

**FROM TRAINING TO TEACHING: TRACING THE INFLUENCE OF PROFESSIONAL
DEVELOPMENT ON GRADE 2 MATHEMATICS INSTRUCTION IN
TANZA 1 DISTRICT, DIVISION OF CAVITE**

Christian Faith Ruiz, Christian G. Guillermo
Northeastern College, Santiago City

Keywords:

Professional development,
instructional practices,
teaching competencies,
Mathematics education

DOI:

10.65141/sjter.sp2026.04



Copyright © 2026 by the
author(s). This open-
access article is
distributed under the
Creative Commons
Attribution 4.0
International License.

Abstract

Professional development plays a vital role in enhancing teachers' instructional competencies; however, its actual influence on classroom practices remains insufficiently examined. This study investigated the relationship between professional development and instructional practices among Grade 2 Mathematics teachers in Tanza 1 District, Division of Cavite. A descriptive-correlational research design was employed, involving 50 teachers selected through total enumeration. Data were gathered using a validated researcher-made questionnaire (Cronbach's alpha = 0.85) and analyzed using frequency, percentage, weighted mean, and Pearson Product-Moment Correlation. Findings revealed that teachers' participation in professional development activities was perceived as very beneficial, while instructional practices were consistently implemented at a very high level. Significant relationships were found between professional development and key teaching competencies, particularly instructional planning, instructional skills, rapport with students, and classroom management. However, no significant relationship was observed between professional development and knowledge of the subject matter. Teachers also encountered very serious challenges in applying professional development learnings, particularly heavy workload, limited resources, and lack of support. The study concludes that professional development enhances pedagogical competencies but has limited influence on subject matter mastery. It is recommended that context-responsive professional development programs and strengthened institutional support be sustained to improve instructional effectiveness and student learning outcomes.

INTRODUCTION

In the 21st century, professional development plays a critical role in the growth, advancement, and sustained success of educators. Education is widely recognized as a

cornerstone of individual empowerment and national development. The contemporary educational landscape is characterized by diverse perspectives, rapid technological advancements, and evolving opportunities for both learners and educational leaders. Anchored in the vision of UNESCO, education must be inclusive, equitable, and of high quality, catalyzing sustainable development and meaningful social transformation. Within this context, professional development extends beyond the maintenance of existing competencies; it fosters adaptability, innovation, and long-term career sustainability among educators.

In the Philippines, the Department of Education (DepEd) emphasizes teacher professional development as a key pillar of the K-12 Basic Education Curriculum. Teachers are provided with opportunities to enhance their content knowledge and pedagogical skills through seminars, workshops, in-service training, and continuing education programs. However, the true measure of the effectiveness of these initiatives lies not merely in participation but in the extent to which teachers successfully translate acquired knowledge and skills into improved classroom practices and student learning outcomes.

Mathematics, as a core subject in the curriculum, presents persistent challenges for both teachers and learners. According to Ling and Mahmud (2023), teachers commonly encounter issues such as students' inadequate mastery of foundational skills, limited instructional time, and insufficient access to ICT resources. Addressing these challenges requires teachers to demonstrate creativity and adaptability in employing diverse instructional strategies that enhance student engagement and competence, particularly in solving word-based mathematical problems at the elementary level.

At the Grade 2 level, learners transition from basic numerical concepts to more complex operations, including addition, subtraction, place value, and introductory problem-solving. The instructional approaches adopted by teachers at this stage significantly influence students' mathematical readiness, problem-solving abilities, and overall attitudes toward the subject. Mathematics has long been perceived as a difficult discipline, often associated with anxiety and low academic performance. As noted by Pokhrel (2023), several factors contribute to these challenges, including ineffective teaching strategies, low student motivation, socio-economic constraints, inadequate parental support, and curriculum-related limitations. These concerns highlight the need for instructional practices that are engaging, differentiated, and responsive to diverse learner needs.

In Tanza 1 District, Division of Cavite, Grade 2 mathematics teachers actively participate in professional development initiatives facilitated by DepEd and partner institutions. While these programs aim to enhance instructional quality, a critical gap remains in understanding their actual impact on day-to-day classroom practices. Specifically, there is limited empirical evidence on how professional development influences teachers' instructional strategies, classroom delivery, and learner engagement in mathematics. Without such evidence, professional development risks becoming a compliance-driven activity rather than a transformative mechanism for instructional improvement.

Therefore, this study aims to examine the influence of professional development on Grade 2 Mathematics teachers in Tanza 1 District, Division of Cavite. It seeks to establish the extent to which professional development programs are effectively translated into classroom

practices, thereby providing empirical insights into the relationship between teacher training and instructional performance.

Literature Review

Enhancing teacher quality has become essential for student satisfaction; teacher professionalism has received increased significance. Currently, the ongoing professional development of instructors is widely recognized as essential for improving teachers' overall performance, effectiveness, and commitment to their careers. Educators must consistently adjust to the evolving educational system to address students' requirements and the demands of the global economy. The No Filipino Child Left Behind Act of 2010 guarantees all citizens the right to quality education, obligating the State to implement measures to ensure accessibility to such education. Recent reforms emphasize curricular standardization, thereby holding teachers accountable for students' achievement. In emerging nations such as the Philippines, the cultivation of highly trained and globally competitive graduates presents a significant challenge for educators. The efficacy of instruction relies on the quality of educators (Padillo, G.G., 2021).

