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Leading From the Classroom: Teacher Leadership as A Driver of Instructional Innovation in Public Schools of Quirino Province, Philippines

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ABSTRACT

Teacher leadership was examined as a school-based mechanism for strengthening instructional innovation in public schools across Quirino Province, Philippines. The study used an explanatory, cross-sectional design and analyzed 342 teacher records nested within 36 school clusters distributed across the six municipalities of the province. Teacher leadership was operationalized through collaborative expertise, professional learning facilitation, shared instructional decision-making, innovation advocacy, and community-responsive leadership. Instructional innovation covered learner-centered design, contextualized instruction, differentiated learning, assessment innovation, and digital and blended practice. Descriptive statistics, Cronbach alpha, Spearman rank correlations, intraclass correlation, Welch tests, Games-Howell comparisons, effect sizes, and school-clustered linear regression were applied. Teacher leadership was rated high overall ($M = 3.67$, $SD = 0.41$), while instructional innovation was likewise high ($M = 3.73$, $SD = 0.45$). The two constructs were positively related ($rho = 0.58$, $p < .001$). After school context, school level, innovation climate, principal support, resources, and teaching experience were controlled, teacher leadership remained the strongest predictor of instructional innovation ($B = 0.59$, 95% CI [0.48, 0.70], $p < .001$). Innovation climate also contributed independently, whereas principal support, resource adequacy, and teaching experience did not retain unique effects. The findings supported a LEAD-IN framework that legitimized teacher voice, enabled collaborative expertise, advanced evidence-informed experimentation, differentiated support by context, institutionalized innovation routines, and networked effective practice. The study underscored that sustainable instructional change depended less on isolated training events than on organizational arrangements that enabled teachers to influence colleagues, decisions, and improvement processes.

1. Introduction

Educational improvement increasingly depended on the capacity of teachers to influence practice beyond the boundaries of their own classrooms. Teacher leadership referred to the formal and informal exercise of professional influence through which teachers supported colleagues, shaped instructional decisions, led professional learning, advocated improvement, and connected classroom evidence with wider school priorities.[1-3] Unlike leadership that was defined primarily by position, teacher leadership operated through expertise, credibility, relationships, and collective responsibility for learner outcomes.[4-7]

The distributed leadership perspective provided an important explanation for this phenomenon. Leadership work was spread across people, routines, tools, and situations rather than concentrated exclusively in the principalship.[4,8] Teachers therefore became central actors in curriculum interpretation, mentoring, assessment design, contextualization, and the diffusion of new pedagogical practices. In this view, the school improved when instructional knowledge circulated through professional networks and when teachers were authorized to test, evaluate, and share solutions.

Instructional innovation was treated as the intentional introduction, adaptation, implementation, and refinement of practices that improved teaching and learning. It extended beyond the adoption of technology. It included new combinations of learner-centered design, contextualized materials, differentiated support, formative assessment, inquiry, collaboration, and blended learning. Innovation emerged through a sequence of recognizing instructional problems, generating or adapting ideas, mobilizing support, implementing changes, and evaluating their effects.[10-13] Teacher behavior was therefore shaped by both individual agency and organizational conditions such as autonomy, collegial trust, leadership support, professional networks, and resource access.[10-12,21-23]

International reviews consistently reported that teacher leadership was associated with professional learning, stronger collaboration, improved instructional practice, and school improvement; however, evidence remained uneven because definitions, measures, and contexts varied.[1-3] Research also showed that teachers were more likely to innovate when schools provided psychological safety, shared decision-making, time for collaboration, access to expertise, and leadership that valued experimentation.[10,12-14] These conditions were especially important in geographically dispersed school systems, where standardized reform expectations had to be interpreted through local learner needs, staffing patterns, infrastructure, and community circumstances.

In the Philippines, the Governance of Basic Education Act assigned substantial responsibility to divisions and schools for improving educational quality, managing resources, and developing personnel.[29] The Enhanced Basic Education Act reinforced learner-

centered, inclusive, contextualized, and developmentally appropriate curriculum implementation.[30] The Philippine Professional Standards for Teachers positioned professional engagement, reflection, collaboration, and continuous growth as integral to quality teaching, while the Learning Action Cell policy institutionalized school-based professional learning as a strategy for improving practice.[26,27] The Philippine Professional Standards for School Heads further required leaders to develop people, strengthen teaching and learning, and build professional communities.[28]

The national career progression system also created a policy basis for advancement through classroom teaching and professional expertise rather than requiring teachers to leave instruction for administrative positions.[31] This policy direction made teacher leadership increasingly consequential because teachers at advanced career stages were expected to mentor peers, model effective practice, contribute to curriculum improvement, and exercise influence across schools. Yet formal standards alone did not establish whether teacher leadership was enacted consistently or whether it translated into innovative classroom practice.

Quirino Province offered a relevant context for examining this relationship. The province comprised six municipalities with schools operating across central, rural, and remote settings. Its population distribution and physical geography created variation in access, mobility, school size, community linkages, and resource conditions.[32] These differences did not necessarily determine instructional quality, but they shaped the conditions under which teachers collaborated, accessed professional development, experimented with new approaches, and shared innovations across schools.

