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PROFESSIONAL LEARNING QUALITY AND SUPERVISORY COACHING QUALITY AS PREDICTORS OF TEACHING PERFORMANCE: THE MEDIATING ROLE OF TECHNOLOGICAL PEDAGOGICAL COMPETENCE

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ABSTRACT

There remains a scarcity of local empirical studies that simultaneously examine the effects of Professional Learning Quality (PLQ) and Supervisory Coaching Quality (SCQ) on Teaching Performance (TP) through the mediating mechanism of Technological Pedagogical Competence (TPC). Therefore, this study, conducted from July to October 2026, examined the predictive association of PLQ and SCQ on TP, with TPC as a mediating variable among public school teachers in the Second Congressional District of Misamis Oriental, school year 2026-2027. Specifically, it determined the levels of PLQ, SCQ, TPC, and TP; assessed the predictive effects of PLQ and SCQ on TP; and examined the mediating role of TPC. Data were collected from 193 public school teachers through a purposive sampling method using validated survey instruments, while TP was measured through immediate supervisor ratings. Confirmatory Factor Analysis, descriptive statistics, multiple regression analysis, and mediation analysis were used to analyze the data. Results indicated that PLQ, SCQ, TPC, and TP were all rated at Very High. Teachers viewed professional learning activities as meeting their teaching needs; supervisory coaching enabled them to refine their instructional strategies. Mediation analysis revealed that PLQ did not significantly predict TP, whereas SCQ significantly predicted TP. Furthermore, TPC did not significantly mediate the relationships between PLQ and TP or between SCQ and TP. The non-significant effects of PLQ and TPC suggest a gap in understanding TP outcomes. Future research may employ additional variables, such as teacher self-efficacy and motivation to better explain the pathways predicting TP.

Keywords: *Professional Learning Quality, Supervisory Coaching Quality, Technological Pedagogical Competence, Teaching Performance, Mediation Analysis, Public School Teachers*

INTRODUCTION

The effectiveness of educational systems largely depends on the competence and effectiveness of teachers. In today's rapidly evolving educational landscape, driven by continuous technological advancements, teachers are increasingly expected not only to deliver high-quality instruction, but also to effectively integrate digital technologies into the teaching and learning processes. This growing role of technology in education underscores the importance of developing teachers' technological and pedagogical competencies, enabling them to respond to diverse educational needs, foster learner engagement, and ultimately enhance the quality of instruction.

Recent studies have highlighted the contribution of technology integration to improving the effectiveness of teaching and learning processes. Naz and Dwivedi (2025), for instance, examined the use of learning management systems, collaborative platforms, multimedia technologies, virtual reality, and artificial intelligence in educational settings. Their findings indicated that the integration of these technologies facilitates the delivery of instructional materials, supports differentiated instruction, and promotes critical thinking among learners. Similarly, Hussain (2025) emphasized that as classrooms become increasingly technology-driven, teachers must adapt to emerging technological developments and integrate them into their instructional practices. Complementing these perspectives, Fialho, et. al. (2023) underscored the importance of developing and implementing educational policies that promote technology integration, particularly in ensuring equitable learning opportunities for all learners.

Beyond the integration of technology, engagement in high-quality professional learning opportunities is equally important in strengthening teachers' effectiveness. Continuous professional learning enables teachers to acquire updated knowledge, enhance their pedagogical competencies, and develop instructional strategies that respond to the evolving demands of contemporary classrooms. Dheeraj and Kumari (2024) emphasized that quality professional development contributes to improved instructional practices, more effective classroom management, and enhanced student learning outcomes. In this regard, sustained professional learning is essential in ensuring that teachers remain responsive to educational developments, continuously strengthen their professional competencies, and improve their overall instructional performance.

In addition to professional development, effective supervisory coaching plays a vital role in providing teachers with continuous guidance, support, and encouragement for their professional growth. Effective supervision extends beyond performance appraisal and compliance monitoring; it encompasses coaching, mentoring, instructional monitoring, and collaborative engagement aimed at improving teaching practices. Ortojan and Biol (2026) described supervisory coaching as a process that assists teachers in

addressing challenges encountered in instructional implementation and achieving their professional goals. Similarly, Gordon (2023) emphasized the importance of effective supervision in strengthening professionals' decision-making capabilities, thereby contributing to the continuous improvement of educational practices.

Taken together, technological competence, professional learning, and supervisory coaching represent important dimensions of teacher development that may contribute to improved teaching performance. However, existing studies have largely examined these factors separately, providing limited understanding of how they may collectively influence teachers' instructional effectiveness. Previous research has investigated the contribution of technology integration to instructional delivery (Mane, 2025), the role of instructional supervision in improving teachers' professional practices (Cailing, et al., 2025), and the influence of professional development on teaching performance (Naz & Dwivedi, 2025; Eugenio, 2025). Despite these contributions, limited empirical evidence has examined the combined influence of Professional Learning Quality (PLQ) and Supervisory Coaching Quality (SCQ) on Teaching Performance (TP), particularly in the context of Philippine public schools. This gap highlights the need to investigate how the quality of professional learning and supervisory coaching, both independently and collectively, contributes to teachers' performance.

