

A Causal Model on Professional Learning Communities in Relation to Team Effectiveness, School Culture and Community of Inquiry in the Context of Public Elementary Schools

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Abstract

This quantitative study established the best fit model for professional learning communities in public elementary schools with team effectiveness, school culture and community of inquiry as exogenous variables. This research used descriptive correlational research design employing survey method with 400 teachers in public elementary schools in Davao Region in the Philippines identified through stratified random technique. The adopted and modified questionnaires which were tested for content validity and reliability were administered either in-person or google forms. This descriptive and causal research used the following statistical tools to treat data; mean, standard deviation, Pearson product-moment correlation, linear regression, and structural equation modelling. Findings revealed very high level of team effectiveness, school culture, community of inquiry and professional learning communities. Moreover, the independent variables, team effectiveness, school culture, and community of inquiry showed significant relationship with the dependent variable, professional learning communities. The study also indicated that the three exogenous variables significantly predict the outcomes of professional learning communities. It also generated 5 models to determine the best fit model. Model 5 successfully passed the conventions of a reasonable fit. Hence, Model 5 is the best fit model for professional learning communities. In the model, several indicators were retained; team effectiveness is defined through purpose and goals, problem solving, and skills and learning, while school culture through teacher collaboration and collaborative leadership, and community of inquiry through cognitive, social, and teaching presences.

Keywords: education, professional learning communities, team effectiveness, school culture, community of inquiry, structural equation model, Philippines

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1. Introduction

Intensifying professional learning communities among teachers helps them acquire array of skills and knowledge in improving teaching-learning practices contingent to improve learning outcomes. However, limited research has been conducted on how professional learning communities (PLCs) are developed and how teachers learn collectively, despite numerous studies done on PLCs and their impacts on school improvements (Johannesson, 2022). In fact, the collaboration practices being identified as an impactful strategy in professional development showed low rating participation of 40% among teachers in forty-eight (48) participating countries and economies in the 2018 Teaching and Learning International Survey (TALIS) because of overlapping activities and absence of incentives (Organisation for Economic Co-operation and Development (OECD), 2019). Moreover, unsupported conditions (Chua et al., 2020; Jones, 2020), lack of constant support from school leaders and unsteady implementation of professional learning communities (Johnson, 2021) in Malaysia, Singapore, Philippines, and Finland challenge the implementation of professional learning communities in schools.

Amid these problems lie the undeniable truths on how professional developments impact learning outcomes which urges the need to improve professional learning communities. Professional learning communities (PLCs) is a form of professional development practice which is built upon a culture of collaboration within a group of educators who share teaching practices to hone skills innovate and improve means of teaching directed towards a common goal which is to help students learn (Serviss, 2023). Evidence pointed out that when schools thoroughly implement PLCs practices, teachers acquired strategies needed to promote students' creativity and innovation ability (Patphol, 2022) and improved teaching practices which resulted to increased student achievement (Dogans & Adams, 2018; Tucker & Quintero-Ares, 2021, White-Jeffries, 2022). In addition, a steady and continuous implementation of PLCs also helped teachers implement learned concepts (Johnson, 2021).

This positive contribution is highlighted in this study, where team effectiveness (TE), school culture (SC) and community of inquiry (CoI) are believed to intensify successful implementation of PLCs. Team effectiveness adheres to the ability of a team to achieve better performance through the attainment of aligned and unified goals. The willingness shown by the team emanates from the synergy shown as they perform tasks with their group (Puente-Palacios & Barouh, 2021). On the other hand, school culture is built upon the context of collaboration through positive leadership (Sutarsih and Saud, 2019). This produces a repertoire of skills on

teaching practices among colleagues (Methlagl, 2022). While CoI promotes collaboration, critical thinking, and knowledge construction through online teaching and learning with the interrelations of teaching, social and cognitive presences (Zhang, 2020).

Along these lines, Seaton (2019) revealed that there was a direct and significant relationship between team effectiveness and professional learning communities. Building trust and establishing good rapport ignites teachers to share and confide work difficulties and challenges among colleagues. Teachers feel safe, which prompts them to take part in diverse discussions and in return learn practices that will improve teaching practices (Akinyemi et al,2020). Sharing mission, vision, values, purposes, and goals of their PLCs activities to their teachers (Jones,2020), and establishing open communication between the organizers and participants contributed to the effectiveness of the team further aided in the successful implementation of PLCs (Seaton,2019).

