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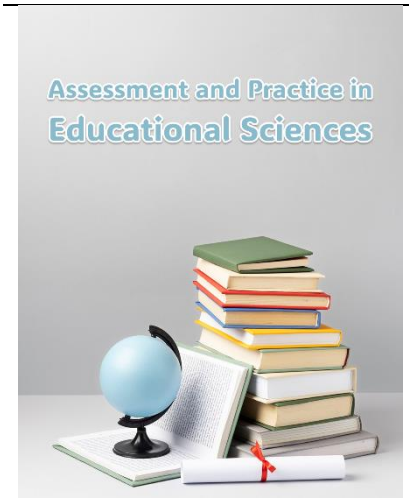

Principals' Learning-Centered Leadership and Teacher Professional Learning: Modeling the Mediating Effects of Teachers' Calculative, Relational, and Faith Trust

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ABSTRACT

Lifelong learning has become an indispensable aspect of the teaching profession. Despite the widespread acknowledgment of the profound influence of organizational working conditions on teacher learning, the Iranian context has witnessed a paucity of research thoroughly investigating their interactive impacts. To address this gap, this research sought to explore the effects of principals' learning-centered leadership (PLCL), mediated by calculative (CT), relational (RT), and faith trust (FT), on teacher professional learning (TPL) in Iran. The participant of this investigation consisted of 206 Iranian instructors of English as a Foreign Language. All individuals held a Master of Arts degree in TEFL. The sample included 141 male and 65 female, with ages ranging from 25 to 35 years and teaching experience spanning 5 to 10 years. The study employed a multi-scale valid and reliable questionnaire as a data-gathering tool. It contained 68 questions distributed across the five constructs, with each construct receiving its own five-point Likert scale. The Partial Least Squares (PLS) path modeling was utilized in this exploratory research for data analysis. The results indicated that PLCL exerted significant positive direct and indirect effects, through CT, RT, and FT, on TPL. Particularly, RT was most significant in driving TPL, followed by CT and FT. The practical implications are discussed.

Keywords: Learning-centered leadership, Calculative trust, Relational trust, Faith trust, Teacher professional learning

Introduction

Contemporary education systems are operating within conditions of unprecedented complexity, shaped by globalization, rapid technological change, shifting societal expectations, and increasingly diverse student populations. These transformations have profoundly altered the nature of teaching and learning, positioning teachers not merely as transmitters of knowledge but as adaptive professionals who must continuously update their pedagogical, relational, and reflective capacities. In this context, teacher professional learning has become a central concern for educational systems seeking to enhance instructional quality, organizational effectiveness, and long-term school improvement (1-3). Rather than being confined to episodic workshops or

externally imposed training, professional learning is now understood as an ongoing, collaborative, and practice-embedded process that unfolds within the daily life of schools (4-6).

Research over the past two decades has increasingly emphasized that the effectiveness of teacher professional learning is shaped not only by individual motivation or competence but also by the organizational conditions under which teachers work. School culture, leadership practices, relational dynamics, and structural supports jointly determine whether professional learning becomes a sustained and meaningful activity or a superficial compliance exercise (7, 8). Among these organizational conditions, school leadership has emerged as a particularly influential factor in creating environments that either enable or constrain teachers' engagement in learning (9, 10). Contemporary leadership research increasingly argues that effective school leadership must move beyond managerial control and instructional supervision toward approaches that explicitly prioritize learning as a shared organizational goal.

Within this evolving leadership landscape, learning-centered leadership has gained growing scholarly attention as a framework that places learning—both student and teacher learning—at the core of leadership practice. Learning-centered leadership emphasizes principals' roles in articulating a shared learning vision, providing instructional and emotional support, managing coherent learning programs, and modeling learning-oriented behaviors (11, 12). Empirical studies conducted across diverse educational systems consistently demonstrate that learning-centered leadership is positively associated with teachers' professional learning, collaborative practices, and instructional improvement (13-15). These findings suggest that when principals actively frame schools as learning organizations, teachers are more likely to engage in reflection, experimentation, and knowledge sharing.

However, leadership influence on teacher professional learning is rarely direct or linear. Rather, leadership practices operate through a set of mediating organizational processes that shape teachers' perceptions, relationships, and motivations. One of the most frequently identified mediating mechanisms in this regard is trust. Trust functions as a foundational social resource that enables cooperation, reduces uncertainty, and supports risk-taking in professional learning contexts (16, 17). Without sufficient trust, even well-designed professional learning initiatives may fail to generate meaningful engagement, as teachers may be reluctant to share vulnerabilities, challenge established routines, or invest effort in collective learning activities.

