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Teaching Load and Project-Based Learning: Unveiling the Effects on Teacher Performance and Compensation

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Abstract:

This study investigates how teaching load and implementing project-based learning (PBL) models influence teacher performance, specifically focusing on the mediating role of work compensation. Despite the increasing adoption of PBL in classrooms, limited research has examined its direct and indirect effects on educators themselves. Using a quantitative survey approach, data were collected from 300 teachers across several schools in Probolinggo Regency. The research employed Structural Equation Modeling (SEM) through SmartPLS to analyze direct and mediated relationships between the variables. Findings reveal that teaching load has a significant positive effect on both work compensation and teacher performance, whereas the direct impact of PBL on performance is statistically insignificant. However, PBL positively influences compensation, significantly contributing to performance improvement. These results suggest that compensation mechanisms are crucial in translating instructional innovations and workload demands into tangible improvements in teacher outcomes. The study underscores the importance of aligning institutional compensation policies with workload realities and pedagogical strategies to foster a more effective and motivated teaching workforce. The findings offer practical implications for educational stakeholders seeking to improve teacher performance through a balanced consideration of workload, compensation, and teaching methodology.

Keywords: *Teaching Load, Teacher Performance, Project-Based Learning (PBL), Compensation*

Abstrak:

Penelitian ini menginvestigasi bagaimana beban mengajar dan penerapan model pembelajaran berbasis proyek (PBP) memengaruhi kinerja guru, dengan fokus pada peran mediasi kompensasi kerja. Meskipun PBP semakin banyak diterapkan di ruang kelas, penelitian mengenai dampak langsung dan tidak langsung terhadap guru masih terbatas. Menggunakan pendekatan survei kuantitatif, data dikumpulkan dari 300 guru di beberapa sekolah di Kabupaten Probolinggo. Penelitian ini menggunakan Structural Equation Modeling (SEM) melalui SmartPLS untuk menganalisis hubungan langsung dan mediasi antar variabel. Hasil penelitian menunjukkan bahwa beban mengajar memiliki pengaruh positif yang signifikan terhadap kompensasi kerja dan kinerja guru, sementara pengaruh langsung PBP terhadap kinerja guru tidak signifikan secara statistik. Namun, PBP ditemukan berpengaruh positif terhadap kompensasi, yang pada gilirannya berkontribusi signifikan terhadap peningkatan kinerja. Hasil ini menunjukkan

bahwa mekanisme kompensasi memainkan peran penting dalam mengubah tuntutan beban kerja dan inovasi pengajaran menjadi peningkatan hasil kinerja guru. Penelitian ini menekankan pentingnya penyelarasan kebijakan institusional terkait kompensasi dengan kenyataan beban kerja dan strategi pedagogik untuk menciptakan tenaga pengajar yang lebih efektif dan termotivasi. Temuan ini memberikan implikasi praktis bagi pemangku kepentingan pendidikan yang ingin meningkatkan kinerja guru melalui pertimbangan yang seimbang antara beban kerja, kompensasi, dan metode pengajaran.
Kata Kunci: *Beban Mengajar, Kinerja Guru, Pembelajaran Berbasis Proyek, Kompensasi*

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INTRODUCTION

One of the most significant challenges facing contemporary educational systems is understanding how teaching workloads influence teacher performance and professional well-being (Ortan et al., 2021; Skinner et al., 2021; Wang, 2023). Despite extensive discussions around improving instructional quality, the role of teaching load as a predictor of teacher performance remains underexplored, especially when accounting for intermediary variables like compensation and innovative teaching methods (Shen et al., 2023; Proudfoot & Boyd, 2024; Ma & Marion, 2025). This research problem is critical because teaching load affects not only teachers' productivity but also their job satisfaction, retention rates, and, ultimately, student outcomes (Modaresnezhad et al., 2021; Hu et al., 2022; Richter et al., 2022). However, existing evidence is often fragmented or inconclusive, leaving the central question unanswered: How do we balance teaching demands with teacher quality and professional rewards?

