

The Effectiveness of Teacher Professional Development Management in Improving Teacher Performance

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Abstract

Taking Hunan Electronic Technology Vocational College as the research subject, this study explores the impact of Teacher Professional Development (TPD) management on teacher performance. A mixed-methods approach was adopted, combining questionnaires, interviews, and document analysis. A total of 220 full-time teachers and 20 administrators participated in the study. The findings indicate that training program design, incentive mechanisms, follow-up support, and evaluation systems significantly enhance teachers' professional competence, teaching methods, and engagement in research activities. Teachers' professional development needs, participation motivation, and the alignment between TPD activities and teaching practice serve as key mediating factors. However, existing challenges include insufficient personalization of training programs, a disconnect between training content and industry demands, and inadequate follow-up support. The study proposes constructing a stage-based personalized TPD system, strengthening school–industry collaboration, and improving comprehensive evaluation and support mechanisms.

Keywords: Teacher professional development management; Teacher performance; Vocational colleges; Case study

Introduction

In the context of global higher education reform, faculty professional competence has increasingly become a decisive factor influencing the quality, competitiveness, and sustainable development of higher education institutions. As an important component of higher education systems worldwide, vocational education bears the important mission of cultivating technical and skilled personnel and serving industrial upgrading and economic development (Fang, 2025). With the accelerated advancement of a new round of technological revolution and industrial restructuring, society's demand for highly skilled technical personnel is constantly increasing, which places more complex and diverse demands on the professional competence and teaching level of vocational school teachers (Zheng, 2024). Therefore, how to improve teacher performance through effective teacher professional development management has become a pressing issue that the vocational education field needs to address.

From the perspective of international research, teacher professional development has become an important topic in educational research (Ge, 2025). Countries in Europe and America have accumulated relatively rich research results in the field of teacher professional development, with related research mainly focusing on teacher professional development models, types of professional development activities, and individual teacher professional growth paths (Luo, 2024). Some studies have shown that systematic teacher

professional development can improve teachers' teaching abilities and students' learning outcomes to a certain extent (Fang, 2025). However, most existing research is based on the context of general higher education or basic education, and its research subjects, institutional environment, and teacher role positioning differ significantly from those of vocational schools (Wang, 2025). This, to some extent, limits the applicability of relevant research conclusions in the field of vocational education, especially in higher vocational colleges in China (Luo, 2024).

Further analysis of existing literature reveals the following general shortcomings in current research: First, at the research subject level, the number of empirical studies on the professional development of vocational school teachers is relatively limited, particularly lacking in-depth case studies using a single vocational school as the research context; second, at the research content level, existing research focuses more on the forms and content of teachers' participation in professional development activities (Fang, 2025), while rarely systematically analyzing the constituent elements and operational logic of teacher professional development management mechanisms from a "management perspective"; third, at the research method level, some studies remain at the level of policy interpretation or experience summarization, lacking a systematic and operational evaluation framework and empirical testing for the relationship between teacher professional development management and teacher performance (Zheng, 2024).

These problems are particularly prominent in the field of vocational education research in China. Although a series of policy documents promoting the professional development of vocational school teachers have been successively issued at the national and local levels in recent years, related research mostly focuses on macro-policy analysis or institutional design discussions, lacking in-depth analysis of the operational effects of teacher professional development management practices at the specific school level (Zheng, 2024). In particular, there is a lack of research to empirically verify whether and how professional development management measures for vocational school teachers affect teacher performance, constituting a significant gap in vocational education teacher research (Liu, 2025).

In recent years, with the deepening of China's vocational education reform and the acceleration of industrial upgrading, higher vocational colleges have been entrusted with the critical mission of cultivating high-quality technical and skilled talent (Wang, 2025). Teachers, as the core driving force of vocational education quality, play a decisive role in the realization of this mission (Zheng, 2024). Consequently, teacher professional development management has become a strategic priority for vocational institutions (Luo, 2024).