The centrality of trust in educational organizations has been widely documented in studies of professional learning communities, collaborative cultures, and school improvement processes (18-20). Trust facilitates open communication, mutual support, and collective efficacy, all of which are essential conditions for sustained professional learning. Importantly, trust in schools is not a unidimensional construct. Contemporary theoretical and empirical work distinguishes between multiple forms of trust that operate simultaneously within organizations, each grounded in different psychological and social mechanisms (17, 21).

Among these, calculative trust, relational trust, and faith trust provide a nuanced framework for understanding how trust shapes professional learning. Calculative trust is grounded in rational assessments of costs and benefits and reflects teachers' expectations that engagement in professional learning will yield tangible personal or professional returns (22, 23). When teachers perceive that professional learning efforts are recognized, rewarded, or linked to improved practice, they are more likely to invest time and energy in learning activities. Relational trust, by contrast, is rooted in interpersonal relationships characterized by respect, care, and mutual understanding. It develops through repeated interactions, open dialogue, and shared experiences within the school community (24, 25). Relational trust is particularly critical for collaborative learning, as it supports psychological safety and collective problem-solving. Faith trust reflects a deeper belief in shared values, moral commitment, and a collective sense of purpose within the organization. It involves confidence that leaders and colleagues act in ways aligned with the school's educational mission, even in situations of uncertainty (2, 26).

A growing body of research indicates that these dimensions of trust play a mediating role between leadership practices and teacher professional learning. Studies conducted in various national contexts show that learning-centered leadership contributes to teacher learning partly by fostering trust among teachers and between teachers and principals (15, 27, 28). When principals demonstrate consistency, fairness, and support for teacher learning, they enhance calculative trust by signaling that professional learning is valued and worthwhile. At the same time, leadership practices that emphasize dialogue, inclusion, and collaboration strengthen relational trust, while coherent visions and ethical leadership behaviors reinforce faith trust (9, 20).

Despite these advances, important gaps remain in the literature. First, much of the existing research has examined trust either as a general construct or has focused primarily on relational trust, leaving the distinct roles of calculative and faith trust underexplored in educational settings (17, 29). Second, while numerous studies have confirmed the positive relationship between learning-centered leadership and teacher professional learning, fewer have systematically modeled multiple trust dimensions as parallel mediators within a single analytical framework (27, 28). Third, the majority of empirical evidence in this area originates from East Asian, European, or Gulf contexts, limiting the generalizability of findings to other educational systems with different institutional and cultural characteristics (6, 8).

In addition, recent policy and reform discourses increasingly emphasize teacher empowerment, shared leadership, and professional agency as key levers for educational improvement. These agendas align closely with the principles of learning-centered leadership and trust-based organizational cultures (30, 31). However, translating these principles into practice requires empirical evidence that clarifies how leadership behaviors interact with organizational trust to influence teachers' learning experiences. Without such evidence, leadership initiatives risk remaining aspirational rather than transformative.

Methodologically, advances in structural equation modeling have enabled researchers to examine complex relationships among leadership, trust, and professional learning with greater precision. Partial Least Squares Structural Equation Modeling (PLS-SEM), in particular, has been widely recommended for exploratory models that include multiple mediators and latent constructs (32). The use of such approaches allows for a more comprehensive understanding of how leadership effects are transmitted through organizational processes rather than assuming simple direct effects.

Taken together, the theoretical developments and empirical findings reviewed above underscore the need for integrated models that simultaneously examine learning-centered leadership, multidimensional trust, and teacher professional learning. Such models are essential for advancing both theory and practice by identifying the pathways through which leadership can most effectively support sustained teacher learning (10, 11). By disentangling the roles of calculative, relational, and faith trust, researchers and practitioners can better understand which aspects of trust are most critical in different contexts and how leadership interventions might be tailored accordingly.

Accordingly, the aim of the present study is to examine the direct effect of principals' learning-centered leadership on teacher professional learning and its indirect effects through calculative trust, relational trust, and faith trust.

Methods and Materials

Study Design and Participants

This study employed an exploratory and quantitative approach to investigate the effects of PLCL, mediated by CT, RT, and FT, on TPL.

The participants of this research included 206 EFL teachers (65 males and 141 females) who possessed an MA in TEFL. These teachers were teaching English at language institutes across different cities in Iran. Their ages varied from 25 to 35 years (M=29.85, SD=3.19). Their teaching experience encompassed a span of 5 to 10 years (M=7.22, SD=1.71).