Another variable that shows strong connection to professional learning communities is school culture. A recent study conducted by Guhao and Sioting (2023) discovered a strong linkage with school culture and professional learning communities. The development of school culture that brings about effective implementation of PLCs emerged in both qualitative studies conducted by Sims (2022) and Bryd-King (2018) in some rural schools in Georgia and quantitative research in Finland (Antinluoma et al, 2018). In addition, recent mixed-method research revealed that a culture of collaboration improves instructional practices among teachers. Teachers come together to discuss ways to improve teaching and learning practices and being at the same level and in the same proximity provides opportunities for collaboration that help them learn and find support system in their field (Howard,2022).

Meanwhile, the outcome of the study conducted by Wang and Zhang (2023) claims that there is a strong connection between teachers' online learning quality following the frameworks of community of inquiry and professional learning communities. The findings of this study support the assertion of the meta-analysis research conducted by Martin, Wu, Wan, and Xie (2022) on the frameworks of community inquiry and the learning outcomes both in online and blended learning environments. Accordingly, the three presences had significant relationships between satisfaction, actual learning, and perceived learning. Although the three presences recorded variations of effects, they have contributed to the satisfaction and learning outcomes in both online and blended learning environments. The significant relationship that existed in teaching presence with satisfaction and actual learning in this study is consistent with the findings of Caskurlu et al (2020) who found moderately strong correlation between teaching presence and satisfaction.

Although professional learning communities is identified as one of the currently popular models in delivering professional development to teachers, studies are widely conducted in foreign countries (Ho, Ong, & Tan, 2019). Little is known on how these variables, team effectiveness, school culture and community of inquiry affect the implementation of professional learning communities among public elementary schools in Davao Region in the Philippines. In fact, a recent study conducted by Guhao and Sioting (2023) involved other variables than the ones discussed in this study. Therefore, exploring these variables, team effectiveness, school culture and community of inquiry will give insights on their interrelationships in the delivery of PLCs in Philippine setting particularly in Davao Region in the Philippines.

Professional learning communities in public elementary schools in the Philippines has been implemented through school-based learning action cell or commonly known as SLAC (DepEd Order 35, s 2016), but the researcher finds a pressing need to conduct this study since the Department of Education is finding ways to improve professional development practices. It is specified in one of the goals in Basic Education Development Plans in 2030 (DepEd Order No. 24, s 2022) and key initiatives of the department's MATATAG agenda (DepEd, 2023) to strengthen the competence of teachers on instruction, curriculum, and assessment.

The current context compels the researcher to explore more variables that will help public schools on finding appropriate ways to intensify professional development practices. Working on the four variables may help sustain and enhance the current professional learning communities among public schools in Davao Region. Therefore, this research study is conducted to address this urgency in Philippine setting anchored on the targeted objectives.

This study intended to determine the best fit causal model of professional learning communities among public elementary schools in Davao Region. Specifically, the study aims (1) to assess the level of team effectiveness in public elementary schools in terms of purpose and goals, roles, team processes, team relationships, intergroup relations, problem solving, passion and commitment, and skills and learning; (2) to ascertain the level of school culture in public elementary schools in terms of collaborative leadership, teacher collaboration, professional development, unity of purpose, collegial support, and learning partnership; (3) to find out the level of community of inquiry in public elementary schools in terms of teaching presence, social presence, and cognitive presence.

It also geared (4) to evaluate the level of professional learning communities in public elementary schools in terms of shared and supportive leadership, shared values and mission, collective learning application, shared personal practice, supportive conditions-relationship, and supportive conditions – structure; (5) to determine the

significant relationship between TE and PLCs, SC and PLCs, and CoI and PLCs; (6) to establish if TE, SC, and CoI significantly influence the PLCs among public elementary schools in Davao Region; and (7) to determine what model best fits professional learning communities.

Working on these targets, this study is anchored on Professional Learning Model Theory of DuFour (2004) which emphasizes the importance of collaboration in finding ways to improve teaching-learning practices. Further, the presence of these five characteristics; shared vision and mission, leadership sharing and supportive leadership, collective learning and learning application, personal practice sharing and organizational support manifests effective PLCs. Hord (2009) roots on the context that when professional learning community is implemented, learning of professionals takes place.