Nasreen and Odhiambo (2018) said that educational institutions in Pakistan are going through a phase of development and reform. The National Education Policy has emphasized the necessity of implementing continuous professional development for principals in accordance with these reforms. The findings delineate the areas necessitating enhancement concerning the design associated with content and procedure. The statistics indicated that the principals were dissatisfied with the existing CPD opportunities and the training course content. Furthermore, the principals identified several obstacles they faced in their pursuit of Continuing Professional Development, pertaining to time, finances, and workload. This research presents unique insights that can guide the formulation of CPD programs for school principals to enhance the quality of their leadership, including both longstanding issues and contemporary challenges encountered by school leaders. This research can provide school leadership with the latest data, facilitating informed decision-making on future circumstances. In recent years, the role of the school principal has evolved into a complex duty, and this study may offer insights into the dynamics of their ongoing professional development during a time of educational revolution and reform.

According to AbdulRab, H. (2023), the ongoing professional development of educators enhances their teaching efficacy by facilitating the acquisition of new skills and the refinement of old competencies. *Distinctive Contribution to Theory, Practice, and Policy*: This study underscored effective strategies for teacher professional development in 21st-century education and emphasized the beneficial effects of these methods on teachers' growth and development amid rapid technological advancements and evolving educational paradigms. All these approaches and strategies are underpinned by three theories: constructivism, adult learning, and transformational leadership.

On the other hand, Achieng, M. S. B. (2024) claims that teacher professional development refers to the procedures and activities aimed at improving the professional knowledge, skills, and attitudes of educators. Advanced pedagogical methods are increasingly essential to cultivate student competencies, including profound topic knowledge, critical thinking, intricate problem-solving, effective communication, teamwork, and self-efficacy.

Robust professional development is essential for educators to acquire and enhance the teaching practices necessary for these competencies.

Acuña, N. L. J., & Ancho, I. (2022) examined how principals oversee the professional development of their teachers during the COVID-19 pandemic. The principal orchestrates the supervision of teacher professional development via strategic planning, which includes performing needs analysis and self-assessment among educators to ascertain their priority requirements. Moreover, consulting and involving stakeholders during the planning phase enables the principal to establish explicit goals and objectives for controlling teacher professional development. Secondly, the principal orchestrates teacher professional development to align the available resources and scheduled activities. In response to the abrupt transition in educational delivery, online platforms have emerged, with the principal assuring that the disparity between learning delivery and activities is being effectively addressed through these platforms. The principal directs the professional development of teachers in response to the changes induced by the pandemic. Leadership allows the principal to concentrate on creative methodologies in the content, delivery, and design of teacher professional development. The principal oversees teacher professional development by implementing monitoring and assessment processes.

Esguerra, R. A., & Quinito, D. I. (2025) assessed the professional development of educators and the administration of school leadership in elementary schools within the Basud District. The study indicates that educators in Basud District Elementary Schools recognize favorable professional development possibilities, especially for instructional techniques and job satisfaction; nonetheless, enhancements are required in training for non-major topics and work-life balance. The efficacy of these opportunities is substantial, enhancing instructional practices, work satisfaction, and professional development. School leadership management is highly regarded, especially in fostering personal and collective development, as well as prioritizing teaching and learning. Nonetheless, no substantial correlation was identified between professional development and school leadership management practices, but notable disparities exist between the possibilities offered and the actual growth attained. The report offers the "TEACH LEAD" workshop and the implementation of the "Cultivating Excellence" policy to address these gaps, to improve professional development and leadership management. These strategies aim to guarantee ongoing enhancement and superior educational results throughout the district.

In a context where educators must evolve into 'high-level knowledge workers', the development of the school as a learning organization is essential. Analysis of this research indicates that training, continuous coaching, and collaborative Continuous Professional Development (CPD) enhance student abilities and learning, with prolonged and frequent CPD proving to be the most advantageous. No research exclusively investigated the effect of learning communities on student learning.

According to Bicaj, A. (2014), the significance of lifelong learning in a teacher's certification is indisputable, particularly for personal and professional growth, boosting the school's reputation, improving teacher efficacy, and elevating the quality of education. Determine that professional development directly influences the careers of educators. This influence pertains to the fulfillment of conditions for altering the educational system, among

other licensure requirements, as well as modifications in the instructors' salary structure. The modifications to the teachers' salary system are facilitated by the In-Teacher Qualification Service program.

Numerous meta-analyses have revealed modest positive impacts of teacher professional development (PD) on student test results. Nonetheless, the domain lacks a verified explanatory framework that distinguishes between more and less effective in-service training. Consequently, researchers possess minimal guidance for individuals responsible for creating or contracting improved professional development. The primary contribution of the article is to present a testable theory on the factors that enhance the effectiveness of professional development, which can inform future empirical investigations on this subject (Sims, S. et al., 2023).

