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A Study on Performance Evaluation Standards (PES) and Its Impact among Teachers in Jinan's Education Reform

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Abstract

The manuscript investigates how Jinan's teacher Performance Evaluation Standards affect professional development and teaching quality. Using a cross-sectional survey of 482 primary and secondary teachers, it applies descriptive statistics, correlations, and linear regressions. Results show strong positive relationships between PES, teacher growth, and instructional quality. The authors conclude that a balanced, mixed indicator PES can advance both teacher development and classroom outcomes.

Keywords

Performance Evaluation Standards (PES), Teacher Professional Development, Teaching Quality, Educational Reform

1. Introduction

In the global context of increasingly deepening educational reforms, teachers, as the core of the education system, play a crucial role in the improvement of educational quality through their professional development and enhancement of teaching abilities (Muzaffar et al., 2023). Performance Evaluation Standards (PES), as an important tool in educational management for assessing teachers' teaching effectiveness and professional development, aim to motivate teachers to improve their teaching strategies and enhance their professional capabilities through scientific and standardized evaluation mechanisms (Tumusiime et al., 2021). However, the current PES has some limitations in its design and implementation, such as an over-reliance on quantitative indicators (such as student grades and graduation rates), while neglecting other important factors (such as teaching innovation

and classroom management) that have a long-term impact on educational quality (Zhang et al., 2020). These issues highlight the importance of optimizing PES to achieve a balance among various indicators.

In recent years, China has introduced a series of education reform policies, such as "China Education Modernization 2035" and "Overall Plan for Deepening the Reform of Education Evaluation in the New Era", providing a policy foundation for the modernization and scientific development of the education system. These policies emphasize changing the traditional "exam-oriented" approach, placing greater importance on cultivating teachers' professional ethics and the overall development of students (Ministry of Education of the People's Republic of China, 2019). As an important pilot city for educational reform in Shandong Province, Jinan City is attempting to construct a scientifically comprehensive PES system through policies such as the "14th Five-Year Plan for Education Development" and the "14th Five-Year Plan for Basic Education in Jinan City." The aim is to encourage teachers to innovate in teaching, enhance their professional abilities, and promote the overall improvement of educational equity and quality.

Although research and application of PES in international education fields such as the United States, the United Kingdom, and Malaysia have become relatively mature, with significant roles in enhancing teachers' professional abilities and improving teaching quality (Darling-Hammond, 2020), related research and empirical data in China's primary and secondary education system are still quite lacking. The current research mainly focuses on the theoretical analysis of evaluation methods, while the specific impact of performance evaluation standards (PES) on the practice of basic education, especially the teachers' cognition and acceptance of performance evaluation standards (PES), has not been fully discussed (Al-Kuwari et al., 2022). This makes research on PES within the Chinese basic education system particularly important.

This study aims to fill the research gap in this field by conducting an empirical analysis of the performance evaluation system for primary and secondary school teachers in Jinan, exploring its role in promoting teachers' professional development and its actual effects on improving teaching quality. Specifically, this study aims to reveal the performance of the PES in helping teachers set professional development goals, adopt innovative teaching methods, and improve classroom teaching effectiveness, while also analyzing teachers' awareness and acceptance of the current evaluation system. This not only helps optimize the educational reform practices in Jinan but also provides important policy references for other regions in China.

2. Research Background

Teachers are the core of the education system, and their professional development and teaching abilities directly impact students' learning outcomes and the overall improvement of education quality (Arifin, Suryaningsih, & Arifudin, 2024). As an important tool for teacher professional development, Performance Evaluation

Standards (PES) play a crucial role in supporting teachers' professional growth and optimizing teaching methods. However, the definition, design, and applicability of PES in different cultural contexts remain controversial (Kasman & Lubis, 2022). For example, whether PES should primarily focus on quantitative indicators or pay more attention to qualitative factors of teaching quality has sparked widespread discussion in both academic and educational practice. Research has found that an over-reliance on quantitative indicators (such as student grades and graduation rates) may lead teachers to focus more on short-term results, neglecting the cultivation of teaching innovation and overall quality (Zhang et al., 2020). These issues are particularly prominent in the field of basic education in China and need to be optimized through empirical research.

The core objective of PES is to enhance classroom management and optimize teaching quality by evaluating teachers' behaviors and outcomes. A scientific PES helps teachers identify strengths and weaknesses, allowing them to adjust classroom management strategies, optimize teacher-student interactions, and improve student engagement and learning outcomes (Makki et al., 2023). However, the design of evaluation standards directly influences teachers' professional motivation and teaching practices. On the other hand, the design of performance evaluation standards directly impacts teachers' professional motivation and teaching practices. Research shows that challenges such as technical issues and unclear instructional objectives may hinder the full adoption of innovative teaching methods. Therefore, teachers need support in terms of resources, training, and clear guidelines to integrate innovative approaches effectively (Jääskä & Aaltonen, 2022). Consequently, the design of PES should balance various evaluation indicators to comprehensively support teachers' professional growth.

