

A Structural Equation Model on Professional Learning Community in the Context of School Culture, School Heads' Leadership Practices, and their Empowering Behavior

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Abstract

This study aimed to determine the best-fit model for the professional learning community (PLC) among public elementary schools in Davao Region, considering the influence of school culture, school heads' leadership practices, and their empowering behavior. A quantitative descriptive and causal research design was employed using the structural equation model (SEM) for analysis. A total of 400 teachers from various divisions in the Davao Region were selected through stratified random sampling, and data were collected via personal surveys using modified and validated questionnaires to ensure content validity and reliability. Statistical tools were used for data analysis, including mean, standard deviation, Pearson product-moment correlation, linear regression, and SEM. Findings revealed that school culture, leadership practices, empowering behavior, and PLC were all perceived to be very high, with a significant relationship among these variables, confirming that all exogenous variables significantly influence PLC development. Among the three generated models, Model 3 was identified as the best fit, with school culture emerging as the most significant predictor of PLC. The results also indicated that PLCs were best anchored in school culture, which was measured by affiliative collegiality and professional collaboration; leadership practices were characterized by encouraging the heart, modeling the way, inspiring a shared vision, and challenging the process; and empowering behavior encompassed coaching for innovative performance, information sharing, self-directed decision-making, and delegation of authority.

Keywords: educational management; professional learning community; school culture; leadership practices; empowering behavior; structural equation model; public elementary school teachers; University of Mindanao; Philippines

1. Introduction

Over the years, Professional Learning Communities (PLCs) have been widely acknowledged as an effective school reform model (Hargreaves & O'Connor, 2020; Mitchell & Sickney, 2019; Smith & Gillespie, 2023; Zepeda, 2019). Despite their potential, many PLCs fail due to factors such as weak school culture, insufficient leadership support, passive teacher roles, inconsistent implementation, heavy workloads, and time constraints (Chua et al., 2020; DuFour & Fullan, 2019; Riggins & Knowles, 2020; Tayag, 2020). Compounding this issue, not all teacher meetings labeled as PLCs meet the criteria for success, as they often lack meaningful collaboration or fail to impact student outcomes (Damjanovic & Blank, 2021; Prenger, Poortman, & Handelzalts, 2019; Tahir & Musah, 2020). Schools frequently conflate PLCs with faculty meetings, book studies, or topic-specific collaborations that yield no measurable improvements in student achievement (Huijboom, Van Meeuwen, & Rusman, 2021; Prenger et al., 2019). Many operate under "PLC

Lite" models – superficial versions of PLCs that emphasize form over function and fail to foster instructional improvement or significant student progress (Hardy & Melville, 2019; Wilkins, 2020).

Scholarly investigations suggest that school culture, school heads' leadership practices, and their empowering behavior play significant roles in the long-term success of PLCs (Donohoo, O'Leary, & Hattie, 2020; Eaker & Marzano, 2020; Goos & Martin, 2019; Ho, Ong, & See Tan, 2020; Zhang & Koshmanova, 2021). A successful PLC is built upon the creation of a school-wide culture that promotes collaboration, inclusivity, authenticity, continuity, and a focus on critically analyzing practices to improve learning outcomes (Donohoo et al., 2020; Kolleck et al., 2021; Othman et al., 2019). Much of the research on school culture and PLC development emphasizes shared vision and purpose (Beddoes et al., 2020; Haiyan & Allan, 2021; Meeuwen et al., 2020), which is what DuFour et al. (2016) identified as a critical element in fostering a culture of collaboration in PLCs.

On the other hand, a study conducted by Brown, Auslander, and Vo (2024) revealed that effective school leadership creates a culture that promotes collaboration, continuous learning, and shared decision-making, which are essential for sustaining PLCs. Leaders who actively support professional development and cultivate a shared vision significantly enhance teacher engagement in PLCs, leading to improved instructional practices and student outcomes (Zúñiga, Cerda, & Bustos Navarrete, 2024). Additionally, school heads' ability to implement inclusive leadership approaches and provide structured opportunities for collaboration strengthens the sustainability and effectiveness of PLCs (Willis, Exley, & Dank, 2024). Conversely, a lack of leadership support and vision often leads to fragmented or ineffective PLCs, limiting their impact on professional growth and school improvement (Labib & Lestari, 2024). Therefore, the role of school leadership is not merely facilitative but foundational in ensuring that PLCs thrive as dynamic learning communities.

Meanwhile, another factor linked to PLC is leaders' empowering behavior. School leaders who exhibit empowering behaviors such as encouraging shared decision-making, fostering teacher autonomy, and providing continuous professional development, create environments where PLCs thrive (Thompson, 2024). When school heads actively support teachers' professional agency and collaboration, PLCs are more likely to lead to improved instructional practices and student outcomes. Additionally, empowering leadership strengthens teacher engagement in reflective dialogue and inquiry-based learning, further enhancing PLC effectiveness (King, 2024). Conversely, when school leaders fail to empower teachers by restricting autonomy or limiting resources, PLCs struggle to maintain meaningful collaboration and sustainability (Chen, 2024). These findings emphasize the necessity of leadership practices that prioritize teacher empowerment as a fundamental strategy for sustaining professional learning communities in schools.

Presented in Figure 1 is the conceptual framework of the study, showing the relationships of school culture, school heads' leadership practices, and their empowering behavior to the professional learning community. This is demonstrated by a single-headed arrow originating from three exogenous variables and directed towards the endogenous work design. The first exogenous variable is school culture, as described by Phillips and Wagner (2009), which includes professional collaboration, affiliative collegiality, and self-determination/efficacy. Another exogenous variable is Leadership Practices by Kouzes and Posner (2017), which involves modeling the way, inspiring a shared vision, challenging the process, enabling others to act, and encouraging the heart.

Empowering Behavior by Konczak, Stelly, and Trusty (2000) is the third exogenous variable comprising delegation of duty, accountability, self-directed decision-making, information sharing, skill development, and coaching for innovative performance. On the other hand, the endogenous variable of the study is the professional learning community by Olivier, Hipp, and Huffman (2010) with six dimensions, namely shared and supportive leadership, shared values and vision, collective learning and application, shared personal practice, supportive conditions-relationships, and supportive conditions-structures.

