

Pedagogical Empowerment in Practice: Instructional Practices and Professional Enablers among Public School Teachers in Quirino Province, Philippines

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ABSTRACT

Instructional quality in basic education depends not only on teachers' content knowledge but also on their capacity to activate learners, differentiate instruction, use assessment evidence, contextualize lessons, integrate technology, and learn collaboratively with colleagues. This study examined the instructional practices and professional enablers of public school teachers in Quirino Province, Philippines. A descriptive-correlational cross-sectional design was used with 318 teachers represented across the six municipalities of the province and across elementary, junior high school, and senior high school levels. A 36-item instructional-practices instrument measured six domains: learner-centered and active learning, differentiated and inclusive instruction, formative assessment and feedback, contextualization and localization, digital pedagogy, and reflective-collaborative practice. The overall scale demonstrated excellent internal consistency (Cronbach's alpha = .945), while domain coefficients ranged from .764 to .816. Teachers reported a high overall level of instructional practice ($M = 4.05$, $SD = 0.31$). Contextualization/localization ($M = 4.19$) and learner-centered practice ($M = 4.18$) ranked highest, while digital pedagogy ($M = 3.79$) and differentiated-inclusive instruction ($M = 3.93$) were comparatively lower. Instructional practice did not differ significantly by sex, school level, or municipality, but differed by highest educational attainment, $F(3,314) = 8.53$, $p < .001$, eta-squared = .075. Professional collaboration ($r = .567$), resource access ($r = .331$), and continuing professional-development exposure ($r = .121$) were positively associated with overall practice. In robust multiple regression, collaboration ($\beta = .538$), resource access ($\beta = .324$), professional-development exposure ($\beta = .107$), and graduate study ($\beta = .102$) were significant predictors; the model explained 45.3% of the variance. Findings informed a Quirino Pedagogical Empowerment Framework emphasizing collaborative professional learning, equitable instructional resources, differentiated pedagogy, formative use of evidence, contextualization, and reflective improvement.

1. Introduction

Teaching quality remains one of the most consequential school-based influences on learners' opportunities to understand, apply, and transfer knowledge. In the Philippine basic education system, instructional practice is expected to be learner-centered, inclusive, developmentally appropriate, contextualized, and responsive to the diversity of learners. Republic Act No. 10533 institutionalized these principles within the K to 12 system, while the Philippine Professional Standards for Teachers (PPST) translated them into explicit expectations for content knowledge and pedagogy, learning environments, learner diversity, curriculum and planning, assessment and reporting, community linkages, and professional growth.^{1,2} These standards position pedagogy as a multidimensional professional practice rather than a narrow set of classroom techniques.

The policy architecture also emphasizes continuous professional learning. The Department of Education's Learning Action Cell policy recognizes school-based professional communities as mechanisms for improving teaching and learner achievement.⁴ International evidence similarly shows that professional development is more likely to influence practice when it is content-focused, active, collaborative, sustained, supported by expert input, and connected to teachers' daily work.⁹ OECD evidence from the Teaching and Learning International Survey further links teacher professionalism with lifelong learning, collaboration, feedback, autonomy, and opportunities to improve classroom practice.^{5,6} Thus, instructional empowerment is not simply an individual teacher characteristic; it is partly produced by the professional conditions surrounding teaching.

A learner-centered orientation is central to current pedagogical expectations, but learner-centered teaching should not be reduced to the absence of explicit instruction. Philippine classroom research has shown that learners and teachers may value both participatory approaches and strategically directed teaching when these are responsive to context and experienced as forms of academic care.¹⁶ This observation is important because effective pedagogy requires professional judgment: teachers select and combine methods according to learning goals, learner readiness, task complexity, classroom conditions, and available resources. Pedagogical empowerment therefore involves the capacity to make evidence-informed instructional decisions rather than merely adopting fashionable techniques.

Differentiated instruction is one such decision domain. It requires teachers to adjust content, process, learning time, products, grouping, or supports in response to learner readiness and need. Systematic reviews indicate that differentiation can yield positive effects when embedded in a broader instructional system rather than treated as simple ability grouping.^{13,14} Philippine research has

also documented the practical complexity of differentiated instruction and the need for teachers to understand what genuine differentiation entails in K to 12 classrooms.¹⁵ These findings support the inclusion of differentiated and inclusive practice as a distinct dimension of instructional quality.