Despite substantial financial investment and policy support aimed at strengthening teacher development under initiatives like the Vocational College Teacher Quality Improvement Plan (2021–2025), a paradox persists in many vocational colleges: high resource input has not translated into proportionate improvement in teacher performance and institutional outcomes. For example, Hunan Electronic Science and Technology Vocational College has invested considerable resources in faculty training programs, incentive mechanisms, and performance appraisal systems, yet these efforts have not yielded consistent gains in instructional effectiveness, innovation capacity, or educational outcomes (Zheng, 2024).

Existing literature on vocational teacher professional development highlights the importance of continuous professional learning for teaching effectiveness and alignment with industry competence requirements (Wang, 2025). However, these studies often focus on broad vocational teacher training models or general CPD trends, and they rarely investigate how the internal management mechanisms of professional development within vocational colleges directly influence teacher performance outcomes (Hong, 2025). More importantly, empirical studies that systematically examine the pathways through which professional

development management practices affect teacher performance in vocational education contexts remain scarce (Luo, 2024).

Meanwhile, recent empirical research on teacher performance determinants in vocational contexts highlights the multidimensional nature of teacher effectiveness, including factors such as institutional support, motivation, and knowledge management, which correlate with teacher performance outcomes. Yet, such studies tend to address performance determinants in general education contexts or at the level of broad correlates, rather than unpacking how specific management systems such as differentiated training design, performance appraisal frameworks, and motivational structures mediate or moderate teacher performance improvements in vocational colleges (Duan, 2025; Wang, 2025).

At the institutional level, several structural and managerial issues may hinder the effectiveness of professional development management. First, there is a mismatch between standardized professional development measures and the heterogeneity of teachers' developmental needs across career stages, disciplines, and professional aspirations (Zheng, 2024). Such homogenized approaches may weaken the relevance and motivational impact of development activities. Second, existing performance appraisal systems often over-emphasize quantitative metrics (e.g., teaching hours) while undervaluing contributions such as industry-education integration projects, enterprise collaboration, and innovation-oriented practice. This may distort institutional priorities and discourage deeper professional engagement. Third, fragmented incentive and support structures, including limited institutional support for applied research and innovation, can contribute to teacher burnout and reduced professional commitment (Luo, 2024).

Taken together, these observations suggest that the well-documented dilemma of “high input but low output” in vocational teacher development does not result from isolated managerial inefficiencies but rather from systemic deficiencies in how professional development is managed. Therefore, a deeper and systematic empirical investigation is needed into the internal mechanisms through which teacher professional development management affects teacher performance, including the identification of key mediators and moderators within this relationship (Luo, 2024). Based on these gaps, the core research question guiding this study is: How do professional development management practices within Chinese vocational colleges influence teacher performance outcomes, and through what internal mechanisms do these effects operate?

Guided by the central research question How do professional development management practices within Chinese vocational colleges influence teacher performance outcomes, and through what internal mechanisms do these effects operate? This study aims to conduct a systematic and empirical investigation into the relationship between teacher professional development management and teacher performance within the context of Chinese higher vocational education. Taking Hunan Electronic Science and Technology Vocational College as a case study, the research seeks to analyze how specific management practices, including the design of professional development programs, performance appraisal systems, and incentive and support mechanisms, shape teachers' instructional effectiveness, innovation capacity, and overall professional performance (Luo, 2024).

Furthermore, this study aims to identify and explain the internal mechanisms—such as the alignment between development measures and teachers' differentiated needs, motivational dynamics, and institutional support structures that mediate or moderate the impact of professional development management on teacher performance (Zheng, 2024). By doing so, the research intends to clarify the underlying causes of the persistent “high input but low output” phenomenon in vocational teacher development, contribute to the theoretical understanding of professional development management in vocational education, and provide evidence-based

recommendations for improving teacher management practices under the current stage of China's vocational education reform (Liu, 2025).