According to Su and Wang (2022), an effective teacher educator must possess substantial knowledge of specific and efficient methodologies to expose scholar-teachers to a variety of teaching ways, while also aiding them in developing a distinctive teaching style of their own. Teacher educators feel more prepared for new responsibilities when given opportunities to participate in professional development activities in appropriate contexts. Seminars and conferences are essential for professional development for educational trainers, as they facilitate the acquisition of new knowledge and activities.

The professional development program for teachers is deemed crucial for improving teacher competencies. The research identified that pedagogical and professional competences constitute the foundational framework for the learning materials presented in the program. The analysis revealed both the problems and advantages associated with the implementation of professional learning development as a solution to enhance the skills of English instructors in Indonesia. This research advises stakeholders to take into account both the financial and demographic factors in the execution of the professional teacher development program (Apriliyanti, D. L., 2020).

Coppe et al. (2023) found that teacher professional growth is intricate and cannot be adequately understood by conventional narratives on early, mid, and late-career instructors, nor through research that neglects the organizational aspects of the teaching profession. The teaching profession is multifaceted and does not adhere to a linear trajectory. This study's findings underscore the necessity of expanding research beyond early-career teachers and classroom-related factors to encompass the entirety of teachers' professional lives and the multifaceted nature of their work. Teaching encompasses far more than merely being an early-career educator and engaging with kids in a classroom setting.

The study of Osei-Owusu, B. (2022) said that the Ministry of Education has intensified initiatives to enhance educational outcomes by elevating teaching standards and promoting ongoing and lifetime learning for Ghanaian teachers. The study's results indicated that professional knowledge somewhat moderated the association between professional development and academic achievement. The study concluded that professional development enhances students' academic performance by improving teachers' professional expertise and other key teacher traits. The study advises that educators be motivated to participate in varied professional development activities that address deficiencies in their professional skills.

The study of Amemasor et al. (2025) emphasized the necessity for ongoing and contextually relevant professional development programs, rather than singular training sessions, to facilitate the significant and enduring use of digital tools in education. The findings guide policymakers, educators, and professional development providers in planning teacher professional development to optimize digital instructional integration. Future studies should investigate the long-term effects of teacher professional development on instructional efficacy and student outcomes in technology-enhanced learning contexts.

Ali, Z. et al. (2020) found that teachers' professional expertise regarding their teaching techniques and technology integration significantly positively influences students' achievement. Secondly, educators possessed a strong awareness and comprehension of their professional development regarding enhancements in professional knowledge and technological integration. Teachers in this study achieved elevated scores across all three dimensions of the model, signifying their capability to execute, comprehend, or possess knowledge of the majority of the activities outlined in the questionnaire items. This study aimed to demonstrate that teachers' self-professional development in various domains of professional knowledge, namely technological knowledge, pedagogical knowledge, and subject matter knowledge, significantly enhances student achievement, as all hypotheses of the current study were validated. This study has revealed the dynamics of teachers' TPACK attributes. The competency levels of teachers in the three core components of TPACK have been regarded as remarkable. The analysis has revealed that educators adjust their levels of TPACK according to pertinent criteria. In light of this, it is essential to place greater focus on the importance of context within the TPACK framework, and the complete structures of TPACK should be integrated into the teaching and learning process.

The study by Taufan, M. Y. (2022) examined the impact of teacher professional development, competence, educational facilities, and infrastructure on teacher performance and high school student academic accomplishment. The findings indicated that teacher professional development does not significantly impact performance. Competence, educational resources, infrastructure, and teacher professional development positively and significantly influence teachers' performance. Competence exerts no substantial influence on teacher performance. Educational facilities and infrastructure positively and significantly influence student learning outcomes. Teacher professional development positively and significantly influences high school students' learning outcomes via teacher performance. Competence positively and significantly influences the academic achievement of high school pupils via teacher performance. Educational facilities and infrastructure positively and significantly influence the academic accomplishments of high school pupils via teacher performance.

Darling-Hammond, L., & Cook-Harvey, C. M. (2018) assert that teacher training and seminars can enhance educators' effectiveness in their job and bolster their self-esteem.

The pedagogical competencies of educators were assessed based on the following criteria: a) student motivation; b) communication proficiency; c) teaching enthusiasm; d) lesson presentation; e) questioning techniques; f) implementation of diverse instructional strategies; g) provision of feedback; h) integration of values; i) application of suitable summarization methods; and j) utilization of assessment instruments. Educators must enable their pupils to

engage in logical reasoning to examine and comprehend the material more effectively, Singha, C. K. S. et al. (2020).