Furthermore, although previous studies have established relationships among professional development, instructional supervision, technology integration, and teaching performance, the mechanisms through which Professional Learning Quality (PLQ) and Supervisory Coaching Quality (SCQ) influence Teaching Performance (TP) warrant further investigation. Specifically, limited empirical attention has been given to the potential mediating role of Technological Pedagogical Competence (TPC) in explaining how the quality of professional learning and supervisory coaching translates into improved teaching performance. Understanding this mediating relationship is essential in determining whether opportunities for professional learning and sustained supervisory support enhance teachers' technological pedagogical competencies, which, in turn, contribute to their instructional effectiveness.

This gap is vital to address in the context of modern-day educational reforms adhering to evidence-based approaches regarding teaching quality. Understanding how the quality of professional learning and supervision work would provide useful knowledge for school leaders, policymakers, and teacher training programs. Thus, the research aimed to identify whether TPC mediates the relationship between professional learning quality and supervision quality on teaching performance among teachers in public schools. It is assumed that participation in a valuable professional development program will improve TPC, resulting in enhanced teaching performance.

This research study is relevant to Sustainable Development Goal (SDG) 4: Quality Education, specifically Target 4.c, which aims to significantly increase the pool of qualified teachers through teacher education, professional development, and training. This research study makes a contribution to understanding the various factors that assist in developing teacher competencies and improving instruction by studying the impact of the

quality of professional learning and supervisory coaching on teaching performance, while also considering the role of technological pedagogical competence in this relationship. The outcomes of the study may serve as a basis for initiatives aimed at increasing teacher development and improving pedagogical practices and quality learning environments in accordance with SDG 4.

In view of these considerations, this study aimed to examine the influence of Professional Learning Quality (PLQ) and Supervisory Coaching Quality (SCQ) on Teaching Performance (TP), with Technological Pedagogical Competence (TPC) serving as a mediating variable. Specifically, it sought to determine how the quality of professional learning and supervisory coaching contributes to teachers' performance, both directly and indirectly, through their development of technological pedagogical competence.

Research Questions

This study aimed to determine the influence of Professional Learning Quality and Supervisory Coaching Quality on Teaching Performance, with Technological Pedagogical Competence serving as a mediating variable among public school teachers. Specifically, the questions addressed in this study were:

1. What is the teachers' level of professional learning quality?
2. What is the teachers' assessment of the supervisory coaching quality?
3. What is the level of the teachers' technological pedagogical competence?
4. What is the level of the teachers' teaching performance?
5. Do the teachers' professional learning quality and their assessment of supervisory coaching quality significantly predict their teaching performance?
6. Does the teachers' technological pedagogical competence significantly mediate the relationship between the professional learning quality and supervisory coaching quality with their teaching performance?

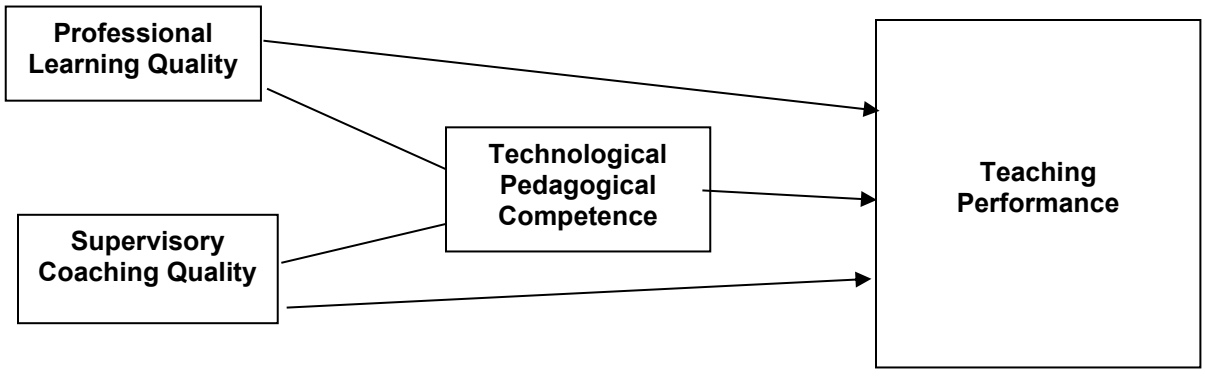


Figure 1: Schematic Presentation of the Variables in this Study

METHODOLOGY

This study employed a descriptive-correlational design to examine the relationships among Professional Learning Quality (PLQ), Supervisory Coaching Quality (SCQ), Technological Pedagogical Competence (TPC), and Teaching Performance (TP) among 193 public school teachers in the Second Congressional District of Misamis Oriental during School Year 2026–2027. Participants were selected through purposive sampling and met the criteria of having at least one year of teaching experience and active classroom involvement.

Data were collected using a researcher-adapted questionnaire for PLQ, SCQ, and TPC, while Teaching Performance was assessed through supervisor ratings. The instrument underwent expert validation, pilot testing, and Confirmatory Factor Analysis (CFA) to establish validity and reliability. Ethical clearance was secured from the Lourdes College Research Ethics Committee (LC-REC), and informed consent was obtained from all participants.