Based on the above problem analysis, this study aims to construct a comprehensive analytical framework to examine the relationship between teacher professional development management and teacher performance at Hunan Electronic Science and Technology Vocational College (Zheng, 2024). Specifically, the study seeks to investigate not only the current status of professional development management and teacher performance, but also the internal mechanisms through which management practices influence performance outcomes, including potential mediating and moderating factors. The research is guided by the following four interrelated questions: What is the current status of teacher professional development management and teacher performance at Hunan Electronic Science and Technology Vocational College? This question aims to systematically identify the existing characteristics, strengths, and limitations of management practices and teacher performance from both institutional and individual perspectives. Through which specific pathways do different dimensions of teacher professional development management—such as training systems, performance appraisal frameworks, and incentive mechanisms—affect teacher performance? This question seeks to clarify the differential effects of various management dimensions and to identify the most influential mechanisms for improving teacher performance. Does teachers' professional competence play a significant mediating role between professional development management measures and teacher performance outcomes? This question examines whether enhancements in professional competence serve as a key mechanism through which management practices are translated into improved performance. How does teachers' self-efficacy moderate the relationship between professional development management and teacher performance? This question explores whether and how individual psychological factors influence the strength and direction of management effects.

By systematically addressing these research questions, this study aims to generate empirical evidence on the effectiveness of teacher professional development management in vocational colleges, clarify the mechanisms underlying its impact on teacher performance, and provide actionable insights for optimizing management practices. Ultimately, the study seeks to contribute both to the theoretical understanding of teacher professional development in vocational education and to the enhancement of institutional educational quality in the context of China's ongoing vocational education reform (Luo, 2024).

This study enriches the theoretical research on teacher professional development management and teacher performance. At present, most existing studies on teacher professional development management focus on the macro level, such as the construction of national or regional teacher professional development systems, and there are relatively few in-depth case studies on specific colleges and universities, especially private vocational colleges (Luo, 2024). By taking Hunan Electronic Science and Technology Vocational College as a case, this study conducts a detailed analysis of the relationship between teacher professional development management and teacher performance, which helps to supplement the research on the micro level of teacher professional development management (Zheng, 2024).

In addition, this study provides a new research perspective for the study of teacher performance evaluation. Most existing studies on teacher performance evaluation focus on evaluation indicators and methods, while ignoring the impact of professional development management on teacher performance. This study explores the impact of professional development management on teacher performance, which helps to expand the research scope of teacher performance evaluation and provide a new theoretical basis for the establishment of a more scientific and reasonable teacher performance evaluation system (Sang, 2025; Luo, 2024).

Based on the analysis of existing literature, this study adopts a “management–development integration” theoretical perspective to examine teacher professional development management in higher vocational colleges. Traditional management theories, such as classical management function theory, emphasize planning, organizing, coordinating, and controlling as key mechanisms for achieving institutional objectives (Liu, 2024). While these theories provide a clear and systematic understanding of management as a goal-oriented institutional activity, recent scholarship has highlighted that purely management-oriented approaches often overlook teachers’ autonomy, professional growth needs, and intrinsic motivation. In the context of vocational education, where teachers are required to integrate both pedagogical and industry-specific expertise, effective professional development management must balance institutional control with supportive guidance and motivational incentives (Li, 2025; Zhang, 2025).

To operationalize this integrated perspective, this study adopts a four-dimensional analytical framework for teacher professional development management, based on and extended from recent empirical research in Chinese vocational education (Wang, 2025; Liu, 2025; Zhao, 2025): Goal Management: Defines the overall objectives and phased targets of teacher professional development, ensuring alignment between teachers’ individual development goals and the strategic direction of the institution. This dimension provides a clear orientation for development activities and guides institutional planning (Li, 2025).