Instructional Practices

The introduction of the Philippine K-12 curriculum instills optimism in the educational system that the poor academic performance of Filipino pupils in national and international assessments will enhance. It was believed that enhancing the pedagogical approaches of science professors would elevate students' academic performance when implemented in 2012. The academic performance of students across all science curricula did not meet the standards set by national policy, indicating that learning is inadequate compared to the K-12 curriculum in the Philippines. Correlational analysis indicates a substantial association between academic accomplishment and instructional delivery, but lesson preparation and assessment exhibit a moderate relationship. It was concluded that educators lacked the requisite skills to effectively deploy K-12 curricular instructional strategies to enhance students' academic achievement. It was proposed that science students participate in ICT-based seminars and that instructional planning, delivery, and evaluation methods be aligned (Bleukx et al., 2024)

The primary objective of the study by Francisco, C. D. C., & Celon, L. C. (2020) was to evaluate the influence of teachers' instructional approaches on students' academic achievement. To accomplish this objective, the researcher employed a sample of 55 teachers and 295 pupils from private schools in Meycauayan City, Bulacan, during the 2018-2019 academic year. The findings indicated that instructional techniques influence students' academic achievement in English, Mathematics, Science, Filipino, and Araling Panlipunan to differing degrees. This indicates that each enhancement in the specified instructional management methods may provide a corresponding rise in students' academic achievement. The analysis of variance indicated a result exceeding the significance level of 0.05. We are unable to dismiss the null hypothesis. The planning, teaching, and assessment techniques of the teachers did not have substantial cumulative effects on students' academic achievement in the five substantive subjects of the curriculum. The study advised that school principals should regularly perform assessments of teachers and evaluate their training needs to ascertain their professional requirements.

The study of Calonia et al. (2023) found that the onset of the COVID-19 epidemic compelled colleges and institutions to transition to online class formats. These extraordinary experiences force educators to devise innovative educational strategies and practices that can provide exceptional support in a virtual learning environment. The findings indicate that the teachers' implementation of instructional practices was exceedingly high. Simultaneously, the students' academic performance exhibited a commendable level of proficiency. Nevertheless, the correlation test indicated that there is no statistically significant association between the instructional strategies utilised by the educators and the academic performance of the students. The finding indicates that students do not depend on their teachers' educational methods in online classes. This innovative educational approach enables students to learn at their own pace, relying on their desire, motivation, and study habits to succeed in examinations and achieve academic excellence.

According to Shi et al. (2022), the evaluation of instructional quality has historically been and is a challenging pursuit in higher education. The creation of novel teaching

assessment frameworks and instruments to assess diverse facets of teaching practices is promising. The difficulty is in the use of these concepts and measurements in real-world contexts. This difficulty requires instructors, researchers, and administrators to analyse and choose a significant array of tools from the multitude of available instruments. Results indicate the necessity of employing both instruments to provide a nuanced and thorough depiction of a faculty member's teaching approach. This study underscores the complexity of assessing instructional quality and the necessity to investigate the application of teaching evaluation frameworks and measurements of instructional practices in real-world contexts.

The current study of Bas, G. (2025) revealed that self-efficacy significantly influences teachers' instructional practices, indicating that educators with high self-efficacy are more inclined to implement effective teaching strategies than those with low self-efficacy. Self-efficacy influences all instructional practices of educators, encompassing clarity of instruction, cognitive activation, and classroom management. The current study demonstrated that motives for personal and social benefit in teaching are positively correlated with instructional practices, indicating that increased drive to teach leads to more engagement in instructional methods. This research revealed that while both social utility and personal utility motives to teach were important predictors, social utility motivation had a more substantial impact on teachers' instructional practices than personal utility motivation.

The study of Cairns (2019) examines the specific impacts of inquiry-based instructional practices, as defined by the PISA 2015 framework, and analyses the correlation between each activity, its frequency, and scientific achievement across 69 nations. Notwithstanding these constraints, the results of the current study furnish frequency-specific empirical proof about the efficacy of the pedagogical methods encompassed in the inquiry-based instruction scaled index in PISA 2015. The teacher-directed tactics, which encompassed methods for contextualizing students' science education, were consistently associated with elevated science proficiency, indicating that these approaches should be incorporated into the majority, if not all, science sessions. The utilization of laboratory work is advocated, albeit in moderation. This facilitates the consolidation of conceptual understanding as students reflect on their tangible laboratory experiences and utilize them to conceptualize abstract scientific knowledge. Strategies necessitating students to design their own inquiry research topics, experiments, and conclusions were consistently linked to low science achievement or had no significant correlation. The results underscored the necessity for meticulously designed, scaffolded, open-inquiry methodologies that explicitly assist students in the foundational processes required for the autonomous generation of scientific knowledge.

The primary findings of Tomaszewski et al. (2022) indicate that effective learning time significantly influences students' reading performance directly and indirectly through enhanced positive behavior, attendance, and homework practices. The results elucidate the mechanisms connecting successful teaching practices to student outcomes, utilizing longitudinal data from two distinct time points.

The literature consistently highlights that teacher professional development (PD) is essential in enhancing instructional effectiveness, teacher competence, and ultimately student achievement, particularly in the context of ongoing educational reforms and global demands. Studies emphasize that continuous, well-designed, and context-responsive PD equips

educators with advanced pedagogical skills, technological competencies, and adaptive strategies necessary for 21st-century learning environments. However, challenges such as limited resources, time constraints, and misalignment between training and teachers' needs hinder its effectiveness. Moreover, school leadership and organizational support play a crucial role in facilitating meaningful PD, while evidence on its direct impact on student outcomes remains mixed, suggesting the need for more structured and sustained approaches.