In recent years, China's education reform has proposed the construction of a scientific, fair, and diversified education evaluation system through a series of policy documents, such as "China's Education Modernization 2035" and the "Overall Plan for Deepening the Reform of Education Evaluation in the New Era" (Ministry of Education of the People's Republic of China, 2019). These policies provide an important opportunity for the optimization of PES, but their implementation also faces numerous challenges. First, the regional differences in China's education system are quite significant, especially the uneven distribution of resources between urban and rural schools, which places higher adaptability requirements on the design of PES. Secondly, the acceptance of evaluation standards may vary significantly among teachers of different ages. For example, research shows that teachers are more inclined to accept comprehensive evaluations that focus on moral assessment and professional competence, rather than evaluations primarily based on quantitative indicators (Xue & Li, 2021). These findings highlight the importance of fully considering regional differences when designing PES.

As a key area for educational reform in Shandong Province, Jinan has always received significant attention for its teacher workforce development and evaluation system optimization. The 14th Five-Year Education Development Plan of Ji-

nan City particularly emphasizes the importance of a diversified teacher evaluation system, proposing the PES framework with "professional ethics, ability, performance, and contribution" as core indicators (General Office of the Shandong Provincial People's Government, 2021). This framework aims to enhance teachers' professional ethics, teaching abilities, and classroom performance through comprehensive evaluation, while also encouraging them to adopt more innovative teaching methods. However, the current PES still has shortcomings in design and implementation in practical application. For example, core competencies such as instructional design and classroom management are often not fully captured in evaluations, making it difficult for assessment results to comprehensively reflect the professional level of teachers (Burden, 2025). To overcome these shortcomings, Jinan City has introduced a multidimensional evaluation method based on case studies, teaching reflection, and student feedback through pilot projects, attempting to incorporate more comprehensive indicators into the evaluation.

The tenure system is an important guarantee for the professional development of teachers in China, but while this system provides job stability, it may also lead to a lack of mobility within the teaching workforce, affecting the overall optimization of educational resource allocation (Xia, Qu, Stoyanets, & Zhao, 2022). Research indicates that through a scientific PES, it is possible to maintain job security for teachers while also motivating them to continuously pursue progress in their professional development (Alakoum, Nica, & Abiad, 2024). For example, the PES in Jinan provides promotion opportunities for outstanding teachers through a reward and punishment mechanism, while also helping underperforming teachers improve their teaching abilities through professional development programs, thereby enhancing the overall quality of education. The successful implementation of this strategy not only depends on the scientific nature of the evaluation standards but also relies on teachers' sense of recognition and participation in the evaluation system.

The applicability of PES in different cultural contexts and its impact on teacher behavior have always been important topics in educational research (Adeniyi et al., 2024). Through an in-depth study of PES in Jinan, it is possible not only to reveal its specific role in China's basic education reform but also to provide practical references for international education policy. It will provide theoretical support for optimizing the application of PES in different educational contexts, while also helping Jinan further improve its education evaluation system to achieve the dual goals of educational quality and teacher professional development.

3. Theoretical Framework

The Teacher Performance Evaluation Standards (PES) help teachers identify strengths and weaknesses by providing feedback, thereby formulating targeted professional development plans. An effective PES offers teachers more opportunities for professional development to enhance their teaching skills and quality. Through evaluation, PES encourages teachers to adopt better teaching strategies

and methods to improve teaching quality (Zhang & Zhang, 2023). This improvement not only fosters teaching innovation but also enhances students' academic performance and satisfaction. Teachers directly improve teaching quality PES impacts many aspects of teachers' professional development, including teaching reflection, innovative methods, teaching behavior, information exchange and collaboration, professional knowledge and skills, career training and development opportunities, and the application of emerging technologies (Alwaely et al., 2023). Regular evaluations encourage teachers to reflect on their teaching practices, explore new methods, and improve their teaching behavior. PES also promotes collaboration among teachers and enhances their professional growth and knowledge (Khasawneh et al., 2023). Additionally, PES also encourages teachers to participate in relevant vocational training and development projects to some extent so that they can use digital tools to enhance the learning experience (Zhorova et al., 2022).

