

Research Article

The impact of transformational leadership on teacher performance: A study of professional learning communities in Indonesia

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School principals' leadership is crucial in improving teacher professionalism and performance. One key way to enhance teacher professionalism is through professional learning communities (PLCs). This study aims to explore the role of PLCs as a mediator between transformational leadership and teacher performance in Indonesia. This study is quantitative research method uses an online questionnaire as a research instrument. The data were collected from 408 questionnaires distributed to teachers through random sampling techniques. Data analysis was performed using structural equation modeling with partial least squares. The findings indicate that teachers perceive effective transformational leadership practices to positively influence their engagement in PLCs. Additionally, PLCs demonstrate a positive impact on teacher performance and serve as a partial mediator in the relationship between transformational leadership and teacher performance. These results highlight the crucial role of PLCs in enhancing the effectiveness of transformational leadership in educational settings. This implies that while transformational leadership directly influences teacher performance, the presence and effectiveness of PLCs enhance this impact. Within the context of PLCs, educators engage in comprehensive discussions about teaching practices, share experiences and strategies, and collaborate to surmount teaching challenges.

Keywords: Leadership; Performance; Professional learning communities; Transformational

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1. Introduction

Teachers in educational institutions are expected to engage in continuous learning and self-development, as their contributions have a direct and significant impact on students' academic achievement and the overall effectiveness of the school (Özgenel & Mert, 2019). This expectation is based on the fact that teachers play an influential role in shaping learning experiences and coaching students to success in the education process. However, despite their critical role, many educators face persistent challenges such as work-related stress and burnout, which can hinder their ability to perform at their best (Bhai & Horoi, 2019). Teaching has, in fact, been recognized as one of the most demanding professions globally, with educators often dealing with overwhelming workloads, emotional strain, and increasing expectations from various stakeholders (Saloviita &

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Pakarinen, 2021). In the context of Indonesia, these challenges are compounded by concerns over teacher quality, which has been identified as a significant factor contributing to the overall substandard quality of education in the country. For instance, data from the 2021–2023 Teacher Competency Test reveals that approximately 81% of teachers in Indonesia did not meet the minimum competency score, highlighting a critical gap in teacher performance and pointing to the urgent need for effective teacher development programs. Indonesia's Human Development Index [HDI] reflecting that the quality of education and the standard of teaching in Indonesia are still behind those of several other nations (Kusharjanto & Kim, 2011). This situation underscores the importance of addressing the well-being and professional growth of educators to improve both their individual performance and the broader educational outcomes.

To support Sustainable Development Goals [SDGs] number 4, which aims to provide inclusive and equitable quality education, enhancing teacher competence is crucial. SDG 4 emphasizes the importance of quality education and sets a target to significantly increase the number of qualified teachers by 2030. This includes fostering international partnerships to conduct teacher development programs in developing countries, particularly in underdeveloped nations and Small Island Developing States [SIDS]. Such partnerships are vital in improving the quality of education and achieving SDG 4. Kopnina (2020), quality teachers are those whose performance and well-being are effectively supported. Cultivating these educators requires the establishment of PLCs and the enhancement of teachers' self-efficacy and self-determination. These factors are essential for ensuring that teachers can thrive and contribute to achieving sustainable quality education.

These findings highlight that both the competence and the quantity of teaching staff failing to meet the required standards will inevitably affect the quality of education. To address this issue, it is essential to focus on the leadership responsibilities of school principals, as their influence plays a critical role in shaping teacher performance. Additionally, the establishment of a PLCs is crucial in supporting teachers' development and facilitating optimal performance. Previous research has demonstrated the significant impact of leadership on teacher performance, particularly in fostering a supportive environment for growth (Andriani et al., 2018). Furthermore, studies have shown that transformational leadership positively impacts teacher self-efficacy (Menon & Lefteri, 2021), which in turn enhances work attitudes (Muliati et al., 2022) and promotes greater work enthusiasm (Karabiyik & Korumaz, 2014). Therefore, the development of effective leadership practices, combined with a focus on creating PLCs, is essential for improving teacher performance, addressing competency gaps, and ultimately enhancing the overall quality of education.

Previous studies have shown that transformational leadership effectively fosters innovation and motivation among educators (Subhaktiyasa et al., 2024) leading to improvements in teaching quality and, consequently, the performance of educational institutions (Scheineder et al., 2024). This leadership style is closely linked to factors such as intrinsic motivation, teacher professional development, and organizational commitment (Andriani et al., 2018). Additionally, research on teacher performance has consistently highlighted strong correlations with self-efficacy (Li & Liu, 2022), organizational commitment (Madjid & Samsudin, 2021), and interpersonal communication. These findings underscore the crucial role of transformational leadership in enhancing teacher performance and driving positive outcomes within educational institutions.