Data were analyzed using mean and standard deviation to determine the levels of the variables, Multiple Regression Analysis to examine the predictive effects of PLQ and SCQ on Teaching Performance, and mediation analysis to determine the mediating role of TPC. All statistical tests were conducted at the 0.05 level of significance.

RESULTS

Research Question 1. What is the teachers' level of professional learning quality?

Table 1 shows the statistical description of the responses related to the quality of professional learning of teachers. From these results, the participants rated the quality of their professional learning quality Very High with the overall mean of 4.57 (*SD* = 0.50). This imply that teachers perceived the professional learning opportunities provided to them as highly relevant, meaningful, effective, and responsive to their professional needs. It further mean that the professional development activities were not merely conducted to comply with institutional requirements but also provided valuable opportunities for teachers to strengthen their knowledge, enhance their competencies, improve instructional practices, and address emerging educational demands.

This is also supported with the recent studies that focus on the importance of high quality of training in relation to improving teachers' skills and abilities. Hubahib, et al., (2024) define effective programs of professional development as the process of getting learning opportunities, taking part in experiences with the active involvement of other teachers and the process of following the learning goals provided for the teachers.

Table 1

Descriptive Statistics of the Teachers' Professional Learning Quality

Range	Description	Interpretation	Frequency	Percentage
4.51-5.00	Strongly Agree	Very High	113	58.55
3.51-4.50	Agree	High	77	39.90
2.51-3.50	Moderately Agree	Moderate	2	1.04
1.51-2.50	Disagree	Low	1	0.52
1.00-1.50	Strongly Disagree	Very Low	0	0.00
		Total	193	100.0
		Overall Mean	4.57	
		Interpretation	Very High	
		SD	0.50	

**Significant at .05 alpha level*

Of the 193 teacher-participants, the majority (58.55%) rated their professional learning quality within the Very High range, while 39.90 percent rated their professional learning quality as high. Only a negligible proportion of responses (1.04%) claim it as moderate. This distribution indicates that teachers, almost without exception, hold a strongly positive assessment of the professional learning opportunities available to them.

The finding corroborates with studies conducted by Taylor and Thion (2023) and Ngadni and Cing (2025), which acknowledged the significance of professional learning as a means to improve teaching practices. Since participating in professional development is considered a professional obligation, the results could reflect social desirability bias whereby participants give answers in line with this professional expectation. Nevertheless, the survey results show that educators viewed seminars, workshops, and other types of professional learning as effective and valuable.

Research Question 2. What is the teachers' assessment of the supervisory coaching quality?

Table 2 shows the descriptive statistics on teachers' assessment of Supervisory Coaching Quality. The overall mean of 4.68 (*SD* = 0.43) indicates that teachers rated Supervisory Coaching Quality as generally Very High. This means that teachers consistently perceive their supervisors as providing strong mentoring, guidance, feedback, and professional support. This suggests that supervisory coaching practices are frequently demonstrated and are evident in the professional interactions between supervisors and teachers. The finding further indicates that teachers generally agree that their supervisors regularly provide opportunities for professional dialogue, instructional guidance, constructive feedback, and support for professional growth and instructional improvement. Moreover, the relatively low standard deviation suggests that teachers shared similar perceptions regarding the quality of supervisory coaching they receive. This finding is consistent with the study of Amarga and Mendoza, (2026), which reported a high level of coaching quality as reflected in teachers' positive assessments of the mentoring, guidance, and professional support provided by their coaches.

Table 2

Descriptive Statistics of the Teachers' Assessment of the Supervisory Coaching Quality

Range	Description	Interpretation	Frequency	Percentage
4.51-5.00	Strongly Agree	Very High	138	71.50
3.51-4.50	Agree	High	54	27.98
2.51-3.50	Moderately Agree	Moderate	1	0.52
1.51-2.50	Disagree	Low	0	0.00
1.00-1.50	Strongly Disagree	Very Low	0	0.00
		Total	193	100.0
		Overall Mean	4.68	
		Interpretation	Very High	
		SD	0.43	

**Significant at .05 alpha level*

The findings further show that the majority of teachers (71.50%) rated supervisory coaching quality as Very High range. These results suggest that teachers view their supervisors' coaching as constructive and genuinely developmental rather than merely evaluative. The very high mean, indicates that supervisory coaching quality is perceived as a particular institutional strength in supporting teachers' professional growth.

Research Question 3. What is the level of the teachers' technological pedagogical competence?

Table 3 presents the descriptive data regarding teachers' Technological Pedagogical Competence. The participants rated their technological pedagogical competence very high as indicated in an overall mean of 4.63 interpreted as High. This indicates that teachers feel confident in the use of technological tools as well as in selection of the best methods of teaching and adaptation of technology for the aims of class activity.

Table 3

Descriptive Statistics of the Teachers' Technological Pedagogical Competence

Range	Description	Interpretation	Frequency	Percentage
4.51-5.00	Strongly Agree	Very High	120	62.18
3.51-4.50	Agree	High	71	36.79
2.51-3.50	Moderately Agree	Moderate	2	1.04
1.51-2.50	Disagree	Low	0	0.00
1.00-1.50	Strongly Disagree	Very Low	0	0.00
		Total	193	100.0
		Overall Mean	4.63	
		Interpretation	Very High	
		SD	0.40	

**Significant at .05 alpha level*

A very high assessment of Technological Pedagogical Competence indicates that teachers perceived themselves as highly capable of integrating technology with appropriate pedagogical approaches in carrying out their instructional responsibilities. This suggests that they possessed the necessary knowledge and skills to select and utilize digital tools that complemented their teaching strategies, supported the attainment of learning objectives, and addressed the diverse needs of learners. Furthermore, the assessment reflects teachers' readiness to maximize the potential of technology in facilitating interactive, engaging, and meaningful learning experiences.