Between September 2020 and March 2021, researchers conducted an online survey using Google Forms. The survey targeted EFL (English as a Foreign Language) teachers who worked as instructors in language institutes in Iran. They randomly selected 1200 EFL teachers from their compiled database of Iranian EFL teachers and sent them email invitations to participate in the survey and complete a research questionnaire. Before taking the survey, the participants were provided with information about the research significance, objectives and the response process. It was made clear that participation was voluntary, and the confidentiality of the data was assured. To accommodate the participants' diverse schedules and allow for thoughtful responses, the survey did not have a strict deadline. Participants were encouraged to answer the survey questions at their convenience and select a time and place that suited their preferences. Out of the 1200 EFL teachers invited to participate, 206 valid responses were received. This represents a response rate of 17.16%, meaning that approximately 17.16% of the teachers who received the invitations completed the survey and provided valid responses.

Data Collection Instruments

The study utilized a multi-scale questionnaire as a data-gathering tool. This questionnaire had two main parts. The first part of the questionnaire, focused on demographic information (e.g., gender, age, education, teaching specialization, and experience), provided insights into the participants' backgrounds and the context within which the research variables were examined. The second section is dedicated to the research variables (Principals' Learning-Centered Leadership (PLCL), teacher Calculative (CT), Relational (RT), and Faith Trust (FT), as well as teacher professional learning (TPL)). The 68 questions were distributed across the five constructs, with each construct receiving its own five-point Likert scale. The use of established and pre-validated scales from the literature ensured consistency and validity in the measurement of these constructs.

More specifically, the research utilized the PLCL scale crafted by Liu et al. (2016). Notably, the scale evaluating PLCL ($\alpha = 0.95$) encompassed 24 items covering four core aspects: Building a Learning Vision (BLV) ($\alpha = 0.89$), Providing Learning Support (PLS) ($\alpha = 0.94$), Managing the Learning Program (MLP) ($\alpha = 0.91$), and modeling (M) ($\alpha = 0.92$). Furthermore, Hallinger et al.'s (2017) framework was employed to assess teachers' CT, RT, and FT. The scales used to measure teachers' CT ($\alpha = 0.83$), RT ($\alpha = 0.89$), and FT ($\alpha = 0.85$) consisted of 5, 6, and 6 items, respectively. Additionally, Liu et al.'s (2016) framework was utilized to measure TPL. The TPL scale ($\alpha = 0.93$) comprised 27 items categorized into four key areas: Collaboration (C) ($\alpha = 0.93$), Reflection (R) ($\alpha = 0.90$), Experimentation (E) ($\alpha = 0.89$), and Reaching out to the Knowledge Base (RKB) ($\alpha = 0.80$). In this research, Cronbach's alpha coefficient values demonstrated desirable internal consistency reliability.

Data Analysis

In this investigation, the researchers utilized Partial Least Squares (PLS) path modeling for their analysis. The decision to use PLS was based on several strong justifications. Firstly, PLS is highly effective in prediction-focused research, where the objective is to develop models that can accurately forecast future outcomes or behavior (Castro et al., 2015). Secondly, it is particularly beneficial in exploratory research, where the aim is to develop new theoretical models or explore relationships between variables that have not been fully established (Hair et al., 2019). Thirdly, it is well-suited for evaluating complex multivariate models. It possesses the capability to effectively analyze both the measurement and structural components of the models (Rai et al., 2006). Lastly, it does not strictly adhere to stringent requirements related to measurement scales, sample sizes, and residual distributions (Henseler et al., 2009).

Findings and Results

As evident in Table 1, all outer loadings exceeded the threshold of 0.4 proposed by Hulland (1999) and the t-values surpassed 1.96, indicating acceptable construct validity. Moreover, the values of composite reliability (CR) exceeded 0.7, demonstrating that the constructs were reliably measured (Hair et al., 2019) (Table 2). Furthermore, Cronbach's alpha coefficient values surpassed 0.7, demonstrating desirable internal consistency reliability (Hair et al., 2019) (Table 2). Additionally, average variance extracted (AVE) values surpassed 0.5, suggesting that the constructs were able to capture a substantial portion of their respective variances (Hair et al., 2019) (Table 2). As depicted in Table 2, the descriptive analysis demonstrated that mean scores for all research constructs surpassed 3.00. Among PLCL dimensions, the BLV scale had the greatest mean score (M = 3.839, SD = 0.973), whereas the MLP scale had the smallest one (M = 3.462, SD = 1.142). Moreover, the mean scores for the dimensions of TPL exceeded 4.00. Additionally, the E scale had the highest mean score (M = 4.500, SD = 0.537), whereas the RKB scale had the lowest one (M = 4.337, SD = 0.573). Concerning TT dimensions, the mean score obtained on the FT scale was the greatest (M = 3.882, SD = 0.803), while the mean score obtained on the RT scale was the smallest (M = 3.720, SD = 0.878). The AVE values also surpassed the correlations between the constructs, indicating that they were distinct and measuring separate concepts (Fornell & Larcker, 1981) (Table 3). Therefore, research constructs exhibited satisfactory convergent and discriminant validity.