Although Philippine research frequently examined school heads, teacher performance, technology use, or professional development, fewer studies treated teacher leadership as a multidimensional construct and tested its association with instructional innovation while accounting for the clustering of teachers within schools. This gap limited local understanding of whether innovation was primarily an individual teacher attribute or a collective capacity supported by school structures. The present study addressed that gap by examining teacher leadership and instructional innovation across public school contexts in Quirino Province.

1.1 Research Objectives

- To describe the profile of the teacher respondents and participating school contexts;
- To determine the extent of teacher leadership in collaborative expertise, professional learning facilitation, shared instructional decision-making, innovation advocacy, and community-responsive leadership;
- To determine the level of instructional innovation in learner-centered design, contextualized instruction, differentiated learning, assessment innovation, and digital and blended practice;
- To examine the relationships among teacher leadership, instructional innovation, innovation climate, principal support, resource adequacy, and teaching experience;
- To test whether teacher leadership and instructional innovation differed across municipality, school context, and school level; and
- To identify the independent predictors of instructional innovation after school clustering and contextual covariates were considered.

1.2 Hypotheses

The study tested the null hypotheses that teacher leadership was not significantly related to instructional innovation; that mean scores did not differ across municipality, school context, or school level; and that teacher leadership did not significantly predict instructional innovation after contextual and professional variables were controlled.

1.3 Conceptual Framework

The conceptual framework integrated teacher leadership scholarship, distributed leadership, professional learning, and innovative work behavior. Teacher leadership was expected to affect innovation directly by enabling teachers to frame instructional problems, mobilize peer expertise, influence decisions, and champion implementation. School innovation climate and principal support were treated as enabling conditions, while resource adequacy, remoteness, school level, and teaching experience were treated as contextual covariates. Instructional innovation was treated as a practice-based outcome rather than a simple intention to innovate.[1-3,8,10-12]

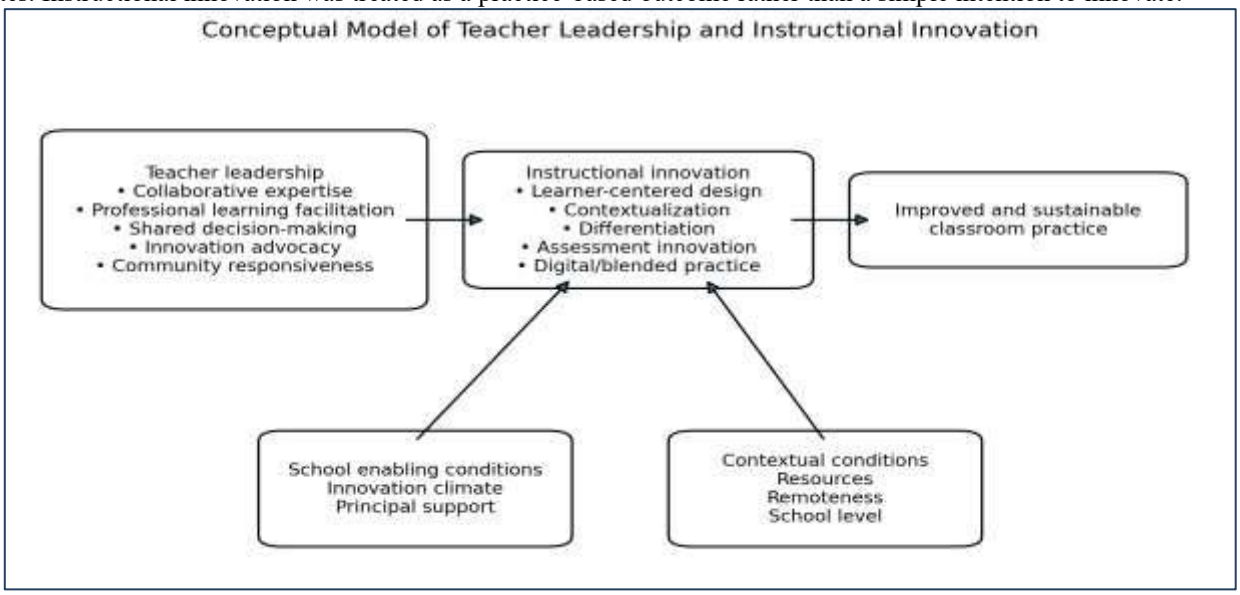

Figure 1. Conceptual model linking teacher leadership, enabling conditions, context, and instructional innovation.

2. Review of Related Literature

2.1 Teacher Leadership as Professional Influence

Early scholarship described teacher leadership through roles such as mentoring, curriculum coordination, professional development, school decision-making, and advocacy.[1] Later reviews emphasized that the defining feature was not a title but influence directed toward improved teaching and learning.[2,3] This influence could occur within the classroom, among teams, across the school, or through networks beyond the school. Teacher leaders developed credibility by demonstrating pedagogical expertise, building trust, and helping colleagues solve authentic problems of practice.[7]

Teacher leadership was commonly enacted through collaborative inquiry, peer coaching, resource development, assessment work, lesson study, action research, and participation in improvement teams. These practices strengthened the social infrastructure of schools by connecting isolated expertise and making professional knowledge visible. However, the same literature warned that teacher leadership could be marginalized when roles were unclear, principals retained all meaningful authority, workloads were not adjusted, or colleagues viewed leadership as surveillance rather than support.[2,3,5]

2.2 Teacher Leadership, Professional Learning, and Innovation

Teacher leadership and professional learning were closely connected because instructional innovation required teachers to learn with and from one another. Effective professional development was sustained, content-focused, active, collaborative, coherent with school goals, and supported by feedback and follow-through.[15-17] Learning Action Cells reflected this logic by positioning regular, school-based collaborative learning as a mechanism for addressing instructional needs.[26] Teacher leaders often served as facilitators who translated broad policy or training content into locally workable routines.