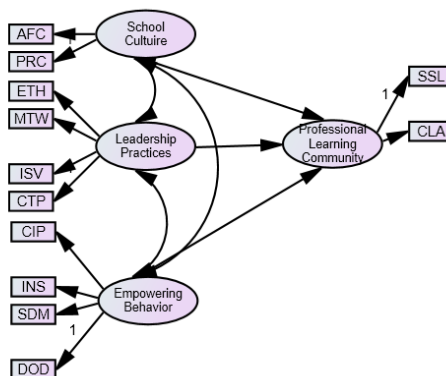


Figure 1. Hypothesized Model on the Influence of School Culture, School Heads' Leadership Practices, and their Empowering Behavior to Professional Learning Community

The present investigation is grounded in Vygotsky's (1978) Social Development Theory, which highlights the role of peer collaboration and support in fostering motivation and learning, reinforcing the relationship of PLCs to school culture, principals' leadership practices, and empowering behavior. Effective leadership practices, such as listening, acquiring knowledge, and understanding curriculum, create structures that facilitate collaboration in PLCs (Moller, 2006). Vygotsky's concept of collaborative knowledge creation underscores the importance of shared meanings within a collaborative culture. Principals contribute by fostering this culture, delegating leadership roles, and building relationships with stakeholders (Angelle & DeHart, 2011; Palumbo & Manna, 2019). Distributed leadership further strengthens PLCs by empowering teachers and sharing responsibilities to enhance engagement and ownership (Kennedy et al., 2011; Spillane, Halverson, & Diamond, 2001). To ensure PLC goals are achieved, leaders must demonstrate empowering behaviors and establish supportive, shared leadership structures that sustain effective collaboration (Carpenter, 2015; Ho et al., 2019).

Complementing this perspective, Distributed Leadership Theory views leadership as a shared and collaborative process, distributing responsibilities across organizational roles (Spillane, 2006). This approach fosters trust and openness in school culture, supporting professional collaboration and learning (Harris, 2008). Principals act as facilitators, enabling teachers to lead within professional learning communities and aligning PLC goals with broader institutional objectives (Leithwood & Jantzi, 1999). Empowering teachers through autonomy, development, and capacity-building increases their engagement and ownership of PLC initiatives, promoting sustainable professional learning, better teaching practices, and school improvement (Gronn, 2002; Zhu, Yao, & Zhang, 2019).

This investigation is further supported by Wenger's (2000) Social Learning Theory, which views learning as a social and active engagement. This theory posits that communities of practice are essential for knowledge transfer and construction-based learning, requiring active participation in social processes (Yakhlef, 2010). Within PLCs, teachers and school leaders form a community of learners supported by effective leadership and a supportive school culture (Grissom, Egalite, & Lindsay, 2021; Huggins, Scheurich, & Morgan, 2011). Principals must foster environments for reflective discussions on teaching practices that enhance student learning (Bouchamma, April, & Basque, 2019; Hord & Sommers, 2008) and cultivate a culture supportive of change. As schools transform into PLCs, this conceptualization embeds in the culture, creating a structure to guide learning goals, strategies, and outcomes.

Despite the benefits of PLCs, research has yet to fully examine how school culture, leadership practices, and empowerment collectively influence their sustainability and effectiveness (Anderson & Olivier,

2022; Cirocki & Farrell, 2019; Kennedy, 2019; Miller, 2020). Studies often assess these factors independently, while Huijboom et al. (2019) highlight the lack of comprehensive PLC assessment tools. Given the context-dependent nature of PLCs, their success varies based on institutional settings, leadership, and culture (Ho, Lee, & Teng, 2019). This study addressed these gaps using a Structural Equation Modeling (SEM) framework to provide data-driven insights. As educational institutions increasingly sought evidence-based strategies for fostering teacher collaboration and instructional effectiveness, this research offered both theoretical contributions and practical guidance for policymakers, school leaders, and educators in sustaining effective PLCs.

The study's primary purpose was to determine the best-fit model for the professional learning community in the context of school culture, school heads' leadership practices, and their empowering behavior. Specifically, this study had the following objectives: to determine the level of school culture in terms of professional collaboration, affiliative collegiality, and self-determination/efficacy; to ascertain the level of school heads' leadership practices in challenging the process, inspiring a shared vision, enabling others to act, modeling the way, and encouraging the heart; to measure the level of their empowering behavior in delegation of duty, accountability, self-directed decision-making, information sharing, skill development, and coaching for innovative performance; to identify the level of professional learning community in terms of shared and supportive leadership, shared values and vision, collective learning, and application, shared personal practice, supportive conditions-relationships, and supportive conditions-structures.

Also, to determine the significant relationship between school culture and professional learning community, school heads' leadership practices and professional learning community, as well as empowering behavior and professional learning community; to determine the significant influence of school culture, school heads' leadership practices, and their empowering behavior on professional learning community. Lastly, to choose the best-fit model for the professional learning community in public elementary schools of the Davao Region based on school culture, school heads' leadership practices, and their empowering behavior. The following null hypotheses were tested at 0.05 significance: there is no significant relationship between school culture and professional learning community, school heads' leadership practices and professional learning community, and empowering behavior and professional learning community. There is no significant influence of school culture, school heads' leadership practices, and their empowering behavior on the professional learning community, and there is no best-fit model for the professional learning community in public elementary schools.

This study contributes to the global discourse on PLCs by bridging the gap between theory and practice, expanding research on collaborative professional development. Aligned with United Nations' Sustainable Development Goal (SDG) 4, it highlights how PLCs foster teacher collaboration, continuous learning, and equitable education. By providing empirical insights into the influence of school culture, leadership, and empowerment on PLC effectiveness, it offers evidence-based strategies for sustainable learning environments. It also informs educational policy, particularly DepEd's MATATAG Curriculum, supporting PLCs as a key strategy for enhancing teacher effectiveness and student learning. School heads can apply leadership strategies to strengthen collaboration, while teachers can leverage findings to improve instructional practices. Additionally, this study serves as a foundation for future research on PLC-related variables, leadership models, and school improvement.

2. Method

The study respondents were selected from the 27,902 public elementary school teachers of Region XI (Administrative Division, Department of Education Regional Office XI, 2024). From this population, a sample size of 379 was calculated using the online Raosoft calculator, a widely trusted tool in social science research known for its user-friendly interface and frequent application in various studies (Ronquillo, 2023). Although the generated sample size was only 379, the study included a total of 400 respondents in order to

meet the university's requirements. In the field of Structural Equation Modeling (SEM), it is generally recommended to have sample sizes of at least 400 in order to obtain reliable and unbiased estimates (Ranatunga, Priyanath, & Megama, 2020; Yahaya, Murtala, & Onukwube, 2019). The study employed a stratified random sampling technique to ensure that every individual in the target population had an equal opportunity to be selected, ensuring fairness and accurate representation (Mweshi & Sakyi, 2020).

The study followed well-defined selection criteria to ensure validity, including only public elementary school teachers in Region XI with at least two years of experience who provided informed consent. Newly hired teachers, those with less experience, and individuals outside the region were excluded for consistency in PLC evaluation. School heads, administrative staff, non-teaching personnel, parents, and students were also omitted to focus on teachers' perspectives. Schools with principals serving less than two years were excluded to ensure a sufficient leadership observation period. Participation was voluntary, allowing withdrawal without consequences, with replacements selected if necessary. Ethical standards were upheld by excluding respondents involved in misconduct, while individuals with health conditions or special needs were not considered to prioritize their well-being.