Process Management: Focuses on the implementation mechanisms of professional development, including resource provision, institutional support, and problem-solving channels. It emphasizes the procedural and developmental nature of management, reflecting the “how-to” aspect of guiding teacher growth. Evaluation Management: Establishes a diversified and developmental evaluation system to assess the effectiveness of professional development initiatives and to provide feedback for continuous improvement. This dimension ensures that performance outcomes are systematically monitored and inform subsequent management decisions (Sun, 2025; Wang, 2025).

Incentive Management: Incorporates both material and psychological incentives, such as salary, professional titles, development opportunities, and recognition, to stimulate teachers’ intrinsic motivation and sustain engagement in professional development activities. This addition responds to the specific motivational challenges faced by vocational college teachers, especially in private institutions, where resource constraints and high turnover require strategic encouragement of teacher commitment and initiative (Wang, 2025).

The adoption of this four-dimensional framework is academically justified because it integrates classical management theory with contemporary perspectives on professional development, reflecting both the institutional and individual dimensions of teacher growth. It provides a structured and operationalizable model that can capture the complexity of professional development management in vocational education, while also accommodating the unique characteristics of private higher vocational colleges such as resource limitations, dual-skilled teacher requirements, and high turnover rates (Pan, 2024; Wang, 2025). By combining management, developmental, evaluative, and motivational elements, this framework serves as a robust theoretical and analytical foundation for systematically investigating the relationship between professional development management and teacher performance, as well as the underlying mechanisms of influence at Hunan Electronic Science and Technology Vocational College.

Theoretical Basis of Teacher Professional Development Management. This study is grounded in a multi-theoretical framework integrating human capital theory, lifelong education theory, and management by objectives (MBO) theory, which together provide a robust theoretical basis for examining teacher professional development management in higher vocational colleges. These theories complement each other in explaining

the value orientation, operational logic, and practical pathways of professional development management, offering a comprehensive perspective from economic, educational, and managerial dimensions.

Human capital theory emphasizes the strategic and long-term value of investing in teachers as key human resources with knowledge-intensive, high-skill competencies (Zhang, 2024). From this perspective, teacher professional development management is not merely a procedural task but a systematic investment in the continuous growth of teachers' professional competence, which in turn enhances educational quality, institutional performance, and broader societal outcomes (Zhou, 2024). This theory justifies the inclusion of management practices that systematically develop, support, and optimize teachers' professional capabilities, highlighting the importance of institutionalized planning and resource allocation.

Lifelong education theory provides critical guidance on the continuity and process-orientation of teacher development (Long, 2025). Teachers' professional growth is inherently a lifelong endeavor, requiring sustained learning, skill updating, and adaptation to evolving pedagogical and industry demands. Applying this theory, professional development management should extend beyond stage-based or one-off training to a full-process, career-long support system that addresses the differentiated needs of teachers at various career stages, including new, core, and senior faculty members. This perspective aligns particularly well with the dynamic and practice-oriented demands of vocational education (Wang, 2025).

Management by objectives (MBO) theory contributes methodological guidance for operationalizing teacher development goals and aligning individual and institutional objectives (Zhang, 2025). MBO emphasizes the setting of clear, measurable goals, continuous participation, and feedback mechanisms, ensuring that professional development initiatives are targeted, actionable, and responsive to teachers' progress. In the vocational college context, MBO theory helps translate institutional strategies—such as teaching quality improvement, research engagement, and industry collaboration—into concrete individual development tasks, thereby enhancing teachers' motivation and the effectiveness of management practices (Li, 2025).

Based on these theoretical foundations, this study adopts a four-dimensional framework to analyze teacher professional development management: 1) Goal Management: Establishes clear institutional and individual development objectives, ensuring alignment between teachers' career growth and the strategic priorities of the college. 2) Process Management: Provides systematic support, resources, and institutional guarantees to facilitate teachers' professional growth throughout the development process. 3) Evaluation Management: Implements continuous, diversified assessment and feedback mechanisms to monitor effectiveness, inform decision-making, and enable iterative improvement. 4) Incentive Management: Incorporates material and psychological motivators to stimulate intrinsic engagement, sustain participation, and enhance overall professional development outcomes.