This result is supported by the fact that about 62.18% of the participants rated themselves as having Very High level of Technological Pedagogical Competence and 36.79% claimed to have rather High level. Hence, this finding supports the research of Alieto et al. (2024), which proved that many teachers are technologically literate as well as have the advanced skills and knowledge in technology use for teaching and learning.

Similarly, Akram et al. (2022) found that teachers generally exhibit positive attitudes toward technology integration and recognize its value in enhancing instructional effectiveness and student engagement. Likewise, Muyambi and Ramorola (2025) emphasized that teacher competence plays a crucial role in the successful implementation of digital technologies in educational settings.

Findings indicate that the participants consider that they are competent at employing technology in education, being likely able to create differentiated learning opportunities for students as well. However, despite the high level of competency in information technologies, participants provided only moderate scores for the ability to solve technical issues. This implies that the issue of technology support and training may still be relevant to the participants.

The results should be interpreted with caution since the participants assessed their technological competence based on their own perceptions. It is possible that some of them rated their abilities higher because of their confidence in teaching or their desire to present themselves as capable users of technology. However, the moderate rating in solving technical issues suggests that there were still areas in which their technological skills needed improvement. This also indicates that, despite their confidence in using technology for instruction, some participants may still encounter difficulties when dealing with technical problems.

Research Question 4. What is the level of the teachers' teaching performance?

Table 4 presents the frequency, percentage, and mean distribution of the teachers' teaching performance based on their supervisors' ratings. The overall mean of 4.71 (*SD* = 0.29) is described as "Strongly Agree" and interpreted as Very High, with 83.42 percent of teachers rated within the Very High range. This implies that teachers consistently demonstrate the competencies, professional behaviors, and instructional practices expected of effective educators. Additionally, 15.54% within the High range. Only a negligible proportion 1.04% fell within the Moderate range, and none were rated Low or

Very Low. Notably, this variable also recorded the smallest standard deviation among the four variables in the study, indicating that supervisors' ratings of teaching performance were highly consistent across participants.

Table 4

Frequency, Percentage and Mean Distribution of the Teachers' Teaching Performance (Instructional Delivery)

Range	Description	Interpretation	Frequency	Percentage
4.51-5.00	Strongly Agree	Very High	161	83.42
3.51-4.50	Agree	High	30	15.54
2.51-3.50	Moderately Agree	Moderate	2	1.04
1.51-2.50	Disagree	Low	0	0.00
1.00-1.50	Strongly Disagree	Very Low	0	0.00
		Total	193	100.0
		Overall Mean	4.71	
		Interpretation	Very High	
		SD	0.29	

**Significant at .05 alpha level*

These findings were supported by Mavi et al. (2025), who emphasized the contribution of teacher collaboration to the development of professionalism within the school context. Similarly, Wijarwadi et al. (2025) explained that collaboration provided opportunities for teachers to share knowledge, exchange instructional practices, and work toward common professional goals. This suggests that teaching performance extends beyond the delivery of classroom instruction, as it also involves professional commitment, active participation in school activities, and positive working relationships with colleagues.

These findings imply that although the participants performed well in their professional responsibilities, there were still aspects of classroom instruction that could be further strengthened. In particular, the use of appropriate teaching strategies and the clear communication of assessment expectations require continued attention to ensure that learners understand the lessons and know what is expected of them.

This observation is supported by Bunga (2025), who emphasized the importance of strengthening teachers' ability to use differentiated instructional approaches and varied assessment methods. Similarly, Pan et al. (2024) highlighted the value of strategic questioning and the use of learners' responses in guiding instructional decisions. Tandas (2025) also pointed out the need for continued guidance and training to improve teachers' assessment practices, particularly in providing feedback and ensuring the appropriateness of assessment methods. These studies suggest that teachers' professional development should not only focus on their general professional responsibilities but also provide opportunities to improve their classroom strategies and assessment practices.

Research Question 5. Do the teachers' professional learning quality, supervisory coaching quality and technological pedagogical competence significantly predict their teaching performance?

> **H_{o1}:** *The teachers' professional learning quality and their assessment of supervisory coaching quality do not significantly predict their teaching performance.*

Table 5 presents the results of the multiple regression analysis examining the predictive association of professional learning, supervisory coaching, and technological pedagogical competence with teaching performance. The regression model is not significant, F(3, 189) = 1.373, p = .252). None of the individual predictors made a significant contribution: professional learning (*B* = -.062, *β* = -.104, *t* = -1.088, *p* = .278), supervisory coaching (*B* = .068, *β* = .100, *t* = 1.024, *p* = .307), and technological pedagogical competence (*B* = .085, *β* = .116, *t* = 1.303, *p* = .194). The constant was significant (*B* = 4.283, *p* < .001), reflecting a relatively high baseline level of performance. Thus, H_{o1} is not rejected. The findings imply that efforts to improve performance may not be effectively addressed by focusing on these variables alone, and that a broader set of factors should be considered when designing interventions or support programs.