Current studies have laid the groundwork for teacher workload and performance interplay. For instance, Berger (2021) provides evidence that increased teaching responsibilities can motivate teachers under certain conditions, while Catenaccio et al. (2022) show that well-compensated teachers tend to achieve better outcomes. However, the precise mechanisms by which workload pressures translate into performance improvements or deterioration remain poorly understood. Much of the prior research has focused on either workload or compensation in isolation, neglecting the potential mediating effects of innovative pedagogical approaches such as project-based learning.

Furthermore, while some studies have examined project-based learning (PBL) in terms of its impact on student engagement and achievement (Umar & Ko, 2022; Rehman et al., 2024; Tirado-Morueta et al., 2024), the effect of PBL on teacher performance and workload management is rarely addressed. This gap points to a critical oversight: Although PBL requires substantial planning and preparation, it might also enhance teacher motivation and instructional quality when paired with appropriate compensation frameworks. The interplay among these variables, workload, compensation, and instructional models warrants a more integrated analysis to uncover potential strategies for optimizing teacher performance.

Several gaps and weaknesses in the existing literature provide a strong rationale for this study. First, while it is widely acknowledged that overburdened teachers struggle to maintain high performance, little is known about the thresholds at which workloads begin to detract from teacher effectiveness. Second,

despite growing interest in innovative instructional models, there is scant evidence on how these approaches might alleviate—or exacerbate—workload pressures. Third, the compensatory mechanisms that might mitigate the adverse effects of heavy teaching loads remain underexplored. Addressing these gaps will help illuminate the pathways by which teaching conditions can be improved for both educators and their students.

Key questions arise from this analysis: To what extent does teaching load directly influence teacher performance, and how do compensation levels shape this relationship? Does implementing project-based learning mitigate the challenges associated with heavy teaching loads, or does it introduce additional pressures that undermine teacher effectiveness? This study seeks to deepen our understanding of how teaching workloads, compensation structures, and instructional innovations interact by investigating these questions, ultimately providing actionable insights for educational policy and practice.

This research continues the tradition of examining teacher workload and compensation by extending the analysis to include the mediating role of instructional approaches like PBL. Doing so clarifies earlier findings that isolated workload or compensation are primary factors, offering a more comprehensive perspective on teacher performance. The study aims to fill a critical literature gap, advancing theoretical understanding and practical applications.

In light of these gaps, this research pursues two primary objectives: first, to examine the direct and indirect relationships among teaching workload, compensation, and teacher performance, and second, to evaluate how project-based learning might serve as a mediating variable that influences these relationships. The study seeks to identify the underlying causes of performance variation and potential interventions to improve teaching conditions and outcomes.

To achieve these goals, the structure of this paper is as follows. Following this introduction, the literature review synthesizes previous research on teaching workload, compensation, and instructional models, highlighting areas of agreement and controversy. Next, the methodology section outlines the quantitative approach used to analyze survey data from a diverse sample of educators. The findings section presents the results of statistical analyses, including structural equation modeling and path coefficients. Finally, the discussion interprets these findings in light of existing research, offers practical recommendations for educators and policymakers, and suggests directions for future study. This way, the paper establishes a clear progression from identifying the research problem to drawing meaningful conclusions and implications.

RESEARCH METHOD

This study adopts a quantitative approach with a survey research design to explore the effects of teaching load and project-based learning (PBL) models on teacher performance through compensation as a mediating variable. The quantitative approach is chosen because it allows for the testing of relationships between variables in a large sample using robust statistical techniques, such as Structural Equation Modeling (SEM), for data analysis (Mohajan, 2020; Borgstede

& Scholz, 2021; Lim, 2024). The survey design is selected to gather data from a representative sample, allowing for generalization of the research findings to a broader population.

The population for this study consists of 300 teachers from various schools in Probolinggo Regency, selected due to the relevance of the educational context and ease of accessibility. Teachers are chosen as the sample because they have direct experience with the teaching load they face during the learning process at their schools. The sampling technique used is random sampling, where each teacher has an equal chance of being selected as a respondent, ensuring a broader population representation. A sample size of 300 respondents is chosen based on statistical power considerations and the ability to capture the diversity of responses to the tested variables.

