

Classrooms under Constraint and the Pedagogy of Elementary Learning Support

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ABSTRACT

This study investigated how classroom constraints shaped the pedagogy of elementary learning support among public elementary school teachers in Quezon City. Using an explanatory-predictive cross-sectional design, data were obtained from 240 teachers selected through proportionate stratified random sampling. A validated 40-item instrument measured instructional resource limitation, time and workload pressure, learner heterogeneity, classroom organizational demands, and four dimensions of learning-support pedagogy. Data were analyzed using descriptive statistics, confirmatory factor analysis, and quantile regression at the 25th, 50th, and 75th conditional quantiles, with bootstrap standard errors based on 5,000 resamples. Results showed that teachers experienced a high overall level of classroom constraint, with time and workload pressure emerging as the most

pronounced condition. Learning-support pedagogy remained generally high, although progress-responsive feedback was comparatively weaker. The measurement model demonstrated acceptable fit and strong internal consistency. Quantile regression revealed that time and workload pressure significantly reduced learning-support pedagogy across all three quantiles, with the strongest effect among teachers at the lower end of the distribution. Resource limitation, learner heterogeneity, and organizational demands were also more influential among teachers with weaker support practices. The findings suggest that teacher adaptability can buffer some classroom pressures, but persistent workload demands continue to restrict responsive learning support. Reducing noninstructional burdens, strengthening differentiated support, and improving progress-monitoring systems are therefore essential for sustaining effective elementary learning support.

Keywords: *classroom constraints; differentiated instruction; elementary education; learning support; teacher adaptability; workload pressure*

INTRODUCTION

Elementary classrooms are expected to provide children with the foundations for literacy, numeracy, participation, and continued learning, yet the work of achieving these goals becomes more demanding when learners enter the classroom with differing levels of readiness and support needs. Evidence from primary education shows that effective differentiation requires more than grouping learners according to ability. Teachers need to adjust tasks, instructional materials, pacing, and forms of assistance according to what learners demonstrate during instruction. Such practices can contribute to improved academic performance when they are integrated meaningfully into classroom teaching (Deunk et al., 2018).

For public school teachers, however, providing individualized or targeted learning support often takes place alongside competing professional demands. Philippine evidence has shown that teachers carry responsibilities beyond classroom instruction, including administrative and other nonteaching duties that can reduce the time available for lesson preparation, assessment, feedback, and direct assistance to learners. David et

al. (2019) observed that the workload of Filipino public school teachers extends well beyond teaching and may affect the quality of instructional work when numerous additional responsibilities compete for teachers' time and attention.

These pressures are especially important because many elementary learners require sustained academic support. The Philippines continues to face serious difficulties in foundational learning, particularly reading proficiency at the primary level. The *Philippines Learning Poverty Brief* reported that a large proportion of Filipino children at late primary age had not reached minimum reading proficiency, indicating that classroom instruction must address not only curriculum coverage but also persistent differences in learners' foundational skills (World Bank & UNESCO, 2022). Teachers therefore occupy a critical position in identifying learning difficulties, modifying instruction, giving additional explanations, monitoring progress, and creating practical forms of support within the resources available to them.

National policy has also recognized that excessive responsibilities can interfere with this instructional role. The Department of Education directed the removal of administrative tasks from public school teachers after acknowledging that additional duties had shifted teachers' attention away from teaching and academic learning (Department of Education, 2024). This policy concern suggests that classroom constraints should not be viewed simply as shortages of materials or physical space. They may also involve limitations in time, staffing, workload distribution, instructional resources, and teachers' capacity to respond to varied learner needs within the school day.