A well-designed Performance Evaluation Standards (PES) play a vital role in improving teaching quality by encouraging teachers to adopt diverse and effective instructional methods. By emphasizing practical teaching experience and guiding the structured design and organization of course content, scientific PES helps teachers better address the diverse learning needs of students (Wong et al., 2023: p. 593). Through continuous optimization, PES supports the use of innovative teaching strategies, strengthens classroom management skills, and fosters a positive, engaging learning environment. As shown in **Figure 1**, the conceptual framework illustrates how Performance Evaluation Standards (PES) influence teachers' professional development and teaching quality through various dimensions.
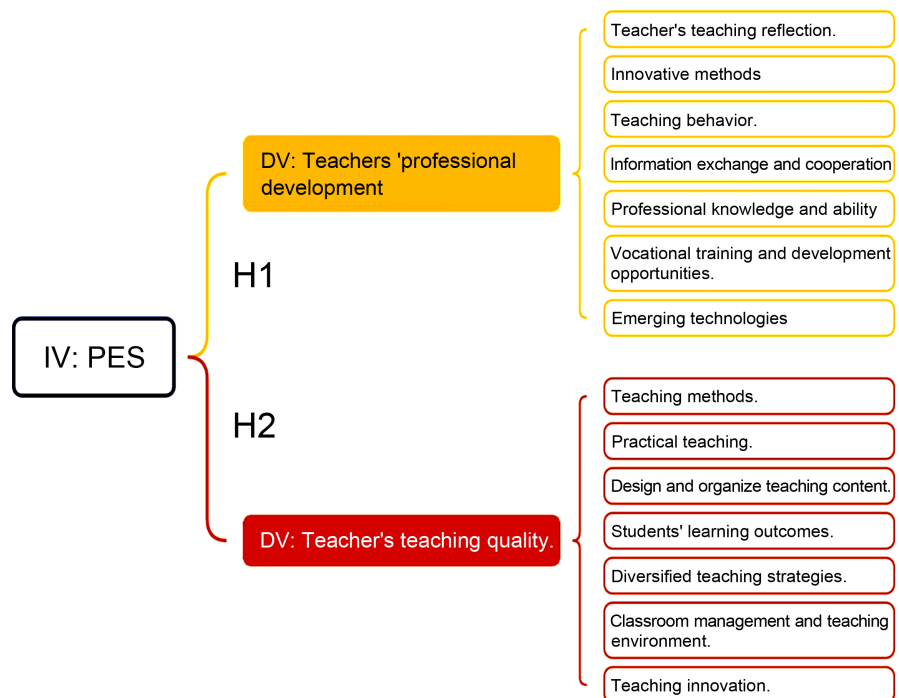

Figure 1. Conceptual framework.

Moreover, by recognizing and rewarding innovative practices, PES motivates teachers to explore new approaches and continuously refine their teaching. This systematic evaluation mechanism not only promotes professional development but also leads to tangible improvements in teaching effectiveness and student outcomes. Under the guidance of PES, teachers engage in ongoing reflection and refinement of their methods, ultimately contributing to a more dynamic and effective educational process (Meng, 2023).

4. Methodology

This study employs a quantitative research design to examine the impact of Performance Evaluation Standards (PES) on teachers' professional development and teaching quality in Jinan. Data were collected through a structured questionnaire administered across multiple primary and secondary schools. A stratified random sampling method was used, with stratification based solely on school level (primary vs. secondary) to ensure balanced representation. A total of 500 questionnaires were distributed, yielding 482 valid responses.

The questionnaire consisted of four sections: Section A collected demographic information (e.g., gender, age, years of teaching, subject area); Section B measured teachers' professional development (10 items); Section C assessed teaching quality (10 items); and Section D evaluated teacher perceptions of PES (6 items). All items in Sections B-D were rated on a 5-point Likert scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). Representative PES items included statements such as "Evaluation criteria are clearly communicated," "PES encourages reflective teaching," and "The standards support continuous professional growth." The questionnaire combined self-reported perceptions and behaviorally anchored performance indicators to comprehensively assess teaching practices and professional development outcomes (see **Appendix** for the full instrument).

To ensure the reliability and validity of the measurement tools, both internal consistency and construct validity were assessed. The Cronbach's alpha coefficients for each subscale indicated strong internal consistency. Data collection emphasized the standardization advantages of structured questionnaires while maintaining strict confidentiality and participant anonymity. All data were analyzed using IBM SPSS Statistics Version 29. Descriptive statistics were used to summarize sample characteristics; Pearson correlation analyses explored associations between key variables; and multiple regression analyses examined the predictive effects of PES on professional development and teaching quality.

Prior to regression analysis, statistical assumption checks were conducted. Residuals were tested for normality using Kolmogorov-Smirnov tests and Q-Q plots, and multicollinearity diagnostics showed all VIF values were below 2.0. These procedures confirmed the validity of the regression model.

Despite the rigor of the research design, certain limitations remain. First, the sample was geographically limited to urban districts of Jinan, without inclusion of rural schools, which may restrict the generalizability of the findings. Second, the study relied on self-reported data, which may be subject to social desirability or

recall bias. Third, baseline (pre-reform) performance data were unavailable, limiting the ability to make causal inferences. Future research could address these gaps by expanding the sample to include rural schools, triangulating data sources (e.g., classroom observations, interviews), and conducting longitudinal studies to capture the long-term effects of PES implementation.

5. Results and Discussion

The researchers received all 482 completed questionnaires. Table 1 shows the descriptive analysis of the respondents. This survey collected 482 valid samples, with 62.03% women and 37.97% men, reflecting the predominance of women in education, particularly in primary schools.

Teachers aged 26 - 35 made up the largest group (40.46%), followed by those aged 36 - 45 (28.63%), indicating a workforce primarily in early to mid-career stages.

Table 1. Respondents descriptive analysis.

	Option	Frequency	Percent (%)
Gender	Male	183	37.97
	Female	299	62.03
Age	25 years old or younger	92	19.09
	26 - 35 years old	195	40.46
	36 - 45 years old	138	28.63
	46 - 60 years old	57	11.83
Education background	Diploma or below	108	22.41
	Bachelor's degree	289	59.96
	Master's degree	84	17.43
	Doctorate	1	0.21
Work experience	Less than 1 year	79	16.39
	1 - 5 years	70	14.52
	6 - 10 years	191	39.63
	More than 10 years	142	29.46
Workplace	Primary school	91	18.88
	Middle school	391	81.12
Job title	Junior teacher	301	62.45
	Intermediate teacher	138	28.63
	Senior teacher	29	6.02
	Specialgrade teacher	14	2.9
Total		482	100

Most participants hold bachelor's degrees (59.96%), with 17.43% having master's and 0.21% doctoral degrees, emphasizing the sector's reliance on undergraduate and master's qualifications. Teachers with 6 - 10 years of experience comprised 39.63%, followed by 29.46% with over 10 years, demonstrating a well-experienced cohort.