The study data were collected using four (4) adapted questionnaires. The first questionnaire focused on professional learning community as outlined in the Professional Learning Community Assessment of Olivier et al. (2010). The second questionnaire assessed school culture using the School Culture Triage Survey developed by Phillips and Wagner (2009). Based on the Leadership Practices Inventory by Kouzes and Posner (2017), the third questionnaire had thirty (30) items. Lastly, the fourth questionnaire was about empowering behavior based on the Leader Empowering Behavior Questionnaire developed by Konczak et al. (2000). Although previously utilized in numerous studies, the four survey questionnaires were modified to align with the local educational context, with terms refined for appropriateness and relevance. The revised instruments were expert-validated, receiving an overall average rating of 4.33, indicating an excellent assessment. Following validation, pilot testing was conducted with 30 public elementary school teachers to assess the instruments' reliability and validity.

In evaluating the levels of professional learning community, school culture, school heads' leadership practices, and their empowering behavior, the following five orderable gradations with their respective range of means and descriptions were considered: 4.20-5.00 which indicates very high with a descriptive interpretation of being always observed and/or manifested; 3.40-4.19 which indicates high with a descriptive interpretation of being often observed and/or manifested; 2.60-3.39 which indicates moderate with a descriptive interpretation of being sometimes observed and/or manifested; 1.80-2.59 which indicates low with a descriptive interpretation of being seldom observed and/or manifested; and 1.00-1.79 which shows very low with a descriptive interpretation of being rarely observed and/or manifested.

This study employed a quantitative, non-experimental research design with a descriptive-causal approach to examine relationships among variables without manipulation. This design is effective for analyzing real-world phenomena using descriptive, correlational, and causal-comparative methods (Creswell & Creswell, 2018). Structural Equation Modeling (SEM) was utilized to develop the best-fit model, as it is widely used in social science research for analyzing complex relationships among multiple variables (Memon, Ramayah, & Cheah, 2021). SEM enables the evaluation of direct and indirect causal relationships through factor and path analysis, providing a comprehensive understanding of interactions between observed and latent variables (Kang & Ahn, 2021). Model adequacy was assessed using fit indices, with CFI ≥ 0.95 , RMSEA ≤ 0.06 , and TLI ≥ 0.95 indicating a good fit (Hair et al., 2020).

Following the University of Mindanao's protocol, the Office of the Dean of the Professional Schools validated and approved the questionnaires before the study proceeded. Upon approval, the researcher drafted a letter requesting permission from the Regional Director of DepEd Region XI to conduct the study. After completing the required processes, the researcher was given an endorsement letter allowing him to administer the questionnaires to the respondents. The assistance of the schools' Administrative Officers was sought to identify potential respondents from whom informed consent was subsequently obtained. Following this, the

researcher wrote another letter for the respondents to participate in the study. Appended to the letter was a hard copy of the survey questionnaire and the Informed Consent Form signed by each respondent. The data collection for the study commenced in September 2024.

After retrieving the survey questionnaires, data were collated, tabulated, analyzed, and interpreted using statistical measures such as mean and standard deviation to describe both exogenous and endogenous variables. Pearson's correlation determined the significance of relationships between these variables, while linear regression identified factors influencing the dependent variable. To assess multivariate causal relationships, Structural Equation Modeling (SEM) was employed, allowing for an in-depth evaluation of interrelationships among hypothesized variables and the development of a best-fit model for professional learning communities. A goodness-of-fit standard criterion of 0.95 was applied to structural models. Ethical guidelines were strictly followed in compliance with the University of Mindanao Ethics and Review Committee (UMERC) under Protocol Number: UMER-2024-196 and the Data Privacy Act of 2012, ensuring voluntary participation, confidentiality, and data security.

3. Results and Discussion

In this section, the data collected from public elementary school teachers on school culture, leadership practices, empowering behavior, and professional learning community are presented.

3.1. School Culture

Depicted in Table 1 is the level of school culture in terms of professional collaboration, affiliative collegiality, and self-determination/efficacy. It obtained an overall mean score of 4.23 with a standard deviation of 0.55, which is very high. This means that the level of school culture is always observed. Among the indicators of school culture, professional collaboration obtained the highest mean score of 4.27 with a standard deviation of 0.58, which is described as very high. Conversely, affiliative collegiality achieved the lowest mean score of 4.20 with a standard deviation of 0.60, although still categorized as very high.

The very high descriptive levels on every indicator of school culture are due to the respondents' very high ratings on working together to develop the school schedule, telling stories of celebrations that support the school's values, and making instructional decisions rather than waiting for the school head to tell them what to do. These results imply that teachers actively engage in collective planning, reinforce institutional values through shared experiences, and exercise professional autonomy rather than relying solely on administrative directives. The high levels of collaboration and self-determination suggest that a well-established, participative school culture fosters professional growth, instructional effectiveness, and overall institutional success.

Table 1: Level of School Culture

Indicators	SD	Mean	Descriptive Level
Professional Collaboration	0.58	4.27	Very High
Affiliative Collegiality	0.60	4.20	Very High
Self-Determination/Efficacy	0.61	4.21	Very High
Overall	0.55	4.23	Very High

The very high level of school culture in public elementary schools aligns with the findings by Duan et al. (2018) and Sims (2020), who identified school culture as a key predictor of teachers' job satisfaction. Positive cultures foster collaboration, trust, and professional support, enhancing satisfaction and well-being. Similarly, Lee and Louis (2019) highlighted the role of strong cultures in building trust, promoting shared

goals, and driving higher performance. Yan-Li et al. (2020) further emphasized how cohesive cultures support teacher engagement, professional growth, and instructional improvement, underscoring school culture's centrality in educational success.

3.2. Leadership Practices

As shown in Table 2, leadership practices are measured by challenging the process, inspiring a shared vision, enabling others to act, modeling the way, and encouraging the heart. It obtained an overall mean score of 4.30 or labeled as very high, with a standard deviation of 0.58. This implies that the level of leadership practices is always manifested. Among the indicators of leadership practices, enabling others to act received the highest mean score of 4.39 with a standard deviation of 0.58, described as very high. Conversely, challenge the process obtained the lowest mean score of 4.24 with a standard deviation of 0.61, although still labeled very high.

The very high descriptive levels across all indicators of leadership practices by school heads can be linked to the respondents' consistent emphasis on embracing challenging opportunities that test their skills and abilities. Additionally, these leaders speak with sincere conviction about their work's deeper meaning and purpose, treat individuals with dignity and respect, foster consensus around core organizational values, and openly acknowledge those who demonstrate a strong commitment to these shared values. These findings suggest robust leadership practices are key to fostering a supportive and engaged school environment. This, in turn, boosts teacher motivation, strengthens institutional cohesion, and significantly enhances overall educational effectiveness.