These concerns have particular relevance in Quezon City, where the scale of the public school system places considerable demands on schools and teachers. The Quezon City Government reported an expected enrollment of more than 458,000 learners for School Year 2023–2024 and identified school congestion and classroom shortages among continuing education concerns (Quezon City Government, 2023). Within such conditions, it becomes important to understand how elementary teachers sustain learning support when instructional demands exceed readily available resources. Thus, the study *Classrooms under Constraint and the Pedagogy of Elementary Learning Support* examines how public elementary school teachers respond pedagogically to classroom constraints and how these responses shape the ways learning support is organized, adjusted, and delivered to pupils in Quezon City.

Literature Review

Classroom Constraints and Instructional Conditions

Classroom constraints shape what teachers can reasonably accomplish within the time, space, and resources available to them. Class size is one visible constraint because the number of learners affects opportunities for individual attention, monitoring, feedback, and classroom interaction. A systematic review by Filges et al. (2018) found that simply reducing class size does not automatically produce substantial achievement gains, suggesting that the instructional practices made possible within a given class structure are equally important. Workload adds another layer to these conditions. Jerrim and Sims (2021) found that longer working hours were associated with greater workload stress among teachers, with particular teaching-related tasks contributing heavily to this burden. These findings indicate that classroom constraint is not a single condition but a combination of demands that can limit the teacher's capacity to provide sustained support to individual learners.

Pedagogical Adaptation and Teacher Agency

Teaching under constraint requires professional judgment because prescribed materials and routines cannot anticipate every learner difficulty that appears during instruction. Teacher agency becomes important when educators decide how lessons, resources, pacing, and classroom activities should be adjusted without losing sight of curriculum expectations. Rich (2021), in a study of elementary teachers using mathematics curriculum resources, found that standards and assessment requirements could restrict instructional choices, yet teachers still created opportunities to respond to their learners' needs. This suggests that pedagogy under constraint is partly

defined by the teacher's capacity to work within existing expectations while making purposeful adjustments that preserve learner-centered instruction. Such adaptation is particularly relevant in elementary classrooms, where differences in readiness often require immediate decisions about explanation, practice, grouping, and assistance.

Differentiated Learning Support

Elementary learning support becomes more responsive when teachers adjust instruction according to differences in learners' understanding, readiness, and need for assistance. Eysink et al. (2017) found that primary teachers who received structured support for differentiation increased their use of differentiated tasks, content, and instructional processes, while learners taught by teachers who differentiated more extensively demonstrated stronger learning outcomes. A broader review by Langelaan et al. (2024) likewise showed that effective differentiated instruction depends on teachers' knowledge and skills as well as school conditions that either enable or restrict its implementation. Learning support, therefore, involves more than providing additional exercises to struggling pupils. It requires deliberate decisions about what support is needed, how it should be delivered, and how classroom instruction can remain manageable while addressing varied learning needs.

Professional Capacity for Sustained Learning Support

The ability to maintain responsive learning support also depends on whether teachers receive opportunities to strengthen their instructional practice. Differentiation and targeted assistance are complex teaching skills that may be difficult to sustain through individual effort alone. Kahmann et al. (2022), through a meta-analysis of 27 studies, found that professional development in differentiated instruction produced a moderate positive effect on teachers' knowledge, attitudes, and instructional practices, with stronger improvements when training was connected to specific subject areas. Their findings show that effective learning support is linked not only to teacher commitment but also to professional preparation that helps teachers translate knowledge into workable classroom practices. For public elementary schools operating under competing demands, strengthening this capacity may help teachers make more purposeful use of limited instructional time and resources while providing support that remains sensitive to learner differences.

METHODS

Research Design

The study employed an explanatory-predictive cross-sectional design with a distribution-sensitive analytic approach. This design was selected to determine how different forms of classroom constraint were associated with teachers' pedagogy of elementary learning support and whether these associations varied across different levels of support practice. Rather than treating teachers' responses as a single average pattern, the design allowed the analysis to examine teachers who demonstrated comparatively lower, middle, and higher levels of learning-support practice. Classroom constraints served as the explanatory conditions, while pedagogical learning support constituted the outcome construct. The design was appropriate because the study examined naturally occurring teaching conditions without manipulating classroom arrangements or instructional demands.

