidates at the source, reduce later management costs, and establish a strong quality foundation for the teaching team.

2.2 Professional Development: The Process Core of Quality Enhancement

Professional development is the process core of teacher quality management. It aligns with the process-management principle of TQM and the "Do" stage of the PDCA cycle. Systematic training and continuous professional development are major factors through which TQM improves educational quality by transforming static quality standards into continuous competency growth (Hidayah, 2023). For vocational university teachers, professional development has two dimensions. It should improve pedagogical design, classroom management, and learning assessment while continuously updating industrial knowledge, technical skills, and practical experience in response to technological and industrial change. Rather than relying on fragmented training activities, institutions should design professional development according to competency gaps identified through evaluation. They should also establish a school-enterprise collaborative system integrating teaching research, enterprise practice, industry certification, mentoring, and follow-up evaluation. This integrated approach can provide targeted support for teachers at different career stages and promote continuous professional growth throughout their career lifecycle.

2.3 Performance Evaluation: The Monitoring Link of Quality Measurement

Performance evaluation acts as the monitoring link of teacher quality management, corresponding to the "Check" stage of the PDCA cycle, and is the core means of measuring management effectiveness and identifying quality gaps. Liu and Wang (2023) pointed out that the performance evaluation mechanism based on the PDCA concept breaks through the limitations of traditional summative evaluation, shifting from a purely accountability-oriented assessment to a diagnostic, development-oriented evaluation system. For vocational universities, an effective performance evaluation system should establish multi-dimensional indicators and multi-stakeholder assessment subjects: in addition to conventional teaching workload and research output, it must incorporate vocational-education-specific indicators such as practical teaching competence, school-enterprise cooperation outcomes, and the quality of students' skill development. The evaluation results should not only serve as the basis for personnel decisions such as appointment, reward and promotion, but more importantly provide precise evidence for subsequent targeted professional development interventions, realizing the core value of "promoting construction through evaluation".

2.4 Continuous Quality Improvement: The Closed-Loop Driver of Quality Iteration

Continuous quality improvement is the closed-loop driving force of teacher quality management, corresponding to the "Act" stage of the PDCA cycle and the core principle of sustained improvement in both TQM and ISO 21001 systems. Hidayah (2023) emphasized that continuous improvement is the core pillar of TQM implementation in educational institutions, which promotes the quality management system to rise in a spiral through constant problem identification and process optimization. This dimension requires formulating targeted improvement plans based on the problems identified in performance evaluation, optimizing management systems, adjusting training systems, improving incentive mechanisms, and incorporating the improved measures into the next round of management cycle. Different from one-time rectification, continuous quality improvement emphasizes the cultivation of an institutionalized improvement culture, which not only promotes the improvement of individual teacher quality, but more importantly drives the continuous optimization of the entire teacher quality management system itself, forming a long-term mechanism for sustained quality upgrading.

CURRENT PRACTICES AND CHALLENGES OF TEACHER QUALITY MANAGEMENT IN VOCATIONAL UNIVERSITIES IN CHINA

Against the background of China's vocational education reform and the national goal of building a leading education country, vocational universities have gradually established a preliminary teacher quality management system covering recruitment, professional development, performance evaluation, and appointment. Supported by national policies, these practices have strengthened the vocational teaching workforce. However, structural and institutional weaknesses continue to restrict its high-quality development.

3.1 Current Practices of Teacher Quality Management

First, a standardized teacher qualification and access system has been established. Under the revised Vocational Education Law of 2022, vocational universities implement the national teacher qualification system and have raised academic requirements for new teachers. Specialized-course teachers are also expected to possess relevant industry experience and vocational skill credentials. These measures aim to strengthen entry standards and ensure the initial quality of the teaching workforce (Zhang & Li, 2025).

Second, developing "dual-qualified" teachers has become a central task. As dual professionalism is a defining feature of vocational teachers, universities encourage teachers to obtain vocational certificates, undertake enterprise practice, and provide technical services for industry. The

proportion of dual-qualified teachers has consequently become an important indicator of vocational teaching-team quality (Xu & Ong, 2025).

Third, a multilevel continuing education and training system has been developed. China now provides teacher training at national, provincial, and institutional levels through national vocational teacher programs, provincial backbone-teacher projects, and university-based teaching activities. Training generally covers pedagogical reform, professional skills, curriculum development, and digital literacy, supporting teachers' continuing career development (Zhang & Li, 2025).

Fourth, performance appraisal and post appointment systems are widely used. Most vocational universities link appraisal results with salaries, professional-title evaluation, appointment, and promotion. Common indicators include teaching workload, research output, student management, and institutional service. These systems clarify responsibilities and encourage improved performance (Chen & Wang, 2025).