Assessment practice is equally central. Formative assessment operates within instruction by eliciting evidence of learning, interpreting that evidence, and using it to adjust teaching or help learners regulate their next steps. A Philippine formative-assessment protocol demonstrated that classroom assessment practice must be interpreted in relation to cultural and physical classroom conditions, not only through imported technical models.¹⁰ Broader meta-analytic evidence shows that formative assessment and feedback can improve learning, although the magnitude of effects varies with the quality and informational content of the feedback provided.^{11,12} Consequently, effective teachers require both assessment literacy and the capacity to translate evidence into timely instructional responses. Contextualization and localization constitute another major feature of Philippine basic education. The K to 12 framework expects learning experiences to connect curriculum standards with local realities, community knowledge, and learners' sociocultural environments.^{1,3} This is particularly relevant in a province such as Quirino, where schools serve communities with varied geographic, economic, linguistic, and cultural conditions. Context-responsive teaching can make abstract content more intelligible and can strengthen the perceived relevance of learning, but it requires teachers to adapt materials without diluting disciplinary standards. Digital pedagogy has become increasingly important, yet technology is pedagogically valuable only when it serves clear learning purposes. UNESCO's 2023 Global Education Monitoring Report warns against treating technology as an automatic solution and emphasizes that effective use depends on context, access, teacher competence, and appropriate governance.⁸ A Southeast Asian perspective likewise documents substantial variation in infrastructure and teacher readiness across the region. In the Philippines, research on teachers' adoption of ICT-based instruction found that behavioral intention, facilitating conditions, use habits, social influence, performance expectancy, and policy environment contribute to actual classroom use.¹⁷ These findings justify examining both digital practice and access to enabling resources.

Professional collaboration provides a bridge across these instructional dimensions. Teachers refine practice not only through formal training but also through joint planning, observation, feedback, peer discussion, and iterative inquiry. Lesson Study offers a concrete example. Philippine research has shown that Lesson Study can create classroom-based professional learning communities and support reflective pedagogical improvement.¹⁸ In Quirino Province specifically, published studies have reported positive contributions of Lesson Study to teaching practice, professional development, and sustained communities of practice.^{19,20,21} These local studies provide a strong rationale for considering collaboration as a potential professional enabler of broader instructional quality.

Despite this policy and research base, there remains value in examining instructional practice as an integrated profile rather than as a single intervention. Existing Quirino literature has largely emphasized Lesson Study and professional development, while fewer studies have simultaneously considered learner-centered teaching, differentiation, formative assessment, contextualization, digital pedagogy, and reflective collaboration across a province-wide teacher sample. A multidimensional assessment can identify practices that are already strong, areas that require targeted support, and professional conditions associated with stronger implementation.

Accordingly, the study examined the instructional practices of public school teachers in Quirino Province and the professional factors associated with those practices. It specifically sought to: (1) describe the respondents' professional profile; (2) determine the extent of instructional practices across six pedagogical domains; (3) test whether overall instructional practice differed according to selected teacher and school characteristics; (4) determine the relationships of professional collaboration, resource access, continuing professional-development exposure, and teaching experience with overall instructional practice; (5) identify significant predictors of overall instructional practice; and (6) derive a practical pedagogical-empowerment framework from the pattern of findings. The null hypotheses tested at the .05 level stated that no significant group differences, bivariate relationships, or multivariable predictive effects existed.

1.1 Conceptual Orientation

The conceptual orientation integrated the PPST with evidence on teacher professionalism and effective instructional practice.^{2,5,6} Instructional practice was treated as a higher-order construct expressed through six interrelated domains: learner-centered and active learning; differentiated and inclusive instruction; formative assessment and feedback; contextualization and localization; digital pedagogy; and reflective-collaborative practice. These domains reflected both classroom-facing behaviors and the professional processes that enable teachers to refine those behaviors over time.

Professional enablers were treated as conditions that could strengthen teachers' capacity to enact these practices. Professional collaboration represented opportunities for joint problem-solving, peer learning, and feedback. Resource access represented the availability and usability of instructional materials, devices, connectivity, and other supports needed to translate pedagogical intentions into classroom action. Continuing professional-development exposure represented recent learning opportunities, while graduate study represented sustained formal academic development. Teaching experience was included because practical knowledge may accumulate with time, although experience alone does not guarantee improvement.

The study therefore expected stronger instructional practice among teachers who reported greater collaboration, better access to resources, and more professional learning. At the same time, it treated demographic and assignment characteristics as possible grouping variables rather than as determinants. This distinction was important because pedagogical capacity is better understood as improvable professional practice than as a fixed personal attribute.

2. Methods

2.1 Research Design

The study employed a quantitative descriptive-correlational, cross-sectional design. Descriptive statistics summarized the respondents' profile and the extent of instructional practices, while inferential procedures tested group differences, bivariate associations, and multivariable predictors. The design was appropriate because the research questions concerned patterns of practice

and relationships among naturally occurring professional characteristics rather than the causal effect of an intervention. The analytic unit was the individual public school teacher.

2.2 Locale and Respondents

The study focused on public school teachers in Quirino Province in the Cagayan Valley Region of the Philippines. The analytic sample contained 318 teacher cases distributed across Aglipay, Cabarroguis, Diffun, Maddela, Nagtipunan, and Saguday and represented elementary, junior high school, and senior high school assignments. Stratification by municipality and school level was used to preserve geographic and instructional diversity within the dataset.

A sample of 318 was adequate for the planned analyses. For a five-predictor multiple regression, the sample substantially exceeded commonly used minimum requirements for detecting medium effects at conventional alpha levels and provided stable coefficient estimates. The sample also allowed subgroup descriptions while avoiding inferential claims for very small strata. All inferential tests were interpreted together with effect sizes and confidence intervals rather than by statistical significance alone.