Middle school teachers dominated the sample (81.12%), consistent with the larger teacher populations in secondary schools (Jinan Education Bureau, 2024). Junior teachers accounted for 62.45%, intermediate 28.63%, and senior or special titles 8.92%, highlighting career progression challenges. These characteristics provide a strong foundation for analyzing the teaching workforce and its professional dynamics.

5.1. The Impact of PES on Teacher Professional Development

5.1.1. Descriptive Statistical Analysis

The descriptive statistics in Table 2 indicate that teachers generally hold positive views on Jinan's performance evaluation standards and their impact on professional development, with mean scores mostly between 3.7 and 3.8 and standard deviations around 1.2, reflecting overall agreement but some variability in opinions.

Table 2. Descriptive analysis of PES impact on teacher development.

	Min	Max	Mean	SD
You think the evaluation standards of Jinan City are conducive to improving the professional development of teachers.	1.000	5.000	3.813	1.206
You think the performance evaluation standards of Jinan City have a positive impact on teachers' teaching reflection.	1.000	5.000	3.720	1.241
You think that after the implementation of performance evaluation standards, there are more opportunities to use innovative methods to solve difficulties in work.	1.000	5.000	3.770	1.194
You think that the implementation of performance evaluation standards has motivated you to improve your teaching behavior.	1.000	5.000	3.718	1.221
You think the performance evaluation standards of Jinan City can promote information exchange and cooperation among teachers.	1.000	5.000	3.739	1.197
You think the implementation of performance evaluation standards has stimulated the growth of your expertise.	1.000	5.000	3.734	1.252
You think the implementation of performance evaluation standards has stimulated the improvement of your professional ability.	1.000	5.000	3.714	1.239
You think the performance evaluation standards of Jinan City provide continuous vocational training and development opportunities.	1.000	5.000	3.724	1.239
You think performance evaluation standards can help teachers adapt to emerging technologies.	1.000	5.000	3.749	1.197
You think the performance evaluation criteria support teachers to participate in professional learning communities and cooperative networks.	1.000	5.000	3.680	1.241
Teachers' professional development	1.300	4.900	3.736	0.956

Teachers believe the standards enhance professional development (M = 3.813, SD = 1.206) and support teaching reflection (M = 3.720, SD = 1.241). The standards are perceived to encourage innovative problem-solving (M = 3.770, SD = 1.194) and motivate improved teaching behavior (M = 3.718, SD = 1.221). Additionally, they are seen as promoting collaboration (M = 3.739, SD = 1.197), professional skill growth (M = 3.734, SD = 1.252), and professional ability improvement (M = 3.714, SD = 1.239).

Teachers also value the opportunities for vocational training (M = 3.724, SD = 1.239) and adaptation to emerging technologies (M = 3.749, SD = 1.197). Participation in professional learning communities is moderately supported (M = 3.680, SD = 1.241).

Overall, while teachers' views are broadly positive, some variability exists, offering insights for further refinement of the evaluation standards.

5.1.2. Correlation Analysis

From the data of Table 3, it can be seen that the correlation coefficient between the professional development of teachers and the teacher's performance evaluation standard is 0.918, and the correlation is statistically highly significant ($p < 0.01$). This means that the better the performance evaluation standards of teachers, the higher the professional development of teachers. In other words, strict and scientific performance evaluation standards can actively promote the professional development of teachers and improve their teaching level and professional quality.

Table 3. Correlation analysis of PES impact on teacher development.

	Teachers' professional development	Performance evaluation standards
Teachers 'professional development	1	
Performance evaluation standards	0.918**	1

$*p < 0.05$, $**p < 0.01$.

This result verifies that there is a significant positive correlation between the assumption 1, the performance evaluation standards of teachers and the professional development of teachers, indicating that the performance evaluation standards of teachers play a key role in promoting the professional development of teachers. Therefore, when formulating and implementing performance evaluation standards, education managers should pay attention to their scientificity and effectiveness, so as to give full play to their role in promoting the professional development of teachers.

5.1.3. Regression Analysis

Table 4 regression analysis results indicate that teachers' PES have a significant positive impact on their professional development. For each additional unit of PES, professional development increases by 0.933 units. The unstandardized co-

efficient of the constant term is 0.218 (t = 3.050, p = 0.002), and the unstandardized coefficient of PES is 0.933 (standardized coefficient = 0.918, t = 50.754, p = 0.000), confirming a highly significant effect ($p < 0.01$).

The model's R Square and adjusted R Square are both 0.843, indicating that PES explains 84.3% of the variance in professional development. Variance analysis shows the model is statistically significant (F = 2575.957, df = 1480, $p = 0.000$).

These findings demonstrate that improving PES is crucial for enhancing teachers' professional development, given its strong and statistically significant influence.