Table 1. Indicator Loadings analysis results.

Construct	Loading	T value	P value
Principal's learning-centered leadership (PLCL)			
Building a learning vision (BLV)			
Item1	0.919	82.10	0.00
Item2	0.889	45.96	0.00
Item3	0.484	6.32	0.00
Item4	0.908	69.44	0.00
Item5	0.801	24.35	0.00
Item6	0.865	39.22	0.00
Providing learning support(PLS)			
Item7	0.871	47.32	0.00
Item8	0.837	35.86	0.00
Item9	0.821	34.59	0.00
Item10	0.763	24.45	0.00
Item11	0.875	53.77	0.00
Item12	0.867	39.69	0.00
Item13	0.825	30.09	0.00
Item14	0.849	36.22	0.00
Managing the learning program (MLP)			
Item15	0.888	56.46	0.00
Item16	0.866	51.98	0.00
Item17	0.879	40.65	0.00
Item18	0.877	43.04	0.00
Item19	0.825	30.31	0.00
Modeling (M)			
Item20	0.849	41.63	0.00
Item21	0.835	30.16	0.00
Item22	0.925	77.92	0.00
Item23	0.858	35.50	0.00
Item24	0.899	52.12	0.00
Teacher trust (TT)			
Calculative trust (CT)			
Item25	0.813	25.06	0.00
Item26	0.870	42.96	0.00

Item27	0.820	28.27	0.00
Item28	0.790	23.08	0.00
Item29	0.560	7.83	0.00
Relational trust (RT)			
Item30	0.833	32.66	0.00
Item31	0.712	13.90	0.00
Item32	0.894	58.86	0.00
Item33	0.878	45.56	0.00
Item34	0.758	20.37	0.00
Item35	0.777	25.13	0.00
Faith trust (FT)			
Item36	0.786	21.77	0.00
Item37	0.779	21.31	0.00
Item38	0.759	20.62	0.00
Item39	0.732	19.82	0.00
Item40	0.745	20.07	0.00
Item40	0.746	18.35	0.00
Teacher professional learning (TPL)			
Collaboration (C)			
Item42	0.865	36.11	0.00
Item43	0.877	22.57	0.00
Item44	0.864	33.28	0.00
Item45	0.845	23.0	0.00
Item46	0.890	41.58	0.00
Item47	0.900	43.45	0.00
Reflection (R)			
Item48	0.746	15.51	0.00
Item49	0.644	13.88	0.00
Item50	0.624	12.32	0.00
Item51	0.662	15.24	0.00
Item52	0.788	24.61	0.00
Item53	0.699	17.56	0.00
Item54	0.801	23.52	0.00
Item55	0.822	29.56	0.00
Item56	0.802	26.22	0.00
Item57	0.743	22.72	0.00
Experimentation (E)			
Item58	0.903	44.87	0.00
Item59	0.895	35.92	0.00
Item60	0.868	29.51	0.00
Item61	0.822	21.15	0.00
Item62	0.724	12.47	0.00
Reaching out to the knowledge base (RKB)			
Item63	0.700	11.53	0.00
Item64	0.779	16.43	0.00
Item65	0.772	13.95	0.00
Item66	0.812	21.75	0.00
Item67	0.670	11.37	0.00
Item68	0.537	8.65	0.00

Table 2. Descriptive statistics, internal consistency reliability, and convergent validity analysis results.

Research constructs	Mean	SD	CR	Alpha	AVE
PLCL	3.642	.9080	0.958	0.954	0.681
BLV	3.839	0.973	0.925	0.898	0.681
PLS	3.598	1.117	0.950	0.940	0.704
MLP	3.462	1.142	0.938	0.917	0.752
M	3.668	1.154	0.942	0.922	0.763
TT	3.824	0.726	0.931	0.920	0.727
CT	3.870	0.820	0.883	0.832	0.606
RT	3.720	0.878	0.920	0.894	0.659
FT	3.882	0.803	0.890	0.852	0.575
TPL	4.402	0.471	0.941	0.935	0.602
C	4.393	0.750	0.951	0.938	0.763
R	4.3791	0.535	0.921	0.905	0.542
E	4.5000	0.537	0.925	0.898	0.714
RKB	4.3374	0.573	0.862	0.806	0.515

Table 3. Discriminant Validity Analysis.