Table 5

Regression Analysis of the Predictive Association of Professional Learning, Supervisory Coaching and Technological Pedagogical Competence with Teaching Performance

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	4.283	.273		15.699	.000		
Professional Learning Quality	-.062	.057	-.104	-1.088	.278	.565	1.771
Supervisory Coaching	.068	.067	.100	1.024	.307	.545	1.835
Technological Pedagogical Competence	.085	.065	.116	1.303	.194	.653	1.532
Model Summary							
R = .146;	R^2 = .021		Adj R^2 = .006	F(3, 189) = 1.373		p = .252	

**Significant at .05 alpha level*

Collinearity diagnostics indicated that multicollinearity was not a concern, as tolerance values ranged from .545 to .653 and VIF values ranged from 1.532 to 1.835, well within the acceptable thresholds. These results indicate that professional learning, supervisory coaching, and technological pedagogical competence were not significant predictors of performance in this sample.

In the present study, the participants demonstrated very high levels of Teaching Performance and Quality of Professional Learning, indicating that professional learning could already be an integral part of the professional practice of teachers. This raises the question of whether the differences in participation or views on professional learning would be significant enough to explain the differences in the levels of teaching performance. Furthermore, the effectiveness of professional learning can depend on the ability of teachers to utilize their newly acquired knowledge in practice with the assistance of coaching, mentoring, monitoring, reflection, etc.

It is also possible that other factors such as teachers' self-efficacy, work engagement, motivation, instructional leadership, and organizational support facilitate the successful implementation of professional learning principles into practice more than the professional learning itself. The findings resonate with Ali (2025) who said that professional development does not automatically lead to better educational outcomes without sufficient institutional support and opportunities for applying experience in a real-world context. At the same time, Tao (2025) noted that professional learning initiatives may be ineffective due to the absence of the needed support systems and resource constraints. Thus, it can be concluded that even though the role of professional learning for teachers' development should not be omitted, its contribution to teaching effectiveness is stronger when it is combined with continuous supervisory assistance and other favorable conditions in the school environment.

However, the findings should be interpreted with caution. The absence of a statistically significant relationship does not necessarily mean that no relationship exists; rather, it indicates that the study did not establish a significant relationship among the variables within the given sample and analytical model. Another consideration is the possibility of subjectivity in performance ratings, particularly when these were provided by immediate supervisors. Their assessments may have been influenced by personal judgments, differences in rating standards, or their professional relationships with the teachers being evaluated. These factors may have affected the ratings and should be considered when interpreting the results. Such rating bias may have reduced the variability in the performance scores or weakened their association with the predictors. Future research may consider adding other predictors, examining mediating or moderating pathways, using larger and more varied samples, and supplementing supervisor ratings with objective or multi-source performance measures.

Research Question 6. Do the teachers' technological pedagogical competence significantly mediate the relationship between the professional learning quality and supervisory coaching quality with their teaching performance?

> **H_{o2}:** *The teachers' technological pedagogical competence does not significantly mediate the relationship between the professional learning quality and teaching performance.*

H_{o3}: *The teachers' technological pedagogical competence does not significantly mediate the relationship between the supervisory coaching quality and teaching performance.*

Figure 2 presents the saturated path model that served as the structural basis for the mediation analysis. Professional Learning Quality (PLQ) and Supervisory Coaching Quality (SCQ) were specified as exogenous predictor variables, Technological Pedagogical Competence (TPC) as the mediating variable, and Teaching Performance (TP) as the outcome variable. As a saturated model, every possible path among the variables was estimated, making the model just-identified and perfectly fitted to the data by construction. Consequently, the primary purpose of the model was not to evaluate overall model fit but to estimate the total, direct, and indirect effects among Professional Learning Quality, Supervisory Coaching Quality, Technological Pedagogical Competence, and Teaching Performance.

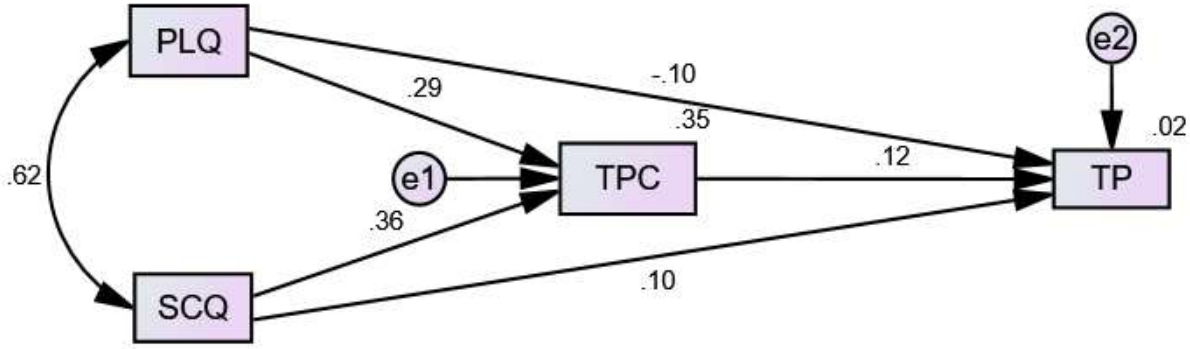


Figure 2.
Mediation Analysis Saturated Model on Professional Learning Quality, Supervisory Coaching Quality, Technological Pedagogical Competence, and Teaching Performance