METHODS

Research Design

This study employed a descriptive-correlational design to determine the relationship between professional development and instructional practices.

Respondents and Locale of the Study

The respondents were 50 Grade 2 Mathematics teachers, selected through total enumeration in public elementary schools in Tanza 1 District, Cavite.

Research Instrument

A researcher-made questionnaire was used, consisting of three parts: (1) profile of the respondents, (2) extent of participation in professional development and instructional practices, and (3) challenges encountered by the respondents. The instrument underwent expert validation and pilot testing, yielding a Cronbach's alpha of 0.85, indicating acceptable reliability. The instrument was administered to the respondents using a survey questionnaire.

Data Gathering Procedure and Analysis

Prior to the conduct of the study, the researcher formally sought permission from the Schools Division Superintendent through the respective school heads to ensure proper authorization and compliance with institutional protocols. Upon approval, the finalized research instrument was prepared and distributed to the identified respondents. Ethical considerations were strictly observed by informing the participants of the purpose of the study and assuring them of confidentiality, anonymity, and voluntary participation. The questionnaires were administered and retrieved on scheduled dates agreed upon with the respondents to ensure completeness and accuracy of the data collected.

The gathered data were systematically organized, analyzed, and interpreted using appropriate statistical tools. Frequency and percentage were employed to describe the demographic profile of the respondents in terms of age, gender, civil status, position, educational attainment, years in service, and level of training attended. Weighted mean was utilized to determine the extent of participation in professional development activities and the level of instructional practices of Grade 2 Mathematics teachers. To examine the relationship between professional development and instructional practices, the Pearson Product-Moment Correlation Coefficient (r) was applied.

Ethical Considerations

This study adhered to established ethical standards in research involving human participants. Prior to data collection, permission was secured from the Schools Division

Superintendent and respective school heads, and informed consent was obtained from all respondents, ensuring that participation was voluntary. Participants were fully informed of the purpose of the study and were assured of confidentiality, anonymity, and their right to withdraw at any time without penalty. No personal identifiers were collected, and all data were used solely for academic purposes. The study complied with the provisions of the Data Privacy Act of 2012 (Republic Act No. 10173), ensuring secure handling and storage of data. Moreover, the researcher maintained honesty, accuracy, and integrity in data collection, analysis, and reporting, avoiding any form of fabrication, falsification, or misrepresentation.

RESULTS AND DISCUSSION

Profile of the Respondents

Table 1. Profile of the Respondents

| Profile | Frequency (n=50) | Percent |
|---------------------------------------|---------------------|---------|
| Age | | |
| 25-30 | 9 | 18.0 |
| 31-35 | 9 | 18.0 |
| 36-40 | 8 | 16.0 |
| 41-45 | 9 | 18.0 |
| 46-50 | 9 | 18.0 |
| 51 and above | 6 | 12.0 |
| Sex | | |
| Male | 11 | 22.0 |
| Female | 39 | 78.0 |
| Civil Status | | |
| Single | 16 | 32.0 |
| Married | 28 | 56.0 |
| Widow | 6 | 12.0 |
| Position | | |
| Teacher 1 | 14 | 28.0 |
| Teacher 2 | 13 | 26.0 |
| Teacher 3 | 14 | 28.0 |
| Master Teacher 1 | 7 | 14.0 |
| Master Teacher 2 | 2 | 4.0 |
| Highest Educational Attainment | | |
| Bachelor's Degree | 29 | 58.0 |
| Master's Degree | 17 | 34.0 |
| Doctoral Degree | 4 | 8.0 |

Table 1 shows the profile of the Grade 2 Mathematics teachers in public elementary schools in Tanza 1 District, Cavite. The demographic profile of the respondents reveals a balanced distribution across age groups, with the majority clustered within the 25-50 age range, each comprising 16% to 18% of the sample. This indicates a professionally active and

diverse workforce, combining both early-career and experienced teachers. The relatively lower proportion of teachers aged 51 and above (12%) suggests a gradual transition toward a younger teaching population, which may have implications for adaptability to modern pedagogical innovations and professional development initiatives.

In terms of sex, the findings show a predominance of female teachers with 78% of the total population, reflecting the feminization of the teaching profession at the elementary level. This trend is consistent with global and national patterns and may influence classroom dynamics, instructional approaches, and student engagement strategies.

Regarding civil status, the majority of respondents are married (56%), followed by those who are single (32%) and widowed (12%). This suggests that most teachers manage both professional and familial responsibilities, which may affect their availability and engagement in professional development activities, as well as their work-life balance.

With respect to position, 28% of the respondents occupy Teacher I and Teacher III ranks each, followed by Teacher II (26%), while only a small proportion hold Master Teacher positions. This distribution indicates that the majority are in entry-level to mid-career stages, highlighting the importance of continuous professional development to support career progression and instructional competence.