First-order constructs	BLV	PLS	MLP	M	CT	RT	FT	C	R	E	RKB
BLV	0.825										
PLS	0.507	0.839									
MLP	0.452	0.562	0.867								
M	0.619	0.625	0.696	0.874							
CT	0.407	0.438	0.451	0.490	0.778						
RT	0.341	0.333	0.413	0.384	0.551	0.811					
FT	0.427	0.497	0.509	0.509	0.648	0.555	0.758				
C	0.257	0.293	0.398	0.374	0.462	0.448	0.454	0.874			
R	0.355	0.393	0.355	0.414	0.445	0.444	0.512	0.439	0.736		
E	0.402	0.426	0.318	0.309	0.346	0.334	0.394	0.323	0.494	0.845	
RKB	0.429	0.415	0.417	0.385	0.501	0.408	0.437	0.460	0.509	0.616	0.718

The analysis of the data revealed no issues of collinearity problems because all VIF values were below 5 (Table 4). Notably, the structural model's predictive power was evaluated, demonstrating that PLCL, CT, RT, and FT collectively explained 48.2% of the variation in TPL (Table 5). Furthermore, the study revealed that 29.1%, 19.4%, and 34.6% of the variance in CT, RT, and FT, respectively were predicted by PLCL (Table 5). In this study, both TPL and FT scored higher than the moderate level, while CT and RT exceeded the weak level recommended by Chin (1998) (where values of 0.67, 0.33, and 0.19 are interpreted as small, medium, and large, respectively). This indicated that the model showed an acceptable predictive power.

Table 4. The Results of Collinearity Analysis Using VIF Values.

Independent variable → Dependent variable	VIF value
PLCL →TPL	1.650
CT → TPL	2.024
RT→ TPL	1.602
FT→ TPL	2.181

Table 5. The Results of Coefficient of Determination (R^2) and Prediction Relevance (Q^2) Analysis.

Dependent variables	R^2	Q^2
TPL	0.482	0.172
CT	0.291	0.169
RT	0.194	0.123
FT	0.346	0.189

Furthermore, in this study, the Q^2 values for TPL, CT, RT, and FT exceeded zero, substantiating the model's predictive relevance (Table 5). Additionally, to assess the significance of the path coefficients, a bias-corrected and accelerated (BCa) bootstrapping technique was employed, as recommended by Chin (1998), in this study. As depicted in Figure 1, Figure 2, and Table 6, PLCL had positive and significant effects on TPL ($\beta = 0.276 > 0$, $t = 3.278 > 1.96$, $p < 0.05$), CT ($\beta = 0.540 > 0$, $t = 9.068 > 1.96$, $p < 0.05$), RT ($\beta = 0.440 > 0$, $t = 7.166 > 1.96$, $p < 0.05$), and FT ($\beta = 0.589 > 0$, $t = 11.066 > 1.96$, $p < 0.05$). Additionally, CT ($\beta = 0.172 > 0$, $t = 2.302 > 1.96$, $p < 0.05$), RT, ($\beta = 0.206 > 0$, $t = 2.602 > 1.96$, $p < 0.05$), and FT ($\beta = 0.197 > 0$, $t = 2.169 > 1.96$, $p < 0.05$) had positive and significant impacts on TPL.

Table 6. The Results of Hypothesis Testing.

Hypothesis	β	t value	p value
PLCL → TPL	0.276	3.278	0.001
PLCL → CT	0.540	9.068	0.00
PLCL → RT	0.440	7.166	0.00
PLCL → FT	0.589	11.066	0.00
CT → TPL	0.172	2.302	0.022
RT→ TPL	0.206	2.602	*0.01*
FT→ TPL	0.197	2.169	*0.031*