Legend: PLQ = Professional Learning Quality, SCQ = Supervisory Coaching Quality, TPC = Technological Pedagogical Competence, TP = Teaching Performance

The double-headed arrow linking PLQ and SCQ (r = .62) indicates a strong positive correlation between the two predictor variables, meaning teachers who rated professional learning quality highly also tended to rate supervisory coaching quality highly. Both predictors showed positive paths leading into TPC, with SCQ exerting a somewhat stronger influence (β = .36) than PLQ (β = .29), suggesting that supervisory coaching contributes slightly more to teachers' technological pedagogical competence than professional learning activities do.

The results thus reveal a positive correlation between Professional Learning Quality and Supervisory Coaching Quality, both in contributing to Technological Pedagogical Competence. In other words, teachers who are afforded meaningful opportunities for their professional learning seem to associate high-quality supervisory

coaching, both of which go on to bolster their capacity to integrate technology into their teaching practices. This finding underscores the complementary roles of professional development and supervisory support in building teachers' technological and pedagogical skills.

This observation agreed with the Social Cognitive Learning Theory (Bandura, 1986), which states that professional development is affected by the learning experiences as well as supplemental environmental conditioning. Ngadni and Cing (2025) support this idea, stating that the contribution of learning development increases teachers' confidence and competency in integrating ICT into practice, while Rasdiana, et al. (2024) assert that instructional supervision significantly contributes to ICT competency amongst teachers. Similarly, Muyambi and Ramorola (2025) underscored that teacher competence in digital technologies is enhanced by an appropriate provision of training and supervision opportunities.

The residual term e1 (.35) represents the proportion of variance in Technological Pedagogical Competence (TPC) left unexplained by Professional Learning Quality (PLQ) and Supervisory Coaching Quality (SCQ), indicating that other factors not included in the present study may also contribute to teachers' technological pedagogical competence. These factors may include access to technological resources, availability of ICT infrastructure, technology-related training opportunities, teachers' attitudes toward technology integration, digital literacy, and institutional support. Alieto et al. (2024) emphasized the role of teachers' technological proficiency and access to technology in supporting effective technology integration. Similarly, Akram et al. (2022) identified teachers' attitudes toward technology, technological knowledge, and ICT-related skills as important factors influencing technology integration in teaching.

Besides, Muyambi and Ramorola (2025) have proven that access to the digital facilities, means for professional development, and preparedness for teaching that teachers have are influential factors for how effectively digital technologies are implemented in education. Thus, it seems that there is a greater number of factors (both personal and technological ones) influencing technological pedagogical competence that extend beyond professional learning and supervisory coaching.

In addition, the mediation analysis examined whether Technological Pedagogical Competence served as a mediating mechanism through which Professional Learning Quality and Supervisory Coaching Quality were related to Teaching Performance. The results revealed that Professional Learning Quality did not have a statistically significant direct or indirect effect on Teaching Performance through Technological Pedagogical Competence. This suggests that the study did not establish the mediating role of Technological Pedagogical Competence in the relationship between Professional Learning Quality and Teaching Performance. Other factors not included in the present study may also help explain variations in teachers' performance.

In relation to the link between professional learning quality and teaching performance, the mediating role of technological pedagogical competence is shown in Table 7. The result shows that the total effect of PLQ on TP was not statistically

significant (β = -0.041, p = .359), nor was the direct effect (β = -0.062, p = .134), nor the indirect effect through TPC (β = 0.020, p = .060). Thus, H_{o2} cannot be rejected. This finding suggests that although teachers perceived professional learning activities as highly relevant, practical, and responsive to their instructional needs, participation in these activities alone may not be sufficient to produce measurable improvements in teaching performance. Moreover, this may be attributed to insufficient technological resources in schools located in the hinterlands.

Furthermore, the training provided in relation to professional learning focuses on the schools' Information and Communication Technology (ICT) coordinators. It is possible that the training did not reach the teachers in the hinterland. Furthermore, although software such as Microsoft 365, canva, and co-pilot artificial intelligence were provided, it is possible that some teachers may not have used them fully, as observed by the researcher who heard the ICT coordinators sharing that some teachers have difficulty using these software programs.

Table 7

Mediation Analysis of Professional Learning Quality on Teaching Performance through Technological Pedagogical Competence

Effect Type	Estimate	p
Total	-0.041	0.359
Direct	-0.062	0.134
Indirect	0.020	0.060

**Significant at .05 alpha level*

The supervisory coaching quality exhibited a significant overall influence on Teaching Performance. Since none of the three effects reached statistical significance at the .05 alpha level, the results indicate that Professional Learning Quality does not significantly predict Teaching Performance, whether directly or indirectly through Technological Pedagogical Competence.

