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PROFESSIONAL LEARNING COMMUNITIES AND EFFICACY OF SCIENCE EDUCATORS IN PRIVATE SCHOOLS OF PANABO CITY

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ABSTRACT
This study examined the relationship between professional learning communities and teacher efficacy among science educators in private schools of Panabo City. Specifically, it aimed to determine the extent of professional learning communities in terms of shared and supportive leadership, shared values and vision, collective learning and application, and shared personal practice, as well as the extent of teacher efficacy in terms of instructional strategies, classroom management, and student engagement. It also investigated whether a significant relationship exists between the variables and which domains of professional learning communities significantly influence teacher efficacy. A quantitative descriptive correlational research design was employed, involving 114 science educators selected using Slovin's formula from a population of 160 qualified respondents. Data were collected through adapted survey questionnaires and analyzed using weighted mean, Pearson Product Moment Correlation, and multiple regression analysis at a 0.05 level of significance. Findings revealed that both professional learning communities and teacher efficacy were manifested at an extensive level. A significant relationship was found between the two variables, indicating that higher levels of professional learning communities correspond to higher teacher efficacy. Regression analysis further showed that shared personal practice was the strongest predictor of teacher efficacy, followed by shared and supportive leadership, while other domains had relatively minimal influence. It is recommended that educational leaders strengthen collaborative practices, particularly shared personal practice and participative leadership, to further enhance teacher efficacy. Continuous professional development and structured collaboration should be prioritized to sustain instructional improvement and teacher competence.
KEYWORDS: *Professional learning communities; teacher efficacy; private schools; Panabo City*

INTRODUCTION
Education serves as the foundation of societal progress, with teachers playing a crucial role in shaping students' knowledge, skills, and values. As the demands of modern education continue to evolve, teacher professional development has become a global priority. One of the most effective approaches to improving teaching practices and student learning outcomes is through Professional Learning Communities, which emphasize collaboration, shared leadership, and continuous learning. Across different education systems, professional learning communities have been widely recognized as a key mechanism for fostering professional growth and improving school effectiveness. However, despite their proven benefits, challenges remain in their implementation, particularly in adapting them to different cultural and institutional.

Internationally, professional learning communities have revolutionized education systems by promoting teacher collaboration and evidence-based instructional practices. Countries like Finland and Singapore, which consistently rank among the top in global education assessments, have integrated professional learning communities into their professional development frameworks (Darling-Hammond et al., 2019). In these nations, teachers regularly engage in structured collaboration, sharing best practices and analyzing student data to refine their instructional approaches. Studies have shown that professional learning communities contribute significantly to improved teacher efficacy, fostering confidence in instructional strategies, classroom management, and student engagement (Vangrieken et al., 2020). These findings highlight the potential of professional learning communities in enhancing teacher performance and student achievement when implemented effectively.

Despite their success in developed countries, the effectiveness of professional learning communities in other global contexts varies due to cultural and systemic barriers. Research conducted in international schools across South and Central America revealed that professional learning communities' success largely depends on enabling school structures, shared leadership, and a strong culture of trust (Riveros et al., 2021). In some developing countries, challenges such as limited administrative support, lack of teacher autonomy, and resistance to collaborative teaching hinder the sustainability of professional learning communities (Schneider & Kipp, 2022). These findings emphasize the need for localized strategies to adapt professional learning communities to diverse educational settings, ensuring they align with the unique challenges faced by teachers in different regions.

In the Philippines, the Department of Education (DepEd) has recognized the importance of collaborative professional development, leading to the introduction of initiatives such as the Learning Action Cell (LAC) program (DepEd, 2020). Modeled after the principles of professional learning communities, LAC sessions aim to provide teachers with opportunities to engage in continuous professional learning, reflective discussions, and collective problem-solving. However, despite these efforts, many schools struggle

with the effective implementation of professional learning communities due to systemic limitations, including a lack of time for collaboration, inadequate training for teacher leaders, and limited institutional support (Manansala et al., 2021). These challenges prevent educators from fully utilizing the potential benefits of professional collaboration.