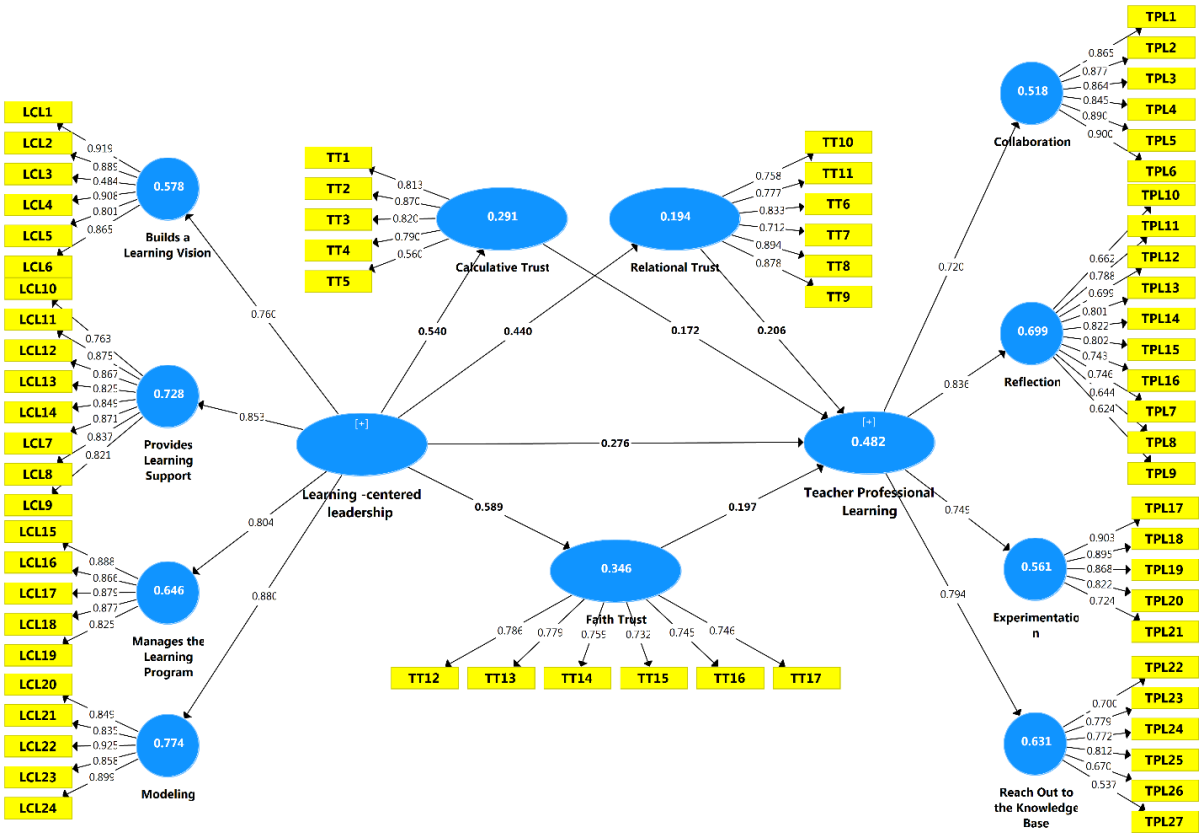

Figure 1. Structural Model with Path Coefficients (β) and R^2 Values

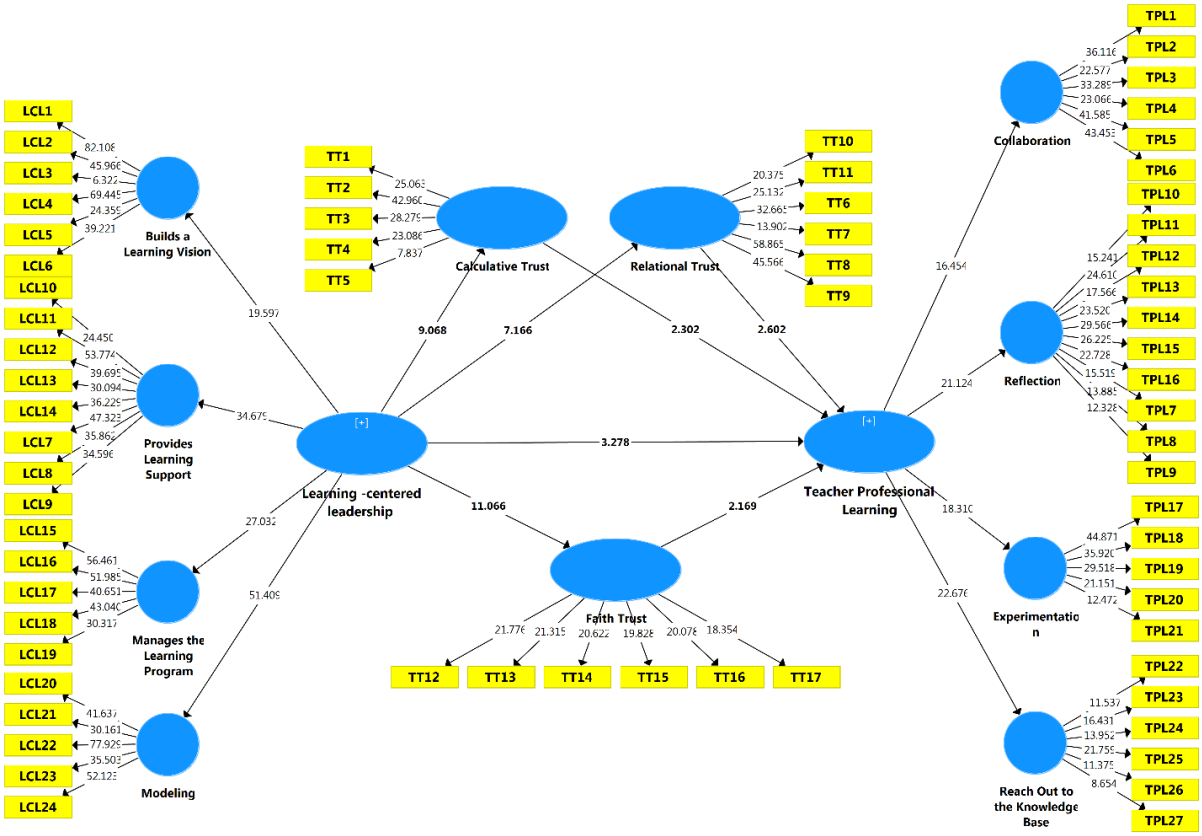

Figure 2. Structural Model with T-values

Additionally, the results of Sobel tests demonstrated that the indirect effects of PLCL on TPL through CT (Zsobel = 4.844 > 1.96, p < 0.05), RT (Zsobel = 4.822 > 1.96, p < 0.05), and FT were statistically significant (Zsobel = 4.997 > 1.96, p < 0.05) (Table 7).

Table 7. Sobel tests for mediating effects of calculative, relational and faith trust.

Sobel tests	Direct effect	Indirect effect	Total effect	T value	P value
CT	0.276	0.092	0.368	4.844	0.00
RT	0.278	0.09	0.366	4.822	0.00
FT	0.276	0.116	0.392	4.997	0.00

The overall adequacy of the research model was evaluated using the goodness-of-fit index (GoF). This index's range extends from 0 to 1(values of 0.01, 0.25, and 0.36 are interpreted as weak, medium, and strong model fits) (Wetzels et al., 2009). As apparent in Table 8, the GoF value in this study exceeded 0.36, indicating a robust overall model fit.

Table 8. Overall Model Fit Assessment.

$\overline{R^2}$	$\overline{\text{Communalities}}$	$\text{GoF} = \sqrt{\overline{\text{Communalities}} \times \overline{R^2}}$
0.537	0.521	**0.528**

Discussion and Conclusion

The present study sought to examine the effects of principals' learning-centered leadership on teacher professional learning, with particular attention to the mediating roles of calculative trust, relational trust, and faith trust. The results provide strong empirical support for the proposed model, demonstrating that learning-centered leadership exerts both direct and indirect effects on teacher professional learning through multiple trust pathways. These findings reinforce contemporary leadership theories

that conceptualize leadership influence as embedded within relational and organizational processes rather than as a purely directive force (9, 11).