This research examines the role of PLCs as mediators between transformational leadership and teacher performance. Previous studies have explored various aspects of this relationship, such as instructional leadership (Azis Wahab et al., 2022), the connection between transformational leadership, PLCs, and teacher self-efficacy (Voelkel, 2022), and the mediating role of PLCs in the relationship between transformational leadership and teacher job satisfaction (Huang & Chen, 2021). While much of the existing research focuses on how transformational leadership influences teacher performance through factors like motivation, self-efficacy, and competence, there is a gap in understanding how PLCs specifically mediate this relationship. This study aims to contribute to the existing evidence on the role of PLC in shaping engagement of transformational leadership and teacher development.

The objective of this study is to investigate the impact of transformational leadership on teacher performance in primary schools in Indonesia, with PLCs acting as a mediator. Using SEM PLS analysis, the study aims to explore how PLCs influence the relationship between transformational leadership and teacher performance. To achieve this, the research question is formulated as follows: To what extent do PLCs mediate the relationship between transformational leadership and teacher performance in primary schools in Indonesia?

2. Literature Review

2.1. Transformational Leadership

Transformational leaders take a comprehensive approach to managing change, shaping teachers' views on collaboration, assessment, and the optimization of school time and space (Sliwka et al., 2024). Principals with transformational leadership qualities are more likely to gain the trust of their teachers, resulting in improved performance, greater innovation, and stronger commitment from the teaching staff (Mansor et al., 2021). Abuhassira et al., (2024) emphasizes that transformational leadership positively impacts classroom interactions in private secondary schools, ultimately improving the overall learning environment for students.

Susilawati et al. (2021) highlights the impact of transformational leadership at the preschool level on teacher discipline and performance, indicating that it indirectly enhances teacher performance by increasing discipline. Sirait (2021) suggests that transformational leadership is linked to teacher performance through the work environment, demonstrating a positive and significant influence. Transformational leadership plays a pivotal role in enhancing teacher performance by fostering trust, mutual respect, and professional collaboration. Lei et al. (2024) found that principals' transformational leadership behaviors in primary schools significantly strengthen PLCs by promoting shared responsibility, reflective dialogue, and collective learning – all of which directly contribute to greater teacher engagement and instructional effectiveness. Moreover, the research indicates that transformational leadership directly and positively affects teacher performance and work motivation (Albuni et al., 2022).

The core competencies of transformational leadership, as outlined by (Leithwood et al., 2023), focus on several key areas that are vital for effective school leadership. First, the School Leadership: Setting Directions [SLSD] indicator emphasizes the principal's responsibility in creating a clear vision, mission, and set of goals that guide the school's progress. This is crucial in providing a sense of direction and purpose for the entire school community. Next, the School Leadership: Developing People [SLDP] indicator highlights the importance of cultivating strong, positive relationships with both staff and students. It's about fostering an environment where everyone feels valued, and individual growth is encouraged, making the school a supportive and motivating place for learning. The School Leadership: Developing the Organization [SLDO] indicator is focused on creating systems and structures that support the implementation of best educational practices. By organizing resources and processes effectively, the principal ensures that the school runs smoothly and is aligned with its goals. Finally, the School Leadership: Improving the Instructional Program [SLII] indicator calls for a commitment to continuous improvement. Regular assessment and refinement of learning programs are essential for enhancing the quality of education and ensuring that the needs of all students are met. Each of these factors works together to create a school environment that thrives on clear direction, strong relationships, effective systems, and ongoing growth.

2.2. Professional Learning Community

Hipp and Huffman (2003) state that PLCs play a crucial role in various aspects of school improvement. Firstly, in the supportive and shared leadership indicator, PLC fosters supportive leadership and shared responsibility and mediates the influence of teacher trust on colleagues, principals, and parents, thereby enhancing positive interactions and collaboration between principals and teachers. Secondly, in the shared values and vision indicator, PLC allows teachers

to espouse common values and beliefs that reinforce collective commitment to school quality. Additionally, in the aspect of collective learning and the application of learning, collaboration within PLCs enables teachers to offer input to each other, reflect on teaching experiences, and jointly devise solutions to enhance the quality of learning, thus demonstrating collective learning and the application of learning outcomes. Furthermore, through the indicators of supportive conditions, PLC nurtures a culture of trust and commitment and provides the necessary resources for collaboration and learning.