Table 1. Profile of the teacher cases included in the analysis

Characteristic	Category	n	%
Sex	Female	230	72.3
	Male	88	27.7
School level	Elementary	170	53.5
	Junior High	105	33.0
	Senior High	43	13.5
Municipality	Diffun	95	29.9
	Cabarroguis	70	22.0
	Maddela	65	20.4
	Aglipay	36	11.3
	Saguday	30	9.4
	Nagtipunan	22	6.9
Highest educational attainment	Bachelor's degree	150	47.2
	Master's units	100	31.4
	Master's degree	58	18.2
	Doctoral units/degree	10	3.1
Teaching experience	0-5 years	58	18.2
	6-10 years	73	23.0
	11-15 years	64	20.1
	16-20 years	48	15.1
	More than 20 years	75	23.6

Percentages may not total exactly 100.0 because of rounding. N = 318.

2.3 Research Instrument

Instructional practice was measured with a 36-item questionnaire organized into six six-item domains. The domains were derived from the PPST, K to 12 policy expectations, and the research literature reviewed above.^{1,2,3} Learner-centered and active learning covered questioning, participation, collaborative learning, cognitive engagement, and opportunities for learner agency. Differentiated and inclusive instruction covered adaptation for readiness, scaffolding, flexible grouping, accessibility, and responsiveness to learner diversity. Formative assessment and feedback covered eliciting evidence, checking understanding, feedback, instructional adjustment, and learner use of success criteria. Contextualization and localization covered use of local examples, community realities, culturally relevant materials, and meaningful connections between curriculum and learners' lived environments. Digital pedagogy addressed purposeful use of digital resources, multimedia, productivity tools, online or offline applications, and technology-supported interaction. Reflective-collaborative practice addressed joint planning, peer consultation, Learning Action Cell engagement, examination of learner evidence, reflection after instruction, and refinement of lessons. The inclusion of these

domains was supported by evidence on differentiated instruction, formative assessment, technology integration, and professional learning communities.^{10,13,14,17,18}

Each item used a five-point frequency/extent scale: 5 = Very Highly Practiced, 4 = Highly Practiced, 3 = Moderately Practiced, 2 = Slightly Practiced, and 1 = Not Practiced. Domain scores were computed as the mean of their six items; the overall instructional-practice score was the mean of all 36 items. For descriptive interpretation, mean ranges were defined as 4.21-5.00 Very Highly Practiced, 3.41-4.20 Highly Practiced, 2.61-3.40 Moderately Practiced, 1.81-2.60 Slightly Practiced, and 1.00-1.80 Not Practiced. Professional collaboration and resource access were represented on five-point scales, continuing professional-development exposure was expressed as hours, and teaching experience was recorded in years.

2.4 Reliability and Measurement Quality

Internal consistency was evaluated with Cronbach's alpha for each instructional domain and for the full 36-item scale. Coefficients ranged from .764 to .816 at the domain level, indicating acceptable to good reliability, while the full scale yielded alpha = .945. The strong total-scale coefficient supported computation of an overall instructional-practice index, while the domain coefficients supported separate interpretation of pedagogical dimensions.

Table 2. Internal consistency of the instructional-practices scale

Domain	Items	Cronbach's alpha	Interpretation
Learner-centered and active learning	6	.816	Good
Differentiated and inclusive instruction	6	.764	Acceptable
Formative assessment and feedback	6	.798	Acceptable-Good
Contextualization and localization	6	.813	Good
Digital pedagogy	6	.791	Acceptable-Good
Reflective-collaborative practice	6	.782	Acceptable-Good
Overall instructional-practice scale	36	.945	Excellent

2.5 Data Analysis

Frequencies and percentages described categorical profile variables. Means, standard deviations, and ranks summarized instructional-practice scores. Cronbach's alpha evaluated internal consistency. A Welch independent-samples t test compared overall practice by sex because it does not require equal variances. One-way analysis of variance (ANOVA) tested differences by school level, municipality, and educational attainment. Eta-squared quantified ANOVA effect size, and Tukey's honestly significant difference procedure was used for educational-attainment comparisons when the omnibus test was significant.

Pearson product-moment correlations tested associations of professional collaboration, resource access, continuing professional-development hours, and years of teaching with overall practice. Multiple linear regression then estimated the unique contribution of collaboration, resource access, professional-development hours, years of teaching, and graduate-study status. Predictors and outcome were standardized so coefficients could be interpreted as standardized beta weights. Heteroscedasticity-consistent HC3 standard errors were used to provide conservative inference. Variance inflation factors were examined for multicollinearity, residual distribution was checked, and the Durbin-Watson statistic was used as a residual-independence diagnostic. All tests were two-tailed with alpha = .05.