Table 2: Level of Leadership Practices

Indicators	SD	Mean	Descriptive Level
Challenge the Process	0.61	4.24	Very High
Inspire a Shared Vision	0.60	4.25	Very High
Enable Others to Act	0.62	4.39	Very High
Model the Way	0.67	4.26	Very High
Encourage the Heart	0.62	4.35	Very High
Overall	0.58	4.30	Very High

The very high level of leadership practices among school heads aligns with the findings of Darling-Hammond (2021), Fullan (2023), and Lee and Kuo (2019), highlighting the importance of inspiring vision, enabling collaboration, and fostering teacher commitment. Similarly, Bagwell (2019) emphasized the transformative impact of shared leadership in promoting accountability, collaboration, and teacher ownership of school improvement, underscoring the critical role of effective and distributed leadership in driving educational success.

3.3. Empowering Behavior

Presented in Table 3 is the level of empowering behavior as determined by delegation of authority, accountability, self-directed decision making, information sharing, skill development, and coaching for innovative performance. It obtained an overall mean score of 4.30 or categorized as very high, with a standard deviation of 0.58. This suggests that the level of empowering behavior is always manifested. Among the indicators of empowering behavior, accountability got the highest mean score of 4.38 with a standard deviation of 0.61, described as very high. Conversely, coaching for innovative performance obtained the lowest mean score of 4.25 with a standard deviation of 0.69, although still classified as very high.

The very high ratings given by the respondents to each indicator of school heads' empowering behavior account for the very high descriptive levels. The items that received very high ratings include giving the authority to make decisions that improve work processes and procedures, giving the authority to make changes necessary to improve things, being accountable for the work assigned, encouraging to develop their own solutions to problems encountered at work, sharing information needed to ensure high-quality results, ensuring that continuous learning and skill development are prioritized in school, and focusing on corrective action rather than placing blame when mistakes are made. These results imply that empowering leadership strengthens teacher autonomy, professional confidence, and institutional efficiency, ultimately fostering a collaborative and high-performing school environment.

Table 3: Level of Empowering Behavior

Indicators	SD	Mean	Descriptive Level
Delegation of Authority	0.63	4.30	Very High
Accountability	0.61	4.38	Very High
Self-Directed Decision Making	0.65	4.29	Very High
Information Sharing	0.68	4.30	Very High
Skill Development	0.67	4.26	Very High
Coaching for Innovative Performance	0.69	4.25	Very High
Overall	0.58	4.30	Very High

The very high level of empowering behavior aligns with the findings of Kim and Beehr (2023) and Zhu et al. (2019), who highlighted how empowering leadership fosters innovative behaviors through psychological empowerment in professional learning communities. Empowered teachers are motivated to adopt creative solutions, challenge traditional methods, and enhance learning outcomes. Similarly, Autin et al. (2021) and Cheong et al. (2019) emphasized that granting teachers greater autonomy deepens their initiative and investment, reinforcing leadership's role in cultivating motivation and innovation. Moreover, Jung et al. (2020) and Kim and Beehr (2021) demonstrated that empowering leadership drives engagement, motivation, and innovation across various contexts.

3.4. Professional Learning Community

Reflected in Table 4 is the level of professional learning community across the dimensions of shared and supportive leadership, shared values and vision, collective learning and application, shared personal practice, supportive conditions-relationships, and supportive conditions-structures. It obtained an overall mean score of 4.33 or categorized as very high, with a standard deviation of 0.51. This signifies that the level of professional learning community is always observed. Among the indicators of professional learning community, shared values and vision recorded the highest mean score of 4.39 with a standard deviation, described as very high. Conversely, supportive conditions-structures received the lowest mean score of 4.21 with a standard deviation of 0.58, although still marked as very high.

The very high descriptive levels on every indicator of professional learning community are due to the respondents' very high ratings. Among the items that were given very high ratings include school head promoting and nurturing leadership among teachers, aligning policies and programs to school's vision, teachers participating in professional development programs that are focused on teaching and learning, informally sharing ideas and suggestions for improving student learning, caring relationships exist among teachers and students that are built on trust and respect, and communication systems promoting a flow of information among teachers. These results imply that a well-established PLC fosters a collaborative teaching environment, strengthens instructional effectiveness, and enhances overall school performance.

Table 4: Level of Professional Learning Community

Indicators	SD	Mean	Descriptive Level
Shared and Supportive Leadership	0.57	4.32	Very High
Shared Values and Vision	0.56	4.39	Very High
Collective Learning and Application	0.54	4.38	Very High
Shared Personal Practice	0.59	4.33	Very High
Supportive Conditions-Relationships	0.60	4.32	Very High
Supportive Conditions-Structures	0.58	4.21	Very High
Overall	0.51	4.33	Very High

The very high level of professional learning community (PLC) is congruent with studies by Hargreaves (2021) and Podolsky et al. (2019), highlighting how PLCs foster collaboration, professional growth, and instructional effectiveness to improve student outcomes through evidence-based practices. The strong alignment in shared values and vision (DuFour & Eaker, 2020; Kioupi & Voulvoulis, 2019) supports collective efforts toward shared goals, while the high level in collective learning and application underscores the importance of collegial study, reflective dialogue, and collaborative problem-solving (De Jong & Admiraal, 2019) in driving continuous improvement.

3.5. Significance of the Relationship between School Culture and Professional Learning Community

Displayed in Table 5.1 are the test results of the relationship between school culture and the professional learning community of public elementary schools in the Davao Region. As indicated in the hypothesis, the relationship was tested at a .05 level of significance. The overall R-value of .884 with a p-value of less than .05 indicated that the null hypothesis was rejected. This result indicates a significant relationship between school culture and the professional learning community of public elementary schools in the Davao Region. The correlation coefficient, $r = .884$, further supports this strong relationship, highlighting that school culture is closely linked to the professional learning community.

Table 5.1: Significance of the Relationship between School Culture and Professional Learning Community of Public Elementary Schools in Davao Region

School Culture	Professional Learning Community						Overall
	Shared and Supportive Leadership	Shared Values and Vision	Collective Learning and Application	Shared Personal Practice	Supportive Conditions-Relationships	Supportive Conditions-Structures	
Professional	.648**	.694**	.728**	.753**	.732**	.796**	.816**
Collaboration	.000	.000	.000	.000	.000	.000	.000
Affiliative	.695**	.691**	.728**	.698**	.740**	.796**	.815**
Collegiality	.000	.000	.000	.000	.000	.000	.000
Self-Determination / Efficacy	.650**	.705**	.685**	.697**	.731**	.762**	.794**
	.000	.000	.000	.000	.000	.000	.000
Overall	.727**	.762**	.780**	.782**	.803**	.857**	.884**
	.000	.000	.000	.000	.000	.000	.000

The rejection of the null hypothesis confirms that school culture plays a crucial role in shaping and

sustaining PLCs. This implies that a positive and well-established school culture fosters collaboration, shared values, and continuous professional development among teachers, ultimately enhancing instructional effectiveness and student learning outcomes. Additionally, the significant relationship across all indices of school culture suggests that a supportive, collegial, and vision-driven environment strengthens PLC engagement, leading to overall school improvement.