Another major issue in Philippine education is the inconsistent adoption of professional learning communities across different types of schools. While some private institutions have successfully integrated collaborative teaching models, many public schools still face difficulties in sustaining PLC initiatives due to teacher workload and insufficient professional development funding (Reyes & Castillo, 2022). Furthermore, studies indicate that many teachers perceive professional learning communities as an additional burden rather than a supportive framework due to the lack of structured guidance and administrative encouragement (Bautista & Bernardo, 2021). These gaps highlight the need for policy revisions and more comprehensive strategies to ensure the effective implementation of professional learning communities in Philippine schools.

Locally, in Panabo City, private schools encounter unique challenges in integrating professional learning communities into their professional development practices. Science educators, in particular, face increasing demands to incorporate curriculum reforms, integrate technology into teaching, and address diverse student needs. However, the absence of structured professional learning communities limits teachers' ability to collaborate effectively and apply evidence-based teaching strategies (Garcia et al., 2022). Without a formalized framework for professional collaboration, teachers often work in isolation, which restricts their ability to share best practices and innovate in the classroom.

One of the primary gaps in the local education system is the lack of shared and supportive leadership that fosters meaningful collaboration among teachers. Research has shown that when school leaders actively support and participate in professional learning communities, teachers are more likely to engage in reflective practices and continuous learning (Mendoza & Santos, 2023). However, many schools in Panabo City struggle with hierarchical administrative structures, where decision-making is concentrated at the top, leaving little room for teacher involvement. This limits the effectiveness of professional learning communities, as teachers feel excluded from important discussions about instructional improvements and school policies. Addressing this issue requires a shift toward more democratic leadership styles that empower teachers as key stakeholders in professional learning.

Given these challenges, this study seeks to examine the relationship between professional learning communities and teacher efficacy in Panabo City's private schools. Teacher efficacy, which includes confidence in instructional strategies, classroom management, and student engagement, plays a critical role in shaping educational outcomes (Tschannen-Moran & Hoy, 2021). By investigating how shared leadership, collective learning, and collaborative practices influence teacher efficacy, this research aims to provide valuable insights into the local educational landscape. Understanding these dynamics can help identify strategies to enhance professional collaboration and improve overall teaching effectiveness.

The significance of this study lies in its potential to inform educational policies and practices at both the local and national levels. By highlighting the barriers and enablers of professional learning communities in Panabo City's private schools, the findings could contribute to more effective professional development programs that cater to the needs of educators in diverse settings. Additionally, this research aligns with the broader goal of strengthening teacher capacity through collaborative learning, ultimately leading to improved student outcomes (Hargreaves & O'Connor, 2020). The study underscores the importance of context-specific approaches to professional learning, ensuring that global best practices are effectively adapted to the realities of local education systems.

By addressing these critical gaps, this study aims to bridge the divide between theory and practice in PLC implementation. It not only highlights the challenges of adopting collaborative professional development frameworks but also explores potential strategies to make them more effective and sustainable. Ultimately, this research contributes to the growing body of knowledge on teacher efficacy and professional learning communities, reinforcing the idea that empowered educators lead to better learning environments for students.

Statement of the Problem

This study determined the relationship between the professional learning communities and teacher efficacy. More specifically, it sought to answer the following questions:

1. What is the extent of professional learning communities in terms of:
   1.1. Shared and supportive leadership;
   1.2. Shared values and vision;
   1.3. Collective learning and application; and
   1.4. Shared personal practice?
2. What is the extent of teacher efficacy in terms of:
   2.1. Efficacy for instructional strategies;
   2.2. Efficacy for classroom management, and
   2.3 efficacy for student engagement?
3. Is there a significant relationship between professional learning communities and teacher efficacy?
4. What domains of the professional learning communities significantly influence teacher efficacy?

METHODOLOGY

This chapter introduces the methodological aspect of the study. This covers the research design, research respondents, research instruments, data gathering procedure, and data analysis employed in this investigation.

Research Design

This study utilized a quantitative correlation research design. Quantitative research focuses on gathering and analyzing numerical data to explain patterns, relationships, and phenomena, as emphasized by Creswell and Creswell (2019). This methodology enables a structured examination of variables, providing statistical insights into their behaviors and interactions. The descriptive correlational design is particularly suited for studies aiming to observe and analyze relationships between variables in their natural settings without experimental manipulation, as described by Davis (2021).