3. Results and Discussion

3.1 Extent of Instructional Practices

The overall instructional-practice mean was 4.05 (SD = 0.31), interpreted as Highly Practiced. All six domains fell within the high-practice range, indicating a generally strong pedagogical profile. However, the domain pattern was not uniform. Contextualization and localization produced the highest mean (M = 4.19, SD = 0.39), closely followed by learner-centered and active learning (M = 4.18, SD = 0.38). Formative assessment and feedback (M = 4.12, SD = 0.37) and reflective-collaborative practice (M = 4.07, SD = 0.37) occupied the middle ranks. Differentiated and inclusive instruction (M = 3.93, SD = 0.34) and digital pedagogy (M = 3.79, SD = 0.37) were lowest, although both remained within the Highly Practiced band.

Table 3. Extent of instructional practices by domain

Instructional-practice domain	Mean	SD	Rank	Interpretation
Contextualization and localization	4.19	0.39	1	Highly Practiced
Learner-centered and active learning	4.18	0.38	2	Highly Practiced
Formative assessment and feedback	4.12	0.37	3	Highly Practiced
Reflective-collaborative practice	4.07	0.37	4	Highly Practiced

Differentiated and inclusive instruction	3.93	0.34	5	Highly Practiced
Digital pedagogy	3.79	0.37	6	Highly Practiced
Overall instructional practice	4.05	0.31	-	Highly Practiced

Scale: 4.21-5.00 Very Highly Practiced; 3.41-4.20 Highly Practiced; 2.61-3.40 Moderately Practiced; 1.81-2.60 Slightly Practiced; 1.00-1.80 Not Practiced.

The prominence of contextualization is consistent with the Philippine policy expectation that curriculum should be responsive and relevant to learners' contexts.^{1,3} In practice, contextualization can include local examples, community issues, indigenous or local knowledge where appropriate, familiar economic activities, environmental conditions, and locally available materials. A high score in this domain suggests that context responsiveness is a plausible pedagogical strength around which other instructional improvements can be organized. Importantly, contextualization should remain standards-aligned: local relevance is most powerful when it deepens conceptual understanding rather than replacing disciplinary rigor.

The similarly high learner-centered score indicates frequent use of practices that position learners as active participants in meaning-making. This result should be interpreted with nuance. Philippine evidence cautions against treating learner-centered and teacher-directed approaches as mutually exclusive.¹⁶ The stronger interpretation is that teachers need a repertoire: explicit instruction may be necessary for modeling and cognitive support, while discussion, problem solving, inquiry, collaboration, and learner choice can be used when they advance the learning objective. The data therefore support adaptive pedagogy rather than a single-method ideology.

Formative assessment ranked third. This is encouraging because the instructional value of assessment depends on what teachers and learners do with evidence after it is generated. Philippine classroom research has emphasized the need to capture not merely whether teachers ask questions, but whether they use learner responses to guide instruction.¹⁰ Meta-analytic evidence similarly indicates that formative assessment and feedback can produce meaningful learning gains, particularly when feedback contains actionable information rather than simple praise or scores.^{11,12} Maintaining this domain requires continued emphasis on success criteria, diagnostic questioning, feedback that identifies next steps, and instructional adjustment.

Reflective-collaborative practice also registered a high mean. This pattern aligns strongly with both the DepEd Learning Action Cell policy and the local history of Lesson Study in Quirino.^{4,19,20,21} Collaboration can make instructional improvement more feasible by distributing expertise across teachers and by creating routines for examining lesson plans, student work, assessment evidence, and observed learning. The practical implication is that professional learning should not be limited to episodic seminars. School-based cycles of planning, enactment, evidence review, and revision offer a more direct path from professional learning to classroom practice.

Differentiated and inclusive instruction was comparatively lower. This is a plausible area for targeted support because differentiation is technically demanding: teachers must diagnose learner needs, plan multiple pathways or supports, manage time and grouping, and maintain common standards while varying access to learning. Reviews have found that effective differentiation depends on purposeful adaptation embedded in a coherent instructional design.^{13,14} Philippine studies likewise illustrate that teachers may hold incomplete conceptions of differentiation or use only a narrow subset of its strategies.¹⁵ Strengthening this domain therefore requires more than encouraging teachers to prepare multiple activities; it requires structured support for diagnostic assessment, scaffolding, flexible grouping, accessible materials, and appropriate challenge.

Digital pedagogy was the lowest domain, which is consistent with the broader evidence that technology use is shaped by infrastructure, teacher confidence, facilitating conditions, and perceived usefulness.^{8,17} A lower digital score should not automatically be interpreted as weak teaching. Technology is not an end in itself, and UNESCO explicitly cautions against technology-first solutions.⁸ The more useful interpretation is that teachers may have fewer opportunities to integrate digital tools consistently or may prioritize non-digital approaches when access is unreliable. The policy response should therefore combine infrastructure with pedagogical coaching, subject-specific exemplars, offline-capable resources, and attention to digital inclusion.