In terms of educational attainment, a significant majority of the respondents hold a Bachelor's degree (58%), while 34% have completed Master's degrees and only 8% have attained doctoral qualifications. This suggests that while many teachers are pursuing graduate education, advanced academic specialization remains limited, which may influence the depth of content knowledge, research engagement, and instructional innovation.

Extent of Participation in Professional Development Programs

Table 2. Extent of Participation of Grade 2 Mathematics Teachers in Professional Development Programs

| Items | Mean | Qualitative Description |
|---|------|-------------------------|
| 1. Training in computer/digital skills | 4.86 | Very Beneficial |
| 2. Curriculum alignment workshops | 4.96 | Very Beneficial |
| 3. Participation in seminars (district/division/school level) | 5.00 | Very Beneficial |
| 4. Attendance in professional conferences | 4.92 | Very Beneficial |
| 5. Standard-based assessment under K to 12 training | 4.88 | Very Beneficial |
| 6. In-service training (INSET) | 4.94 | Very Beneficial |
| 7. School-based learning action cells (LAC sessions) | 4.96 | Very Beneficial |
| 8. Program sharing with colleagues | 4.96 | Very Beneficial |
| 9. Online PD courses/webinars | 4.90 | Very Beneficial |
| 10. Echo-seminar (cascading PD learnings to peers) | 4.84 | Very Beneficial |
| 11. Mentoring/coaching programs | 4.80 | Very Beneficial |
| 12. Membership in professional organizations (e.g., MTAP, NCTM) | 4.94 | Very Beneficial |
| 13. Pursuit of graduate studies or advanced training | 4.82 | Very Beneficial |
| 14. Action research training and presentation | 4.78 | Very Beneficial |

| | | |
|--|-------------|------------------------|
| 15. Demonstration teaching or lesson modeling sessions | 4.70 | Very Beneficial |
| Grand Mean | 4.88 | Very Beneficial |

It was shown in Table 2 the extent of participation of grade 2 mathematics teachers in professional development. It was gleaned from the table that all items share the same qualitative description of "Very Beneficial"; this reflects uniform positive perception across all forms of training and learning engagement. The highest mean was obtained by Participation in seminars (district/division/school level) with a mean of 5.00. This is followed closely by curriculum alignment workshops, LAC sessions, and program sharing, each with a mean of 4.96. On the other hand, the lowest mean, although still interpreted as Very Beneficial, was Demonstration teaching or lesson modeling sessions with a mean of 4.70. This indicates that while teachers appreciate demonstration-based and research-oriented activities, these may not be as fully maximized or accessible compared to seminar-based training.

The computed grand mean is 4.88 with a qualitative description of Very Beneficial. The results imply that respondents consistently perceive all listed professional development activities as highly advantageous to their teaching competence.

Instructional Practices of the Respondents

Table 3. Instructional Practices Commonly Employed by Grade 2 Mathematics Teachers in Teaching Mathematics

| Items | Mean | Qualitative Description |
|--|-------------|-------------------------|
| Lesson Planning and Preparation | 4.92 | Always |
| Teaching and Learning Strategies | 4.76 | Always |
| Classroom Interaction and Student Engagement | 4.82 | Always |
| Assessment and Feedback | 4.74 | Always |
| Instructional Resources and Technology | 4.7 | Always |
| Overall Mean | 4.79 | Always |

It was gleaned from Table 2 the instructional practices that are commonly employed by Grade 2 Mathematics Teachers in Teaching Mathematics. Among the domains, lesson planning and preparation obtained the highest mean of 4.92, indicating that teachers prioritize structured and well-aligned instruction. This result aligns with the findings of Cuñado and Abocejo (2019), who emphasized that effective instructional planning is essential for achieving positive student outcomes and developing competent educators. Strong planning practices ensure that learning objectives, activities, and assessments are coherent and responsive to learners' needs.

Similarly, classroom interaction and student engagement with a mean of 4.82 and teaching and learning strategies with a mean of 4.76 were rated highly with a qualitative description of Always, suggesting that teachers actively foster interactive and learner-centered environments. This supports the study of Zakariya and Adegoke (2024), which highlighted that effective instructional strategies and teacher self-efficacy significantly influence classroom practices and student achievement in mathematics. Furthermore, Williams et al. (2007) noted that varied instructional strategies enhance student engagement, promote independent learning, and improve knowledge retention.

On the other hand, assessment and feedback and instructional resources and technology, with a mean of 4.74 and 4.70, respectively, although still rated as *Always*, obtained relatively lower means. This suggests that while teachers consistently apply assessment practices and utilize instructional materials, there is still room for improvement in maximizing assessment literacy and technology integration. This finding is consistent with Gürsoy and Özpolat (2020), who found that targeted professional development improves teachers' assessment literacy and self-efficacy, leading to more effective evaluation practices. Moreover, Murwaningsih (2024) emphasized that continuous professional development enhances teachers' ICT competencies, which are crucial for modern instructional delivery.