Table 4. Regression analysis of PES impact on teacher development.

	Unstandardized Coefficients		Standardized Coefficients	t	p
	B	Std. Error	Beta		
(Constant)	0.218	0.071	-	3.050	0.002**
Performance evaluation standards	0.933	0.018	0.918	50.754	0.000**
R Square			0.843		
Adjusted R Square			0.843		
F			F (1,480) = 2575.957, p = 0.000		

Dependent Variable: Teachers 'professional development; $^*p < 0.05$, $^{**}p < 0.01$.

5.2. The Impact of PES on the Quality of Teaching

5.2.1. Descriptive Statistical Analysis

Table 5 shows that teachers generally hold positive views on Jinan's performance evaluation standards, with average scores around 3.7 - 3.8 and standard deviations near 1.2, indicating overall agreement with some variability.

Table 5. Descriptive statistical analysis of PES impact on teaching quality.

	Min	Max	Mean	SD
You think the performance evaluation standards of Jinan City have an impact on your teaching methods.	1.000	5.000	3.784	1.240
You can apply the requirements of evaluation standards to practical teaching.	1.000	5.000	3.768	1.192
You think that the implementation of performance evaluation standards has improved the teaching quality of teachers.	1.000	5.000	3.770	1.135
You have used innovative teaching methods to teach after participating in the implementation of performance evaluation standards.	1.000	5.000	3.780	1.234
You think the performance evaluation standards help you better design and organize teaching content.	1.000	5.000	3.820	1.153
You think the performance evaluation standards have a positive impact on students' learning outcomes.	1.000	5.000	3.691	1.219

Continued

You think that performance evaluation standards promote the use of diversified teaching strategies.	1.000	5.000	3.699	1.236
You think performance evaluation standards are helpful in improving classroom management and teaching environment.	1.000	5.000	3.737	1.228
You think the performance evaluation criteria are fair in the evaluation of teaching effectiveness.	1.000	5.000	3.739	1.181
You think performance evaluation standards encourage teaching innovation.	1.000	5.000	3.755	1.207
Teacher's teaching quality	1.500	4.800	3.754	0.937

The standards are seen to improve teaching methods (M = 3.784), quality (M = 3.770), innovation (M = 3.755), and the application of evaluation criteria in practice (M = 3.768). They also support designing teaching content (M = 3.820), classroom management (M = 3.737), and diversified strategies (M = 3.699), though opinions on student outcomes (M = 3.691) and fairness (M = 3.739) show slight variation.

With an overall mean of 3.754 (SD = 0.937), teachers recognize the positive impact of the standards on teaching quality, innovation, and professional practices, providing a basis for further improvements.

5.2.2. Correlation Analysis

According to the relevant analysis results of Table 6, there is a significant positive correlation between teachers' performance appraisal standards and teachers' teaching quality. Specifically, the correlation coefficient is 0.908, and the significance level is $p < 0.01$. This shows that when the performance evaluation standards of teachers are stricter or improved, the teaching quality of teachers will also improve accordingly. The highly significant positive correlation means that teachers' performance evaluation standards have played a positive role in improving the quality of teachers' teaching.

Table 6. Correlation analysis of PES impact on teaching quality.

	Teacher's teaching quality	Performance evaluation standards
Teachers 'professional development	1	
Performance evaluation standards	0.918**	1

$*p < 0.05$, $**p < 0.01$.

5.2.3. Regression Analysis

Table 7 shows that teachers' PES have a significant positive impact on teaching quality. The unstandardized coefficient for PES is 0.903 (standardized coefficient = 0.908, t = 47.355, $p = 0.000$), indicating a highly significant effect ($p < 0.01$). The

model's R Square is 0.824, and the adjusted R Square is 0.823, suggesting that PES explains 82.4% of the variance in teaching quality. Variance analysis confirms the model's significance (F = 2242.449, df = 1480, p = 0.000).

These results highlight the importance of enhancing PES to improve teaching quality, as the regression model demonstrates a strong and statistically significant relationship.

Table 7. Regression analysis of PES impact on teaching quality.

	Unstandardized Coefficients		Standardized Coefficients	t	p
	B	Std. Error	Beta		
(Constant)	0.346	0.074	-	4.669	0.002**
Performance evaluation standards	0.902	0.019	0.908	47.355	0.000**
R Square			0.824		
Adjusted R Square			0.824		
F			F (1,480) = 2242.449, p = 0.000		

Dependent Variable: Teacher's professional development; *p < 0.05, **p < 0.01.

5.3. Status of Teacher Performance Evaluation Standards

5.3.1. Descriptive Statistical Analysis

Table 8 shows that teachers' understanding and satisfaction with Jinan's performance evaluation standards are at an upper-middle level, with mean scores mostly between 3.7 and 3.8 and standard deviations around 1.

Table 8. Descriptive statistical analysis of the status of teacher PES.