Research Locale

The study was conducted in Quezon City, within its public elementary education system. The locale represented a large urban school division characterized by substantial learner populations and varied instructional demands. Official information from the Quezon City Government identified 7,243 elementary teachers serving the division, providing a sufficiently broad setting for examining how teachers organized learning support while working within limitations involving instructional time, resources, learner diversity, workload, and classroom conditions (Quezon City Government, 2026).

Participants and Sampling Technique

The participants consisted of 240 public elementary school teachers with active classroom teaching assignments from kindergarten to Grade 6. The official population of 7,243 elementary teachers was used as the sampling frame. An a priori statistical power analysis was performed using four principal classroom-constraint domains, an effect size of ($f^2=.08$), a significance level of .05, and statistical power of .95. The analysis produced a minimum requirement of 237 respondents, which was increased to 240 to provide a balanced and manageable final sample. Proportionate stratified random sampling was applied across the administrative groupings of the division so that teachers from different areas of Quezon City were represented without concentrating participation in particular institutions. Eligible participants held current elementary teaching assignments and had completed one full school year of classroom service.

Research Instrument

The study employed the researcher-developed Classroom Constraints and Learning Support Pedagogy Scale, a 40-item questionnaire designed from the conceptual and empirical literature supporting the study. Half of the statements measured classroom constraints through instructional resource limitation, time and workload pressure, learner heterogeneity, and classroom organizational demands. The remaining 20 items assessed learning-support pedagogy in terms of adaptive scaffolding, differentiated assistance, resourceful instructional response, and progress-responsive feedback. Each dimension consisted of five statements answered using a five-point scale from 1, *strongly disagree*, to 5, *strongly agree*.

Prior to its use, the questionnaire was validated by five specialists in elementary education, curriculum and instruction, educational research, and measurement and evaluation. The experts examined the items for relevance, clarity, contextual suitability, and alignment with the intended constructs. The evaluation resulted in I-CVI values ranging from .80 to 1.00 and an overall S-CVI/Ave of .93. Comments from the panel led to revisions in selected statements, particularly those requiring clearer distinction between classroom conditions and teachers' instructional responses.

The revised instrument was pilot tested with 30 public elementary school teachers who were not part of the final sample. The classroom-constraint component obtained a Cronbach's alpha of .90, with coefficients of .84 for instructional resource limitation, .87 for time and workload pressure, .82 for learner heterogeneity, and .86 for classroom organizational demands. The learning-support pedagogy component yielded an alpha of .92, with dimension coefficients of .88 for adaptive scaffolding, .85 for differentiated assistance, .89 for resourceful instructional response, and .87 for progress-responsive feedback. The overall Cronbach's alpha for the 40-item questionnaire was .94. Corrected item-total correlations ranged from .40 to .75, with all items showing sufficient consistency with their respective scales. The validation and pilot-test findings supported the use of the finalized questionnaire for the main data collection.

Data Gathering

Permission to conduct the study was secured through the appropriate educational and research authorities before participant recruitment. Following approval, the sampling frame was organized according to the selected strata, and teachers were randomly identified within each grouping. The participants received an explanation of the purpose of the study, participation requirements, confidentiality provisions, and their right to decline or discontinue participation. The questionnaire was then administered through a controlled survey procedure. Completed responses were screened for duplicate submissions, substantial missing data, patterned responding, and response irregularities before the dataset was finalized for analysis. No school names or personally identifying information were entered into the analytical dataset.

Data Analysis

The analysis proceeded through a distribution-sensitive modeling strategy. Median and interquartile range were used to summarize the central tendency and dispersion of the major constructs, while item distributions were

examined for response concentration and irregularity. The measurement structure of the instrument was assessed through confirmatory factor analysis using the weighted least squares mean and variance adjusted estimator, which was appropriate for ordered categorical responses. Model adequacy was examined through the comparative fit index, Tucker-Lewis's index, root mean square error of approximation, and standardized root mean square residual.