Innovation research distinguished idea generation from implementation. Teachers could propose creative practices without those practices becoming stable routines. Implementation required time, social support, resources, feedback, and opportunities to revise the innovation.[10,11,18-23] Teacher leaders were potentially influential at each stage: they identified learner needs, created or adapted solutions, persuaded colleagues, coordinated trials, monitored evidence, and helped institutionalize effective practices.

2.3 School Conditions that Enabled or Constrained Innovation

Innovation climate described the shared perception that experimentation, learning, and constructive risk-taking were valued. Studies linked innovative climate with transformational leadership, network access, trust, and the availability of expertise.[12] Principal support mattered when it protected collaboration time, authorized teacher decision-making, reduced fear of failure, and connected innovators with resources. Recent multilevel evidence also showed that school leadership influenced teacher innovativeness directly and through teacher self-efficacy.[13]

Resources were necessary but not sufficient. Devices, connectivity, materials, and funding expanded the range of feasible practices, yet innovation could remain weak when professional collaboration and implementation support were absent. Conversely, resource-constrained schools sometimes produced strong contextual innovations because teachers drew on community knowledge, low-cost materials, and collaborative problem solving. The practical question was therefore not whether resources mattered, but how resources interacted with teacher agency, school climate, and local adaptation.

2.4 Philippine Policy Context

Philippine basic education policy created multiple entry points for teacher leadership. Republic Act No. 9155 located instructional and administrative accountability across the division and school levels.[29] Republic Act No. 10533 required pedagogies that were learner-centered, inclusive, culture-responsive, and flexible.[30] The PPST described expectations for content knowledge, learning environments, diversity, curriculum and planning, assessment, community linkages, and professional engagement.[27] These domains required collaboration and professional influence, particularly at highly proficient and distinguished career stages.

DepEd Order No. 35, s. 2016 established Learning Action Cells as communities of practice for continuous improvement.[26] DepEd Order No. 24, s. 2020 placed the development of people and teaching-learning quality within school leadership standards.[28] Executive Order No. 174, s. 2022 strengthened the career pathway for teachers who advanced while remaining in classroom teaching.[31] Together, these policies supported a system in which expert teachers could lead improvement without necessarily holding conventional administrative authority.

3. Methods

3.1 Research Design

The study used an explanatory, cross-sectional, multi-site case design with a quantitative core. The case boundary covered public schools in the six municipalities of Quirino Province. The design was appropriate because the study examined relationships among teacher leadership, school conditions, and instructional innovation while preserving the organizational context in which teachers worked.

3.2 Study Locale and School Contexts

The study covered Aglipay, Cabarroguis, Diffun, Maddela, Nagtipunan, and Saguday. Schools were classified as central, rural, or remote based on the analytic school profile, and they represented elementary, secondary, and integrated levels. The province had a comparatively small and dispersed population within Cagayan Valley, making travel, service access, and resource distribution relevant contextual considerations.[32] The locale therefore allowed the study to examine whether teacher leadership retained explanatory value across varied school conditions.

3.3 Participants and Sampling

The analytic sample comprised 342 teachers from 36 school clusters. Six school clusters were represented in each municipality. School selection was stratified by municipality, school level, and context, after which teacher records were proportionally allocated

within participating schools. The number of records per school ranged from 8 to 12. This distribution supported province-wide comparison while retaining sufficient within-school observations for cluster-aware analysis.

Eligibility covered teachers with current instructional responsibilities in a public elementary, secondary, or integrated school. School heads without regular teaching assignments were excluded from the teacher-level analysis. Teacher I to Teacher III personnel formed the majority of the sample, while Master Teachers and Head Teachers were retained because their classroom and mentoring responsibilities were directly relevant to teacher leadership.

Municipal representation was balanced at approximately one-sixth of the total sample per locality. Rural and remote schools jointly contributed more than three-fourths of the records, while central schools provided an urbanizing reference condition. This composition ensured that the analysis did not treat well-resourced or easily accessible schools as the default setting for teacher leadership and innovation.

3.4 Research Instrument

The survey instrument contained four sections. The first recorded demographic and professional characteristics. The second measured teacher leadership through 20 items distributed across collaborative expertise, professional learning facilitation, shared instructional decision-making, innovation advocacy, and community-responsive leadership. The third measured instructional innovation through 20 items covering learner-centered design, contextualized instruction, differentiated learning, assessment innovation, and digital and blended practice. The fourth measured innovation climate, principal support, and resource adequacy using five items per scale.