It is also lodged on the social learning theory of Wenger (1998) that underpins the importance of social interaction, competence, and active learning. Wenger (1998) believes that learning takes place when a person performs activities that allow them to work together with others. To add, learning is best achieved through communities of practice where members meet as a group to share common problems, and interests to achieve desired results. The constant active engagement from sharing practices encompasses the creation of learning in the context of social participation.

Moreover, it is based on Peter Senge (1990) Learning Organization Theory. According to this theory, the organization learns when a group of people desires to explore and work harder to achieve their goals by utilizing novel strategies. That, the organization acquires knowledge and skills when they work as a team and is constantly finding ways on how the team learns as an organization. In addition, only those flexible, productive, and adaptive members survive. With this concept, the organization should know how to identify the potential of its member and tap people's commitment to achieve the desired goals.

Figure 1 shows the exogenous and endogenous variables of the study. The exogenous variables of this study are team effectiveness, school culture and community of inquiry. On the other hand, the endogenous variable is professional learning communities. As indicated in figure 2, team effectiveness is described through purpose and goals, roles, team processes, team relationships, intergroup relations, problem solving, passion and commitment, and skills and learning. Meanwhile school culture has the following indicators: collaborative leadership, teacher collaboration, professional development, unity of purpose, collegial support and learning partnership, while community of inquiry is determined through teaching presence, social presence, and cognitive presence.

The endogenous variable, professional learning communities is defined through its indicators, shared supportive leadership, shared vision and mission, collective learning application, shared personal practice, supportive conditions-relationship and supportive conditions-structure. Further, Figure 2 shows the direct relationship of team effectiveness, school culture and community of inquiry towards the implementation of professional learning communities. The exploration of exogenous and endogenous variable aids in the understanding of its characteristics where this research study sees a lot of benefits after it will be conducted.

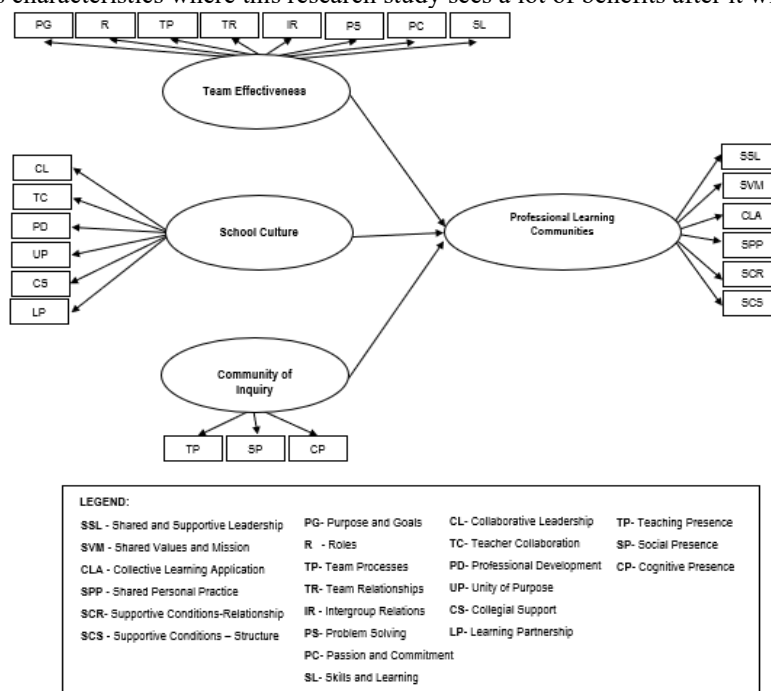


Figure 1: Hypothesized Structural Equation Model of Team Effectiveness, School Culture, Community of Inquiry and Professional Learning Communities

Results of this study will provide added literature in terms of team effectiveness, school culture and community of inquiry in Philippine context. It will give insights on how professional learning communities are implemented in Philippine setting. The knowledge, skills and insights learned by teachers from the practice of PLCs will capacitate them to provide teaching – learning activities that will equip our learners to acquire communication skills, learning and innovation skills, information, media and technology skills, and life and career skills. Armed with these 21st century skills the Department of Education will produce responsible and productive citizens contributory to nation building.