The analysis revealed a significant and positive direct effect of learning-centered leadership on teacher professional learning. This finding indicates that when principals prioritize learning as a central organizational goal—by articulating a shared vision, providing learning support, managing coherent learning programs, and modeling learning-oriented behaviors—teachers are more likely to engage in collaborative inquiry, reflective practice, experimentation, and knowledge sharing. This result is consistent with a growing body of empirical evidence showing that learning-centered leadership is a powerful predictor of teacher professional learning across diverse educational contexts (13-15). By positioning learning as a collective responsibility, principals create conditions that normalize continuous professional growth and reduce resistance to pedagogical change.

Beyond the direct effect, the findings highlight the central role of trust as a mediating mechanism linking leadership practices to teacher professional learning. Specifically, learning-centered leadership was found to have significant positive effects on calculative trust, relational trust, and faith trust. This supports theoretical models suggesting that leadership behaviors shape teachers' trust perceptions by signaling competence, benevolence, integrity, and alignment with shared values (16, 17). When principals consistently support learning initiatives and allocate resources transparently, teachers develop calculative trust, believing that professional learning efforts will yield meaningful returns for their practice and career development.

The mediating role of calculative trust is particularly noteworthy, as it underscores the rational dimension of teachers' engagement in professional learning. Teachers are more inclined to invest effort in learning activities when they perceive that the benefits—such as improved instructional effectiveness, professional recognition, or enhanced self-efficacy—outweigh the associated costs. This finding aligns with research demonstrating that calculative trust plays a significant role in shaping organizational performance and cooperative behavior (22, 23). In educational settings, learning-centered leadership appears to strengthen this form of trust by clarifying expectations, aligning professional learning with school goals, and ensuring that learning initiatives are relevant and purposeful (27, 28).