Yin (2019) highlights how PLCs play a crucial role in mediating the impact of teachers trust in colleagues, principals, and parents on their professional learning. This emphasizes the importance of fostering a culture of collegiality, trust, and collaboration within schools elements that were identified as key strengths in the surveyed schools (Antinluoma et al., 2018) Furthermore, Liang et al. (2022) revealed that PLCs contribute significantly to a more detailed understanding of teacher well-being. Their study underscores the connection between PLCs, teaching self-efficacy, and overall teacher well-being, suggesting that a supportive professional environment enhances teachers' confidence and job satisfaction. In the Indonesian context, PLCs have been shown to positively influence teachers innovative behaviors in schools (Windasari et al., 2025). This reflects the Indonesian government's efforts to encourage teachers to actively participate in PLC programs, which in turn boosts innovation and collaboration. For example, PLCs offer opportunities for improved communication and collaboration between school principals and teachers, helping create a more cohesive and supportive educational environment (Tayag, 2020). Through these interactions, PLCs not only enhance professional learning but also foster stronger relationships that contribute to the overall growth of teachers and schools.

2.3. Teacher Performance

Research on teacher performance has gained significant attention in the education sector, recognizing the importance of the teacher's role in shaping the quality of learning and student academic outcomes (Pamon & Oco, 2024). Teacher performance encompasses a broad spectrum of aspects, including pedagogical competence, classroom management, and the ability to adapt to curriculum and educational technology changes. According to Dinh et al. (2025), Proficient teachers have the potential to influence students' attitudes, behaviour, and skills in alignment with educational objectives. Furthermore, teacher performance is defined as the array of activities carried out by teachers in fulfilling their duties and responsibilities following defined expectations and goals (Rivai et al., 2019).

Improving teacher performance is crucial, as strong teacher performance can influence student motivation, the learning climate at school, and the school image in the eyes of the community (Pope, 2019). Teachers play a critical role in preparing students for learning, and weak teacher performance can have adverse effects on student engagement and achievement. Lei et al. (2024) emphasized that when teachers lack sufficient instructional support and leadership guidance, it negatively impacts the quality of teaching and, consequently, student outcomes. Effective teaching practices represent the core of quality teacher performance (Mailool et al., 2020). The quality of education is highly dependent on the learning management carried out by teachers. Good teacher performance not only directly impacts students' academic achievement, but can also enhance the school's reputation, increase parent and student satisfaction, and foster an environment conducive to growth and development.

The holistic development of students, which is essential for facing global competition, requires the determination to strive for organizational goals (Hartinah et al., 2020). Educational administration significantly influences teacher performance. For example, Tosun and Bozkurt Bostancı (2024) found that strong administrative support—encompassing infrastructure, effective job scheduling, and continuous quality monitoring—fully mediates the relationship between organizational support and teacher leadership in Turkish schools, ultimately enhancing instructional effectiveness. Additionally, teacher self-efficacy and emotional intelligence are crucial

for delivering good teaching performance, creating a good learning environment, and maintaining commitment to the teaching profession (Wu et al., 2019).

Educational administration is a key determinant of teacher performance. When leadership effectively supports teachers by providing infrastructure, scheduling guidance, and ongoing quality monitoring, instructional practices improve significantly (Tosun & Bozkurt Bostancı, 2024). Furthermore, Akosah et al. (2025) demonstrated that teachers' self-efficacy—enhanced by organizational and contextual support—significantly predicts their instructional quality and capacity to implement innovative practices. Additionally, high work motivation plays a crucial role in enhancing teacher performance. Duraku et al. (2022) further emphasizes that a strong organizational culture and elevated work motivation contribute to better teacher performance. When teachers are satisfied, committed, and motivated, they are more likely to work at their best, improving the quality of learning and supporting the achievement of the school's vision, mission, and goals.

2.4. Research Model

The research model in this research consists of transformational leadership, teacher performance, and professional learning community. Figure 1 illustrates the research model and research hypotheses developed through three variables. From these three variables, four hypotheses are then presented in detail.

Figure 1
Research model



Based on the model described, the hypotheses are described as follows:

H1: Transformational leadership positively affects PLCs.

H2: Transformational leadership has a significant affect on teacher performance.

H3: PLCs have a significant effect on teacher performance.

H4: PLCs mediate the influence of transformational leadership and teacher performance.