	Min	Max	Mean	SD
You know very well the performance evaluation standards for teachers in Jinan.	1.000	5.000	3.753	1.187
You think the goal setting involved in the evaluation criteria of Jinan City is clear and reasonable.	1.000	5.000	3.753	1.221
You are satisfied with the implementation process of Jinan performance evaluation standards.	1.000	5.000	3.801	1.183
You are willing to participate in more discussion activities about the reform of evaluation standards in the future.	1.000	5.000	3.832	1.181
You think that the reform of performance evaluation standards has an impact on the overall quality of education.	1.000	5.000	3.772	1.169
You think the existing evaluation standards need to be improved.	1.000	5.000	3.724	1.224
Teacher's performance evaluation standards	1.167	5.000	3.772	0.941

Most teachers have a good understanding of the standards (M = 3.753, SD = 1.187) and find the goals clear and reasonable (M = 3.753, SD = 1.221). Satisfaction

with the implementation process is relatively high (M = 3.801, SD = 1.183), and many are willing to engage in discussions on reform (M = 3.832, SD = 1.181). Teachers believe the reform positively impacts education quality (M = 3.772, SD = 1.169), though opinions vary on the need for improvement of existing standards (M = 3.724, SD = 1.224).

Overall, teachers show a positive attitude toward the standards (M = 3.772, SD = 0.941) while recognizing the need for improvement to better address practical demands. These results highlight general satisfaction with the standards and a willingness to contribute to their reform.

5.3.2. Independent Sample T-Test

Table 9 shows the independent sample t-test results comparing primary and secondary school teachers in professional development, teaching quality, and performance evaluation standards. The means and standard deviations are similar across groups: professional development (primary: M = 3.76, SD = 0.96; secondary: M = 3.73, SD = 0.96, t = 0.282, p = 0.778), teaching quality (primary: M = 3.79, SD = 0.92; secondary: M = 3.75, SD = 0.94, t = 0.431, p = 0.667), and performance evaluation standards (primary: M = 3.78, SD = 0.87; secondary: M = 3.77, SD = 0.96, t = 0.066, p = 0.947).

With p-values exceeding 0.05, there are no statistically significant differences between primary and secondary schools in these aspects.

Table 9. Independent sample t-test of the status of teacher PES.

	Option	n	Mean	SD	t	p
Teacher's professional development	Primary school	91	3.76	0.96	0.282	0.778
	Middle school	391	3.73	0.96		
Teacher's teaching quality	Primary school	91	3.79	0.92	0.431	0.667
	Middle school	391	3.75	0.94		
Teacher performance evaluation standards	Primary school	91	3.78	0.87	0.066	0.947
	Middle school	391	3.77	0.96		

6. Discussion

The analysis results of this chapter show that teachers' PES have a significant positive impact on teachers' professional development and teaching quality. In the correlation analysis, the correlation coefficients between the teacher's PES and the teacher's professional development and teaching quality are 0.918 and 0.908 respectively, both of which are statistically highly significant ($p < 0.01$). The regression analysis further confirms this. The unstandardized coefficient of teachers' PES for teachers' professional development is 0.933, and the unstandardized coefficient for teaching quality is 0.903, which are statistically significant ($p < 0.01$). The determinant coefficients R Square are 0.843 and 0.824 respectively, indicating

that the teacher PES can explain 84.3% and 82.4% of the variation in teacher professional development and teaching quality.

These results show that strict and scientific teacher performance evaluation standards play an important role in improving teacher's professional development and teaching quality. Therefore, education managers should pay attention to the scientificity and effectiveness of performance evaluation standards to give full play to their role in promoting the professional development of teachers and teaching quality. By continuously improving and improving teachers' performance evaluation standards, it can provide teachers with more professional development opportunities and improve their teaching level, thus promoting the overall improvement of education quality.

Several limitations should be acknowledged in this study. First, although the sample covered both primary and secondary school teachers, all participants were drawn exclusively from urban districts of Jinan. Therefore, the findings may not fully represent the perceptions of teachers in rural or suburban schools, limiting the generalizability of the results across the entire region.

Second, the regression models did not include potential control variables such as age, years of teaching experience, or school level, which may influence teachers' perceptions of PES. This study focused primarily on the direct relationship between PES and teaching outcomes. Future research should consider including these demographic and contextual factors to enhance the explanatory power of the models and support stronger causal inferences. Third, the reliance on self-reported questionnaire data may introduce response bias. To address this, future studies are encouraged to adopt mixed-methods approaches that incorporate interviews or classroom observations for richer contextual insight.

7. Conclusion

This study explored the impact of PES on teachers' professional development and teaching quality in Jinan's education system using quantitative methods, including descriptive statistics, correlation, and regression analysis. The findings reveal that PES positively influences professional development, with a significant correlation between PES and various aspects of growth, such as teaching reflection, motivation, and skill enhancement. PES was also found to significantly improve teaching quality, encouraging innovative methods, better content design, and positively affecting student outcomes.

Teachers generally had a positive attitude toward PES, recognizing its benefits in professional development and teaching quality. However, there were differences in opinions regarding the fairness and comprehensiveness of the evaluation criteria, with some teachers suggesting the need for improvement. The results aligned with educational theories, such as self-efficacy and performance evaluation theory, highlighting that scientifically and fairly implemented PES can enhance self-efficacy, growth, and teaching effectiveness.