The results accept Vygotsky's (1978) Social Development Theory, emphasizing peer collaboration, shared knowledge construction, and social interaction as key drivers of learning, which aligns with the study's findings that affiliative collegiality and professional collaboration significantly predict PLC effectiveness. Furthermore, the study reinforces Vygotsky's assertion that a strong school culture fosters teacher collaboration and sustained engagement, ultimately enhancing professional growth and instructional improvement. These findings also affirm the arguments of Kolleck et al. (2021) and Othman et al. (2019) that a successful PLC is built on a culture of collaboration, inclusivity, and continuous reflection to improve learning outcomes. Similarly, research highlights the importance of a shared vision in PLC development (Beddoes et al., 2020), aligning with DuFour et al. (2016), who emphasize that a shared vision is fundamental to cultivating a collaborative PLC culture, driving professional growth, and enhancing student achievement.

3.6. Significance of the Relationship between Leadership Practices and Professional Learning Community

Presented in Table 5.2 are the results of the test of the relationship between leadership practices and the professional learning community of public elementary schools in the Davao Region. As indicated in the hypothesis, the relationship was tested at .05 level of significance. The overall r-value of .804 with a p-value less than .05 indicated that the null hypothesis was rejected. It can be deduced that there is a significant relationship between leadership practices and professional learning community of public elementary schools in Davao Region.

Table 5.2: Significance of the Relationship between Leadership Practices and Professional Learning Community of Public Elementary Schools in Davao Region

Leadership Practices	Professional Learning Community						Overall
	Shared and Supportive Leadership	Shared Values and Vision	Collective Learning and Application	Shared Personal Practice	Supportive Conditions-Relationships	Supportive Conditions-Structures	
Challenge the Process	.746** .000	.708** .000	.673** .000	.649** .000	.661** .000	.746** .000	.784** .000
Inspire a Shared Vision	.734** .000	.684** .000	.627** .000	.603** .000	.605** .000	.691** .000	.739** .000
Enable Others to Act	.717** .000	.670** .000	.658** .000	.591** .000	.655** .000	.646** .000	.738** .000
Model the Way	.731** .000	.677** .000	.604** .000	.565** .000	.611** .000	.661** .000	.721** .000
Encourage the Heart	.704** .000	.655** .000	.616** .000	.587** .000	.632** .000	.651** .000	.721** .000
Overall	.789** .000	.737** .000	.690** .000	.650** .000	.687** .000	.737** .000	.804** .000

The rejection of the null hypothesis suggests that effective leadership practices are essential in

fostering and sustaining PLCs. This implies that school heads who exhibit strong leadership, promoting collaboration, shared vision, and professional growth, create an environment conducive to active teacher engagement in PLCs. Additionally, the positive correlation across all leadership indicators highlights that leaders who empower teachers, support innovation, and foster trust significantly enhance PLC effectiveness, ultimately leading to improved instructional quality and student outcomes.

The results accept Distributed Leadership Theory, which posits that leadership should be shared across school personnel to foster collaboration and teacher empowerment (Spillane, 2006). Supporting this, the study confirms that principals who delegate leadership roles and promote shared decision-making cultivate more engaged and effective PLCs, reinforcing that shared leadership and empowerment enhance PLC sustainability and teacher engagement. Furthermore, these findings align with Espinola (2023) and Zhang et al. (2020), who emphasize that leadership practices shape PLC formation at both the school and teacher levels, directly influencing teacher commitment. This underscores the critical role of principals in establishing effective school systems through strategic leadership practices, policy implementation, and collaborative decision-making, ultimately creating the conditions necessary for PLCs to thrive.

3.7. Significance of the Relationship between Empowering Behavior and Professional Learning Community

Displayed in Table 5.3 are the results of the test of the relationship between empowering behavior and the professional learning community of public elementary schools in the Davao Region. As indicated in the hypothesis, the relationship was tested at a .05 significance level. The overall r-value of .785 with a p-value less than .05 indicated that the null hypothesis was rejected. This suggests a significant relationship between empowering behavior and the professional learning community of public elementary schools in the Davao Region.

Table 5.3: Significance of the Relationship between Empowering Behavior and Professional Learning Community of Public Elementary Schools in Davao Region

Empowering Behavior	Professional Learning Community						Overall
	Shared and Supportive Leadership	Shared Values and Vision	Collective Learning and Application	Shared Personal Practice	Supportive Conditions-Relationships	Supportive Conditions-Structures	
Delegation of Authority	.666** .000	.619** .000	.587** .000	.623** .000	.615** .000	.622** .000	.700** .000
Accountability	.570** .000	.605** .000	.609** .000	.608** .000	.634** .000	.597** .000	.680** .000
Self-Directed Decision Making	.644** .000	.615** .000	.613** .000	.652** .000	.652** .000	.628** .000	.714** .000
Information Sharing	.656** .000	.608** .000	.606** .000	.640** .000	.639** .000	.671** .000	.717** .000
Skill Development	.655** .000	.624** .000	.584** .000	.595** .000	.598** .000	.636** .000	.692** .000
Coaching for Innovative Performance	.680** .000	.603** .000	.594** .000	.617** .000	.576** .000	.604** .000	.689** .000
Overall	.726** .000	.688** .000	.673** .000	.700** .000	.695** .000	.704** .000	.785** .000

The rejection of the null hypothesis suggests that school heads who demonstrate empowering behaviors, such as delegation, accountability, and support for professional autonomy, enhance PLC engagement. This implies that when teachers are empowered with decision-making authority, access to resources, and opportunities for professional growth, they become more actively involved in collaborative learning communities. Additionally, the strong correlation across all dimensions of empowering behavior highlights its critical role in fostering teacher motivation, professional collaboration, and instructional improvement, ultimately contributing to a more dynamic and effective learning environment.

The results accept Wenger's (2000) Social Learning Theory, which posits that learning occurs through active participation in communities of practice. Consistent with this, the study confirms that empowering teachers with autonomy, leadership roles, and collaborative opportunities enhances PLC sustainability and effectiveness. Supporting DuFour et al. (2020), the findings emphasize that leaders' empowering behaviors, particularly shared leadership and leadership capacity development, are critical to PLC success. These behaviors are evident when principals actively distribute authority and foster a collaborative school improvement process, effectively leveraging and enhancing teachers' capabilities (Dai, 2022; Hassan et al., 2019; Voelkel Jr., 2019). Thus, the study reinforces Wenger's assertion that social interaction, collaboration, and shared leadership are essential to professional learning and growth.