Data collection was conducted using an electronically distributed questionnaire to all selected respondents. The questionnaire was designed to measure four main variables: teaching load (BM), project-based learning (PBL), work compensation (BO), and teacher performance quality (IP). Each variable was measured using a 5-point Likert scale, allowing respondents to indicate their agreement or disagreement with relevant statements. The questionnaire instrument was tested for validity and reliability through outer loading analysis in SmartPLS, and most indicators met the validity threshold ($\geqslant$ 0.7). However, some invalid items (BM5, PBP9, BO7, and IP2) were removed from the model.

After data collection, analysis was performed using SmartPLS software, which allows for measurement and structural model testing. The statistical method used in this study is Structural Equation Modeling (SEM) to analyze the relationships between variables in the proposed research model. SEM is chosen for its ability to test complex relationships between interconnected variables and mediation, which is the primary objective of this study. In this analysis, testing is performed on direct and indirect effects between variables, along with the validity and reliability of the proposed model. Thus, the methodology applied in this study is appropriate and suitable for the social research context, aiming to provide insights into how factors such as teaching load and PBL affect teacher performance and how compensation can be a significant linking factor in this context.

RESULT AND DISCUSSION

Result

This study was used to determine and test the relationship between teaching load, the application of project-based learning models, the quality of teacher performance, and teacher work compensation as mediating variables. This study uses quantitative data analysis with the SmartPLS tool to test the relationship between variables in the proposed model.

Description of Measurement Model

In this study, a questionnaire was distributed to 300 respondents to measure the variables studied. Then an analysis was carried out to determine the level of accuracy through an outer model test carried out using SmartPLS software. 4. This study uses a reflective measurement model to measure teaching load

variables, project-based learning models, teacher performance quality, and teacher work compensation. The convergent validity of each indicator was tested using Outer Loading, with a value of ≥ 0.7 considered to meet the validity criteria. The results of the Outer Loading test can be seen in Table 1.

Table 1. Outer Model Test

Variable	Measurement Items	Outer Loading	Criterion
Teaching Load (BM)	BM1	0.813	Valid
	BM10	0.75	Valid
	BM2	0.816	Valid
	BM3	0.829	Valid
	BM4	0.722	Valid
	BM5	0.675	Invalid
	BM6	0.826	Valid
	BM7	0.76	Valid
	BM8	0.797	Valid
	BM9	0.716	Valid
Project-Based Learning Model (PBP)	PBP1	0.844	Valid
	PBP10	0.883	Valid
	PBP2	0.896	Valid
	PBP3	0.907	Valid
	PBP4	0.886	Valid
	PBP5	0.874	Valid
	PBP6	0.859	Valid
	PBP7	0.854	Valid
	PBP8	0.821	Valid
	PBP9	0.634	Invalid
Work Compensation (BO)	BO1	0.78	Valid
	BO10	0.829	Valid
	BO2	0.849	Valid
	BO3	0.711	Valid
	BO4	0.787	Valid
	BO5	0.771	Valid
	BO6	0.741	Valid
	BO7	0.666	Invalid
	BO8	0.832	Valid
	BO9	0.714	Valid
Quality of Teacher Performance (IP)	IP1	0.794	Valid
	IP10	0.749	Valid
	IP2	0.678	Invalid
	IP3	0.801	Valid
	IP4	0.86	Valid
	IP5	0.835	Valid
	IP6	0.816	Valid
	IP7	0.85	Valid
	IP8	0.769	Valid
	IP9	0.836	Valid

The results of the outer model test above show a ⩾ value of 0.7, indicating good convergence validity. However, there are some invalid items, such as BM5 (0.675), PBP9 (0.634), BO7 (0.666), and IP2 (0.678), whose values are below the minimum limit. In the analysis test through SmartPLS 4, invalid items were

evaluated from the measurement model. The measurement items used are as many as 36 items, as shown in the following Figure 1.