Items were aligned with teacher leadership reviews, innovative work behavior research, collaborative professional learning, PPST expectations, and Philippine school improvement policies.[1-3,10-17,26-28] Responses used a five-point scale from 1 (not evident) to 5 (consistently evident). Domain and overall scores were calculated as the arithmetic mean of the relevant items. Mean scores were interpreted as very low (1.00-1.80), low (1.81-2.60), moderate (2.61-3.40), high (3.41-4.20), and very high (4.21-5.00).

3.5 Reliability and Measurement Checks

Internal consistency was examined with Cronbach alpha. Domain coefficients ranged from .74 to .81, while the overall teacher leadership and instructional innovation scales produced coefficients of .94 and .95, respectively. Innovation climate, principal support, and resource adequacy produced coefficients of .88, .80, and .78. These values supported score aggregation for group-level description and inferential analysis. Variance inflation factors were also inspected before regression; all predictor VIF values remained below 3.0, indicating that multicollinearity did not threaten coefficient interpretation.

3.6 Data Analysis

Frequencies and percentages described the sample. Means, standard deviations, and ranks summarized the domains. Spearman rank correlation was used because scale scores originated from ordered response categories and several variables showed mild departures from normality. The intraclass correlation coefficient quantified the proportion of instructional-innovation variance associated with school membership. Welch analysis of variance tested group differences because municipality and school categories had unequal sample sizes and variances. Significant omnibus tests were followed by Games-Howell comparisons and Hedges g effect sizes.

A linear regression with school-clustered standard errors estimated the independent association between teacher leadership and instructional innovation. The model included innovation climate, principal support, resource adequacy, years of teaching, school context, and school level. Continuous predictors were centered around their grand means. Elementary and central schools served as reference categories. Two-tailed tests used an alpha level of .05, and 95% confidence intervals were reported. The clustered covariance estimator corrected the standard errors for dependence among teachers from the same school.

4. Results

4.1 Profile of Respondents and School Contexts

The study included 342 teacher records distributed across 36 schools. Female teachers accounted for 270 (78.9%), while 72 (21.1%) were male. Elementary schools contributed 178 records, secondary schools contributed 106, and integrated schools contributed 58. Rural and remote schools accounted for most observations, reflecting the geographic character of the province.

Table 1. Profile of teacher respondents and school contexts

Variable	Category	n	%
Sex	Female	270	78.9
Sex	Male	72	21.1
School level	Elementary	178	52.0
School level	Secondary	106	31.0
School level	Integrated	58	17.0
School context	Central	79	23.1
School context	Rural	154	45.0
School context	Remote	109	31.9
Career stage	Beginning	11	3.2
Career stage	Proficient	160	46.8
Career stage	Highly proficient	111	32.5
Career stage	Distinguished/mentor	60	17.5
Highest educational attainment	Bachelor’s	104	30.4

Variable	Category	n	%
Highest educational attainment	Master's units	131	38.3
Highest educational attainment	Master's degree	89	26.0
Highest educational attainment	Doctoral units/degree	18	5.3
Position group	Teacher I–III	318	93.0
Position group	Master Teacher/Head Teacher	24	7.0

4.2 Reliability of the Scales

All major scales reached acceptable to excellent internal consistency. The broad scales produced higher coefficients than the narrower domains because they included more items and captured a common leadership or innovation orientation. The reliability pattern supported the use of domain scores for descriptive analysis and overall scores for association and prediction.

Table 2. Internal consistency of study scales

Scale	Items	Cronbach alpha
Collaborative expertise	4	0.771
Professional learning facilitation	4	0.742
Shared instructional decision-making	4	0.753
Innovation advocacy	4	0.783
Community-responsive leadership	4	0.780
Learner-centered design	4	0.785
Contextualized instruction	4	0.764
Differentiated learning	4	0.798
Assessment innovation	4	0.799
Digital and blended practice	4	0.790
Teacher leadership overall	20	0.942
Instructional innovation overall	20	0.948
Innovation climate	5	0.881
Principal support	5	0.804
Resource adequacy	5	0.778

4.3 Extent of Teacher Leadership

Teacher leadership was high overall (M = 3.67, SD = 0.41). Collaborative expertise ranked first (M = 3.84), followed by professional learning facilitation (M = 3.74) and innovation advocacy (M = 3.66). Shared instructional decision-making and community-responsive leadership received lower, although still high, ratings. The pattern indicated that teachers more consistently exchanged expertise and facilitated peer learning than exercised influence in formal decisions or community-facing improvement work.

Table 3. Teacher leadership domain scores

Domain	Mean	SD	Interpretation	Rank
Collaborative expertise	3.84	0.46	High	1
Professional learning facilitation	3.74	0.46	High	2
Innovation advocacy	3.66	0.47	High	3
Shared instructional decision-making	3.59	0.45	High	4
Community-responsive leadership	3.54	0.45	High	5

4.4 Level of Instructional Innovation

Instructional innovation was high overall (M = 3.73, SD = 0.45). Learner-centered design ranked first (M = 3.92), followed by contextualized instruction (M = 3.87) and differentiated learning (M = 3.76). Digital and blended practice and assessment innovation were comparatively lower. The results suggested that teachers more readily adapted tasks and materials to learners and local contexts than redesigned assessment systems or sustained technology-enabled instruction.