Overall, the findings reveal that Grade 2 Mathematics teachers consistently demonstrate a very high level of instructional practice, as reflected by the overall mean of 4.79, interpreted as *Always*. This indicates that teachers regularly implement effective pedagogical strategies, reflecting a strong commitment to delivering quality mathematics instruction. This finding supports the assertion of Ajani (2019) that professional development enhances instructional methodologies and positively influences classroom practices, ultimately improving the quality of education.

Challenges Encountered in Professional Development Programs

Table 4: Challenges in Applying Professional Development Learnings of the Respondents

| Items | Mean | Qualitative Description |
|---|-------------|-------------------------|
| 1. Lack of time to apply new strategies | 4.28 | Very Serious |
| 2. Limited teaching materials and resources | 4.64 | Very Serious |
| 3. Large class size | 4.16 | Serious |
| 4. Difficulty in adjusting strategies to pupils' needs | 4.48 | Very Serious |
| 5. Heavy workload and many tasks | 4.84 | Very Serious |
| 6. Lack of school support or follow-up after PD | 4.56 | Very Serious |
| 7. Poor internet connection or limited ICT access | 4.24 | Very Serious |
| 8. Misalignment of PD topics with actual classroom needs | 3.98 | Serious |
| 9. Low student motivation to participate in activities | 4.36 | Very Serious |
| 10. Limited opportunities to share and collaborate with peers | 4.16 | Serious |
| 11. Insufficient training in new strategies | 4.48 | Very Serious |
| 12. Difficulty in integrating technology in lessons | 4.24 | Very Serious |
| 13. Lack of confidence in applying new methods | 3.62 | Serious |
| 14. Pressure to finish curriculum requirements | 3.84 | Serious |
| 15. Limited monitoring or feedback from supervisors | 4.08 | Serious |
| Grand Mean | 4.26 | Very Serious |

Table 4 presents the teaching competencies of public secondary Filipino teachers in Legislative District 3 of Isabela, which were all rated Strongly Evident, with an overall mean of 4.85. Among the indicators, rapport with students obtained the highest mean, followed by classroom management, instructional skills, knowledge of the subject matter, and instructional planning skills. These results indicate that teachers demonstrate a high level of competence across all domains of teaching, reflecting their effectiveness in facilitating learning and managing classroom environments. The study of Depaepe, F., & König, J. (2018) emphasized

that teaching competency will be evident in the teacher's application of extensive pedagogical knowledge and abilities for efficient classroom management.

Relationship Between Professional Development Activities and Teaching Competencies

Table 6: Correlational Analysis Between the Professional Development Activities and Teaching Competencies of the Respondents

| Teaching Competencies | Professional Development | |
|---------------------------------|--------------------------|---------|
| | r-value | p-value |
| Instructional Planning Skills | .375* | .007 |
| Instructional Skills | .497* | .000 |
| Knowledge of the Subject Matter | .211 ^{ns} | .141 |
| Rapport with the Students | .514* | .000 |
| Classroom Management | .559* | .000 |

*Legend: * with significant ns-with no significant*

Table 6 shows that there is a significant relationship between professional development activities and teaching competencies in terms of instructional planning skills, instructional skills, rapport with the students, and classroom management. The computed p-values for these areas are all less than 0.05, indicating that the relationships are statistically significant. This means that as participation in professional development increases, competencies in these areas also tend to improve. Therefore, the null hypothesis is rejected for these variables.

However, in terms of knowledge of the subject matter, the computed p-value is greater than 0.05, which indicates that there is no significant relationship between professional development activities and this particular competency. This means that participation in professional development does not significantly influence teachers' mastery of subject content. Thus, the null hypothesis is accepted for knowledge of the subject matter.

According to the study of Granada and Oco (2024), the management of classrooms by teachers has a beneficial relationship with their teaching competencies. The correlation between classroom management and teaching competencies is undeniable. Consequently, it requires appropriate significance and focus to enhance both teacher and student performance.

CONCLUSION AND FUTURE WORKS

The study demonstrates that professional development functions as a key driver of teachers' pedagogical competence by strengthening how they plan, deliver, and manage instruction, as well as how they engage learners in the classroom. The positive linkage between professional development and these domains indicates that sustained exposure to relevant training translates into more effective teaching practices. In contrast, the lack of influence on subject matter knowledge suggests that content mastery is shaped less by short-term professional development and more by formal academic preparation and specialization. Despite the overall positive impact, teachers continue to encounter serious challenges, including time constraints, financial limitations, technological barriers, and issues related to accessibility, which may hinder sustained participation and the full realization of professional development benefits.

For future work, it is recommended that educational institutions strengthen curriculum-aligned training programs and provide greater institutional and financial support to improve teachers' access to professional development opportunities. The integration of localized and technology-assisted training modalities may help address logistical and digital barriers. Additionally, encouraging teachers to pursue graduate studies may further enhance their subject matter expertise. Strengthening monitoring and evaluation mechanisms is also essential to ensure the effective application of acquired competencies in classroom practice. Future researchers are encouraged to expand the scope of the study by including other subject areas, larger samples, or different geographical contexts to validate and enrich the current findings.