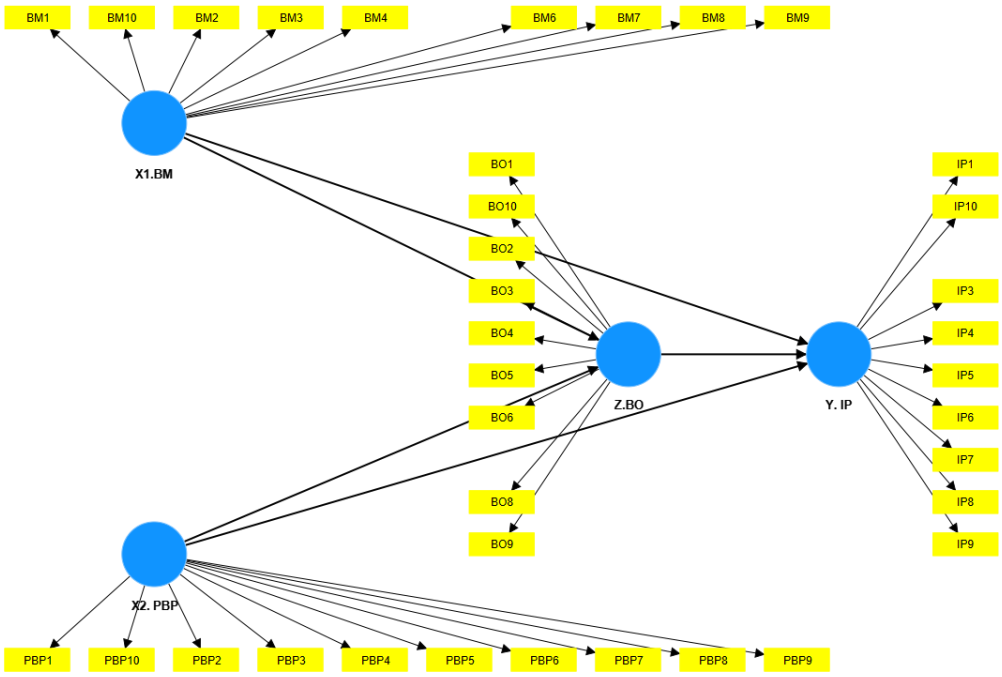

Figure 1. Outer Loading Results

Once the items declared invalid are deleted and eliminated from the measurement model, they are evaluated to test and determine the construct's validity and realism. The review of the measurement model is carried out by testing the construct's validity and reliability. The validity of the construct is tested through convergence and discrimination tests, while the reliability is tested using Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). This is shown in Table 2.

Table 2. Measurement Model Evaluation

Construction	Cronbach's Alpha	Composite Reliability	AVE
Teaching Load (BM)	0.922	0.935	0.617
Project-Based Learning Model (PBP)	0.962	0.967	0.766
Work Compensation (BO)	0.921	0.935	0.666
Teacher Performance Quality (IP)	0.937	0.947	0.615

The Model Evaluation Results suggest that all the constructs in this research attained above 0.7 for their Cronbach's Alpha and Composite Reliability scores, which indicates a strong internal consistency for each construct. Further, the value of Average Variance Extracted (AVE) for each construct is also more significant than the cut-off point of 0.5, which means that more than 50% of the variance of the measured indicators was explained by the construct that was estimated. The analytical instruments and findings meeting the requirements for the factors imply that the instruments used in the present research are consistent and valid for

measuring every construct reviewed: teaching load, project-based instructional model, teacher burnout, and learning interventions.

After evaluating the measurement model, a discriminatory validity test was conducted using the Fornell-Larcker Criterion. The test showed that each construct was more strongly related to its own indicators than to other constructs, as shown in Table 3.

Table 3. Discriminatory Validity Results (Fornell-Larcker Criterion)

Construction	BM	PBP	IP	BO
Teaching Load (BM)	0.785			
Project-Based Learning Model (PBP)	0.551	0.849		
Teacher Performance Quality (IP)	0.659	0.588	0.816	
Work Compensation (BO)	0.684	0.642	0.761	0.784

The results of this test confirm that all constructs have good discriminatory validity because the root value of each construct is greater than the correlation value between constructs. This states that the results of the validity of discrimination can be used properly.