Descriptive research aims to provide a comprehensive understanding of the characteristics and dynamics of the variables being studied. In this study, the focus was on capturing the inherent features of professional learning communities and teacher efficacy among science educators in Panabo City. Korrapati (2019) notes that this approach allows researchers to detail the existing state of phenomena, providing valuable insights for both theoretical understanding and practical applications. The correlational aspect of the design examines whether and to what extent professional learning communities influence teacher efficacy, which aligns with Kabir's (2019) assertion that correlational research is integral for exploring the strength and direction of variable relationships.

By employing this design, the study seeks to illuminate the nature of the association between professional learning communities and teacher efficacy. The descriptive correlational approach provides a foundation for analyzing how collaborative professional structures contribute to the effectiveness of science educators, offering critical implications for educational policy and practice. This design was chosen for its ability to explore and quantify relationships while respecting the natural educational environment of the respondents.

Ethical Consideration

The researcher was committed to upholding the highest ethical standards in conducting this study. Ensuring the protection, well-being, and rights of all teacher-respondents was a fundamental priority. The researcher recognized the importance of integrity, fairness, and transparency throughout the research process, particularly in aspects such as confidentiality, informed consent, voluntary participation, and equitable treatment.

Social Value. This study held significant social value as it sought to enhance the educational landscape by examining the relationship between professional learning communities and teacher efficacy. By identifying effective collaborative structures and instructional practices, the research aimed to inform school policies and teacher professional development initiatives, ultimately improving student learning outcomes in Panabo City's private schools. The findings contributed not only to the local educational system but also to the broader academic discourse, supporting evidence-based improvements in teaching and learning practices both locally and globally.

Informed Consent. Informed consent was a cornerstone of ethical research, and the researcher ensured that all respondents fully understood the study's purpose, procedures, potential risks, and benefits before participating. Teacher-respondents received a detailed explanation of their involvement in a language they comprehended, and they were required to provide written consent before participation. Their participation was entirely voluntary, and they had the right to withdraw at any time without any negative consequences. This process safeguarded their autonomy and fostered trust in the research.

Vulnerability of Research Respondents. The researcher acknowledged the vulnerability of research respondents, even though they were professional educators. Some may have felt hesitant to share their honest perspectives due to workplace dynamics or concerns about confidentiality. To address this, the researcher guaranteed anonymity by removing identifiable information and ensuring that data collection occurred in a neutral and non-coercive setting. Respondents were reassured that their insights would be used solely for research purposes and would not be linked to their personal identities or professional standing.

Privacy and Confidentiality. Protecting respondents' privacy and confidentiality was of utmost importance. All collected data were securely stored, accessible only to authorized research personnel, and reported in aggregate form to prevent identification. This study strictly adhered to ethical research guidelines and data protection laws, including the Data Privacy Act of 2012, to ensure that all personal information remained confidential. Respondents participated with confidence, knowing that their data were handled responsibly and ethically.

Risk, Benefits and Safety. In assessing risk, benefits, and safety, the researcher recognized that the risks associated with this study were minimal, primarily limited to the time and effort required to complete the survey. However, these risks were far outweighed by the potential benefits, such as gaining a deeper understanding of professional learning communities and their impact on teacher efficacy. The research aimed to provide valuable insights that could enhance collaborative teaching environments and professional growth opportunities. To ensure safety, data collection procedures were carefully designed to minimize disruptions and maintain the well-being of all respondents.

Justice. The principle of justice was upheld throughout the research process. The selection of teacher-respondents was based on fair and equitable criteria, ensuring that participants from various private schools were included to obtain a representative sample. The researcher avoided any form of bias in data collection, analysis, and reporting, ensuring that all respondents were treated with fairness and respect. The study's benefits were distributed equitably, and no particular group was unfairly burdened or excluded from its potential positive outcomes.

Transparency. Maintaining transparency was essential in fostering credibility and trust. Respondents were kept informed about the study's objectives, methodology, and intended use of the data. Once the study was completed, participants had access to a summary of the findings, allowing them to see how their contributions had shaped the research outcomes. This open communication ensured accountability and reinforced the integrity of the study.

Qualification of the Researcher. The researcher possessed relevant preparation and actual research-related experiences necessary to conduct the study with rigor and adherence to ethical standards. The researcher graduated Bachelor of Science in Nursing, took up Professional Education units, and had attended research seminars, capability-building trainings, academic colloquia, and workshops on quantitative research, statistical analysis, research ethics, instrument development, and thesis writing conducted by educational institutions and professional organizations. The researcher had also participated in research conferences and school-based or division-level trainings related to educational research and professional development. These academic and professional engagements strengthened the researcher's competence in managing data collection, applying appropriate statistical procedures, and observing ethical protocols, thereby enhancing the reliability and credibility of the study.