The principal inferential procedure was quantile regression. Separate models were estimated at the 25th, 50th, and 75th conditional quantiles of learning-support pedagogy. This treatment determined whether instructional resource limitation, time and workload pressure, learner heterogeneity, and classroom organizational demands showed different patterns of association among teachers demonstrating lower, median, and higher levels of pedagogical learning support. Bootstrap standard errors based on 5,000 resamples were used to strengthen statistical inference against non-normality and unequal variance. Statistical decisions were evaluated at $\alpha = .05$, with effect estimates and confidence intervals reported alongside probability values. This approach provided a more informative interpretation than a single average regression coefficient because it identified where particular classroom constraints exerted their strongest associations across the distribution of teachers' support practices.

Ethical Considerations

The study observed voluntary participation, informed consent, confidentiality, anonymity, and the participants' right to withdraw without penalty. Only information necessary for the research objectives was collected, school identifiers were excluded from the dataset, and electronic records were stored in password-protected files accessible only to the researcher. Results were reported in aggregate form to prevent the identification of individual teachers or their workplaces.

RESULTS AND DISCUSSION

Table 1. *Level of Classroom Constraints among Public Elementary School Teachers*

Classroom Constraint	Median	IQR	Interpretation
Instructional Resource Limitation	3.78	0.64	High
Time and Workload Pressure	4.24	0.58	Very High
Learner Heterogeneity	4.08	0.61	High
Classroom Organizational Demands	3.91	0.66	High
Overall Classroom Constraints	4.01	0.55	High

Note. $N = 240$. IQR = interquartile range.

Table 1 shows that public elementary school teachers experienced a generally high level of classroom constraint, with an overall median of 4.01. Time and workload pressure emerged as the most serious condition, reaching a median of 4.24, followed by learner heterogeneity at 4.08. This pattern indicates that the central difficulty was not limited to the availability of instructional materials. Teachers were also managing competing responsibilities and wide differences in pupils' learning needs within the same instructional period. The finding is consistent with Jerrim and Sims (2021), who established that particular work demands contribute substantially to teacher workload stress. Classroom organizational demands and resource limitations were likewise pronounced, suggesting that learning support was delivered within conditions that placed continuing pressure on teachers' time, attention, and instructional flexibility.

Table 2. *Level of Learning Support Pedagogy*

Learning Support Dimension	Median	IQR	Interpretation
Adaptive Scaffolding	4.05	0.55	High

Differentiated Assistance	3.71	0.63	High
Resourceful Instructional Response	4.13	0.51	High
Progress-Responsive Feedback	3.39	0.69	Moderate
Overall Learning Support Pedagogy	3.82	0.50	High

Table 2 indicates that teachers generally maintained a high level of learning-support pedagogy despite the classroom pressures reported in Table 1. Resourceful instructional response received the highest median of 4.13, suggesting that teachers frequently adapted available materials, activities, and instructional approaches when ideal resources were unavailable. Adaptive scaffolding was also strongly practiced. A notable weakness appeared in progress-responsive feedback, which obtained a median of 3.39 and was the only dimension interpreted as moderate. This finding suggests that teachers were able to provide immediate instructional assistance more consistently than individualized monitoring and feedback over time. Eysink et al. (2017) similarly demonstrated that differentiated classroom practices require deliberate adjustments in tasks, content, and instructional processes. The comparatively weaker feedback result may reflect the difficulty of sustaining individualized responses when teachers are simultaneously managing large and varied learning needs.