This study will also help the Department of Education formulate clear policies on the conduct of professional learning communities by allotting every Friday of the week as PLCs day and provide professional learning communities model in Philippine context. School heads and other instructional leaders, like master teachers will be trained on how professional learning communities will be done in their respective schools. Appropriate models of professional learning communities will be employed and thereby support teachers in the enhancement and application of learned strategies and methodologies. Teachers will be provided with resources and facilities in the implementation of PLCs. Further, a culture of collaboration practices such as but not limited to sharing of best practices, reflection, coaching and mentoring will be intensified among public elementary schools. Lastly, this study will provide information to future researchers, that they may replicate this study or add more variables to corroborate findings influential in implementing PLCs.

2. Method

2.1. Research Respondent

This research study involved 400 respondents which was determined through Raosoft sample size calculator and the minimum sample size of structural equation modelling. In this study, the Raosoft sample size calculator considered the calculation of the total population of teachers in Davao Region in the Philippines at 26,010 (DepEd ROXI). Raosoft sample size calculator is one of the best online calculators in determining sample size (Amzat et al., 2017; Cruz et al., 2014; Fernandes et al., 2014; Mazanai & Fatoki, 2011; Nakku et al., 2020; Memon et al, 2020). Raosoft calculator recommended 379 respondents with 5% margin of error, 95% confidence level, and 50% response distribution necessary to minimize frustrations during the conduct of research (Raosoft, 2004). However, the sample size was raised to 400 respondents to align with the required maximum sample of 400 respondents (Oke et al, 2012).

Further, stratified random sampling was utilized to determine the respondents. It is a method of sampling that divides a large population into smaller groups known as strata (Hayes, 2022). Moreover, using this sampling allowed the researcher to obtain a sample population that best represents the entire population being studied. In this study, Davao Region or Region XI has 11 divisions namely, Davao City, Davao de Oro, Davao del Norte, Davao del Sur, Davao Occidental, Davao Oriental, Digos City, Island Garden City of Samal (IGACOS), Mati City, Panabo City, and Tagum City. Each division was regarded as a stratum for the purpose of this study. Further, each stratum was being divided into another smaller group, which was the school size category, to wit, large school, which consists of 30 to 50 teachers, and mega school, which has 51 and above teachers, from where proportionate sampling was done to ensure that correct proportions was maintained to represent the whole population.

The teacher-respondents were identified through the following criteria. First, they should come from public elementary schools in Region XI, among the 11 school-divisions. Then, the respondents' stations should be categorized under either Large School or Mega School. Lastly, all teachers can participate regardless of the years of service in the department and the grade level they are handling.

On the other hand, teachers whose stations are classified under Small School and Medium School Categories were not included in the study, considering their minimal population at nine (9) to twenty-nine (29) teachers per school, and their number is already represented in the two identified categories. Non-teaching personnel in participating schools, secondary school teachers both from private and public schools and those teaching in private elementary schools were also not included. The study was conducted for five months, from the month of November 2022 until April 2023. Whenever they decided to withdraw themselves from the study, they were free to withdraw anytime. The researcher randomly picked another respondent to replenish the lacking sample size.

Region XI was chosen as the research locale since the geographical locations of public elementary schools represent both urban and rural areas, where their conditions and context will be equally represented in this study. They also share common ethnics group like Cebuano, Bisaya/Binisaya, Davaweño and Boholano (Philippine Statistics Authority, 2020). Further, schools in Region XI implemented professional learning development practices through School Learning Action Cell, a form of professional learning community, as mandated by DepEd (DO 35, S 2016) reflected through the school's Learning Recovery Continuity Plan aligned with the goals of Basic Education Development Plan 2030 and MATATAG agenda. Finally, the researcher is employed in one of the schools in Davao Region and implemented this professional development practice.

2.2. Materials and Instruments

There were four (4) downloaded and adapted questionnaires utilized in this study. These questionnaires measured the different variables in the study as will be presented in the discussion. The first part of the questionnaire presented the independent variables with the three indicators, namely, team effectiveness, school culture and community of inquiry. The first indicator addressed team effectiveness that measures the team performance of the teachers. It utilized the questionnaire entitled “Team Effectiveness” developed by London Leadership Academy, National Health Service. It is expounded in terms of purpose and goals, roles, team processes, team relationships, intergroup relations, problem solving, passion and commitment, and skills.