Conflict of Interest. To uphold the ethical principle of avoiding conflicts of interest, the researcher disclosed any potential biases, affiliations, or funding sources that may have influenced the study. The researcher affirmed that there were no vested interests that could compromise the objectivity of the research. Additionally, regular oversight from an ethics review board ensured that the study remained impartial and focused solely on contributing valuable insights to the field of education.

Adequacy of Facilities. Ensuring the adequacy of facilities was essential to maintaining the quality and efficiency of this study. To facilitate smooth data collection and analysis, the researcher utilized a combination of physical and digital resources. A secure and private location was arranged for in-person surveys or interviews, ensuring that respondents could participate without distractions or concerns about confidentiality. Additionally, computers with statistical software were used for data analysis, ensuring accurate interpretation of findings. Reliable internet access, data storage, and office supplies such as printed consent forms and survey materials were also prepared. These resources and facilities guaranteed the efficiency, security, and credibility of the research process.

Community Involvement. Community involvement was an integral aspect of this study. The researcher recognized the importance of engaging with key stakeholders, including school leaders, educators, and local education officials, to ensure that the research remained relevant and responsive to the specific challenges faced by private schools in Panabo City. Throughout the research process, the researcher sought feedback from the educational community, fostering collaboration and strengthening the practical applications of the study's findings. By involving the community, the study became more meaningful and impactful, addressing real-world concerns and contributing to sustainable improvements in education.

Research Respondents

The respondents for this study consist of science educators from private schools in Panabo City. The total population includes 160 science teachers with more than three years of teaching experience. Using Slovin's formula with a 5% margin of error, the computed sample size is 114 respondents. This ensures that the study maintains a 95% confidence level while capturing a representative sample of science teachers in the city. These educators were selected as they are directly involved in professional learning communities and apply teacher efficacy principles in their instructional practices. Their participation is essential in examining the relationship between professional learning communities and teacher efficacy, as they actively engage in instructional planning, collaboration, and student engagement (Kabir, 2019).

To ensure diversity and representativeness, stratified random sampling was employed. This method divides the total population into relevant strata, such as school size or grade level taught, before selecting proportional samples from each group. Stratified sampling minimizes selection bias and improves the generalizability of the findings, making it particularly valuable in educational research. By using this approach, the study guarantees that respondents reflect a broad range of private school science educators in Panabo City, providing comprehensive insights into their experiences with professional learning communities and teacher efficacy.

The inclusion criteria for selecting respondents are as follows: (1) they must be currently employed as science teachers in private schools in Panabo City, (2) they must have a minimum of three years of teaching experience, and (3) they must be actively involved in instructional and professional development activities. These criteria ensure that the participants have substantial teaching experience and engagement with collaborative professional development structures, making their perspectives highly relevant to the study. The selected respondents contribute significantly by sharing their experiences, perceptions, and practices regarding shared

leadership, collective learning, and instructional strategies. Their insights will help contextualize how professional learning communities influence teacher efficacy in private schools, offering valuable implications for policy and professional development initiatives (Davis, 2021).

Research Instruments

The primary instrument for data collection was a structured questionnaire designed to measure both, professional learning communities and teacher efficacy. The questionnaire consisted of closed-ended questions with Likert-scale items to quantify perceptions and experiences.

For data collection, this study utilized an adapted survey questionnaire. The questionnaire that was employed in this undertaking was divided into two sets. The first set focused on the extent of professional learning communities. The second set focused on the extent of teacher efficacy.

Professional Learning Communities. The professional learning communities questionnaire was adapted from Olivier, D. F., & Hipp, K. K. (2019). The instrument consisted of 36 items. It had four indicators namely; shared and supportive leadership (1-11), shared values and vision (1-8), collective learning and application (1-10), and shared personal practice (1-7).