Table 8 illustrates the mediation study of Supervisory Coaching Quality (SCQ) effects on Teaching Performance (TP) through Technological Pedagogical Competence (TPC). Overall SCQ influence on TP was significant (β = 0.097, p = .042): thus, the association between the SCQ and TP effects can be considered reliable. This implies that the higher levels of SCQ a participant reports, the better his/her TP estimation is likely to be. This relationship may demonstrate the efficiency of a coaching and mentoring process of teachers, along with the significance of such concepts as coaching, mentoring, teaching, and giving feedback. From the point of the current analysis, the idea of effective supervisory coaching can be related to that of innovation implementation, effective reflection on practices, cooperation, and confidence in meeting responsibilities.

Table 8

Mediation Analysis of Supervisory Coaching Quality on Teaching Performance through Technological Pedagogical Competence

Effect Type	Estimate	p
Total	0.097*	0.042
Direct	0.068	0.146
Indirect	0.028	0.070

**Significant at .05 alpha level*

The findings underline the key significance of school leaders and terrific support in bringing forward capability and supporting professional development of teachers. The situation is in line with the study of Posangi et al. (2025), who stated that proper supervision contributes to teachers' proficiency through observation, counseling, and various types of support. The study of Hidayati et al. (2025) showed that quality control adds to the improvement of educational processes. Moreover, the research of Buday and Galigao (2025) proved the influence of joint supervision on teachers' performance and students' outcomes.

The findings are in line with the investigations of Wiyono et al. (2021), which demonstrated the effectiveness of supervision in improving the educational process. All in all, the current study proves the necessity to improve the existing programs of supervision coaching in order to enhance teachers' performance in general.

In the multiple regression presented earlier, coefficient for supervisory coaching (B = 0.068, p = .307) reflects its unique effect after controlling for professional learning quality and technological pedagogical competence, which corresponds to the direct effect. The difference arises because the models answer different questions, and because the predictors share variance (tolerance = .545). Moreover, the overall regression model was not significant, $F(3, 189) = 1.373$, $p = .252$.

However, when technological pedagogical competence was included as a mediator, the direct effect ($\beta = 0.068$, $p = .146$) and the indirect effect ($\beta = 0.028$, $p = .070$) were both non-significant. Thus, H_{o3} cannot be rejected. These results indicate that technological pedagogical competence did not significantly mediate the relationship between supervisory coaching quality and teaching performance. This may be due to the fact that regardless of their technological pedagogical knowledge, supervisory coaching has helped them improve their performance. Also, coaching was done individually; and helpful strategies are suggested by the coaches based on their classroom observation.

In summation, Table 9 presents the summary for all the mediation tests that have been carried out. Among the two hypothesized effects, it has been found that the only significant effect is the total effect of Supervisory Coaching Quality on Teaching Performance. The total effect of Professional Learning Quality on Teaching Performance does not show any significance statistically. In both situations, the indirect effects of

Technological Pedagogical Competence have turned out to be insignificant. Hence, Technological Pedagogical Competence does not mediate the relationship between the predictors and Teacher Performance.

Table 9

Mediation Analysis Summary Table

Path	Total Effect	Direct Effect	Indirect Effect	Mediation
PLQ > TPC > TP	-0.041	-0.062	0.020	None
SCQ > TPC > TP	0.097*	0.068	0.028	None

**Significant at .05 alpha level*

From TPC, the path leading to TP was positive but small (β = .12), representing the mediating route through which PLQ and SCQ may indirectly influence Teaching Performance. The direct paths from the predictors to TP, which bypass TPC, were likewise small in magnitude and notably opposite in direction: PLQ showed a small negative direct path to TP (β = -.10), while SCQ showed a small positive direct path to TP (β = .10).

This divergence is noteworthy given that PLQ and SCQ are themselves strongly and positively correlated, suggesting that the two predictors relate to Teaching Performance somewhat differently once their shared variance and the mediating role of TPC are taken into account. The residual term *(e2* = .02) represents the portion of Teaching Performance not accounted for by Professional Learning Quality, Supervisory Coaching Quality, and Technological Pedagogical Competence. This indicates that while the model explains a substantial proportion of the variance in Teaching Performance, approximately 2% remains attributable to other factors not included in the study, such as individual teacher characteristics, school context, student-related factors, or measurement error.

Overall, the path model visually corroborates the statistical results presented in Tables 5 through 7: both PLQ and SCQ show moderate positive paths into TPC, but the path from TPC to TP, as well as the direct paths from the predictors to TP, remain small in magnitude. This is consistent with the finding that the indirect and direct effects in the mediation analysis did not reach statistical significance, even though the total effect of SCQ on TP did. Consequently, the results obtained here solve Problems 5 and 6 in the current research. The results of the research suggest that Supervisory Coaching Quality is a predictor of Teaching Performance, while the effects of Professional Learning Quality were not significant. Thus, this indicates that teaching performance depends more on Supervisory Coaching Quality than Professional Learning Quality. These results also show that neither of the factors used in this research would affect Teaching Performance through the mediator Technological Pedagogical Competence. On the contrary, the results suggest that Supervisory Coaching Quality would have a direct impact on Teaching Performance instead of influencing it through other variables.