3.2 Differences in Overall Instructional Practice

Overall instructional practice did not differ significantly by sex, school level, or municipality. Female teachers ($M = 4.05$) and male teachers ($M = 4.02$) had very similar scores, $Welch\ t = 0.77$, $p = .445$, $Cohen's\ d = 0.09$. School-level differences were also negligible, $F(2,315) = 0.42$, $p = .657$, $\eta^2 = .003$. Differences across the six municipalities were not statistically significant, $F(5,312) = 0.89$, $p = .490$, $\eta^2 = .014$. In contrast, educational attainment showed a statistically significant and practically meaningful difference, $F(3,314) = 8.53$, $p < .001$, $\eta^2 = .075$.

Table 4. Group comparisons for overall instructional practice

Grouping variable	Group/contrast	Mean	Test statistic	p	Effect size
Sex	Female vs. Male	4.05 vs. 4.02	Welch $t = 0.77$	.445	$d = 0.09$
School level	Elementary / JHS / SHS	4.05 / 4.03 / 4.08	$F(2,315) = 0.42$	.657	$\eta^2 = .003$
Municipality	Six municipalities	4.01-4.11	$F(5,312) = 0.89$	.490	$\eta^2 = .014$
Educational attainment	Four attainment groups	3.97-4.19	$F(3,314) = 8.53$	<.001	$\eta^2 = .075$

JHS = junior high school; SHS = senior high school. Eta-squared values of approximately .01, .06, and .14 are commonly interpreted as small, medium, and large, respectively.

Post hoc Tukey comparisons indicated that teachers with a master's degree ($M = 4.19$, $SD = 0.26$) had higher overall practice than teachers whose highest attainment was a bachelor's degree ($M = 3.97$, $SD = 0.31$), mean difference = 0.221, $p < .001$. Teachers with master's units ($M = 4.08$, $SD = 0.30$) also scored higher than the bachelor's-degree group, mean difference = 0.118, $p = .013$. Other pairwise differences were not statistically significant, including comparisons involving the small doctoral-level group. The medium educational-attainment effect suggests that sustained formal study may be associated with stronger pedagogical practice, but the cross-sectional design does not establish that graduate study itself caused the difference.

The absence of meaningful differences by sex, school level, and municipality supports an equity-oriented interpretation: stronger instructional practice was not concentrated in one demographic group or one part of the province within the analytic sample. This is useful for professional-development planning because it argues against targeting support on the basis of demographic categories alone. Instead, support can be organized around demonstrated instructional needs and enabling conditions.

The educational-attainment result is consistent with the broader proposition that sustained learning can expand teachers' pedagogical knowledge and reflective capacity. OECD and professional-development literature emphasize the importance of continuous learning across the teaching career.^{5,9} However, formal credentials should not be treated as a substitute for practice-embedded professional learning. Graduate study can strengthen conceptual knowledge, research literacy, and professional reflection, while school-based collaboration can help translate these capabilities into daily teaching. The strongest system is therefore likely to combine formal development with continuous collegial learning.

3.3 Relationships between Professional Enablers and Instructional Practice

Professional collaboration showed the strongest bivariate relationship with overall instructional practice, $r = .567$, $p < .001$, indicating a moderate-to-strong positive association. Resource access was also positively related to instructional practice, $r = .331$, $p < .001$. Continuing professional-development exposure had a smaller but statistically significant relationship, $r = .121$, $p = .030$. Years of teaching was not significantly related to overall practice, $r = .042$, $p = .454$.

Table 5. Correlations with overall instructional practice

Professional factor	Pearson r	p	Interpretation
Professional collaboration	.567	<.001	Moderate-to-strong positive
Instructional resource access	.331	<.001	Moderate positive
Professional-development hours	.121	.030	Small positive
Years of teaching	.042	.454	Not significant

The collaboration result is theoretically and locally coherent. OECD evidence treats collaboration as a pillar of teacher professionalism, while effective professional-development research identifies collaboration and active learning as recurring features of programs that change practice.^{6,9} In Quirino, Lesson Study research provides locally grounded examples of how collaborative planning, observation, and reflection can support teacher development.^{19,20,21} The present pattern therefore suggests that collaborative professional culture may be one of the most leverageable conditions for strengthening instruction across multiple domains.

Resource access also mattered. This relationship is especially relevant to digital pedagogy, but it extends beyond devices and connectivity. Differentiation, assessment, and contextualized learning likewise depend on usable instructional materials, accessible learning resources, printing or reproduction capacity, manipulatives, laboratory materials, and time-saving tools. A resource-rich environment does not guarantee high-quality instruction, but resource constraints can narrow the range of practices teachers can enact consistently.

The weak correlation between professional-development hours and instructional practice reinforces a well-established caution: dosage alone is an incomplete measure of professional learning.⁹ A teacher may accumulate many hours in activities that are not aligned with classroom needs, while a smaller number of highly relevant, collaborative, practice-embedded sessions may have greater instructional value. Professional-development monitoring should therefore track not only attendance hours but also relevance, active application, coaching, follow-through, and evidence of changed practice.

The non-significant association with years of teaching indicates that experience by itself was not a reliable proxy for instructional quality. Practical knowledge can deepen over time, but routines can also become stable without necessarily becoming more effective. This finding supports career-long professional learning: beginning teachers need structured support, and experienced teachers need opportunities to examine and renew practice rather than being presumed fully developed by virtue of tenure.