3. Method

3.1. Research Design

To analyze the relationship between variables, this research used a quantitative method. The analysis is conducted using Structural Equation Modeling [SEM] to measure the impact between variables. SEM analysis is based on two measurement models, namely, the outer model and the inner model. Outer model measurement is based on assessing convergent validity and discriminant validity. Convergent validity is conducted by measuring composite reliability, Cronbach's alpha, and extracting the average variance. While discriminant validity ensures that each unit represents its concept and does not overlap, discriminant validity is measured using the Farnell-larcker criterion. After conducting the outer model test, the next step is to conduct inner model tests to examine the research hypothesis. Hypothesis testing uses the t value or p-value, the main indicator of the examined structural model (Hair et al., 2014).

3.2. Participants

The population in this study consisted of primary school teachers in Surabaya. The sampling method used was a cluster random sampling technique. This approach was suitable given the city's large size and diverse educational landscape, allowing for a manageable and representative sample by dividing the city into clusters. The cluster area is divided into West, East, South, and North Surabaya, and teachers were randomly sampled from each area. The teachers were invited to participate through an online questionnaire. From a total of 420 questionnaires distributed, 408 questionnaires were returned and answered. The data indicates that out of the total 408 primary school teacher respondents in Surabaya City, 79 individuals or 19.4% were male, while 329 individuals or 80.6%, were female.

3.3. Instruments

The instrument used in this study employed a 5-point Likert scale, which was structured into two sections: the first section collected demographic information from the respondents, while the second section measured the key research variables.

To assess transformational leadership, the instrument focused on teachers' perceptions of how principals applied leadership practices, adapting the framework from (Leithwood et al., 2023) with total 22 item has a Cronbach Alpha 0.99, indicating high score internal consistent used several items such as "Help clarify the reasons for implementing school improvement initiatives" and "Create relationships with teachers that encourage them to discuss educational issues with them". The study utilized the Professional Learning Community Assessment Questionnaire [PLCAQ], developed by (Hipp & Huffman, 2003) with total 32 item, which assessed teachers' perceptions of their participation in PLC programs used item "The staff plan and work together to search for solutions to address diverse student need" and "Decisions are made in alignment with the schools values and vision". Additionally, teacher performance was measured by evaluating teachers' perceptions of their own performance, using an instrument adapted from (Ali & Haider, 2017) for 24 item question. In this study, teacher performance is measured based on a self-perception scale, assessed through three dimensions: Instructional Qualities, Professional Qualities, and Personal Qualities. It is important to note and emphasize that this research evaluates performance based on subjective perceptions rather than direct performance measurement using question item "Teacher encourages students to participate in cocurricular and extracurricular activities" and "Teacher provides a favorable learning environment to the students".

3.4. Data Analysis

This study uses a quantitative approach with the SEM-PLS analysis method to examine the relationship model between transformational leadership, Professional Learning Community, and teacher performance, with PLC as a mediating variable. Data were collected through a Likert-scale questionnaire that measured teachers' perceptions of the three variables. The analysis was conducted through two stages: measurement model examination to ensure the validity and reliability of the instrument and structural model examination to assess the relationship between variables to determine the path relationships. The significance test used the bootstrapping technique to identify the direct and indirect effects of the model. This approach provides a comprehensive understanding of the mediating role of PLCs in the relationship between transformational leadership and teacher performance.

4. Results

4.1. Measurement of the Outer Model

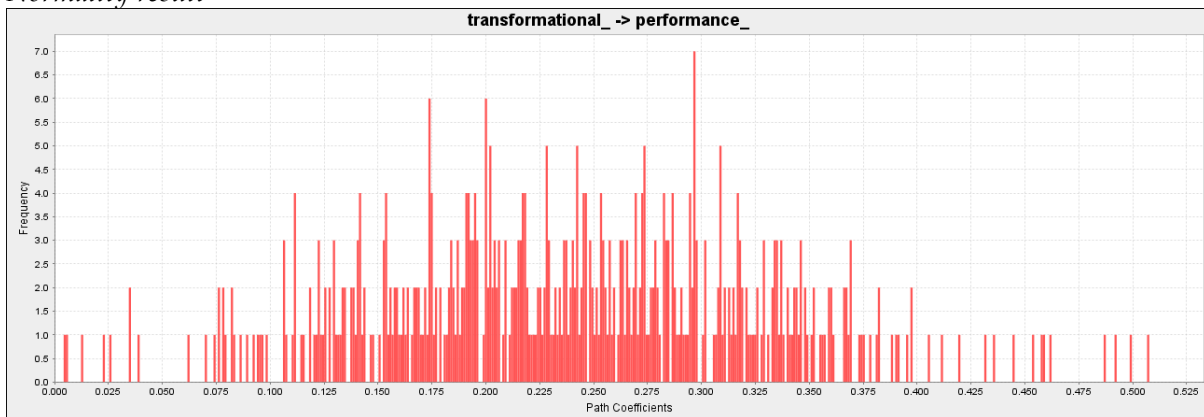
To evaluate the validity and reliability of the model, the researcher used outer model assessment, which included tests of convergent validity, discriminant validity, and composite reliability. Convergent validity was assessed by examining the factor loading values of indicators on their latent variables, with loadings greater than 0.7 considered acceptable, as well as the Average