The Professional Learning Communities Questionnaire was subjected to pilot testing to ensure the reliability and validity of its 36 items. The pilot testing involved a sample of teachers similar to the study respondents, and the results yielded a Cronbach's alpha coefficient of 0.953, indicating high internal consistency among the items. This suggests that the questionnaire reliably measures the four indicators of professional learning communities. The high reliability implies that the instrument is well-suited for capturing respondents' perceptions and experiences with professional learning communities in the context of private schools in Panabo City. Below was the grading scale of the extent of professional learning communities.

Mean Interval	Descriptive Level	Descriptive Interpretation
4.20 - 5.00	Very Extensive	The professional learning communities is always evident.
3.40 - 4.19	Extensive	The professional learning communities is oftentimes evident.
2.60 - 3.39	Moderately Extensive	The professional learning communities occasionally evident.
1.80 - 2.59	Less Extensive	The professional learning communities seldom evident.
1.00 – 1.79	Not Extensive	The professional learning communities never evident.

Teacher Efficacy. The teacher efficacy questionnaire was adapted from Tschannen-Moran, M., & Hoy, A. W. (2021). The instrument consisted of 24 items. It had three indicators namely; efficacy for instructional strategies (1-8), classroom management (1-8), and student engagement (1-8).

The Teacher Efficacy Questionnaire also underwent pilot testing with a similar sample of teachers to evaluate its 24 items. The results showed a Cronbach's alpha coefficient of 0.945, reflecting strong internal consistency across the three indicators. This high reliability indicates that the questionnaire effectively captures the construct of teacher efficacy, ensuring that the data collected will accurately represent the teachers' confidence and abilities in these areas. The findings affirm the suitability of this instrument for exploring the relationship between professional learning communities and teacher efficacy in the study setting. Below was the grading scale of the extent of teacher efficacy.

Mean Interval	Descriptive Level	Descriptive Interpretation
4.20 - 5.00	Very Extensive	The teacher efficacy is always evident.
3.40 - 4.19	Extensive	The teacher efficacy is oftentimes evident.
2.60 - 3.39	Moderately Extensive	The teacher efficacy is occasionally evident.
1.80 - 2.59	Less Extensive	The teacher efficacy is seldom evident.
1.00 – 1.79	Not Extensive	The teacher efficacy is never evident.

The instruments in this study were contextualized to achieve the purpose of this study. The researcher integrated all the comments and suggestions of the adviser, panel members and expert validators for the refinement of the tools and to achieve construct validity.

Data Gathering Procedure

The data gathering procedure for this study adhered to a systematic and ethical process to ensure the accuracy and reliability of the collected data.

Permission to Conduct Study. The first step involved securing permission to conduct the study. The researcher formally requested approval from the Division Office of Panabo City and the principals of participating private schools. Official letters detailing the study's objectives, significance, and methodology were submitted, along with approval from an institutional ethics review board to ensure compliance with ethical research guidelines. The researcher also sought consent from the participating teachers, ensuring they fully understood the voluntary nature of their involvement. Once all necessary approvals were obtained, logistical preparations were finalized, including the printing of survey instruments, preparation of informed consent forms, and coordination with school administrators regarding the most appropriate data collection schedule.

Distribution and Retrieval. Upon approval, the next phase involved the distribution and retrieval of questionnaires. The researcher worked closely with school administrators to schedule a convenient time for data collection that minimized disruptions to teaching schedules. An orientation session was conducted to explain the study's purpose, data collection procedures, and ethical considerations. During this session, respondents received clear instructions on how to complete the questionnaire and were given an opportunity to ask questions. To accommodate varying accessibility needs, the questionnaires were distributed in both paper-based and online formats. Paper-based surveys were securely handed out and collected using designated drop-off points, while online surveys were administered through a secure and encrypted platform to maintain confidentiality. A two-week response window was provided, with follow-up reminders sent to encourage participation and maximize response rates. After the collection period, responses were reviewed for completeness, and any incomplete or inconsistent responses were addressed accordingly to ensure data integrity.

Statistical Treatment. Following the retrieval of data, statistical treatment was applied to analyze the responses. The collected data were encoded into statistical software for processing and analysis. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize the respondents' demographic characteristics and survey responses. Inferential statistics, such as Pearson's correlation and regression analysis, were employed to determine the relationships between professional learning communities and teacher efficacy. The statistical findings were interpreted and validated to ensure accuracy and reliability. Throughout this process, strict confidentiality measures were maintained, with data securely stored and accessible only to the researcher. By following this structured approach, the study ensured ethical compliance, methodological rigor, and the production of meaningful insights that contributed to educational research.