Table 4. Instructional innovation domain scores

Domain	Mean	SD	Interpretation	Rank
Learner-centered design	3.92	0.49	High	1
Contextualized instruction	3.87	0.47	High	2
Differentiated learning	3.76	0.50	High	3
Digital and blended practice	3.56	0.51	High	4
Assessment innovation	3.51	0.51	High	5

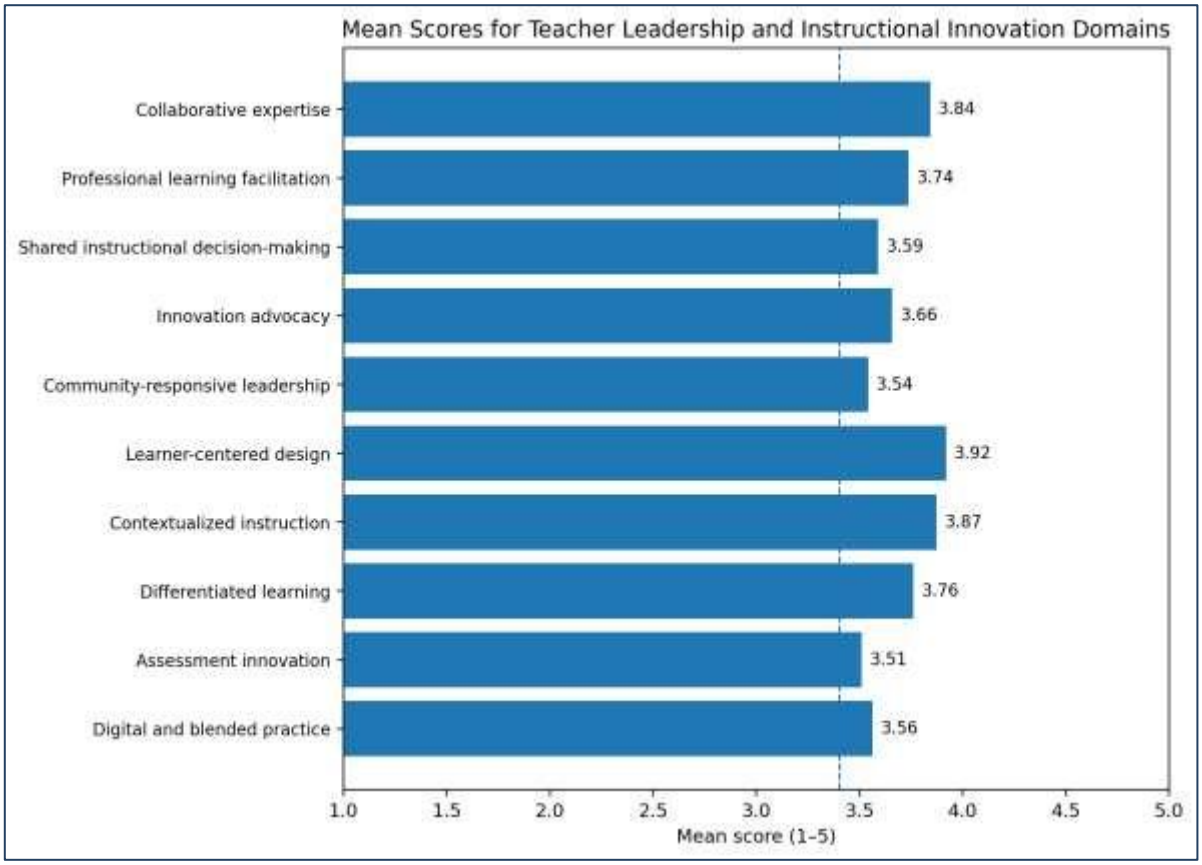

Figure 2. Mean scores for teacher leadership and instructional innovation domains. The dashed line marks the lower boundary of the high category.

4.5 Relationships among the Main Variables

Teacher leadership had a strong positive relationship with instructional innovation (rho = 0.58, p < .001). Innovation climate was positively related to teacher leadership (rho = 0.43) and instructional innovation (rho = 0.40). Principal support had a moderate association with teacher leadership but a weaker association with innovation. Resource adequacy showed small positive relationships with both constructs. Teaching experience had only weak correlations, indicating that years in service alone did not explain substantial variation in innovative practice.

Table 5. Spearman correlations among study variables

Variable	TL	II	IC	PS	RA	YT
TL	-	0.58	0.43	0.35	0.15	0.13
II	0.58	-	0.40	0.24	0.19	0.09
IC	0.43	0.40	-	0.55	0.25	-0.03
PS	0.35	0.24	0.55	-	0.03	0.04
RA	0.15	0.19	0.25	0.03	-	0.03
YT	0.13	0.09	-0.03	0.04	0.03	-

Note. TL = teacher leadership; II = instructional innovation; IC = innovation climate; PS = principal support; RA = resource adequacy; YT = years teaching. Correlations of |rho| >= .13 were significant at p < .05; correlations of |rho| >= .18 were significant at p < .001.

4.6 Differences across School and Municipal Contexts

Teacher leadership differed across municipalities, Welch F(5, 156.47) = 2.83, p = 0.018. The Games-Howell comparison identified a significant difference between Aglipay and Maddela (mean difference = 0.28, p = .007, Hedges g = 0.68). Municipality differences in instructional innovation were not significant, F(5, 156.62) = 1.06, p = 0.382.