Table 3. *Confirmatory Factor Analysis and Internal Consistency Results*

Measurement Indicator	Obtained Value	Criterion	Decision
Comparative Fit Index (CFI)	.956	> .90	Acceptable fit
Tucker-Lewis Index (TLI)	.951	> .90	Acceptable fit
RMSEA	.052	< .08	Acceptable fit
RMSEA 90% CI	.046 to .058	< .08	Acceptable fit
SRMR	.049	< .08	Acceptable fit
Instructional Resource Limitation α	.86	> .70	Reliable
Time and Workload Pressure α	.89	> .70	Reliable
Learner Heterogeneity α	.87	> .70	Reliable
Classroom Organizational Demands α	.84	> .70	Reliable
Adaptive Scaffolding α	.88	> .70	Reliable
Differentiated Assistance α	.85	> .70	Reliable
Resourceful Instructional Response α	.91	> .70	Reliable
Progress-Responsive Feedback α	.83	> .70	Reliable
Overall Instrument α	.93	> .70	Highly reliable

Table 3 presents evidence that the proposed measurement structure represented the data adequately. The CFI of .956 and TLI of .951 exceeded the commonly accepted .90 criterion, while the RMSEA of .052 and SRMR of .049 remained below .08. These values indicated that the eight-dimensional measurement structure was sufficiently consistent with the observed responses. Kline (2016) explained that model evaluation should consider several fit indices rather than depend on a single statistic, and the present indicators converged toward an acceptable measurement solution. Internal consistency was also strong, with dimension-level Cronbach alpha coefficients ranging from .83 to .91 and an overall coefficient of .93. The results supported the use of the instrument scores in the succeeding quantile regression analysis.

Table 4. *Quantile Regression of Classroom Constraints on Learning Support Pedagogy*

Quantile	Predictor	B	SE	95% CI	p
25th	Instructional Resource Limitation	-.184	.058	-.298, -.070	.002
	Time and Workload Pressure	-.312	.061	-.432, -.192	<.001
	Learner Heterogeneity	-.228	.064	-.353, -.103	<.001
	Classroom Organizational Demands	-.147	.057	-.259, -.035	.010
50th	Instructional Resource Limitation	-.121	.050	-.219, -.023	.016
	Time and Workload Pressure	-.247	.054	-.353, -.141	<.001
	Learner Heterogeneity	-.168	.056	-.278, -.058	.003
	Classroom Organizational Demands	-.083	.051	-.183, .017	.104
75th	Instructional Resource Limitation	-.064	.047	-.156, .028	.172
	Time and Workload Pressure	-.154	.049	-.250, -.058	.002
	Learner Heterogeneity	-.091	.051	-.191, .009	.074
	Classroom Organizational Demands	-.042	.046	-.132, .048	.361

Model Pseudo R²

25th Quantile .31

50th Quantile .27

75th Quantile .18

Note. B represents the change in the conditional quantile of learning-support pedagogy for every one-unit increase in the predictor. Bootstrap standard errors were based on 5,000 resamples.

Table 4 reveals the central finding of the study. Time and workload pressure was the only classroom constraint that remained statistically significant across all three levels of learning-support pedagogy. Its strongest association appeared at the 25th quantile, $B = -.312$, $p < .001$, indicating that teachers who already demonstrated lower levels of learning-support practice were particularly affected by increasing workload pressure. At the median, the negative association remained substantial, $B = -.247$, $p < .001$, while it weakened but remained significant among teachers at the 75th quantile, $B = -.154$, $p = .002$.

The remaining constraints showed a different pattern. Instructional resource limitation, learner heterogeneity, and classroom organizational demands exerted stronger negative effects among teachers located at the lower end of learning-support pedagogy. Resource limitation remained significant at the 25th and 50th quantiles but no longer predicted support practices at the 75th quantile. Learner heterogeneity followed the same general pattern, while classroom organizational demands reached significance only at the 25th quantile. The decreasing pseudo- R^2 values from .31 at the lower quantile to .18 at the upper quantile further showed that classroom constraints explained considerably more variation among teachers with weaker learning-support practices.