Variance Extracted (AVE), which was expected to be at least 0.5 to indicate that the construct explains at least half of the variance of its indicators. Discriminant validity was evaluated by analyzing cross-loadings, where the loading of each indicator on its intended construct needed to be higher than its loadings on other constructs, ensuring that the constructs were distinct from one another. To assess reliability, composite reliability was calculated, with values greater than 0.7 indicating satisfactory internal consistency, while Cronbach's alpha was also used as a supporting measure, with a minimum acceptable value of 0.6.

4.2. Test for Normality

The results of the normality test in this research are illustrated in the histogram shown in Figure 2. Based on the histogram of the distribution of path coefficients for the relationship between transformational leadership and performance, it can be seen that the bootstrapping data exhibit a distribution pattern that tends to be symmetrical, with the data reasonably evenly distributed around the central value, which is approximately 0.25.

Figure 2
Normality result

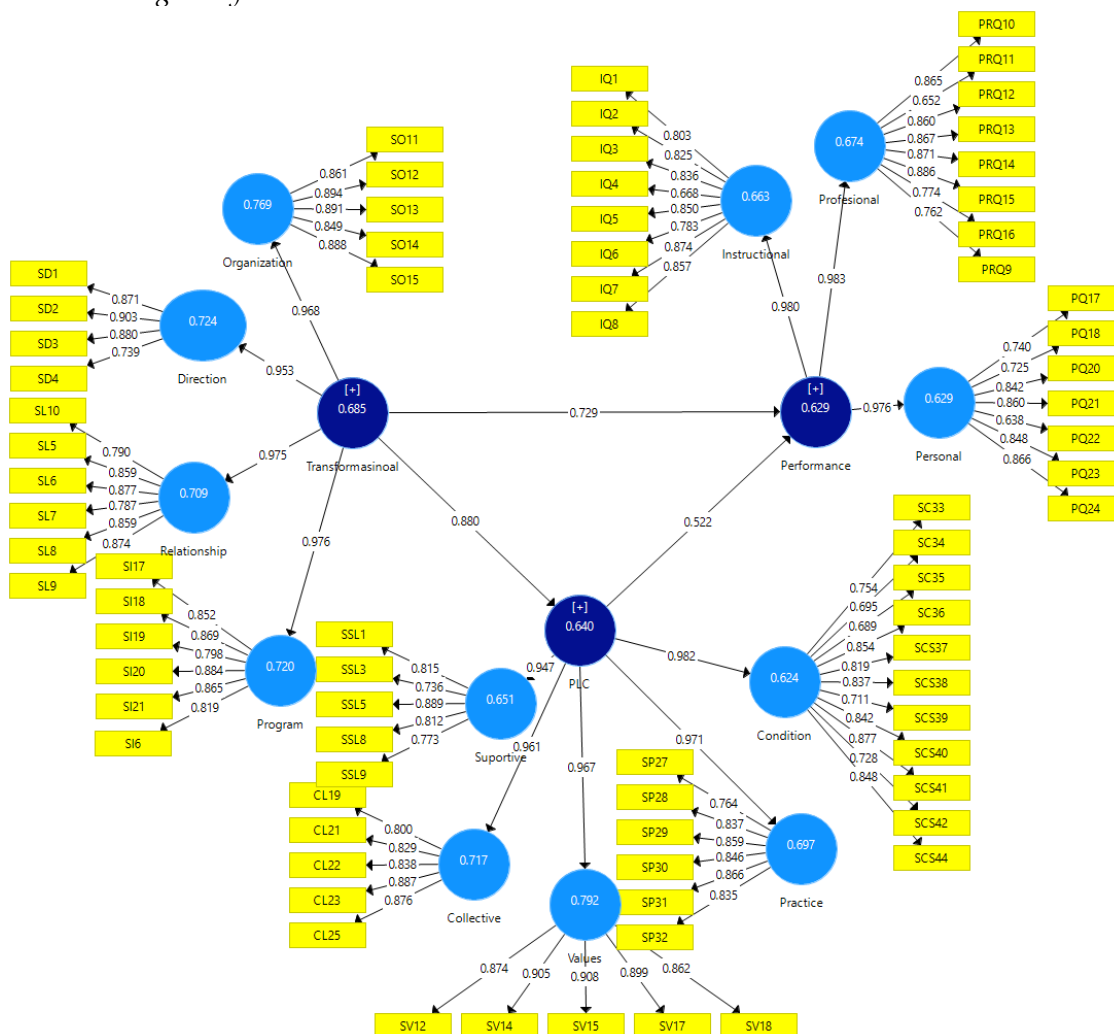


Although the shape of the distribution does not entirely resemble a standard curve, visually, this distribution does not show any extreme deviations such as sharp skewness or excessive peak distribution (Kurtosis). The path coefficient values are spread over a range from 0.00 to more than 0.50, with the highest concentration of frequencies in the range of 0.15 to 0.30. This analysis of relatively even and symmetrical data distribution indicates that the distribution of bootstrapping coefficients tends to be close to normal. This result suggests that the estimated relationship between transformational and performance variables can be considered stable and interpreted reasonably.

4.3. Test Validity and Reliability

As in this study, the test of convergent validity was analyzed by assessing the outer loading on each indicator. The analysis of outer loading in this study is presented in the Figure 3. Based on the results of the outer loading analysis, the Transformational Leadership [TL] variable, the "Organization" dimension, exhibits very strong outer loading values, with indicators SO11 to SO15 showing values between 0.861 and 0.894. In the "Direction" dimension, items SD1, SD2, SD3, and SD4 have outer loading values of 0.871, 0.903, 0.880, and 0.739. For the "Relationship" construct, indicators SL5 and SL9 show values above 0.85, indicating a strong reflection of this construct. Indicators in the "Practice" construct also demonstrate strong outer loading values, with indicators SI17 to SI21 and SI6 ranging from 0.798 to 0.884. In the PLC variable, the "Collective" dimension displays a fairly strong outer loading value, with indicators CL19, CL21, CL22, CL23, and CL25, respectively, exhibiting outer loading values of 0.800, 0.829, 0.838, 0.887, and 0.876. The "Condition" construct consists of several indicators with outer loading values ranging from 0.689