DISCUSSION

The following are the major findings of the study:

1. The results showed that the Professional Learning Quality is Very High, suggesting that the school professional learning practices are perceived as useful for the academic purposes in practice, suitable to teach, and organized enough to create favorable conditions for achieving professional aims in practice.

2. The teachers rated Supervisory Coaching Quality Very High, showing that the practice of supervisory coaching embodied mentoring, advising, providing feedback and professional support. This means that the teachers believed that the supervisory coaching is collaborative and supportive.

3. The results showed that the level of Technological Pedagogical Competence is Very High, which means that teachers have a sufficient degree of competence to carry out knowledge of technology and pedagogy integration in practice and satisfy students' individual needs as far as teaching through technology is concerned.

4. Overall, the level of Teaching Performance was Very High, suggesting that teachers demonstrated high level of professionalism and effectiveness in professionalism, collaboration, professional development activities participation, performing their tasks and accomplishments in the realization of school objectives.

5. Taken collectively, professional learning quality, supervisory coaching quality and technological pedagogical competence did not significantly predict teaching performance, indicating that these variables alone do not contribute to significant variations in teaching performance and there may be other factors that contribute to their performance aside from the variables considered in this study.

6. Technological Pedagogical Competence did not significantly mediate the relationship between Professional Learning Quality and Teaching Performance nor the relationship between Supervisory Coaching Quality and Teaching Performance, although the supervisory coaching quality has a significant direct effect on their performance. This may be due to the challenges that the teachers experience with technology especially to the teachers in the hinterland and to those who have worked in the department for a number of years without the use of technology.

Conclusions

In line with the findings drawn from the conducted study, it can be concluded that teachers hold positive attitude towards the professional development opportunities and supervision offered by schools, have commendable proficiency in technology use and are skillful and efficient in fulfilling their professional obligations. However, it must be stressed that only direct impact of supervision affects teaching performance irrespective of

teachers' proficiency in technology use. Effective supervision is characterized by specific features like mentoring, providing feedback, giving proper guidance and ensuring professional support.

Implementation of the findings made in the course of the study is closely related to the contents of the DepEd Order No. 42, series of 2017 that introduced Philippine Professional Standards for Teachers (PPST) and which underlines continuous professional growth of teachers. It is important to emphasize the role of supervisory coaching in predicting academic performance of teachers, since leaders of schools and supervisors act as the people responsible for the provision of proper support to teachers in the process of their work. The findings of the research demonstrate that Professional Learning Quality and Technological Pedagogical Competence received the highest rating, but their contributions to academic performance of teachers were not found significant in the proposed model. However, the significance of these components in the terms of teachers' professional development cannot be denied.

Recommendations

In light of the findings and conclusions of the study, the following recommendations are offered:

1. Professional development planners may design professional learning activities that are relevant, job-embedded, and supported by follow-up coaching, reflection, and monitoring to facilitate the application of learning in classroom practice.

2. Schools and educational leaders may continue supporting the development of teachers' technological pedagogical competence through targeted training and technology-enhanced instructional initiatives to sustain effective technology integration in teaching.

3. Future researchers may examine other factors that may influence teaching performance, such as teacher self-efficacy, work engagement, job satisfaction, organizational commitment, instructional leadership, and school climate. Similar studies may also be conducted in other educational settings using larger samples to validate and extend the findings of the present study.

4. Future studies may employ mixed-methods or qualitative approaches, such as interviews, focus group discussions, classroom observations, and case studies, to gain a deeper understanding of how professional learning, supervisory coaching, and technological pedagogical competence influence teaching performance. Longitudinal studies may likewise be conducted to determine how these variables evolve over time and to establish stronger evidence regarding their relationships.

Compliance with Ethical Standards

The researcher strictly adhered to established ethical standards throughout the conduct of this study. Prior to data collection, informed consent was secured from all participants, and they were provided with clear information regarding the purpose, procedures, and significance of the research. Participation in the study was entirely voluntary, and respondents were informed of their right to withdraw from the study at any stage without penalty or negative consequences. The anonymity and confidentiality of the participants were maintained by ensuring that no personally identifiable information was disclosed in any part of the research process, report, or publication.

In compliance with the Data Privacy Act of 2012 (Republic Act No. 10173), all data gathered were handled with utmost confidentiality and used solely for research purposes. The researcher implemented appropriate measures to protect the privacy and security of the participants' information. Furthermore, the well-being, dignity, and rights of the respondents were safeguarded throughout the study, and no procedures that could cause physical, psychological, emotional, or social harm were employed.

The researcher also declares that no conflict of interest existed in the conduct, analysis, and reporting of this study. Academic honesty and integrity were strictly observed, and plagiarism was avoided by properly acknowledging all sources of information through accurate citation and referencing. Likewise, the interpretation and presentation of findings were conducted objectively, ensuring that no personal bias, manipulation, or misrepresentation influenced the results. The findings and conclusions derived from the study were utilized exclusively for scholarly and research purposes.

To promote transparency and full disclosure, the researcher acknowledges the use of Artificial Intelligence (AI) tools to assist in language refinement, grammar checking, and the organization of written content. However, all interpretations, analyses, conclusions, and final decisions regarding the research content remained the sole responsibility of the researcher. The use of AI did not influence the collection, analysis, or interpretation of the data and was limited to supporting the writing process while maintaining academic integrity.

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