3.8. Significance of the Influence of School Culture, Leadership Practices and Empowering Behavior on Professional Learning Community of Public Elementary School in Davao Region

Shown in Table 6 is the influence of school culture, leadership practices and empowering behavior on professional learning community of public elementary schools in Davao Region. The regression model, indicated by an F-value of 604.718 and a corresponding p-value of .000, is statistically significant. This result leads to the rejection of the null hypothesis, suggesting that one or more of these variables can predict professional learning community among public elementary schools.

Table 6: Significance of the Influence of School Culture, Leadership Practices and Empowering Behavior on the Professional Learning Community of Public Elementary School in Davao Region

Professional Learning Community				
(Variables)		B	B	T
Constant		.579		6.505
School Culture		.586	.628	18.199
Leadership Practices		.174	.196	3.989
Empowering Behavior		.122	.138	2.926
R	.906			
R ²	.821			
ΔR	.819			
F	604.718			
p	.000			

The rejection of the null hypothesis suggests that these variables are strong predictors of PLC engagement and sustainability. This implies that a positive school culture, effective leadership, and empowering behavior create an environment conducive to collaboration, shared learning, and professional growth among teachers. Consequently, enhancing these factors can lead to more effective PLC implementation, improved teaching practices, and better student outcomes.

Additionally, the R^2 value of .821 indicates that 82.1 percent of the variance in the professional learning community is accounted for by the predictor variables – school culture, leadership practices, and empowering behavior. The substantial proportion suggests that these factors collectively strongly influence PLC dynamics. The remaining 17.9 percent of variance, however, may be attributed to other factors not captured within the model, such as teacher motivation, leadership adaptability, and institutional support mechanisms. This suggests that while school culture, leadership practices, and empowering behavior are significant contributors, additional variables may also play a role in explaining variations in PLC effectiveness. Further, the presentation revealed that school culture holds the highest standard coefficient ($\beta=.628$) among the predictor variables, indicating that it has the strongest influence on the professional learning community in public elementary schools. In comparison, leadership practices ($\beta=.196$) and empowering behavior ($\beta=.138$) exhibit lower, yet positive, impacts. These results highlight the predominant role of school culture in fostering and sustaining effective professional learning communities relative to the other factors examined.

The combined influence of school culture, leadership practices, and empowerment significantly impacts PLC success, with school culture emerging as the most influential factor. This aligns with Lee and Louis (2019), who found that strong school cultures foster trust, collaboration, and effective leadership, leading to sustainable improvements. A well-established culture provides the foundation for meaningful professional collaboration, where shared values, collective goals, and mutual accountability drive engagement. It also promotes open communication, reflective practice, and continuous learning, ensuring long-term PLC success. By shaping professional interactions, leadership dynamics, and decision-making, a strong school culture sustains collaboration, fosters innovation, and enhances teaching practices and student outcomes.

Best Fit Model of Professional Learning Community

This part examines the interrelationships among the variables in the study. Three models were generated to obtain the best-fit model for a professional learning community of public elementary schools. The models were assessed against the given fit indices and served as a basis to accept or reject the model.

Table 7: Summary of Goodness of Fit Measures of the Three Generated Models

Model	P-value (>0.05)	CMIN / DF ($0 < \text{value} < 2$)	GFI (>0.95)	CFI (>0.95)	NFI (>0.95)	TLI (>0.95)	RMSEA (<0.05)	P-close (>0.05)
1	.000	10.931	.726	.825	.812	.801	.157	.000
2	.000	6.950	.792	.897	.882	.881	.122	.000
3	.082	1.378	.983	.998	.992	.995	.031	.929

Legend: CMIN/DF – Chi Square/Degrees of Freedom

NFI – Normed Fit Index

GFI – Goodness of Fit Index

TLI – Tucker-Lewis Index

RMSEA – Root Mean Square of Error Approximation

CFI – Comparative Fit Index

Revealed in Table 7 are the goodness-of-fit results for the three generated models. Models 1 and 2 were not a good fit due to their failure to meet the acceptable goodness-of-fit criteria. Model 1 exhibited a high chi-square to degrees of freedom ratio (CMIN/DF = 10.931), indicating a poor model fit, while its Goodness of Fit Index (GFI = .726), Comparative Fit Index (CFI = .825), and Root Mean Square Error of Approximation (RMSEA = .157) fell outside acceptable thresholds. Similarly, Model 2, though an improvement, still had CMIN/DF = 6.950, with GFI (.792), CFI (.897), and RMSEA (.122) failing to meet standard fit indices. The p-values of both models were .000, further confirming that they do not adequately represent the data.

Meanwhile, Generated Model 3 met all the specified criteria for model fit across all indices. As

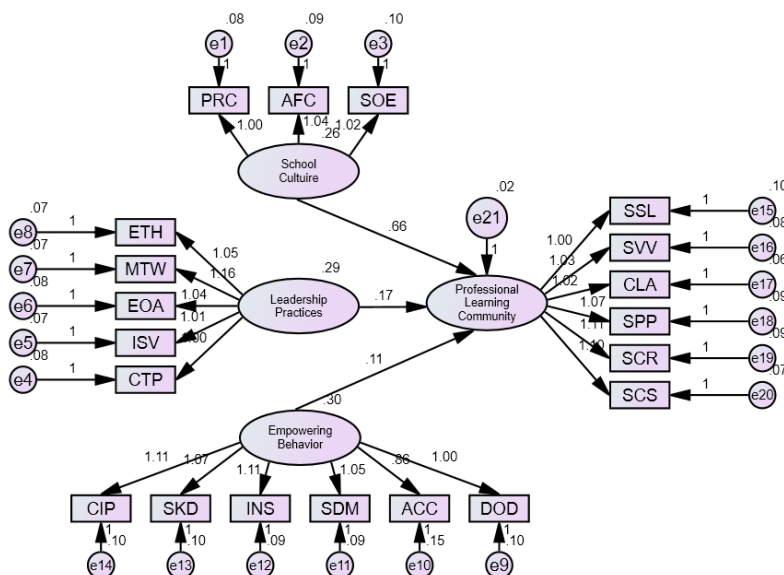
displayed above, it obtained a p-value of .082, a CMIN/DF of 1.378, a Goodness of Fit Index (GFI) of .983, a Comparative Fit Index (CFI) of .998, a Normed Fit Index (NFI) of .992, a Tucker-Lewis Index (TLI) of .995, an RMSEA of .031, and a P-Close of .929. These fit indices collectively meet the required thresholds, indicating that Model 3 is regarded as the best-fit model. Consequently, all exogenous variables are appropriately incorporated, supporting Model 3 as the most suitable framework for examining the professional learning community in public elementary schools in the Davao Region.