The study recommends optimizing PES through regular reviews, strengthening

professional development opportunities, improving feedback mechanisms, promoting innovation, and ensuring continuous monitoring. These efforts aim to make PES more effective in fostering professional growth and improving teaching quality. Overall, the study emphasizes the critical role of PES in enhancing teacher's development and teaching quality, offering valuable insights for policymakers and practitioners.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Adeniyi, I. S., Al Hamad, N. M., Adewusi, O. E., Unachukwu, C. C., Osawaru, B., Onyebuchi, C. N., & David, I. O. (2024). Educational Reforms and Their Impact on Student Performance: A Review in African Countries. *World Journal of Advanced Research and Reviews, 21,* 750-762. https://doi.org/10.30574/wjarr.2024.21.2.0490

Alakoum, A., Nica, E., & Abiad, M. (2024). Revolutionizing Faculty Performance Evaluation: The Future role of AI in Higher Education. *Journal of Self-Governance and Management Economics, 12,* 25-49. https://doi.org/10.22381/jsme12120242

Al-Kuwari, M. M., Du, X., & Koç, M. (2022). Performance Assessment in Education for Sustainable Development: A Case Study of the Qatar Education System. *Prospects, 52,* 513-527. https://doi.org/10.1007/s11125-021-09570-w

Alwaely, S. A., El-Zeiny, M. E., Alqudah, H., Mohammad Alamarnih, E. F., Ibrahim Salman, O. K., Halim, M., & Saleem Khasawneh, M. A. (2023). The Impact of Teacher Evaluation on Professional Development and Student Achievement. Environmental & Social Management Journal, 17. https://doi.org/10.24857/rgsa.v17n7-022

Arifin, A., Suryaningsih, S. S., & Arifudin, O. (2024). The Relationship between Classroom Environment, Teacher Professional Development, and Student Academic Performance in Secondary Education. *International Education Trend Issues, 2,* 151-159. https://doi.org/10.56442/ieti.v2i2.467

Burden, P. R. (2025). *Classroom Management: Creating a Successful K-12 Learning Community.* John Wiley & Sons.

Darling-Hammond, L. (2020). Accountability in Teacher Education. *Action in Teacher Education, 42,* 60-71. https://doi.org/10.1080/01626620.2019.1704464

General Office of the Shandong Provincial People's Government (2021). *Shandong Province 14th Five-Year Plan Education Development Plan [Government Document].*

Jääskä, E., & Aaltonen, K. (2022). Teachers' Experiences of Using Game-Based Learning Methods in Project Management Higher Education. *Project Leadership and Society, 3,* Article 100041. https://doi.org/10.1016/j.plas.2022.100041

Jinan Municipal Education Bureau (2024). *2023 Academic Year Jinan Education Statistical Bulletin.*

Kasman, K., & Lubis, S. K. (2022). Teachers' Performance Evaluation Instrument Designs in the Implementation of the New Learning Paradigm of the Merdeka Curriculum. *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran, 8,* 760-775. https://doi.org/10.33394/jk.v8i3.5674

Khasawneh, Y. J. A., Alsarayreh, R., Al Ajlouni, A. A., Eyadat, H. M., Ayasrah, M. N., & Khasawneh, M. A. S. (2023). An Examination of Teacher Collaboration in Professional Learning Communities and Collaborative Teaching Practices. *Journal of Education and e-Learning Research, 10,* 446-452. https://doi.org/10.20448/jeelr.v10i3.4841

Makki, A. A., Alqahtani, A. Y., Abdulaal, R. M., & Madbouly, A. I. (2023). A Novel Strategic Approach to Evaluating Higher Education Quality Standards in University Colleges Using Multi-Criteria Decision-Making. *Education Sciences, 13,* Article 577. https://doi.org/10.3390/educsci13060577

Meng, S. (2023). Enhancing Teaching and Learning: Aligning Instructional Practices with Education Quality Standards. *Research and Advances in Education, 2,* 17-31. https://doi.org/10.56397/RAE.2023.07.04

Ministry of Education of the People's Republic of China (2019). *China's Education Modernization 2035 [White Paper].* Ministry of Education of the People's Republic of China.

Muzaffar, N., Nahid, S., & Abbas, M. (2023). Role of Professional Training of Teachers and Its Relationship with Teaching Quality. *Global Educational Studies Review, VIII,* 367-375. https://doi.org/10.31703/gesr.2023(VIII-I).32

Tumusiime, P., Mwalw'a, S., & Okemasisi, K. (2021). Principals' Implementation of Teacher Performance Appraisal and Development (TPAD) Tool and Teachers' Performance in Public Secondary Schools in Kikuyu Constituency. *African Journal of Emerging Issues, 3,* 1-22.