Structural Model Evaluation

Before conducting a hypothesis test, a statistical test of collinearity (VIF) is first carried out to determine whether there is multicollinearity (habit) between variables. The following are the results of the VIF test:

Table 4. Evaluation of the Strutural Model (Inner VIF)

	BM	PBP	IP	BO
BM			1.961	1.437
PBP			1.771	1.437
IP				
BO			2.319	

Thefts of the estimation test in Table 4 show the Inner VIF is <5, so the multicollinearity (habit) level between variables is low. This result strengthens the parameter estimation results in SEM PLS, which are robust (unbiased). Once it is known that the results of the measured parameters have a strong and unbiased VIF value result, hypothesis testing can be continued. Where the hypothesis test carried out to measure each variable is shown in Figure 2.

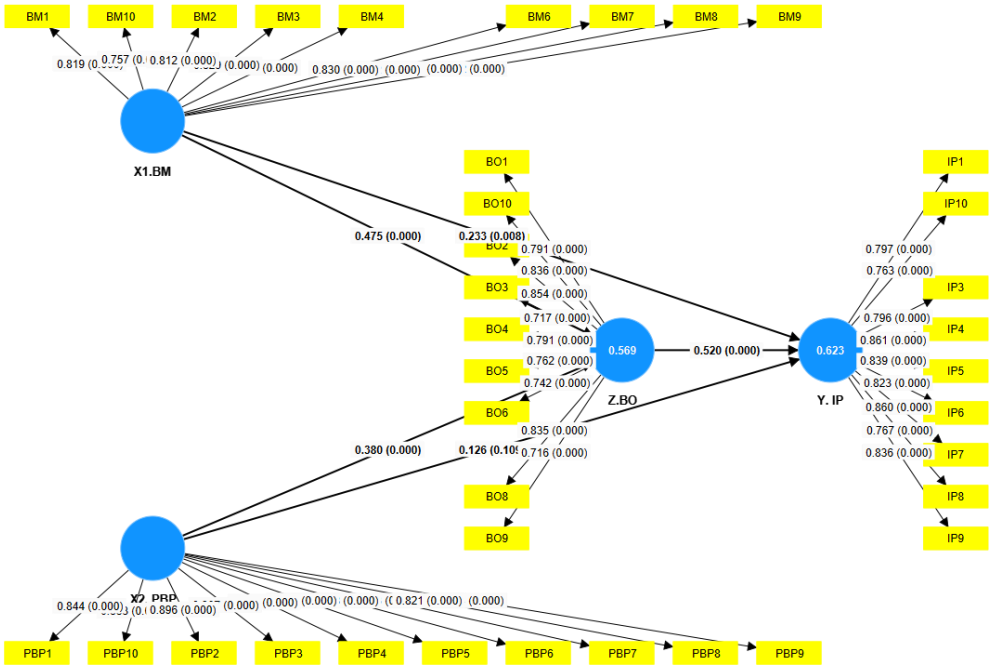

Figure 2. Path Coefficient and P-Values Results

Departing from Figure 2. Related to the results of path coefficient and p-values, which are used as materials to determine the hypothesis of each variable studied. The results of hypothesis testing can then be presented in Table 5.

Table 5. Hypothesis Testing (Direct-Effect)

	Hypothesis	Path Coefficient	P-Value	95% Interval Confidence Path Coefficient		F-Square
				Upper Limit	Lower Limit	
H1	BM -> IP	0.233	0.008	0.068	0.408	0.074
H2	BM -> BO	0.475	0.000	0.316	0.615	0.364
H3	PBP -> IP	0.126	0.109	-0.034	0.273	0.024
H4	PBP -> BO	0.380	0.000	0.248	0.532	0.233
H5	BO -> IP	0.520	0.000	0.333	0.701	0.310

The first hypothesis (H1) was accepted because the teaching load had a positive and significant effect on the quality of teacher performance, with a path coefficient value of 0.233 and a p-value of 0.008, which was smaller than 0.05. This means that every increase in teaching load has the potential to improve the quality of teacher performance. The 95% confidence interval for the path coefficient ranged from 0.068 to 0.408, indicating the significant relationship between teaching load and teacher performance quality. Although there was a positive influence, the magnitude of the influence shown was relatively small, with an F^2 value of 0.074, which categorized this influence as small ($F^2 < 0.15$). This indicates that although the impact is significant, increasing the teaching load alone will not be enough to be the main factor boosting teacher performance quality. Other factors need to be considered in improving the overall quality of teacher performance.