Relational trust emerged as the strongest mediator between learning-centered leadership and teacher professional learning. This finding highlights the importance of interpersonal relationships and emotional safety in fostering meaningful professional learning. Relational trust is built through respectful interactions, open communication, and a sense of mutual care among teachers and school leaders. When principals engage teachers in dialogue, encourage collaboration, and demonstrate empathy, they create environments in which teachers feel safe to share challenges, experiment with new practices, and learn from one another. This result is consistent with previous studies emphasizing relational trust as a cornerstone of effective professional learning communities (18, 19, 25). The prominence of relational trust in the present study suggests that emotional and social dimensions of trust may be particularly salient in sustaining collaborative learning cultures.

Faith trust also played a significant mediating role, indicating that shared values, moral commitment, and belief in a common educational mission contribute meaningfully to teacher professional learning. Faith trust reflects teachers' confidence that school leaders and colleagues act in ways consistent with the school's core purposes, even in situations of uncertainty. Learning-centered leadership strengthens faith trust by articulating a coherent vision for learning and modeling ethical commitment to that vision. This finding aligns with studies emphasizing the role of shared vision and value alignment in promoting collective learning and organizational coherence (20, 30). When teachers believe that professional learning initiatives are grounded in authentic educational values rather than transient policy demands, they are more likely to engage deeply and sustain their learning efforts.

Importantly, the results demonstrate that calculative, relational, and faith trust jointly mediate the relationship between learning-centered leadership and teacher professional learning, underscoring the multidimensional nature of trust in educational

organizations. This finding extends prior research that has often examined trust as a single construct by showing that different trust dimensions operate through distinct yet complementary pathways (21, 26). While calculative trust motivates engagement through rational evaluation, relational trust fosters emotional safety and collaboration, and faith trust reinforces commitment through shared purpose. Together, these dimensions create a robust social infrastructure that supports sustained professional learning.

The findings are also consistent with international comparative studies demonstrating that leadership effects on teacher learning are mediated by organizational conditions rather than occurring in isolation (8, 12). The present study contributes to this literature by providing an integrated model that captures multiple trust mechanisms simultaneously. Moreover, the results align with research conducted in centralized and reform-oriented education systems, where trust plays a critical role in enabling teachers to navigate accountability pressures and pedagogical change (6, 15).

From a methodological perspective, the use of a structural modeling approach allowed for a nuanced examination of direct and indirect effects, offering stronger evidence for the proposed theoretical relationships. The findings support calls for more complex models of leadership influence that move beyond simple cause-and-effect assumptions and instead account for mediating organizational processes (32). By demonstrating the differential strength of trust dimensions, the study provides a more refined understanding of how leadership practices translate into professional learning outcomes.

Overall, the results suggest that learning-centered leadership is most effective when it simultaneously addresses structural, relational, and moral dimensions of school life. Principals who focus exclusively on technical aspects of professional development without attending to trust-building processes may achieve limited and short-lived effects. In contrast, leadership practices that cultivate calculative, relational, and faith trust create conditions in which teacher professional learning becomes self-sustaining and embedded within the organizational culture (3, 4). These findings underscore the importance of trust as both a psychological and social resource that amplifies the impact of leadership on learning.

Despite its contributions, this study has several limitations that should be acknowledged. First, the research employed a cross-sectional design, which limits the ability to draw causal conclusions about the relationships among learning-centered leadership, trust, and teacher professional learning. Second, data were collected using self-report measures, which may be subject to common method bias and social desirability effects. Third, the study focused on a specific educational context, which may limit the generalizability of the findings to other systems with different cultural, institutional, or policy environments. Finally, although multiple dimensions of trust were examined, other potentially relevant mediating variables, such as teacher agency or collective efficacy, were not included in the model.

Future studies could build on the present findings by employing longitudinal or mixed-methods designs to examine how learning-centered leadership and trust evolve over time and how these dynamics influence sustained professional learning. Comparative studies across different educational systems and cultural contexts would also help to clarify the contextual conditions under which specific trust dimensions are most influential. In addition, future research could integrate other organizational and psychological mediators, such as teacher agency, motivation, or professional identity, to develop more comprehensive models of teacher professional learning. Experimental or intervention-based studies focusing on leadership development programs may further illuminate causal mechanisms and practical strategies for enhancing trust and learning in schools.

From a practical perspective, the findings suggest that school leaders should intentionally adopt learning-centered leadership practices that prioritize teacher learning as a core organizational mission. Principals should invest in building trust by ensuring transparency in decision-making, fostering respectful and supportive relationships, and articulating a clear and shared vision for learning. Professional development initiatives should be designed to demonstrate tangible benefits for teachers, thereby

strengthening calculative trust, while also creating collaborative spaces that enhance relational trust. Finally, leaders should consistently model ethical commitment and shared values to reinforce faith trust, ensuring that teacher professional learning is perceived as meaningful, purposeful, and aligned with the school's long-term educational goals.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adhered in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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