Then, the second indicator determined school culture. The researcher used “School Culture” questionnaire developed by Gruenert and Valentine (1998) assessed in the following areas: collaborative leadership, teacher collaboration, professional development, unity of purpose, collegial support, and learning partnership. Meanwhile, the third indicator identified the relevance of teaching, social and cognitive factors of teachers. The researcher utilized the “Community of Inquiry” questionnaire developed by Arbaugh, Cleveland-Innes, Diaz, Garrison, Ice, Richardson, J. C., & Swan (2008), evaluated in the following areas; teaching presence, social presence, and cognitive presence.

Shown below are the parameter limits in measuring the level of team effectiveness, school culture, and community of inquiry in public elementary schools.

Range of Means	Description	Interpretation
4.20 – 5.00	Very High	The measures of team effectiveness, school culture and community of inquiry are manifested/evident all the time.
3.40 – 4.19	High	The measures of team effectiveness, school culture and community of inquiry are manifested/evident oftentimes.
2.60 – 3.39	Moderate	The measures of team effectiveness, school culture and community of inquiry are sometimes manifested/evident.
1.80 – 2.59	Low	The measures of team effectiveness, school culture and community of inquiry are rarely manifested/evident.
1.00 – 1.79	Very Low	The measures of team effectiveness, school culture and community of inquiry are almost not manifested/evident.

The second part of the questionnaire measured the level of dependent variable, professional learning communities. The Professional Learning Communities questionnaire developed by Olivier and Hipp (2010) was used that measures the following areas: shared and supportive leadership, shared values and mission, collective learning and application, shared personal practice, supportive conditions-relationship, and supportive conditions – structure.

Shown below are the parameter limits in measuring the level of professional learning communities in public elementary schools.

Range of Means	Description	Interpretation
4.20 – 5.00	Very High	The measure of professional learning communities is manifested/evident all the time.
3.40 – 4.19	High	The measure of professional learning communities is manifested/evident oftentimes.
2.60 – 3.39	Moderate	The measure of professional learning communities is sometimes manifested/evident.
1.80 – 2.59	Low	The measure of professional learning communities is rarely manifested/evident.
1.00 – 1.79	Very Low	The measure of professional learning communities is almost not manifested/evident.

These standardized survey tools were obtained from the internet and were changed and improved with the help of internal and external validators. A Very Good rating at 4.62 was obtained from the validation of instruments and allowed the researcher to conduct pilot testing to 30 respondents who were not part in the identified sample size of the study. Pilot testing was done to check the validity, readability, feasibility, practicality, and efficacy of the questionnaire. The items in the instruments were subjected to Cronbach's Alpha reliability test to determine their internal consistency. The internal consistency Cronbach Alpha coefficient was .958 for Team Effectiveness, .937 for School Culture, .974 for Community of Inquiry, and .962 for Professional Learning Communities. Since Cronbach's Alpha values were within the range of 0.90 and above, this means that its external consistency is excellent, and the researcher proceeded to conduct the study.

2.3. Design and Procedure

This research used descriptive correlational research design employing survey method with the aid of

quantitative, correlational, regression methods. It also showed causal relationship of variables through structural equation modelling (SEM). Descriptive correlational research design collects and analyzes data to explain the relationship between two variables (QuestionPro,2023). In this study, the researcher gathered numerical data from a certain population to establish accurately the level of team effectiveness, school culture, community of inquiry and professional learning communities. On the other hand, quantitative research is defined as a systematic investigation of phenomena by gathering quantifiable data and performing statistical, mathematical, or computational techniques. It collects information from existing and potential customers using sampling methods and sending out online surveys, online polls, questionnaires, etc., the results of which can be depicted in the form of numerical (Question Pro, 2021). Through this, it leads to the analyses on the association of two or more variables without inhibitions (Patidar, 2013). Further, SEM is a statistical approach in testing and estimating the fundamental relation through using various types of models to depict relationships among observed variables, with the same basic goal of providing a quantitative test of the hypothesized theoretical model (Schumacker & Lomax, 2016). In this study, SEM identified the best fit model of professional learning communities among public elementary schools in Davao Region in the Philippines.