School-level differences were significant for teacher leadership, Welch F(2, 155.05) = 3.30, p = 0.040, and instructional innovation, F(2, 150.80) = 6.80, p = 0.001. Integrated schools reported higher instructional innovation than elementary schools (mean difference = 0.25, p = .001, g = 0.54). Remoteness did not produce significant omnibus differences for teacher leadership, F(2, 194.93) = 0.48, p = 0.620, or instructional innovation, F(2, 198.28) = 1.35, p = 0.261.

Table 6. Welch tests for group differences

Grouping	Outcome	F	df1	df2	p
Remoteness	Teacher leadership	0.48	2	194.93	0.620
Remoteness	Instructional innovation	1.35	2	198.28	0.261
Municipality	Teacher leadership	2.83	5	156.47	0.018

Grouping	Outcome	F	df1	df2	p
Municipality	Instructional innovation	1.06	5	156.62	0.382
School Level	Teacher leadership	3.30	2	155.05	0.040
School Level	Instructional innovation	6.80	2	150.80	0.001

4.7 Predictors of Instructional Innovation

The intraclass correlation was 0.22, indicating that approximately 21.5% of the variance in instructional innovation was associated with differences among schools. This level of clustering justified the use of school-corrected standard errors. The full regression explained 43.4% of the variance in instructional innovation (adjusted R-squared = 41.8%).

Teacher leadership was the strongest independent predictor (B = 0.59, SE = 0.06, 95% CI [0.48, 0.70], p < .001). A one-point increase in teacher leadership was associated with an estimated 0.59-point increase in instructional innovation after other variables were held constant. Innovation climate also contributed positively (B = 0.12, SE = 0.06, p = .041). Rural schools scored lower than central schools after covariates were controlled (B = -0.13, p = .018), while integrated schools scored higher than elementary schools (B = 0.16, p = .008). Principal support, resource adequacy, teaching experience, remote-school status, and secondary-school status did not retain statistically significant unique coefficients.

Table 7. School-clustered regression predicting instructional innovation

Predictor	B	SE	t	p	95% CI low	95% CI high
Intercept	3.765	0.029	131.87	<.001	3.709	3.821
Remote school	-0.054	0.055	-0.98	0.333	-0.161	0.053
Rural school	-0.127	0.051	-2.47	0.018	-0.228	-0.026
Integrated school	0.162	0.057	2.83	0.008	0.050	0.274
Secondary school	0.023	0.054	0.42	0.676	-0.084	0.129
Teacher leadership	0.589	0.057	10.34	<.001	0.477	0.700
Innovation climate	0.118	0.055	2.12	0.041	0.009	0.226
Principal support	0.001	0.058	0.02	0.986	-0.113	0.115
Resource adequacy	0.132	0.096	1.38	0.176	-0.055	0.320
Years teaching	0.004	0.003	1.09	0.283	-0.003	0.010

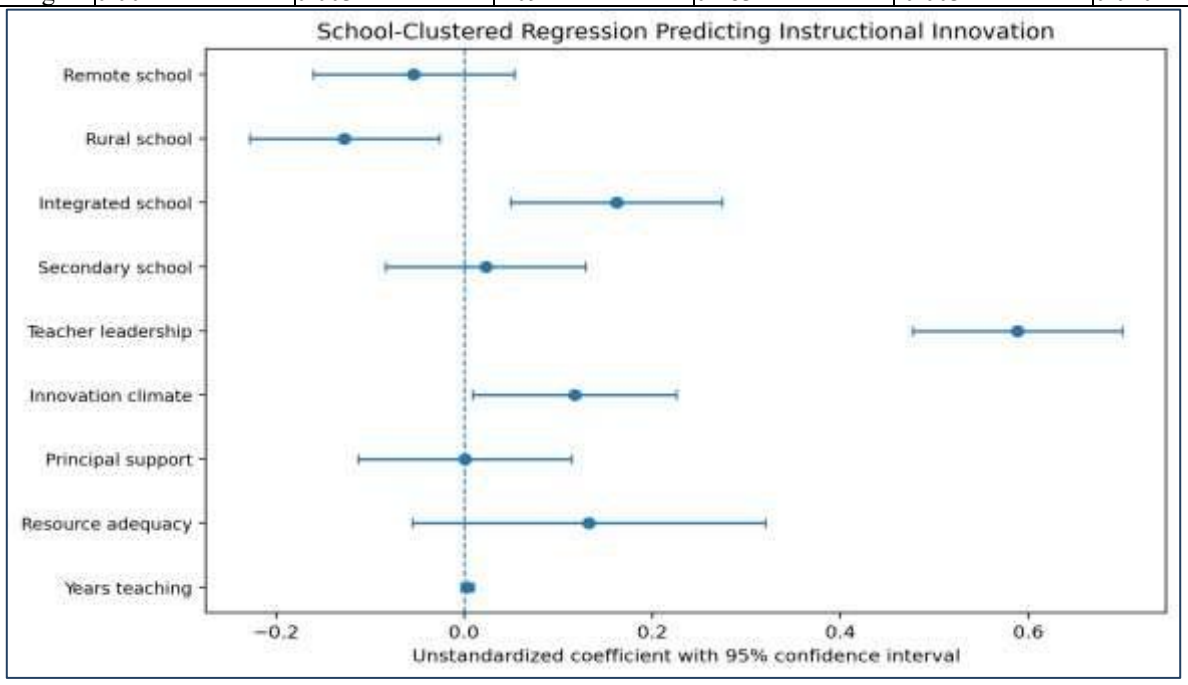

Figure 3. Regression coefficients and 95% confidence intervals. Coefficients whose intervals did not cross zero were statistically significant.