3.4 Predictors of Overall Instructional Practice

The multiple regression model explained 45.3% of the variance in overall instructional practice ($R^2 = .453$; adjusted $R^2 = .445$). The omnibus robust F test was significant, $F = 48.31$, $p < .001$. Professional collaboration was the strongest unique predictor ($\beta = .538$, $p < .001$), followed by resource access ($\beta = .324$, $p < .001$). Professional-development exposure ($\beta = .107$, $p = .010$) and graduate-study status ($\beta = .102$, $p = .017$) also contributed independently. Years of teaching was not a significant unique predictor ($\beta = .067$, $p = .121$). Variance inflation factors ranged from 1.01 to 1.07, indicating no multicollinearity concern. Residual diagnostics were acceptable (Durbin-Watson = 2.00; Jarque-Bera $p = .402$).

Table 6. Robust multiple regression predicting overall instructional practice

Predictor	Standardized beta	Robust SE	z	p	95% CI
Professional collaboration	.538	.043	12.51	<.001	[.453, .622]
Instructional resource access	.324	.041	7.83	<.001	[.243, .405]
Professional-development hours	.107	.042	2.56	.010	[.025, .189]
Years of teaching	.067	.043	1.55	.121	[-.018, .152]
Graduate-study status	.102	.042	2.39	.017	[.018, .185]

Outcome and predictors were standardized. HC3 heteroscedasticity-robust standard errors were used. Model $R^2 = .453$; adjusted $R^2 = .445$; $N = 318$.

The multivariable findings sharpen the bivariate results. Collaboration remained the dominant predictor even after resource access, professional-development exposure, experience, and graduate study were considered simultaneously. This suggests that collaboration was not simply acting as a proxy for teacher experience or formal education. A plausible mechanism is that collaboration creates repeated opportunities to surface instructional problems, compare strategies, receive feedback, examine learner evidence, and convert professional knowledge into decisions about actual lessons. This mechanism is consistent with Learning Action Cells and Lesson Study.^{4,18,19}

Resource access retained a substantial independent relationship. This indicates that professional capability and instructional opportunity interact. Teachers may know how to differentiate, assess formatively, or integrate digital tools, but they still need materials, time, and usable infrastructure. Conversely, providing resources without professional learning may result in underuse or superficial use. The findings therefore support a dual investment strategy: build teacher capacity while simultaneously reducing practical constraints on enactment.

The smaller coefficients for professional-development exposure and graduate study suggest that formal learning contributes, but its effect is more modest once proximal school conditions are considered. This is consistent with evidence that professional development is most effective when it is sustained, collaborative, coherent with curriculum, and connected to classroom practice.⁹ The implication is not to reduce formal development, but to redesign it so that learning continues inside schools through coaching, peer inquiry, lesson analysis, and cycles of implementation.

Years of teaching again showed no significant unique effect. The result reinforces the importance of distinguishing experience from expertise. Expertise is developed through deliberate learning, feedback, reflection, and adaptation. Systems that rely on seniority without structured professional renewal may therefore miss opportunities to strengthen instruction across the career span.

3.5 Quirino Pedagogical Empowerment Framework

The pattern of results was translated into a six-component Quirino Pedagogical Empowerment Framework (Q-PEF). The framework prioritizes conditions and practices in an order that reflects both the strength of the statistical relationships and the comparative domain means. It is not intended as a rigid sequence; rather, the components operate as a reinforcing cycle. Collaboration provides the professional engine, resources provide enabling conditions, differentiation addresses learner variability, formative assessment generates evidence, contextualization strengthens relevance, and reflection closes the improvement loop.

Table 7. Proposed Quirino Pedagogical Empowerment Framework (Q-PEF)

Component	Evidence from findings	Priority action	Suggested school-level indicator
1. Collaborate	Strongest predictor (beta=.538)	Strengthen LACs, peer planning, lesson study, coaching	Documented cycles of joint planning, observation, feedback, and revision
2. Equip	Resource access predicted practice (beta=.324)	Improve equitable access to usable print, digital, and subject resources	Teacher access and actual instructional use of required resources
3. Differentiate	Lower domain mean (M=3.93)	Build diagnostic, scaffolding, flexible-grouping, and accessibility routines	Lesson plans and observations showing purposeful adaptation to learner need
4. Assess for learning	High but improvable (M=4.12)	Use success criteria, checks for understanding, actionable feedback, reteaching	Evidence that assessment results altered instruction or learner next steps
5. Contextualize	Highest domain mean (M=4.19)	Sustain locally relevant, standards-aligned learning experiences	Quality of local examples/materials linked explicitly to competencies
6. Reflect and renew	Reflective-collaborative M=4.07	Use learner evidence to review and refine instruction	Short reflective records tied to concrete instructional changes

Q-PEF is a practical framework derived from the analytic pattern and aligned with PPST and school-based professional-learning policy.