Wong, J. T., Bui, N. N., Fields, D. T., & Hughes, B. S. (2023). A Learning Experience Design Approach to Online Professional Development for Teaching Science through the Arts: Evaluation of Teacher Content Knowledge, Self-Efficacy, and STEAM Perceptions. *Journal of Science Teacher Education, 34,* 593-623. https://doi.org/10.1080/1046560X.2022.2112552

Xia, Y., Qu, D., Stoyanets, N., & Zhao, H. (2022). Policy Evolution of Personnel Management in Chinese Educational Institutions: A Comprehensive Policy Circle Analysis. *Problems and Perspectives in Management, 20,* 544-559. https://doi.org/10.21511/ppm.20(4).2022.41

Xue, E. Y., & Li, J. (2020). What Is the Ultimate Education Task in China? Exploring "Strengthen Moral Education for Cultivating People" ("Li De Shu Ren"). *Educational Philosophy and Theory, 53,* 128-139. https://doi.org/10.1080/00131857.2020.1754539

Zhang, J., & Zhang, C. (2023). Teaching Quality Monitoring and Evaluation of Physical Education Teaching in Ordinary College Based on Edge Computing Optimization Model. *The Journal of Supercomputing, 79,* 16559-16579. https://doi.org/10.1007/s11227-023-05324-x

Zhang, W., Wang, Y., Yang, L., & Wang, C. (2020). Suspending Classes without Stopping Learning: China's Education Emergency Management Policy in the COVID-19 Outbreak. *Journal of Risk and Financial Management, 13,* Article 55. https://doi.org/10.3390/jrfm13030055

Zhorova, I. Y., Kokhanovska, O. V., Khudenko, O. M., Osypova, N. V., & Kuzminska, O. H. (2022). Teachers' Training for the Use of Digital Tools of the Formative Assessment in the Implementation of the Concept of the New Ukrainian School. *Educational Technology Quarterly, 2022,* 56-72. https://doi.org/10.55056/etq.11

Appendix

Likert Scale

Table A1. Background information.

Gender	Male
	Female
Age	25 years old or younger
	26 - 35 years old
	36 - 45 years old
	46 - 60 years old
Education background	Diploma or below
	Bachelor's degree
	Master's degree
	Doctorate
Work experience	Less than 1 year
	1 - 5 years
	6 - 10 years
	More than 10 years
Workplace	Primary school
	Middle school
Job title	Junior teacher
	Intermediate teacher
	Senior teacher
	Specialgrade teacher

Table A2. Teacher's professional development.

B1	You think the evaluation standards of Jinan City are conducive to improving the professional development of teachers.	1	2	3	4	5
B2	You think the performance evaluation standards of Jinan City have a positive impact on teachers' teaching reflection.	1	2	3	4	5
B3	You think that after the implementation of performance evaluation standards, there are more opportunities to use innovative methods to solve difficulties in work.	1	2	3	4	5
B4	You think that the implementation of performance evaluation standards has motivated you to improve your teaching behavior.	1	2	3	4	5
B5	You think the performance evaluation standards of Jinan City can promote information exchange and cooperation among teachers.	1	2	3	4	5

Continued

B6	You think the implementation of performance evaluation standards has stimulated the growth of your expertise.	1	2	3	4	5
B7	You think the implementation of performance evaluation standards has stimulated the improvement of your professional ability.	1	2	3	4	5
B8	You think the performance evaluation standards of Jinan City provide continuous vocational training and development opportunities.	1	2	3	4	5
B9	You think performance evaluation standards can help teachers adapt to emerging technologies.	1	2	3	4	5
B10	You think the performance evaluation criteria support teachers to participate in professional learning communities and cooperative networks.	1	2	3	4	5

1 = Strongly Disagree; 2 = Disagree; 3 = Moderately Agree; 4 = Agree; 5 = Strongly Agree.

Table A3. Teacher's teaching quality.

C1	You think the performance evaluation standards of Jinan City have an impact on your teaching methods.	1	2	3	4	5
C2	You can apply the requirements of evaluation standards to practical teaching.	1	2	3	4	5
C3	You think that the implementation of performance evaluation standards has improved the teaching quality of teachers.	1	2	3	4	5
C4	You have used innovative teaching methods to teach after participating in the implementation of performance evaluation standards.	1	2	3	4	5
C5	You think the performance evaluation standards help you better design and organize teaching content.	1	2	3	4	5
C6	You think the performance evaluation standards have a positive impact on students' learning outcomes.	1	2	3	4	5
C7	You think that performance evaluation standards promote the use of diversified teaching strategies.	1	2	3	4	5
C8	You think performance evaluation standards are helpful in improving classroom management and teaching environment.	1	2	3	4	5
C9	You think the performance evaluation criteria are fair in the evaluation of teaching effectiveness.	1	2	3	4	5
C10	You think performance evaluation standards encourage teaching innovation.	1	2	3	4	5

1 = Strongly Disagree; 2 = Disagree; 3 = Moderately Agree; 4 = Agree; 5 = Strongly Agree.

Table A4. Performance evaluation standards for teachers in Jinan.

D1	You know very well the performance evaluation standards for teachers in Jinan.	1	2	3	4	5
D2	You think the goal setting involved in the evaluation criteria of Jinan City is clear and reasonable.	1	2	3	4	5
D3	You are satisfied with the implementation process of Jinan performance evaluation standards.	1	2	3	4	5

Continued

D4	You are willing to participate in more discussion activities about the reform of evaluation standards in the future.	1	2	3	4	5
D5	You think that the reform of performance evaluation standards has an impact on the overall quality of education.	1	2	3	4	5
D6	You think the existing evaluation standards need to be improved.	1	2	3	4	5

1 = Strongly Disagree; 2 = Disagree; 3 = Moderately Agree; 4 = Agree; 5 = Strongly Agree.