4.8 Discussion

4.8.1 Teacher Leadership was Evident but Uneven Across Domains

The high overall teacher leadership score indicated that teachers regularly influenced professional practice beyond direct classroom delivery. Collaborative expertise ranked highest, suggesting that leadership was most visible through the exchange of strategies, resources, and feedback. This pattern aligned with reviews that located teacher leadership in peer learning, mentoring, curriculum work, and the improvement of colleagues' practice.[1-3,7] It also reflected the Philippine Learning Action Cell policy, which made collaborative inquiry an expected component of school-based professional development.[26]

Shared instructional decision-making and community-responsive leadership ranked lower than peer-oriented domains. The difference was important. Teachers could collaborate actively while still having limited authority over school priorities, resource allocation, scheduling, or formal improvement decisions. Teacher leadership became more consequential when professional influence was connected to organizational decisions rather than confined to voluntary assistance. The findings therefore supported calls to distinguish participation from meaningful influence.[2,3]

4.8.2 Innovation Concentrated on Pedagogical Adaptation

Learner-centered design and contextualized instruction were the most evident forms of innovation. These practices were compatible with national curriculum expectations and with the daily necessity of adapting lessons to learner readiness, language, community experience, and available materials.[27,30] They also required less infrastructure than advanced digital practice. The comparatively lower scores for assessment innovation and digital or blended practice suggested that teachers found it easier to modify lesson activities than to redesign assessment systems or sustain technology-dependent routines.

This distinction was consistent with innovation theory. Idea generation and local adaptation could occur within a teacher's immediate control, whereas implementation at scale required coordination, technology, data systems, time, and institutional reinforcement.[10,11,18-23] Assessment innovation also required shared criteria, moderation, and alignment across grade levels. Digital innovation depended on access, technical confidence, maintenance, connectivity, and instructional design. These domains therefore required school-level support rather than individual enthusiasm alone.

4.8.3 Teacher Leadership as the Main Driver of Innovation

The strongest finding was the relationship between teacher leadership and instructional innovation. The bivariate correlation was substantial, and teacher leadership remained the dominant predictor after the school and professional conditions. This supported the proposition that innovation spread through professional influence. Teachers who shared expertise, facilitated learning, advocated change, and participated in decisions were better positioned to turn instructional problems into collective experimentation and implementation.[6,7,10]

The coefficient was not merely a reflection of principal support or innovation climate. Teacher leadership retained a large independent association, while innovation climate contributed a smaller but significant effect. This result suggested that supportive culture and teacher agency were complementary. A favorable climate created permission and psychological safety, but teachers still needed the skills and relationships to lead actual improvement work. Conversely, individual initiative was less likely to become sustainable when experimentation was not normalized or connected to school routines.[10,12,13]

4.8.4 Why Principal Support and Resources Lost Unique Effects

Principal support and resource adequacy were positively correlated with innovation, yet their unique coefficients were not significant in the full model. This did not imply that they were unimportant. Principal support was related to innovation climate and teacher leadership, which indicated that its influence may have operated indirectly by enabling teacher agency and a culture of experimentation. Leadership support could become visible through protected time, access to information, authorization, and trust rather than as a separate direct effect on classroom innovation.

Resource adequacy also showed a small positive bivariate association. Once teacher leadership, climate, and school context were included, resources did not explain additional variance with sufficient precision. The result implied that resources required professional capacity and implementation routines to affect practice. Devices, materials, or funding did not automatically produce pedagogical change. Schools needed teachers who could identify appropriate uses, support peers, troubleshoot implementation, and evaluate whether the innovation improved learning.

4.8.5 Contextual Differences

Municipality differences appeared for teacher leadership but not for instructional innovation. The Aglipay-Maddela contrast had a moderate effect size, yet the broader absence of municipality differences in innovation suggested that local variation did not translate directly into unequal instructional practice. School-level differences were more pronounced. Integrated schools reported higher innovation than elementary schools, possibly because they served wider grade spans, coordinated across subject areas, and managed more complex transitions. These features could increase opportunities for cross-level collaboration and adaptation.

Remoteness did not produce significant raw mean differences. This was a noteworthy result because it challenged the expectation that remote schools necessarily showed weaker leadership or innovation. After other variables were controlled, rural schools scored lower than central schools, whereas remote-school status was not significant. The pattern suggested that broad labels could conceal different combinations of community support, staff stability, leadership, and local ingenuity.