The second hypothesis (H2) was accepted because the teaching load positively and significantly affected work compensation, with a path coefficient

value of 0.475 and a p-value of 0.000, less than 0.05. This suggests that any increase in the teaching load will contribute to the rise in teachers' work compensation. The 95% confidence interval showed that the effect of teaching load on work compensation ranged from 0.316 to 0.615, indicating a fairly strong relationship. Teaching load greatly influences work compensation with an F^2 value of 0.364, which is included in the large category ($F^2 > 0.35$). This indicates that the teaching load is essential in determining teacher work compensation. Therefore, schools or educational institutions need to consider the teaching load in determining work compensation to ensure the welfare of teachers and increase their work motivation.

The third hypothesis (H3) was rejected because the project-based learning model (PBP) did not significantly affect teacher performance quality, with a path coefficient value of 0.126 and a p-value of 0.109, which was greater than 0.05. This shows that applying the project-based learning model does not significantly influence the quality of teacher performance in this study. The 95% confidence interval for this influence ranges from -0.034 to 0.273, which includes a value of zero, indicating that this relationship is inconsistent and may be influenced by other variables. A very small F^2 (0.024) also shows that the project-based learning model's influence on teacher performance quality is limited. Therefore, although PBP can have benefits in a teaching context, its effect on teacher performance was not manifested in this study, which suggests that other factors may be more critical in determining the quality of teacher performance.

The fourth hypothesis (H4) was accepted because the project-based learning model had a positive and significant effect on work compensation with a path coefficient value of 0.380 and a p-value of 0.000, which was smaller than 0.05. Applying the project-based learning model will increase the work compensation teachers receive. The 95% confidence interval showed that the influence of the project-based learning model on work compensation ranged from 0.248 to 0.532, indicating a fairly strong relationship. The project-based learning model moderately influenced work compensation with an F^2 value of 0.233, which was included in the medium category ($0.15 < F^2 < 0.35$). This shows that although the project-based learning model significantly influences work compensation, the influence is not as significant as the teaching load. Therefore, the application of a project-based learning model can be one of the critical factors in determining work compensation, but it needs to be considered along with other factors.

The fifth hypothesis (H5) was accepted because work compensation had a positive and significant effect on the quality of teacher performance, with a path coefficient value of 0.520 and a p-value of 0.000, which was smaller than 0.05. This shows that every increase in work compensation will improve the quality of teacher performance. This influence's 95% confidence interval ranged from 0.333 to 0.701, indicating a strong relationship between work compensation and teacher performance quality. Work compensation greatly influences teacher performance quality, with an F^2 value of 0.310, which is included in the large category ($F^2 > 0.35$). Therefore, work compensation is a very important factor in improving the quality of teacher performance. By providing better compensation, teacher performance can be enhanced, improving the overall quality of education.

Table 6. Hypothesis Testing (Indirect-Effect)

	Hypothesis	Path Coefficient	P-Value	95% Interval Confidence Path Coefficient		F-Square
				Upper Limit	Lower Limit	
H6	BM -> BO > IP	0.233	0.008	0.068	0.408	0.061
H7	PBP -> BO -> IP	0.475	0.000	0.316	0.615	0.039

The sixth hypothesis (H6) was accepted because the teaching load had a positive effect on work compensation, which then had a positive impact on the quality of teacher performance, with a path coefficient value of 0.233 and a p-value of 0.008, which was smaller than 0.05. This shows that the teaching load indirectly affects the quality of teacher performance through work compensation. The 95% confidence interval for the path coefficient ranged from 0.068 to 0.408, indicating a significant and positive relationship. This indirect effect has an F^2 value of 0.061, which suggests that the effect is relatively small ($F^2 < 0.15$). Although the indirect influence between teaching load and teacher performance quality through work compensation is significant, the effect is relatively small. This means that although there are substantial indirect pathways, other factors may be more decisive in influencing the quality of teacher performance.