3.2 Core Challenges in Teacher Quality Management

Despite this preliminary institutional framework, several major challenges remain.

First, many teachers lack sufficient industry experience. Although universities usually require enterprise practice, implementation is often formalistic. Teachers may participate mainly in short visits rather than production, technical development, or research projects. Consequently, they may not fully understand current technologies, work processes, and occupational standards, creating a gap between teaching content and industry needs (Zhang & Li, 2025).

Second, evaluation indicators are often one-sided and insufficiently adapted to vocational education. Many universities continue to apply general higher education evaluation systems that emphasize publications and research projects while giving limited attention to practical teaching, technical services, school–enterprise projects, and skills instruction. These standards do not adequately represent the responsibilities and professional value of dual-qualified teachers and may reinforce the preference for research over teaching and practice (Chen & Wang, 2025).

Third, professional training lacks relevance, differentiation, and systematic planning. Existing programs are frequently theory-oriented and insufficiently connected to teachers' positions, competency gaps, or industrial change. Training content may be updated slowly and rarely distinguishes among new teachers, backbone teachers, and professional leaders. School–enterprise collaborative training is also underdeveloped, limiting the transformation of authentic projects and advanced technologies into effective professional-learning resources (Xu & Ong, 2025).

Fourth, teachers' digital teaching competence remains inadequate. Although digital platforms, virtual simulation, and intelligent technologies are increasingly used, many teachers can operate only basic digital tools. They may lack the ability to design virtual practical-training scenarios, develop digital resources, analyze learning data, or apply artificial intelligence appropriately. Specialized training and institutional support remain insufficient for vocational education's digital transformation (Zhang & Li, 2025).

Fifth, school–enterprise cooperation is often shallow and unstable. Collaboration frequently remains limited to agreements, visits, and practice bases. Enterprises may lack incentives to participate deeply in teacher development, curriculum improvement, or quality evaluation. Without mechanisms for sharing responsibilities, resources, and benefits, teachers have limited access to enterprises' core technologies and operations, reducing the contribution of cooperation to practical competence (Xu & Ong, 2025).

Sixth, incentive and career-development mechanisms remain imperfect. Professional-title evaluation, salary distribution, and promotion generally prioritize research achievements and teaching workload. Practical teaching innovation, industrial services, curriculum development, and skills-competition guidance receive insufficient recognition. Teachers may therefore lack

motivation to strengthen practical abilities, participate in enterprise projects, or engage in industry–university–research cooperation (Chen & Wang, 2025).

In summary, teacher quality management remains fragmented. Recruitment, development, evaluation, appointment, and incentives often operate independently and have not formed a closed-loop system of “input–process–evaluation–improvement.” Chinese vocational universities still lack a systematic and context-responsive Teacher Quality Management Framework reflecting vocational characteristics and institutional realities. Addressing this gap is the central concern of the present study.

Future Directions for Developing Effective Teacher Quality Management

Building on the identified practical gaps and grounded in Total Quality Management theory, PDCA cycle logic, and international TVET teacher-development frameworks, an effective teacher quality management system for Chinese vocational universities should adopt a holistic, closed-loop, and context-responsive model. The proposed model includes seven interrelated dimensions: strategic leadership, standardized teacher competency, targeted professional development, developmental performance evaluation, digital management transformation, industry–education collaboration, and continuous quality improvement. Together, these dimensions form an integrated governance system that supports the continuous improvement of teacher quality.

4.1 Strategic Leadership: The Driving Force of Quality Governance

Institutional leadership is the central driver of teacher quality management because it determines strategic direction, resource allocation, organizational coordination, and implementation. Amini et al. (2026) found that vocational school principals can improve teacher professionalism and educational quality by implementing systematic capacity-building strategies, providing targeted resources, and creating a collaborative culture.

Chinese vocational universities should therefore incorporate teacher quality management into their institutional development strategies, establish a top-leader responsibility system for teacher workforce development, and include teacher-team development outcomes in the assessment of secondary colleges. Leadership should also shift from administrative control toward empowered governance. Secondary colleges should receive greater autonomy in teacher training, evaluation, and incentive allocation, allowing grassroots units to respond more effectively to professional and disciplinary needs.

4.2 Standardized Teacher Competency: The Core Benchmark

A unified and vocationally specific competency standard is essential for addressing inconsistent evaluation criteria and unclear development goals. Based on international multidimensional teacher-quality models and China’s dual-qualified teacher policy, the standard should include six dimensions: professional knowledge and disciplinary literacy; pedagogical and practical teaching competence; industry experience and technical-service ability; digital teaching competence; professional ethics and educational commitment; and sustainable professional-development capacity.