Table 8: Regression Weights of the 3 Generated Models

Model	Exogenous Variables to Endogenous Variable		
	School Culture	Leadership Practices	Empowering Behavior
1	.655***	.170***	.112***
2	.687***	.054 ^{NS}	.188**
3	.639***	.289**	.015 ^{NS}

* $p < .05$, ** $p < .01$, *** $p = .000$

In Generated Structural Model 1, all three exogenous variables – school culture, leadership practices, and empowering behavior – significantly positively affect the endogenous variable. As presented in Table 8, school culture has the most substantial influence ($\beta = .655$, $p = .000$), underscoring its critical role, while leadership practices ($\beta = .170$, $p = .000$) and empowering behavior ($\beta = .112$, $p = .000$) contribute positively, albeit to a lesser extent.



Legend:

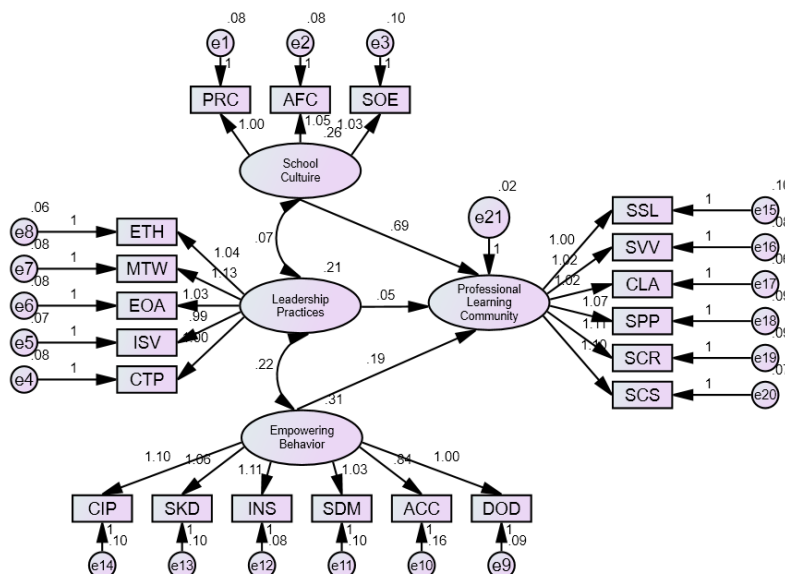
PRC- Professional Collaboration
AFC- Affiliative Collegiality
SDE- Self-Determination/Efficacy
CTP- Challenge the Process
ISV- Inspire a Shared Vision
EOA- Enable Others to Act

ETH- Encourage the Heart
DOD- Delegation of Authority
ACC- Accountability
SDM- Self-Directed Decision Making
INS- Information Sharing
SKD- Skill Development

SSL- Shared and Supportive Leadership
SVV- Shared Values and Vision
CLA- Collective Learning and Application
SPP- Shared Personal Practice
SCR- Supportive Conditions-Relationships
SCS- Supportive Conditions-Structures

Figure 2: Model 1 in Standard Solution

Meanwhile, in Generated Structural Model 2, school culture is still the strongest predictor ($\beta=.687$, $p=.000$), as shown in Table 8, emphasizing its importance in shaping the outcome. Empowering behavior also shows a positive, significant effect ($\beta=.188$, $p<.01$), while leadership practices are non-significant ($p>.05$), indicating a diminished role in the presence of school culture and empowering behavior. This model suggests that school culture and empowering behavior are the primary drivers, with leadership practices contributing minimally in this context.



Legend:

PRC- Professional Collaboration
AFC- Affiliative Collegiality
SDE- Self-Determination/Efficacy
CTP- Challenge the Process
ISV- Inspire a Shared Vision
EOA- Enable Others to Act

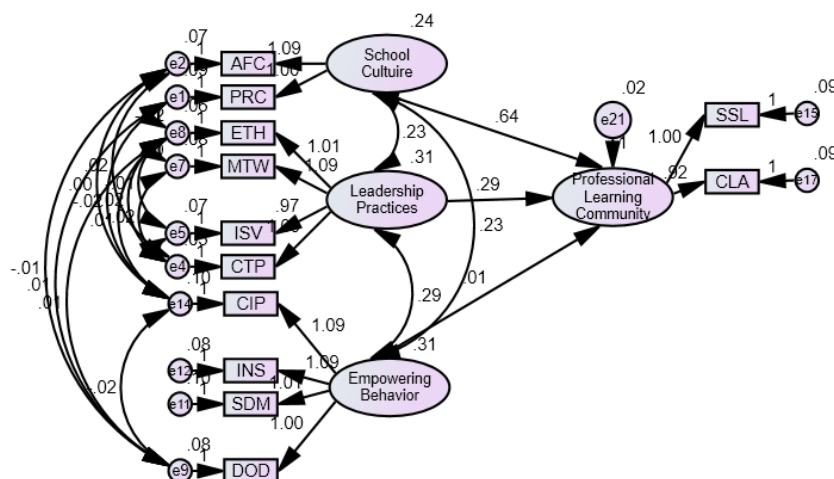
ETH- Encourage the Heart
DOD- Delegation of Authority
ACC- Accountability
SDM- Self-Directed Decision Making
INS- Information Sharing
SKD- Skill Development

SSL- Shared and Supportive Leadership
SVV- Shared Values and Vision
CLA- Collective Learning and Application
SPP- Shared Personal Practice
SCR- Supportive Conditions-Relationships
SCS- Supportive Conditions-Structures

Figure 3: Model 2 in Standard Solution

In Generated Structural Model 3, school culture remains a strong predictor ($\beta=.639$, $p=.000$), as depicted in Table 8, though with slightly reduced influence compared to previous models. Leadership practices have a more prominent effect ($\beta=.289$, $p<.01$), indicating an increased impact on the outcome, while empowering behavior is non-significant ($p>.05$). These values indicate that Figure 4 is the best-fit model to account for a professional learning community of public elementary schools in Davao Region.

Reflected in Figure 4 is the standard estimates of Generated Model 3, highlighting the significant impact of school culture on professional learning community. This result underscores the pivotal role of fostering a collaborative and collegial environment to enhance the effectiveness of PLCs. Notably, within the construct of school culture, affiliative collegiality and professional collaboration emerge as critical components, exhibiting high factor loadings. These components emphasize the value of teamwork and collegial relationships in strengthening PLCs and promoting an environment conducive to shared learning and professional growth.