The seventh hypothesis (H7) was accepted because the project-based learning model had a positive effect on work compensation, which then positively impacted the quality of teacher performance, with a path coefficient value of 0.475 and a p-value of 0.000, which was smaller than 0.05. This shows that applying the project-based learning model indirectly affects the quality of teacher performance through work compensation. The 95% confidence interval for the path coefficient ranged from 0.316 to 0.615, indicating a strong and significant relationship. This indirect-effect effect has an F^2 value of 0.039, which means a small effect ($F^2 < 0.15$). Although this indirect influence is significant, a small F^2 value indicates that the contribution of the project-based learning model to improving the quality of teacher performance through work compensation is not as significant as other factors. However, it is still relevant in teacher performance improvement strategies.

Model Goodness and Fit Evaluation

Goodness-of-fit (GoF) is a metric for evaluating the extent to which a research model matches the data used. In the analysis using SmartPLS, the GoF is calculated based on two components, namely the R-square and Q-square tests, which are shown in Table 7.

Table 7. Hypothesis Testing (Indirect-Effect)

	R-Square	Q-Square
Y. IP	0.623	0.482
Z. BO	0.569	0.543

The results of the R-Square test in this study provide important insights into the extent to which the model used can explain the variability of dependent variables. For the quality of teacher performance (IP), an R^2 value of 0.623 shows

that 62.3% of the variation in teacher performance quality can be explained by independent variables in the model, such as teaching load, project-based learning model, and work compensation. This shows that the model has quite good explanatory ability, providing an overview of the importance of these factors in improving the quality of teacher performance. The significant contribution of these variables reflects the close relationship between teaching load, the application of project-based learning models, and work compensation to the quality of teacher performance. Although this model does not cover other external factors, a high R^2 value indicates that most of the influencing factors were already considered in this study.

Meanwhile, the work compensation (BO) has an R^2 value of 0.569, which means that the variables in this model can explain 56.9% of the variation in work compensation. Although slightly lower than the quality of teachers' performance, this score still shows that the factors tested can significantly affect work compensation. Work compensation is one of the critical factors in improving the quality of teacher performance, and these results confirm that improvements in the compensation system can have a positive impact on performance. While this model is sufficiently adequate in explaining the relationship between variables, there is still room for adding other factors that can more fully explain variations in work compensation, such as education policy or other socio-economic factors that may also play a role.

In the case of Q-Square, the results show that the model can predict unobserved values or data not present in the sample. The Q^2 value of 0.482 for the quality of teacher performance shows that the model can predict around 48.2% of the value of this variable with relatively good accuracy. This good predictive ability shows that the model is suitable for explaining the relationships between the tested variables and can also be used to predict unobserved outcomes with sufficient precision. This is crucial to ensure that the built model matches the existing data and can be applied to new data or in other contexts. Good predictions also reinforce the validity and reliability of the research results, signaling that the model is reliable for further analysis.

For work compensation (BO), a Q^2 value of 0.543 indicates that the model has a higher predictive ability, with an accuracy of about 54.3%. This shows that the model can better predict variability in work compensation than in the quality of teacher performance. This good predictive ability gives confidence that the proposed model is accurate in explaining the relationships between variables and in projecting data that may not be available at the research stage. Thus, this model can be adapted for further studies or to test interventions that can improve work compensation and the quality of teachers' performance more effectively. Overall, the high Q^2 results for these two variables indicate that the model built in this study has good predictive power and high relevance in education.

Discussion

This study aims to explore the relationship between teaching load, the application of project-based learning models (PBP), the quality of teacher performance, and compensation, with a particular focus on how compensation can mediate these relationships. This study is designed to contribute to the existing

literature on educational performance and teacher compensation by examining a structural model that reflects the interaction of these factors in the context of education. Previous research has shown that factors such as teaching load and compensation can significantly affect teacher performance (Abdulaziz et al., 2022; García et al., 2022; Hermanto & Srimulyani, 2022), while the project-based learning model is believed to improve teacher engagement and student learning (Juuti et al., 2021; Morrison et al., 2021; Pan et al., 2022). However, the role of compensation mediation in this dynamic is still poorly researched. Therefore, this study seeks to fill in the gaps using quantitative analysis through SmartPLS to provide empirical evidence on how these factors are interconnected.