Together, they provide a structured, operationalizable framework that accommodates the practical realities of vocational colleges, particularly private institutions, where resource constraints, dual-skilled teacher requirements, and high turnover necessitate flexible, targeted, and motivational management strategies (Wang, 2025; Zhao, 2025). This theoretical framework lays a solid foundation for systematically exploring the relationship between professional development management and teacher performance, as well as the mediating and moderating mechanisms involved.

Although numerous studies have examined teacher professional development and teacher performance, limited research focuses specifically on the management aspect of professional development in vocational colleges. Moreover, empirical case studies within Chinese vocational education institutions remain insufficient. This study addresses this gap by providing an in-depth case analysis of HETVC.

Methodology

This study adopts a mixed-methods case study design to gain a comprehensive understanding of teacher professional development management and its impact on teacher performance. Research Participants Full-time teachers from different departments. Administrative staff responsible for teacher development management. A structured questionnaire was administered to teachers to collect quantitative data on their participation in professional development, perceived management effectiveness, and self-reported performance improvements. Semi-Structured Interviews used in this research. Interviews were conducted with selected teachers and administrators to gain qualitative insights into professional development management practices and challenges. Document Analysis used. Institutional documents, such as professional development plans and evaluation reports, were analyzed to supplement survey and interview data. Quantitative data were analyzed using descriptive statistics, while qualitative data were coded and thematically analyzed.

Results and Discussion

Current Status of Professional Development Management

The findings indicate that Hunan Vocational College of Electronic and Information Technology has established a relatively structured professional development management system, characterized by clearly defined administrative procedures, annual training plans, and dedicated financial support for staff development. These plans are typically formulated at the institutional or departmental level based on policy requirements and organizational priorities. However, the planning process remains largely top-down, with teachers playing a limited role in identifying their own professional development needs. Systematic needs assessments, such as surveys, interviews, or differentiated analyses based on career stages and teaching specialties, are seldom conducted, which reduces the alignment between training provision and teachers' actual instructional and professional challenges.

Impact on Teacher Performance

Survey results show that teachers generally perceive professional development activities as beneficial, particularly in improving teaching methods and technical skills. Teachers who participated in industry-based training reported higher confidence in practical teaching.

Challenges Identified

Despite the overall positive outcomes, several concrete challenges remain. Professional development activities are still largely standardized, with limited attention to individual needs, career stages, and disciplinary differences, resulting in a lack of clearly defined personalized development pathways. In addition, the effectiveness of training programs is not systematically evaluated, as follow-up assessments, data-driven feedback, and long-term impact analyses are often insufficient or absent. Furthermore, collaboration with industry partners remains limited and fragmented, reducing opportunities for practitioners to engage in real-world projects, access up-to-date industry knowledge, and align professional development more closely with labor market demands.

The findings confirm that effective professional development management plays a crucial role in improving teacher performance. Consistent with management theory, strategic planning and evaluation are

key factors in determining success. However, the lack of systematic feedback mechanisms reduces the long-term impact of professional development initiatives.

Conclusions

This study concludes that teacher professional development management positively influences teacher performance but requires further optimization. Effective management enhances teaching quality, professional competence, and teacher motivation. A demand-oriented professional development planning system can be established to systematically identify the actual needs of teachers and organizations for development; at the same time, the integration of industry and education can be deepened, and the synergy between industry and education can be strengthened to make professional development more closely aligned with practice and industry frontiers; on this basis, a scientific evaluation and feedback mechanism can be improved to dynamically monitor the effectiveness of professional development and continuously optimize and improve it; and by constructing continuous and personalized professional development paths, support can be provided for professionals at different stages and with different needs to achieve long-term and sustainable capacity building. This study is limited to a single case institution. Future research may adopt comparative or longitudinal approaches to further validate the findings.

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