Figure 3
Outer loading analysis



to 0.877. The "Practice" construct consists of indicators SP27 to SP32, all showing strong outer loading values from 0.764 to 0.866. The indicators for the "Supportive" construct exhibit strong outer loading values of 0.736, 0.773, 0.812, 0.815, and 0.889. Lastly, the indicators in the "Values" construct demonstrate very strong outer loading values, with indicators SV12 to SV18 displaying values between 0.862 and 0.908.

In the teacher performance variable, the "Instructional" dimension indicates quite strong outer loading values for the indicators IQ1 to IQ8, with values from 0.668 to 0.874. Within the "Professional" construct, the indicators PRQ9 to PRQ16 display outer loading values between 0.653 and 0.886. The indicators in the "Personal" construct demonstrate varying outer loading values, with values ranging from 0.638 to 0.866. The results of the factor loading test indicate that most of the indicators are above 0.7, and items with a loading of 0.6 can still be categorized as strong (Chin, 1998).

Table 1 illustrates the results of reliability and construct validity analysis using three main indicators: Cronbach's Alpha, Composite Reliability [CR], and Average Variance Extracted. Each construct demonstrates a Cronbach's Alpha value above 0.80, indicating excellent internal consistency. Additionally, the Composite Reliability for all constructs surpasses a value of 0.90, signifying that the instrument exhibits very good reliability in measuring each construct. Moreover, the Average Variance Extracted for most constructs exceeds the threshold of 0.50, indicating that these constructs can explain more than half of the variance of the indicators.

Table 1
Reliability and validity test

<i>Dimensions</i>	<i>Cronbach's Alpha</i>	<i>CR</i>	<i>AVE</i>
Collective	0.901	0.927	0.717
Condition	0.939	0.948	0.624
Directions	0.871	0.913	0.724
Instructional	0.926	0.940	0.663
Organization	0.925	0.943	0.769
PLC	0.981	0.983	0.640
Performance	0.973	0.975	0.629
Personal	0.899	0.921	0.629
Practice	0.913	0.932	0.697
Professional	0.929	0.942	0.674
Program	0.922	0.939	0.720
Relationships	0.917	0.936	0.709
Supportive	0.865	0.903	0.651
Transformational	0.977	0.978	0.685
Values	0.934	0.950	0.792

The reliability and validity analysis tables demonstrate excellent results for the various dimensions measured, including Collective, Conditions, Direction, Instructional, Organizational, PLC, Performance, Personal, Practice, Professional, Program, Relationship, Supportive, Transformational, and Values. All dimensions exhibit a Cronbach's Alpha value above 0.865 and Composite Reliability above 0.9, indicating high internal consistency and reliability. Additionally, the Average Variance Extracted values for all dimensions were above 0.6, indicating adequate convergent validity. These results confirm that the instruments used in this study are highly reliable and valid, ensuring that the indicators accurately capture the concepts being measured.