Data Analysis

For this study, a range of statistical tools was employed to analyze the data and address the research questions effectively. Each statistical method was selected based on the nature of the research objectives and the hypotheses tested.

Weighted Mean. To determine the extent of professional learning communities (Question 1) and teacher efficacy (Question 2), weighted mean was utilized. Mean was computed for each domain of the independent and dependent variables to provide an overview of the respondents' perceptions regarding the extent of the variables under investigation.

Pearson Correlation. For Question 3, which sought to explore the relationship between professional learning communities and teacher efficacy, Pearson Product-Moment Correlation Coefficient (r) was applied.

Regression Analysis. To address Question 4 and test which domains of professional learning communities significantly influence teacher efficacy, multiple linear regression analysis was conducted.

Results

The study examined the **extent of Professional Learning Communities (PLCs), Teacher Efficacy, the relationship between the two variables, and the influence of PLCs on Teacher Efficacy** among science educators in private schools in Panabo City.

1. Extent of Professional Learning Communities (PLC)

Overall, Professional Learning Communities were rated **Extensive** (Mean = **4.03**), indicating that PLC practices are **oftentimes evident** in the participating schools.

PLC Dimension	Mean	Interpretation
Shared Personal Practice	**4.06**	Extensive
Collective Learning and Application	**4.04**	Extensive
Shared and Supportive Leadership	**4.03**	Extensive
Shared Values and Vision	**4.01**	Extensive
Overall	**4.03**	**Extensive**

The findings suggest that teachers regularly engage in collaboration, shared leadership, professional reflection, mentoring, and collective learning to improve instructional practices.

2. Extent of Teacher Efficacy

Teacher efficacy was also rated **Extensive** (Overall Mean = **4.06**), indicating that teachers demonstrate strong confidence in performing their professional responsibilities.

Teacher Efficacy Dimension	Mean	Interpretation
Instructional Strategies	**4.08**	Extensive
Student Engagement	**4.06**	Extensive
Classroom Management	**4.04**	Extensive
Overall	**4.06**	**Extensive**

This indicates that teachers are confident in implementing effective instructional strategies, engaging students, and managing classroom behavior.

3. Relationship Between Professional Learning Communities and Teacher Efficacy

There was a **significant positive relationship** between Professional Learning Communities and Teacher Efficacy.

PLC Dimension	r-value	p-value	Interpretation
Shared and Supportive Leadership	**0.8331**	0.000	Significant
Shared Values and Vision	**0.7325**	0.000	Significant
Collective Learning and Application	**0.8378**	0.000	Significant
Shared Personal Practice	**0.8753**	0.000	Significant
Overall PLC	**0.8197**	**0.000**	**Significant**

The null hypothesis was **rejected**, indicating that stronger Professional Learning Communities are associated with higher Teacher Efficacy.

4. Regression Analysis: Influence of PLC on Teacher Efficacy

Regression analysis revealed that Professional Learning Communities **significantly predict Teacher Efficacy**.

Key findings:

- **R = 0.883** (very strong positive relationship)
- **R^2 = 0.780**
- **F = 96.697**
- **p = 0.000**

This means that **78% of the variation in Teacher Efficacy is explained by the four PLC dimensions**, while the remaining 22% is attributed to other factors.

Among the PLC dimensions, **Shared Personal Practice** emerged as the **strongest predictor** of Teacher Efficacy.

Predictor	Beta (β)
Shared Personal Practice	**0.623**
Shared and Supportive Leadership	**0.236**
Collective Learning and Application	**0.035**
Shared Values and Vision	**0.012**

These results indicate that collaborative activities such as peer observation, mentoring, coaching, and sharing instructional practices have the greatest influence on improving teacher efficacy.