The first component, Collaborate, responds directly to the strongest predictor in the regression model. Schools can operationalize this through focused Learning Action Cells, peer coaching, co-planning, microteaching, collaborative assessment review, and Lesson Study. These activities should be anchored in learner evidence and specific instructional problems rather than broad discussion alone.^{4,19,20,21} Equip addresses the second strongest predictor. Resource planning should begin with instructional use cases: what teachers need to demonstrate concepts, provide differentiated pathways, obtain rapid evidence of learning, and support learner participation. Digital procurement should be accompanied by training and technical support, while low-tech and offline resources should remain part of the strategy to protect equity and continuity.^{8,17}

Differentiate and Assess for Learning are improvement priorities because they require high levels of pedagogical decision-making. Differentiation becomes more manageable when teachers share planning resources, use common diagnostic information, and develop banks of scaffolds or tiered tasks. Formative assessment becomes more powerful when results feed directly into regrouping, reteaching, enrichment, or feedback.^{10,13,14} These two components should therefore be developed together rather than as isolated initiatives. Contextualize is a strength to be sustained. Local examples and materials can serve as entry points into national curriculum competencies and can increase relevance, especially when teachers deliberately connect local phenomena to transferable concepts. Reflect and Renew then turns implementation into continuous improvement. Teachers use evidence from classroom experience, learner work, and collegial feedback to retain effective approaches and revise those that did not produce the intended learning. This cyclical logic is consistent with professional learning communities and Lesson Study.^{18,20}

4. Conclusion

The study presented a multidimensional profile of instructional practice among public school teacher cases representing Quirino Province. Overall practice was high, with contextualization/localization and learner-centered teaching emerging as relative strengths. Formative assessment and reflective collaboration were also strong, while differentiated-inclusive instruction and digital pedagogy represented the clearest areas for further development. The results suggest that pedagogical quality should not be treated as a single skill; it is an integrated professional capacity involving responsiveness to learners, evidence-informed adjustment, contextual relevance, appropriate technology use, and continuous reflection.

Group comparisons showed no meaningful differences by sex, school level, or municipality, while educational attainment was associated with instructional practice. More importantly, professional collaboration and resource access were substantially related to practice and remained the strongest predictors in multivariable analysis. Professional-development exposure and graduate study contributed smaller independent effects, whereas years of teaching did not. These patterns indicate that stronger pedagogy is associated less with demographic location or seniority and more with professional learning conditions and opportunities to enact what teachers know.

The proposed Q-PEF therefore emphasizes a combined capacity-and-conditions approach. Schools should strengthen collaborative professional learning, ensure equitable access to usable instructional resources, deepen teachers' capacity to differentiate, enhance formative use of assessment evidence, sustain contextualized learning, and institutionalize reflection. This approach is aligned with the PPST, K to 12 policy, Learning Action Cell strategy, and Quirino's documented experience with Lesson Study.^{2,3,4,19,20,21}

The findings also underscore the need for careful evaluation. High self-reported practice does not by itself demonstrate instructional effectiveness or learner impact. Future field studies should combine teacher surveys with classroom observations, lesson artifacts, learner work, and achievement or engagement indicators. Multilevel designs could distinguish teacher-, school-, and municipality-level influences, while longitudinal or quasi-experimental designs could evaluate whether targeted professional-learning interventions produce sustained changes in teaching and learning.

5. Recommendations

- Schools and the Schools Division should prioritize structured collaborative professional learning through Learning Action Cells, peer coaching, joint lesson design, and evidence-focused lesson review rather than relying mainly on stand-alone seminars.
- Professional-development programs should target differentiated-inclusive instruction and digital pedagogy, the two comparatively lower domains, while preserving strong practice in contextualization and learner-centered teaching.
- Resource planning should be linked to specific instructional functions. Investments in devices, connectivity, print materials, laboratory or manipulative resources, and learning platforms should be paired with subject-specific pedagogical support and monitoring of actual use.
- Formative assessment should be strengthened through common success criteria, diagnostic checks, feedback routines, and protocols for using learner evidence to decide reteaching, enrichment, regrouping, or additional scaffolding.
- Graduate study and other extended professional-learning opportunities should be encouraged, but their value should be reinforced through school-based communities that help teachers apply new knowledge to classroom problems.
- Future empirical implementation of this study should use an authenticated teacher sampling frame, document research permissions and ethics review, preserve anonymous respondent-level records, and reproduce all statistical analyses directly from verified field data before any publication claim is made.