4.8.6 Implications for Policy and Practice

First, teacher leadership needed to be formalized in school improvement processes without reducing it to additional paperwork. Schools could assign clear roles in instructional planning, LAC facilitation, mentoring, assessment moderation, and innovation review. These roles should include time, decision rights, and evidence of impact. Executive Order No. 174 provided a policy platform for recognizing advanced classroom expertise and leadership contributions.[31]

Second, LACs needed to function as improvement laboratories rather than compliance meetings. Sessions could begin with learner evidence, identify a specific instructional problem, examine relevant practice, plan a small trial, observe implementation, and review results. Teacher leaders could facilitate this cycle and document adaptations. This approach connected professional learning with implementation and reduced the common gap between training attendance and classroom change.[15-17,26]

Third, the Schools Division Office could establish cross-school innovation networks. Teacher leaders from different municipalities and school levels could share tested resources, conduct peer demonstrations, and provide coaching. Networked improvement allowed

useful practices to travel without requiring rigid replication. Schools could retain local adaptation while using common measures to judge whether changes improved participation, mastery, assessment quality, or inclusion.[7,12,36]

Fourth, school heads needed to create an innovation climate through concrete routines: protected collaboration time, permission to conduct low-risk trials, rapid access to technical assistance, recognition of collective work, and non-punitive review of unsuccessful attempts. The goal was disciplined experimentation, not unstructured novelty. Innovations should address documented learner needs and be reviewed for feasibility, equity, alignment, and sustainability.

Fifth, support should be differentiated. Schools with limited resources required low-bandwidth and low-cost options, while schools with stronger infrastructure could advance digital assessment, data use, and blended learning. Integrated schools could serve as demonstration sites for cross-level innovation, but elementary and remote schools should also be recognized as sources of contextual knowledge. Scaling should move in multiple directions rather than only from central schools outward.

4.8.7 LEAD-IN Framework for Sustainable Instructional Innovation

The results were translated into the LEAD-IN framework. The framework organized six mutually reinforcing actions: Legitimize teacher voice; Enable collaborative expertise; Advance evidence-informed experimentation; Differentiate support by context; Institutionalize innovation routines; and Network and scale practice. Its sequence emphasized that teacher agency required organizational authorization, collaboration required protected structures, and innovation required evidence and follow-through.

Legitimizing teacher voice meant involving teachers in decisions that affected curriculum, assessment, professional development, and resource priorities. Enabling collaborative expertise meant protecting time and establishing routines for LACs, peer observation, mentoring, and lesson study. Advancing evidence-informed experimentation meant using learner work, assessment data, observation, and feedback to select and refine innovations. Differentiating support by context meant matching expectations and assistance to school conditions. Institutionalizing routines meant documenting effective practice and integrating it into plans, coaching, and monitoring. Networking meant creating pathways through which teacher-led innovations could be critiqued, adapted, and spread across schools.

Figure 4. The LEAD-IN framework for sustainable instructional innovation in public schools.

4.9 Limitations

The cross-sectional design did not establish temporal causality. Teacher leadership may have strengthened innovation, but innovative schools may also have created more opportunities for teachers to lead. Self-report measures could have been influenced by common-method variance and positive response tendencies. The analysis focused on teacher perceptions and did not include direct classroom observation, learner achievement, or implementation artifacts. School clustering was addressed statistically, but the number of clusters limited the precision of complex multilevel models. The evidence therefore supported association and explanation rather than causal attribution.

Future field research should use longitudinal designs, validated observational measures, learner outcomes, and multiple informants. It should examine whether innovation climate mediated the effect of principal support, whether teacher self-efficacy strengthened the leadership-innovation relationship, and whether teacher-led innovations were sustained across school years. Comparative studies across provinces could also test whether the LEAD-IN framework remained useful under different governance, language, infrastructure, and geographic conditions.

5. Conclusions

Teacher leadership emerged as a substantial organizational resource for instructional innovation in public schools. Teachers reported high levels of collaborative expertise, professional learning facilitation, innovation advocacy, and instructional adaptation. Innovation was strongest in learner-centered and contextualized practice and weaker in assessment redesign and digital or blended

implementation. Teacher leadership was strongly associated with instructional innovation and remained the largest predictor after school clustering and contextual variables were addressed.

The findings indicated that sustainable innovation depended on more than access to resources or isolated professional development. It required teachers who could influence practice, organize collaborative learning, advocate evidence-based changes, and connect local solutions with school improvement processes. Innovation climate strengthened this relationship by signaling that experimentation and learning were valued. School heads and division leaders therefore needed to distribute meaningful instructional authority, establish disciplined improvement routines, and recognize teacher leadership as part of the professional career pathway.

The LEAD-IN framework offered a practical structure for action: legitimize teacher voice, enable collaborative expertise, advance evidence-informed experimentation, differentiate support by context, institutionalize innovation routines, and network effective practice. Applied together, these actions could convert teacher expertise from an individual attribute into a province-wide capacity for continuous instructional improvement.

6. Recommendations

The Schools Division Office should establish a teacher leadership and instructional innovation program aligned with PPST career stages and the expanded career progression system.

School heads should assign teacher leaders clear decision rights, protected time, and defined responsibilities in LAC facilitation, mentoring, assessment moderation, and innovation review.

LAC sessions should use short improvement cycles that begin with learner evidence, test a specific instructional response, and review implementation results.

A division-level repository should document contextualized lesson designs, assessment tools, low-cost innovations, digital resources, and implementation notes that had undergone peer review.

Cross-school networks should connect teacher leaders by learning area, grade band, school context, and improvement priority, with remote participation options for geographically distant schools.

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