Findings

The main focus of this study was to determine the significance of the relationship between professional learning communities and teacher efficacy among science educators in private schools of Panabo City. Specifically, the study examined the extent of professional learning communities in terms of shared and supportive leadership, shared values and vision, collective learning and application, and shared personal practice. It also determined the extent of teacher efficacy in terms of efficacy for instructional strategies, efficacy for classroom management, and efficacy for student engagement. Furthermore, the study investigated whether a significant relationship exists between professional learning communities and teacher efficacy, and which domains of professional learning communities significantly influence teacher efficacy. The study was conducted among one hundred fourteen (114) science educators from private schools in Panabo City. A descriptive correlational method of research was employed using adapted research instruments which were validated by a panel of experts and subjected to pilot testing prior to administration. Weighted mean, Pearson Product Moment Correlation, and Multiple Regression Analysis were the statistical tools utilized in analyzing the data. The hypotheses in this study were tested at a 0.05 level of significance.

1. The major findings of the study revealed that the extent of professional learning communities among science educators is extensive, indicating that collaborative professional practices are oftentimes evident in the participating schools. 2. Likewise, the extent of teacher efficacy is also extensive, suggesting that science educators demonstrate a strong sense of confidence in instructional strategies, classroom management, and student engagement. 3. It was further found that there is a significant relationship between professional learning communities and teacher efficacy, implying that stronger manifestations of collaborative professional practices are associated with higher levels of teacher efficacy. 4. Moreover, the results of the regression analysis revealed that the domains of professional learning communities significantly influence teacher efficacy, with shared personal practice emerging as the strongest predictor. This indicates that collaborative feedback, peer observation, mentoring, and shared instructional reflection play a crucial role in strengthening teacher efficacy among science educators. Consequently, the hypotheses stating that there is no significant relationship between professional learning communities and teacher efficacy and that none of the domains of professional learning communities significantly influence teacher efficacy were rejected. These findings underscore the importance of strengthening collaborative professional structures as a means of enhancing teachers' efficacy and improving educational practice.

Conclusions

Based on the findings of the study, it is concluded that professional learning communities among science educators in private schools of Panabo City are manifested at an extensive level, indicating that collaborative professional practices are oftentimes evident in the participating schools. The indicators of shared and supportive leadership, shared values and vision, collective learning and application, and shared personal practice were all consistently demonstrated, suggesting that science educators operate within

professional environments characterized by collaboration, shared responsibility, reflective dialogue, and collegial support. This finding confirms that professional learning communities function as meaningful structures for professional growth and school improvement. This conclusion supports the assumptions of constructivist learning theory, particularly the view of Vygotsky that knowledge is developed through social interaction and collaborative engagement. It also affirms the relevance of adult learning theory, which posits that adult learners develop professionally through participatory, experience-based, and problem-centered learning environments.

It is further concluded that teacher efficacy among science educators is likewise manifested at an extensive level, signifying that teachers demonstrate strong confidence in instructional strategies, classroom management, and student engagement. This suggests that science educators possess the professional competence and self-belief necessary to respond effectively to instructional demands, manage classroom dynamics, and foster meaningful student participation. The findings imply that teacher efficacy is not only evident as an individual professional attribute but is also strengthened within collaborative educational environments. This conclusion affirms social cognitive theory, particularly Bandura's proposition that efficacy beliefs are developed through mastery experiences, vicarious learning, and social reinforcement. The findings also support the theoretical assumption that efficacy is strengthened when teachers engage in reflective practice and receive support from their professional community.

Also, it is concluded that a significant relationship exists between professional learning communities and teacher efficacy. This indicates that collaborative professional structures are associated with stronger efficacy beliefs among science educators. As the extent of professional learning communities increases, teacher efficacy also increases, demonstrating that shared leadership, common vision, collective inquiry, and collaborative professional practice contribute meaningfully to strengthening teachers' confidence and professional effectiveness. This finding leads to the rejection of the hypothesis stating that there is no significant relationship between professional learning communities and teacher efficacy. The conclusion reinforces the interconnected assumptions of constructivist learning theory and social cognitive theory, which explain that collaborative interaction and social learning processes contribute significantly to professional growth and efficacy development.

Further, it is concluded that the domains of professional learning communities significantly influence teacher efficacy, thereby rejecting the hypothesis that none of the domains significantly influence teacher efficacy. Among the domains, shared personal practice emerged as the strongest predictor, indicating that peer observation, mentoring, collaborative feedback, and shared instructional reflection exert the greatest influence on strengthening teacher efficacy. This finding suggests that direct and sustained collaborative engagement among teachers serves as a critical mechanism for improving instructional confidence, classroom competence, and student engagement. This conclusion strongly supports adult learning theory, which emphasizes the value of collaborative, practice-centered professional learning, and further affirms Bandura's social cognitive theory, which highlights the role of social modeling and feedback in developing efficacy beliefs.