Hierarchical requirements should also be established for different career stages, including new teachers, backbone teachers, and professional leaders. The competency standard can then provide a consistent basis for recruitment, training, evaluation, promotion, and career development throughout the teacher lifecycle.

4.3 Targeted Professional Development: Support for Quality Growth

Professional development should move from uniform training toward a precise and personalized system based on competency gaps and industrial needs. Sukardjo and Utami (2024) found that managerial support and targeted development programs can improve teacher performance by strengthening intrinsic motivation.

Vocational universities should establish a closed-loop mechanism of “needs diagnosis–customized development–effect tracking.” Performance results should be used to identify competency gaps and design differentiated programs. Young teachers should focus on enterprise rotation and basic teaching skills; backbone teachers should strengthen teaching innovation and curriculum development; and professional leaders should update advanced industrial technologies and program-development capabilities. School–enterprise collaborative training should also incorporate authentic enterprise projects and emerging technologies to improve the industrial relevance and practical effectiveness of professional development.

4.4 Developmental Performance Evaluation: The Monitoring Hub of Quality Management

Performance evaluation connects the inputs, processes, and outcomes of teacher quality management. It should shift from accountability-oriented summative evaluation to development-oriented formative evaluation. Evaluation should involve administrators, students, peers, and industry experts to reduce the limitations of a single evaluator. Indicators should reflect vocational education by emphasizing practical teaching, skills-competition guidance, school–enterprise projects, and technical-service outcomes, thereby correcting the tendency to prioritize research over teaching and practice. Evaluation results should support not only salary and promotion decisions but also teachers’ individual professional-development plans, achieving improvement through evaluation.

4.5 Digital Management Transformation: Technical Empowerment for Quality Improvement

Digital technology can improve the precision, efficiency, and dynamic monitoring of teacher quality management. Waluyo et al. (2025) developed an electronic performance-assessment system for vocational education, demonstrating that digital tools can connect evaluation results with industry competency frameworks and support strategic professional development. Chinese vocational universities should establish integrated platforms containing teacher profiles, training records, performance evaluation, and career-development data. Learning analytics and AI-assisted feedback can identify competency gaps and recommend personalized resources. Digital teaching portfolios should also record teachers’ teaching, industry practice, achievements, and professional growth, enabling continuous and process-oriented monitoring.

4.6 In-Depth Industry–Education Collaboration: Ecological Support for Quality Improvement

Industry participation is essential to vocational teacher quality management. Universities and enterprises should establish joint governance mechanisms and jointly develop teacher-training bases. Long-term enterprise-practice programs should define mentoring responsibilities, tasks, and assessment standards, ensuring that teachers participate in production processes and technical research rather than completing observational visits. Enterprises should appoint technical experts and skilled professionals as part-time teachers who contribute to program design, curriculum development, practical teaching, and teacher evaluation. Two-way personnel exchange should also enable university teachers to participate in enterprise research and product development and transform industrial experience into teaching resources.

4.7 Continuous Quality Improvement: Closed-Loop Support for Quality Development

Based on the PDCA cycle and TQM principles, the framework should establish a regular improvement mechanism. Institutions should evaluate system performance, diagnose management problems, formulate targeted improvement plans, optimize processes and resource allocation, and incorporate corrective measures into the next management cycle. They should also cultivate a quality culture that encourages teachers to take responsibility for their development and transform external requirements into internal motivation. This approach supports both individual teacher growth and institutional improvement.

In summary, the seven-dimensional framework can address fragmentation in teacher quality management in Chinese vocational universities. Future research should empirically validate the

framework, develop practical implementation tools and evaluation standards, and adapt it to China's vocational education environment.

CONCLUSION

This paper examines teacher quality management in Chinese vocational universities by tracing its conceptual development, identifying the dimensions of effective systems, and analyzing current practices and challenges. Globally, teacher quality governance has shifted from accountability-focused evaluation to holistic, lifecycle-oriented management. An effective system integrates recruitment and selection, professional development, performance evaluation, and continuous quality improvement, supported by strategic leadership, digital empowerment, and industry–education collaboration.

Chinese vocational universities have introduced teacher qualification systems, dual-qualified teacher development, continuing education, and performance appraisal. However, these practices remain fragmented and insufficiently adapted to vocational education. Major problems include limited industry experience, one-sided evaluation indicators, poorly targeted training, weak digital competence, shallow school–enterprise cooperation, and inadequate incentives. Most importantly, China still lacks a systematic and context-responsive Teacher Quality Management Framework for vocational universities.

Developing such a framework can fill a theoretical gap in Chinese vocational teacher management and contribute to international TVET governance research. Practically, it can guide institutions in improving whole-cycle teacher management, addressing workforce-development challenges, and supporting national vocational education reform. This study therefore provides a conceptual foundation for future empirical research and practical implementation.

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