Legend:

PRC- Professional Collaboration
AFC- Affiliative Collegiality
SDE- Self-Determination/Efficacy
CTP- Challenge the Process
ISV- Inspire a Shared Vision
EOA- Enable Others to Act

ETH- Encourage the Heart
DOD- Delegation of Authority
ACC- Accountability
SDM- Self-Directed Decision Making
INS- Information Sharing
SKD- Skill Development

SSL- Shared and Supportive Leadership
SVV- Shared Values and Vision
CLA- Collective Learning and Application
SPP- Shared Personal Practice
SCR- Supportive Conditions-Relationships
SCS- Supportive Conditions-Structures

Figure 4: Best Fit Model in Standard Solution

Meanwhile, leadership practices also positively influence PLC development but to a lesser degree. Indicators such as encourage the heart, model the way, inspire a shared vision, and challenge the process highlight that supportive, visionary leadership contributes meaningfully to PLC outcomes, though it plays a secondary role compared to school culture. Interestingly, empowering behavior shows no significant direct effect on PLC, suggesting that empowerment alone may not be sufficient to drive PLC effectiveness without supportive cultural and leadership frameworks. However, empowering behavior dimensions like coaching for innovative performance, information sharing, self-directed decision making, and delegation of authority have strong loadings, indicating their relevance within their own construct.

In summary, the fit statistics confirm that Model 3 accurately represents the observed data, highlighting school culture and leadership practices as key drivers of PLC effectiveness. While school heads' empowering behaviors provide additional value, their impact depends on supportive school culture and leadership practices. These findings emphasize the importance of culture-building and supportive leadership as foundational elements for fostering effective PLCs. This conclusion aligns with existing research by Donohoo et al. (2020), Eaker and Marzano (2020), Goos and Martin (2019), Ho et al. (2020), and Zhang and Koshmanova (2021), which underscores the critical interplay between school culture, leadership practices, and empowering behaviors in sustaining collaboration, shared purpose, and long-term success within PLCs.

4. Conclusion and Recommendation

The findings revealed that public elementary school teachers in Davao Region perceive school culture, leadership practices, empowering behavior, and professional learning community as very high. When correlated, it showed significant positive relationships between school culture, leadership practices, empowering behavior, and the professional learning community in public elementary schools of Davao

Region. This finding indicates that the three exogenous variables are significant predictors of the effectiveness of professional learning communities. Additionally, school culture, leadership practices, and empowering behaviors significantly influence professional learning community in public elementary schools of Davao Region. Among these factors, school culture had the greatest influence, followed by leadership practices and empowering behaviors.

The findings accept Vygotsky's (1978) Social Development Theory, emphasizing the importance of collaborative leadership in fostering effective PLCs. Principals foster and maintain a collaborative school culture by delegating leadership, building strong stakeholder relationships, and creating supportive structures. Similarly, the findings accept the theory of Distributed Leadership, which aligns the study's results by portraying leadership as a collaborative and evolving process that builds and sustains a strong school culture (Spillane, 20026). When principals share responsibilities and provide autonomy and development opportunities, teachers then take ownership of PLC initiatives (Gronn, 2002; Zhu et al., 2019). This empowerment not only enhances sustainable learning and teaching practices but also drives meaningful school improvement, achieving the ultimate goals of PLCs. Lastly, the findings accept Wenger's (2000) Social Learning Theory, reinforcing the notion that effective leadership and a supportive school culture contribute to thriving PLCs, where teachers and school leaders function as a community of learners, engage in reflective discussions, and promote a culture of continuous improvement.

Although school culture, leadership practices, empowering behavior, and professional learning community were described as very high, targeted improvements remain essential to further enhance their effectiveness and sustainability. In particular, despite the very high School Culture, strengthening Affiliative Collegiality can foster deeper faculty connections. The sub-indicator, Teachers and staff visit/talk/meet outside of the school to enjoy each other's company, recorded the lowest mean score, highlighting the need for informal engagement. To address this, school heads should implement structured social activities, while DepEd Regional XI, through the Human Resource Development Division (HRDD) should allocate funding and provide guidelines for PLC integration. The Schools Division Superintendent (SDS) should mandate quarterly community-building events, and school administrators, in collaboration with local government units (LGUs) and stakeholders, should establish a Faculty Engagement Fund to sustain these initiatives. Strengthening collegiality will create a more cohesive and supportive school environment.

While the level of Leadership Practices is very high, Challenge the Process must be strengthened to foster continuous learning and innovation. The sub-indicators, Actively searches for innovative ways to improve what we do, and Asks "What can we learn?" when things do not go as expected, recorded the lowest mean scores, emphasizing the need for a reflective and innovation-driven approach. School heads should establish PLCs for action research, while DepEd Regional XI, through HRDD, should provide training in design thinking, reflective practice, and adaptive leadership. The SDS should integrate innovation-sharing sessions into Learning Action Cell (LAC) meetings, and school administrators, in partnership with DepEd's Educational Technology (EdTech) Unit and private stakeholders, should lead digital transformation initiatives. These efforts will equip teachers with the skills to embrace change and enhance student learning outcomes.

To sustain the very high level of Empowering Behavior, greater emphasis on fostering a risk-taking culture is needed in Coaching for Innovative Performance. The sub-indicator, Is willing to risk mistakes on my part if, over the long term, I will learn and develop as a result of the experience, recorded the lowest mean score, indicating the need for stronger support systems. School heads should implement mentoring and coaching programs, while DepEd Regional XI should provide professional development on instructional coaching and risk-taking. The SDS should integrate innovation-focused LAC sessions, and school administrators, in collaboration with DepEd's EdTech Unit and private organizations, should facilitate action research grants. Strengthening these initiatives will foster an environment where educators confidently embrace innovation and instructional improvement.

With PLCs at a very high level, reinforcing Supportive Conditions-Structures is essential for better

resource and technology access. The sub-indicator, Appropriate technology and instructional materials are available to teachers, recorded the lowest mean score, emphasizing resource limitations. School heads should conduct needs assessments, while DepEd Regional XI, through Learning Resources Management and Development System (LRMDS), should allocate funds for modern instructional materials, digital tools, and educational software. The SDS should integrate technology-enhanced learning into the School Improvement Plan (SIP), and school administrators, in collaboration with DepEd's EdTech Unit and private donors, should provide technology-driven professional development. Strengthening these initiatives will ensure sustainable PLC implementation and enhanced teaching and learning outcomes.

To validate the very high results of the study, future research should incorporate triangulation methods, integrating qualitative methods such as interviews, focus groups, and classroom observations. This will enhance data validity and provide deeper insights into PLC implementation. Additionally, the study should expand its scope to include public secondary schools and institutions in other regions. Investigating schools with sustained PLC success can provide best practices and generate evidence-based recommendations for improving PLC effectiveness and sustainability. Moreover, further research should explore other variables influencing PLC implementation and long-term viability, such as teacher motivation, leadership adaptability, and institutional support mechanisms.

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