The results of this study reveal several important insights. First, a significant positive relationship was found between teaching load and teacher performance, with a path coefficient of 0.233 and a p-value of 0.008. These results show that although the increase in teaching load has a small positive effect, it does not substantially affect teacher performance. These findings support the research Selvaraj et al. (2021) which states that increased teaching load can positively impact performance, but only to a certain point before finally starting to impact teaching quality negatively.

Furthermore, the relationship between teaching load and compensation was found to be quite strong, with a path coefficient of 0.475 and a p-value of 0.000. This shows that the higher the teaching load, the greater the compensation received. These findings are in line with research by Hagenauer et al. (2023), which indicates that compensation increases as a result of greater liability.

However, the direct relationship between the application of the project-based learning model and teacher performance (path coefficient 0.126, p-value 0.109) was not significant. This contradicts the findings of Tirado-Morueta et al. (2022), which show that project-based learning has a tremendous positive impact on teacher engagement and performance. The insignificance of this influence may be due to the complexity and contextual dependence in applying the PBP model, suggesting that other factors, such as teacher readiness and institutional support, may play a more important role.

Nonetheless, there was a moderate positive effect between PBP and compensation (path coefficient 0.380, p-value 0.000), which is in line with the study by Khan et al. (2024) who emphasized that innovative learning models such as PBP can increase teachers' grades, thus impacting the compensation received. These findings suggest that educational institutions may incentivize teachers who adopt these progressive learning methods.

A substantial positive association was also found between compensation and teacher performance (path coefficient 0.520, p-value 0.000), which reinforces Zhang's (2022) findings that higher compensation can motivate teachers to improve their performance. These findings confirm that financial incentives are important in improving educational outcomes. The study also found significant indirect effects. Teaching load and PBP affect teacher performance through compensation. These findings suggest that compensation acts as a mediator in the relationship between teaching load and performance and between PBP and teacher performance. This reflects the idea that adequate compensation can

motivate teachers to improve their performance and engagement.

Several expected and unexpected results were found in this study. A significant positive relationship between teaching load and compensation is expected, as a more significant workload is often followed by higher pay in an educational setting. However, the relatively small effect of teaching load on teacher performance ($F^2 = 0.074$) was more surprising. These findings suggest that while increased teaching load can increase compensation, it is not always directly proportional to improved teacher performance. One possible explanation is the cognitive and emotional stress caused by the excessive teaching load, which can reduce the quality of teaching even if the financial incentives remain.

The direct influence of PBP on teacher performance is also an unexpected finding. Although PBP has been shown to improve student engagement and learning (Liu, 2021), the impact on teacher performance in this study is minimal. This insignificance can be caused by variations in teacher experience with project-based learning methods and institutional and resource limitations that may hinder the effective implementation of PBP.

The findings of this study have several theoretical and practical recommendations. Theoretically, this research contributes to developing research on the complex dynamics between teaching load, compensation, and teaching methods. The results show that although teaching load and compensation have a strong relationship, their impact on teacher performance is more complex. Therefore, theoretical models regarding teacher performance should consider the role of compensation mediation and explore how different teaching strategies affect teacher motivation and effectiveness.

In practical terms, these findings emphasize the importance of designing compensation structures that reflect the teaching load and provide incentives for implementing innovative learning methods, such as PBP. Education administrations need to consider providing additional compensation to teachers who adopt this learning model, as it can contribute to the institution's goal of improving the quality of education. However, it is critical that the implementation of PBP is supported by adequate training and resources to succeed.

CONCLUSION

The study addressed the crucial issue of how teaching load and project-based learning (PBL) influence teacher performance, emphasising the role of work compensation as a mediating factor. Findings indicate that while teaching load has a direct positive impact on both compensation and performance, the direct effect of PBL on teacher performance was found to be statistically insignificant. However, PBL significantly enhanced compensation, which, in turn, positively impacted teacher performance. These results underscore the importance of aligning compensation mechanisms with workload and teaching innovations. For educational stakeholders, the study suggests that adopting a balanced approach that incorporates adequate compensation for implementing PBL could foster a more motivated and effective teaching workforce. Furthermore, future research could explore the long-term effects of such compensatory strategies and investigate additional teaching methods to alleviate workload pressures and improve performance outcomes.

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