ACKNOWLEDGMENT

The authors would like to express their deepest gratitude to Almighty God for His guidance, wisdom, and strength throughout the completion of this study. Sincere appreciation is extended to the research adviser and professors for their invaluable guidance, expertise, and constructive feedback that greatly contributed to the development of this research.

The authors also acknowledge the support of the school administrators and public Grade 2 Mathematics teachers in Tanza District, Division of Cavite, for their cooperation and participation, which made this study possible. Special thanks are given to colleagues, co-teachers, and peers for their encouragement and assistance, as well as to the authors' families for their unwavering moral and emotional support.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this study. This research was conducted objectively, and no financial or personal relationships have influenced the results and interpretations presented in this paper.

DECLARATION OF AI USE

The authors declare that artificial intelligence (AI) tools such as ChatGPT and Quillbot were used solely to assist in language refinement, grammar correction, and formatting of the manuscript. All intellectual content, data analysis, interpretations, and conclusions presented in this study are the original work of the authors. The use of AI did not influence the research design, data collection, analysis, or the integrity of the findings.

REFERENCE

- Achieng, M. S. B. (2024). Teacher Professional Development and Learning Outcomes in The 21st Century. *IJRDO- Journal of Educational Research*. <https://doi.org/10.53555/er.v10i3.6190>
- Adhikari, N. P., & Budhathoki, J. K. (2025). Analyzing the elements of effective professional development in teacher education. *Academia*, 5(1), 136-148. <https://doi.org/10.3126/ta.v5i1.77135>
- Ali, Z., Busch, M., Qaisrani, M. N., & Rehman, H. U. (2020). The influence of teachers' professional competencies on students' achievement: a quantitative research

- study. *American Research Journal of Humanities & Social Science*, 3(6), 45-54. <https://www.arjhss.com>
- Amemasor, S. K., Oppong, S. O., Ghansah, B., Benuwa, B., & Essel, D. D. (2025). A systematic review on the impact of teacher professional development on digital instructional integration and teaching practices. *Frontiers in Education*, 10. <https://doi.org/10.3389/feduc.2025.1541031>
- Coppe, T., Parmentier, M., Kelchtermans, G., Raemdonck, I., März, V., & Colognesi, S. (2023). Beyond traditional narratives about teacher professional development: A critical perspective on teachers' working life. *Teaching and Teacher Education*, 139, 104436. <https://doi.org/10.1016/j.tate.2023.104436>
- Esguerra, R. A., & Quinito, D. I. (2025). Teachers' professional development and school leadership management. *International Journal of Research and Scientific Innovation*, XII(1), 1-16. <https://doi.org/10.51244/ijrsi.2025.12010001>
- Granada, G. D., & Oco, R. M. (2024). Classroom management and teaching competencies of elementary teachers. *International Journal of Multidisciplinary Research and Analysis*, 07(03). <https://doi.org/10.47191/ijmra/v7-i03-50>
- Gürsoy, G., & Özpolat, E. T. (2020). Professional Development Workshops: Determination and Fulfillment of Educational Requirements in Measurement-Evaluation. *International Journal of Education and Literacy Studies*, 8(4), 13. <https://doi.org/10.7575/aiac.ijels.v.8n.4p.13>
- Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching*, 8(3), 381-391. <https://doi.org/10.1080/135406002100000512>
- Nairz-Wirth, E., & Feldmann, K. (2019). Teacher professionalism in a double field structure. *British Journal of Sociology of Education*, 40(6), 795-808. <https://doi.org/10.1080/01425692.2019.1597681>
- Nasreen, A., & Odhiambo, G. (2018). The continuous professional development of school principals: Current practices in Pakistan. *Bulletin of Education and Research*, 40(1), 245-266. <http://files.eric.ed.gov/fulltext/EJ1209698.pdf>
- Murwaningsih, T. (2024). The impact of teachers' professional development on the internet Self-Efficacy and ICT competencies. *Data & Metadata*, 4, 531. <https://doi.org/10.56294/dm2025531>
- Padillo, G. G., Manguilimotan, R. P., Capuno, R. G., & Espina, R. C. (2021b). Professional development activities and teacher performance. *International Journal of Education and Practice*, 9(3), 497-506. <https://doi.org/10.18488/journal.61.2021.93.497.506>
- Sims, S., Fletcher-Wood, H., O'Mara-Eves, A., Cottingham, S., Stansfield, C., Goodrich, J., Van Herwegen, J., & Anders, J. (2023). Effective Teacher Professional Development: New

Theory and A Meta-Analytic Test. *Review of Educational Research*.
<https://doi.org/10.3102/00346543231217480>

Su, H., & Wang, J. (2022). Professional development of teacher trainers: The role of teaching skills and knowledge. *Frontiers in Psychology*, 13.
<https://doi.org/10.3389/fpsyg.2022.943851>

Ventista, O., & Brown, C. (2023). Teachers' professional learning and its impact on students' learning outcomes: Findings from a systematic review. *Social Sciences & Humanities Open*, 8(1), 100565. <https://doi.org/10.1016/j.ssaho.2023.100565>