These findings suggest that classroom constraints did not affect all teachers in the same manner. Teachers demonstrating stronger learning-support pedagogy appeared more capable of sustaining scaffolding, differentiation, and resourceful responses despite resource and organizational limitations. This interpretation agrees with Rich (2021), who showed that teachers may exercise professional agency even when institutional conditions restrict instructional choices. Nevertheless, the continuing effect of time and workload pressure across all quantiles indicates a limit to individual adaptability. Even teachers with stronger pedagogical practices experienced reduced capacity for learning support as workload pressure increased. Professional competence may therefore lessen some forms of constraint, but it cannot fully compensate for persistent demands on instructional time.

Taken together, the results portray a public elementary classroom environment in which teachers continued to provide substantial learning support despite significant constraints. The strongest concern was not an

absence of teacher effort or adaptive practice, but the sustained pressure created by workload, limited time, learner diversity, and organizational demands. The findings therefore support the central proposition of the study that the pedagogy of elementary learning support is shaped by how teachers negotiate constraints, with the greatest vulnerability occurring among those whose support practices are already less developed.

CONCLUSION

The public elementary school teachers in Quezon City continued to provide meaningful learning support despite substantial classroom constraints, particularly time and workload pressure, learner heterogeneity, limited instructional resources, and organizational demands. Among these conditions, time and workload pressure emerged as the most persistent factor associated with reduced learning-support practices across varying levels of teacher performance, while teachers with stronger pedagogical practices appeared better able to manage other classroom limitations. The findings further indicated that progress-responsive feedback remained comparatively weaker than scaffolding, differentiation, and resourceful instructional response. Schools should therefore prioritize measures that protect teachers' instructional time, streamline nonteaching responsibilities, and strengthen systems for learner monitoring and feedback. Professional development should also focus on practical strategies for differentiated assistance, adaptive scaffolding, and efficient progress tracking, particularly for teachers whose learning-support practices require further strengthening. School leaders may likewise improve access to usable instructional resources and establish collaborative support mechanisms that help teachers respond to diverse learner needs without adding unnecessary workload. These actions may strengthen the capacity of elementary classrooms to sustain responsive learning support even under demanding instructional conditions.

References

- David, C. C., Albert, J. R. G., & Vizmanos, J. F. V. (2019). *Pressures on public school teachers and implications on quality* (PIDS Policy Notes No. 2019-01). Philippine Institute for Development Studies.
- Department of Education. (2024). *Immediate removal of administrative tasks of public school teachers* (DepEd Order No. 002, s. 2024).
- 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.
- Eysink, T. H. S., Hulsbeek, M., & Gijlers, H. (2017). Supporting primary school teachers in differentiating in the regular classroom. *Teaching and Teacher Education*, 66, 107–116.
- Filges, T., Sonne-Schmidt, C. S., & Nielsen, B. C. V. (2018). Small class sizes for improving student achievement in primary and secondary schools: A systematic review. *Campbell Systematic Reviews*, 14(1), 1–107.
- Jerrim, J., & Sims, S. (2021). When is high workload bad for teacher wellbeing? Accounting for the non-linear contribution of specific teaching tasks. *Teaching and Teacher Education*, 105, 103395.
- Kahmann, R., Droop, M., & Lazonder, A. W. (2022). Meta-analysis of professional development programs in differentiated instruction. *International Journal of Educational Research*, 116, 102072.
- Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.
- Langelan, B. N., Gaikhorst, L., Smets, W., & Oostdam, R. J. (2024). Differentiating instruction: Understanding the key elements for successful teacher preparation and development. *Teaching and Teacher Education*, 140, 104464.
- Quezon City Government. (2023). *QC is all set for start of school year*. Quezon City Government.
- Quezon City Government. (2026). *Schools Division Office Quezon City*. Quezon City Government.
- Rich, K. M. (2021). Examining agency as teachers use mathematics curriculum resources: How professional contexts may support or inhibit student-centered instruction. *Teaching and Teacher Education*, 98, 103249.
- World Bank, & UNESCO. (2022). *Philippines learning poverty brief 2022*. World Bank.