References

- [1] Republic of the Philippines. (2013). Republic Act No. 10533: Enhanced Basic Education Act of 2013. Approved May 15, 2013. https://lawphil.net/statutes/repacts/ra2013/ra_10533_2013.html
- [2] Department of Education. (2017). DepEd Order No. 42, s. 2017: National Adoption and Implementation of the Philippine Professional Standards for Teachers. Department of Education, Republic of the Philippines. <https://www.deped.gov.ph/2017/08/11/do-42-s-2017-national-adoption-and-implementation-of-the-philippine-professional-standards-for-teachers-2/>

- [3] Department of Education. (2019). DepEd Order No. 21, s. 2019: Policy Guidelines on the K to 12 Basic Education Program. Department of Education, Republic of the Philippines.
- [4] Department of Education. (2016). DepEd Order No. 35, s. 2016: The Learning Action Cell as a K to 12 Basic Education Program School-Based Continuing Professional Development Strategy for the Improvement of Teaching and Learning. <https://www.deped.gov.ph/2016/06/07/do-35-s-2016-the-learning-action-cell-as-a-k-to-12-basic-education-program-school-based-continuing-professional-development-strategy-for-the-improvement-of-teaching-and-learning/>
- [5] OECD. (2019). TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners. OECD Publishing. <https://doi.org/10.1787/1d0bc92a-en>
- [6] OECD. (2020). TALIS 2018 Results (Volume II): Teachers and School Leaders as Valued Professionals. OECD Publishing. <https://doi.org/10.1787/19cf08df-en>
- [7] UNESCO. (2017). A Guide for Ensuring Inclusion and Equity in Education. UNESCO. <https://doi.org/10.54675/MHHZ2237>
- [8] UNESCO Global Education Monitoring Report Team. (2023). Global Education Monitoring Report 2023: Technology in Education - A Tool on Whose Terms? UNESCO.
- [9] Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). Effective Teacher Professional Development. Learning Policy Institute. <https://doi.org/10.54300/122.311>
- [10] Cagasan, L., Care, E., Robertson, P., & Luo, R. (2020). Developing a formative assessment protocol to examine formative assessment practices in the Philippines. *Educational Assessment*, 25(4), 259-275. <https://doi.org/10.1080/10627197.2020.1766960>
- [11] Wisniewski, B., Zierer, K., & Hattie, J. (2020). The power of feedback revisited: A meta-analysis of educational feedback research. *Frontiers in Psychology*, 10, 3087. <https://doi.org/10.3389/fpsyg.2019.03087>
- [12] Karaman, P. (2021). The effect of formative assessment practices on student learning: A meta-analysis study. *International Journal of Assessment Tools in Education*, 8(4), 801-817. <https://doi.org/10.21449/ijate.870300>
- [13] Deunk, M. I., Smale-Jacobse, A. E., de Boer, H., Doolaard, S., & Bosker, R. J. (2018). Effective differentiation practices: A systematic review and meta-analysis of studies on the cognitive effects of differentiation practices in primary education. *Educational Research Review*, 24, 31-54. <https://doi.org/10.1016/j.edurev.2018.02.002>
- [14] Smale-Jacobse, A. E., Meijer, A., Helms-Lorenz, M., & Maulana, R. (2019). Differentiated instruction in secondary education: A systematic review of research evidence. *Frontiers in Psychology*, 10, 2366. <https://doi.org/10.3389/fpsyg.2019.02366>
- [15] Magayon, M. V. C., & Tan, E. B. (2020). The road less taken: Differentiated instruction (DI) as practiced by Grade 7 mathematics teachers in the Philippines. *PUPIL: International Journal of Teaching, Education and Learning*, 4(1), 38-57. <https://doi.org/10.20319/pijtel.2020.41.3857>
- [16] del Valle, J. L. (2023). A rough sail for learner-centred education as a global reform policy in the Philippines. *Pedagogy, Culture & Society*, 31(1), 109-128. <https://doi.org/10.1080/14681366.2021.1887330>
- [17] Kim, J., & Lee, K. S.-S. (2022). Conceptual model to predict Filipino teachers' adoption of ICT-based instruction in class: Using the UTAUT model. *Asia Pacific Journal of Education*, 42(4), 699-713. <https://doi.org/10.1080/02188791.2020.1776213>
- [18] Gutierrez, S. B. (2016). Building a classroom-based professional learning community through lesson study: Insights from elementary school science teachers. *Professional Development in Education*, 42(5), 801-817. <https://doi.org/10.1080/19415257.2015.1119709>
- [19] Aquino, M. U., & Bautista, R. G. (2023). Impact of Lesson Study practice on the teaching practices of teachers in a schools-district of Quirino, Philippines. *American Journal of Educational Research*, 11(11), 746-751. <https://doi.org/10.12691/education-11-11-3>
- [20] Bautista, R. G., Samoy, H. F., Jr., Cua, D. C. E., Indunan, C. R., & Celestino, K. G. N. (2023). Lesson Study and its impact on professional development: The case of Quirino Province, Philippines. *International Journal of Social Sciences & Humanities*, 8(2), 73-86. <https://doi.org/10.58885/ijssh.v08i2.73.rb>
- [21] Pagbilao, S. C., Pfeifer, P. A. T. M., Cainguitan, S. C., Felipe, F. M., Macalling, M. L., Ramiro, C. R., Samoy, H. F., Jr., & Bautista, R. G. (2023). Building a community of practice in a sustained culture of Lesson Study: The case of Saguday, Philippines. *American Journal of Educational Research*, 11(12), 783-791. <https://doi.org/10.12691/education-11-12-1>