Overall, the Fornell-Larcker table demonstrates in Table 2 that the three constructs PLCs, Performance, and Transformational exhibit adequate convergent and discriminant validity. The analysis demonstrates that each construct effectively explains the variance of its indicators compared to other constructs, signifying that these constructs can be regarded as distinct and separate entities.

Table 2
Fornell-Larcker analysis

	<i>Transformational</i>	<i>PLCs</i>	<i>Performance</i>
Transformational	0.828		
PLCs	0.800	0.880	
Performance	0.759	0.778	0.793

4.4. Measurement of the Inner Model

This study contains four hypotheses that were examined using SEM to determine the role of PLCs as a mediator between transformational leadership and teacher performance. Table 3 describes in detail the results of hypothesis testing.

According to H1, there is a positive influence of the transformational leadership approach on performance. The coefficient value of 0.269 indicates that each increase in transformational leadership is associated with a moderate improvement in teacher performance. The statistical results show that this effect is significant ($t = 3.02, p < .05$), suggesting that transformational leadership makes a meaningful positive contribution to performance. H2 examines the effect of transformational leadership on professional learning communities (PLCs). The high coefficient of 0.880 indicates a very strong relationship, with a highly significant effect ($t = 49.075, p < .001$). This

Table 3

Hypothesis Test Results Table

<i>Hypothesis</i>	<i>Variable Relationships</i>	<i>O</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
H1	Transformational → Performance	0.269	0.266	0.089	3.020	.003
H2	Transformational → PLCs	0.880	0.881	0.018	49.075	<.001
H3	PLCs → Performance	0.522	0.527	0.084	6.228	<.001
H4	Transformational → PLCs → Performance	0.460	0.465	0.075	6.128	<.001

Note. O: Original sample; M: Mean sample; SD: Standard Deviation.

demonstrates that transformational leadership has a substantial influence on the development of PLCs. H3 investigates the relationship between PLCs and performance. The coefficient of 0.522 reflects a significant positive influence of PLCs on teacher performance ($t = 6.228, p < .001$), indicating that schools that effectively implement PLCs tend to see improved teacher performance. H4 examines the mediating role of PLCs in the relationship between transformational leadership and performance. The mediation coefficient of 0.460 shows that part of the influence of transformational leadership on performance is transmitted through PLCs, and this mediation path is statistically significant ($t = 6.128, p < .001$). These findings suggest that transformational leadership not only directly enhances performance but also does so indirectly by strengthening PLCs, which in turn improves performance. Overall, the results indicate that PLCs function as an effective partial mediator in explaining how transformational leadership influences teacher performance, as shown in Figure 4.

Figure 4

SEM result analysis

5. Discussion

The significance of teachers' perceptions of their principal's transformational leadership practices suggests a positive influence on their engagement in PLCs and perceived performance. Previous studies have established a strong correlation between transformational leadership and PLC practices, such as collaboration and reflective dialogue (Lei et al., 2024; Özdemir et al., 2024). Teachers perceive that leaders who exhibit transformational leadership foster supportive environments that facilitate involvement in shared objectives and collaborative activities, which are vital components of effective PLCs (Ibrahim et al., 2019). Furthermore, research confirms that principals perceived as transformational leaders are often seen as fostering environments where shared goals, support, and innovation are encouraged—key attributes that align with effective PLCs. The present study confirmed that perceived principal leadership and PLC involvement are related to specific subdimensions of teacher performance. Teachers reported that their engagement in PLCs contributed to improvements in instructional performance, such as planning, implementing, and evaluating learning processes. They also perceived gains in professional performance, including participation in school development programs and professional collaboration. In the personal dimension, teachers noted increased responsibility, discipline, and a stronger commitment to their professional duties.

This study also highlights the mediating role of PLCs in the relationship between transformational leadership and these subdimensions of teacher performance. When PLCs are well established, they appear to amplify the positive perceptions teachers have regarding leadership and translate those perceptions into stronger engagement and reported performance. This supports prior findings suggesting that PLCs play a vital mediating role by creating collaborative structures through which transformational leadership exerts its influence (Zhang et al., 2022). Additionally, transformational leadership is linked to teachers' collective efficacy, which may influence student learning outcomes. Consequently, PLCs may function as partial mediators in the connection between perceived transformational leadership and teacher performance by offering a collaborative framework that reinforces the positive effects of transformational leadership on teaching outcomes (Vanblaere, 2016).