It is concluded that professional learning communities serve as significant predictors and enhancers of teacher efficacy among science educators. The study confirms that collaborative professional environments foster both individual and collective professional growth, strengthen teachers' beliefs in their capabilities, and contribute to improved educational practice. The findings validate the explanatory power of constructivist learning theory, social cognitive theory, and adult learning theory as foundational frameworks that illuminate how professional collaboration strengthens teacher efficacy. Taken together, the study establishes that strengthening professional learning communities, particularly shared personal practice, is essential for sustaining teacher efficacy and advancing instructional quality in private schools.

Recommendations

The following suggestions were offered based on the conclusions of the study:

For Higher Education Officials

It is highly recommended that the Office of the Schools Division Superintendent, through the School Governance and Operations Division and the Curriculum Implementation Division, strengthen policies and support mechanisms that institutionalize professional learning communities across schools, including partnerships and technical assistance extended to private schools. Specific interventions may focus on improving the indicators with comparatively lower results, particularly shared values and vision, shared and supportive leadership, shared values and vision, and efficacy for classroom management. Division-level initiatives may include structured capability-building programs on collaborative decision-making, strategic vision alignment, data-driven school improvement planning, and distributed instructional leadership. It is further recommended that the Human Resource Development Section intensify professional development programs centered on mentoring systems, peer coaching models, collaborative lesson study, and classroom management enhancement programs designed to strengthen teacher efficacy, particularly in managing disruptive behavior, establishing routines, and responding to defiant students. Monitoring and evaluation mechanisms may also be developed to assess the sustained implementation and effectiveness of professional learning communities in improving teacher efficacy outcomes.

For School Principals

It is recommended that school principals strengthen collaborative leadership structures by increasing teacher involvement in school-level decision-making, improving transparency in the sharing of key information, and expanding opportunities for teachers to participate in committees, innovation initiatives, and shared accountability processes. Principals may prioritize strengthening shared values and vision by facilitating periodic vision-setting workshops, collaborative policy review sessions, and school improvement planning activities anchored on student learning goals. Specific attention may be given to improving the use of data to prioritize actions toward a shared vision and strengthening stakeholder participation in setting high expectations for student achievement. It is also recommended that principals expand structures for shared personal practice through regular peer observation, coaching conferences, collaborative review of student work, and mentoring arrangements. To improve teacher efficacy in classroom management, school leaders may provide targeted in-service training, classroom behavior management support systems, and professional dialogue sessions focused on behavior intervention strategies and classroom routines.

For Teachers

It is recommended that teachers sustain and further strengthen active participation in professional learning communities by engaging more consistently in collaborative inquiry, reflective dialogue, and shared instructional improvement processes. Greater effort may be directed toward strengthening areas with relatively lower manifestations, particularly deeper participation in shared vision development, stronger use of collaborative data analysis in instructional planning, and more active engagement in structured peer feedback and mentoring practices. Teachers are also encouraged to enhance classroom management efficacy by participating in specialized training on proactive behavior management, restorative practices, and differentiated approaches to handling disruptive and defiant student behaviors. Greater attention may also be given to strengthening instructional adjustment for individual learners and fostering student creativity, which may further improve efficacy for instructional strategies and student engagement. Active collaboration with colleagues in designing interventions, reviewing student outcomes, and sharing effective practices should be continuously promoted to sustain both professional growth and efficacy development.

For Future Researchers

It is recommended that future researchers conduct similar studies involving larger populations and broader educational contexts, including public schools and other subject areas, to validate and extend the findings of this study. Future investigations may include additional variables that may explain the remaining variance in teacher efficacy not accounted for in this study, such as organizational trust, school culture, instructional leadership, teacher motivation, and collective efficacy. Further studies may specifically examine why shared values and vision and efficacy for classroom management yielded comparatively lower results and identify interventions that may strengthen these domains. Qualitative or mixed methods studies may also be undertaken to explore deeper contextual factors influencing the relationship between professional learning communities and teacher efficacy. Longitudinal studies are likewise recommended to determine the sustained effects of professional learning communities on teacher efficacy over time and to examine how collaborative professional structures evolve and influence educational outcomes in changing school contexts..

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