In the context of Eastern educational settings, where hierarchical structures and traditional approaches often prevail, transformational leadership offers a progressive framework that aligns with the growing emphasis on collaborative learning and professional growth. The findings strongly emphasize the pivotal role of PLCs as a mediator between transformational leadership and teacher performance. Prior studies have highlighted that transformational leadership significantly contributes to the formation of PLCs within schools (Osman & Alias, 2023). Moreover, PLCs—characterized by shared values and vision, supportive and shared leadership, conditions of support, cooperative learning, and shared personal practice—have been shown to have a positive and substantial effect on teacher performance (Mydin et al., 2024). These findings underscore the importance of recognizing PLCs in strengthening the relationship between transformational leadership and teacher performance.

The role of school principals, particularly in the Eastern context, remains crucial in enhancing teacher professionalism. As leaders, principals are responsible for fostering a school environment conducive to the learning and development of teachers (Sahlin, 2023). When challenges arise within the school environment, the principal must act as a mediator and consistently inspire enthusiasm and confidence among teachers, staff, and students, ensuring a thorough understanding of the school's goals and a commitment to professional work (Kareem et al., 2023). Teachers believe that principals can foster environments that support improved professional practice, reflecting the principal's readiness to drive reforms aimed at creating a safe, comfortable learning process while enhancing teacher competence through various forms of training and development within learning communities. Therefore, the contribution of the principal appears significant in improving teacher performance (Sarwar et al., 2022). These findings offer valuable insights for school principals to devise more effective strategies for improving team or organizational performance. Recognizing that PLCs can amplify the impact of transformational leadership, intervention efforts should focus on strengthening collaboration within these communities to maximize their potential (Yang & Chang, 2024). In Eastern educational systems, this may require additional efforts to overcome cultural norms that prioritize top-down leadership. However, once these barriers are addressed, transformational leadership and robust PLCs—as perceived by teachers—are associated with improved teacher outcomes and contribute to overall educational excellence.

6. Conclusion

The findings of this research highlight the significant impact of transformational leadership in establishing and reinforcing PLCs within schools, consequently enhancing teacher performance. PLCs act as partial mediators, connecting transformational leadership to teacher performance and fostering a supportive environment for professional development and collaboration among teachers. This leadership style is marked by the ability to inspire and motivate staff to attain higher objectives and has proven highly effective in cultivating a supportive and collaborative work environment. Transformational leaders not only promote collaboration and reflective dialogue among teachers but also cultivate a sense of collective responsibility and a focus on advancing

student learning. Hence, the effective implementation of transformational leadership not only heightens teachers' collective efficacy but also contributes to overall improvements in student learning outcomes.

PLCs serve as a partial mediation between transformational leadership and teacher performance. This implies that while transformational leadership directly influences teacher performance, the presence and effectiveness of PLCs enhance this impact. Within the context of PLCs, educators engage in comprehensive discussions about teaching practices, share experiences and strategies, and collaborate to surmount teaching challenges. This process enhances both of teachers' professional skills and augments their job satisfaction.

7. Limitations

This study has several limitations that should be considered in future research. First, it was conducted in urban areas of Indonesia, which may not fully reflect the experiences of teachers in rural or remote areas, where educational practices and challenges may differ. Expanding the research to include rural schools would offer a more comprehensive understanding of how PLCs and transformational leadership impact teacher performance in diverse contexts. Another limitation of this study is the reliance on self-reported data to assess teacher performance and perceptions of principal leadership. Although self-report instruments are commonly used in educational research due to their practicality and ability to capture subjective experiences, they are inherently susceptible to various types of bias. These include social desirability bias, response style bias, and common method bias, where the use of a single data collection method may inflate the relationships among variables (Podsakoff et al., 2003). It is important to note that teachers' perceptions may not fully reflect actual performance or objective behavior. Therefore, the findings of this study should be interpreted with caution, acknowledging that they represent subjective evaluations rather than direct observations or external assessments. Future studies may benefit from adopting multi-method approaches, such as triangulating self-report data with classroom observations or supervisor evaluations, to enhance validity.

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Declaration of interest: The authors declared that there were no potential conflicts of interest.

Data availability: The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Ethical statement: Data collection and analyses of collected data were conducted with the consent of all subjects who participated in the study. They were informed about the study's purpose, procedures, and their right to withdraw at any time without consequence.

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Informed Consent: All the participants have agreed to be a part of this study as stated in the informed consent by eliminating their real names and institutions.

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