To understand thoroughly the data collated, the subsequent statistical tools were used and tested at alpha 0.05 level of significant to answer the research objectives. First, mean was used to determine the level of team effectiveness, school culture, community of inquiry and professional learning communities. Next, Pearson product moment correlation or simply known as Pearson correlation coefficient was used to establish the significant relationship between team effectiveness, school culture, community of inquiry and professional learning communities. Then the Linear regression statistical tool was used to establish the influence of exogenous variables to endogenous variable. Finally, the structural equation model was used to find the best fit model on professional learning communities following the indices with their corresponding criterion: Chi-Square / Degrees of Freedom at $0 < \text{value} < 2$ P-value $> .05$; Normed Fit Index (NFI) at $> .95$; Tucker-Lewis Index (TLI) at $> .95$; Comparative Fit Index (CFI) at $> .95$; Goodness of Fit Index (GFI) at $> .95$; Root Mean Square of Error Approximation (RMSEA) at $< .05$; and P of Close Fit (P-close) at $> .05$

The study commenced when the researcher, noted by the Dean of Graduate Studies, asked permission from the Regional Director of DepEd RXI to allow the conduct of the study. Upon approval of the Regional Director, the researcher then sought the permission of the Schools Division Superintendents. When permitted by the different heads of divisions in Davao Region, the researcher asked permission from the school principals of the participating schools. The school heads and identified respondents were informed of the purposes and objectives of the study and were assured that the data collected were treated with utmost confidentiality.

After that, the researcher conducted in-person or online administration of the questionnaire based on the school heads' preference of distribution. For in-person administration, the researcher personally administered the distribution and retrieval of the questionnaire following the health protocols. For online administration, a Google link of the questionnaire was sent to the school heads via Facebook Messenger or electronic mail. Before the respondents completed the survey, they signed the Informed Consent to participate in the study. Whenever they had decided to withdraw themselves from the study, they were free to withdraw anytime. The researcher randomly picked another respondent to replenish the lacking sample size. The respondents were given at least a month to answer the survey and to ensure that the target responses were met. Then, the data were gathered, consolidated through the excel spreadsheet, tabulated, and were analyzed and interpreted.

This research paper was perused and evaluated by the University of Mindanao Ethics Review Committee (UMERC) before it was conducted. It was granted with ethical clearance on February 11, 2023, and approval to conduct the study with UMERC approval number, UMERC-2023-034. Ethical protocols were observed, such as but not limited to asking permission from the department of education regional and schools division offices including school heads of identified respondents, voluntary and anonymous participation of respondents, observation of privacy and confidentiality, asking respondents' willingness to answer questions through informed consent form, fair selection of participants, proper and accurate citations of writers and scholars, utilization of results from reliable sources and scholarly works conducted, discussion of benefits gained by the respondents, use of technology in answering the research questionnaire through Google form, assurance that there is no conflict of interest, deceit and plagiarism and the provision of guidance from the researcher's adviser and panel of experts in writing the manuscript.

3. Results and Discussion

In this section, the data collected on the experience of teachers on team effectiveness, school culture, community of inquiry and professional learning communities is presented. The gathered data were evaluated and interpreted based on the research objectives. The following is the sequence in which the following topics will be discussed: level of team effectiveness; level of school culture; level of community of inquiry; level of professional learning communities; relationship between team effectiveness and professional learning communities, school culture and professional learning communities, and community of inquiry and professional learning communities; the

exogenous variables that best influence professional learning communities; and the model that best fits professional learning communities of teachers.

3.1. Level of Team Effectiveness in Public Elementary Schools

Presented in Table 1 the level of team effectiveness in public elementary schools measured by purpose and goals, roles, team processes, team relationships, intergroup relations, problem solving, passion and commitment, and skills and learning. An overall mean of 4.52 and SD of 0.42 was obtained which is described as very high. This means that the level of team effectiveness is manifested/evident all the time. Accordingly, purpose and goals obtained the highest mean of 4.62 which is described as very high. It is followed by skills and learning with an obtained mean of 4.55 which is described as very high. Then, roles reached a mean of 4.54 which is described as very high. Team relationships and passion and commitment both got a mean of 4.53, which still signifies as very high. Team processes and intergroup relations had a mean of 4.49 which is described as very high. Lastly, the indicator problem solving had the lowest mean of 4.42, which is described as very high. The level of team effectiveness in public elementary schools in Region XI was found to be very high.

Table 1. Level of Team Effectiveness in Public Elementary Schools

Indicators	SD	Mean	Descriptive Level
Purpose and goals	0.44	4.62	very high
Roles	0.45	4.54	very high
Team processes	0.52	4.49	very high
Team relationships	0.57	4.53	very high
Intergroup relations	0.55	4.49	very high
Problem solving	0.51	4.42	very high
Passion and commitment	0.55	4.53	very high
Skills and learning	0.48	4.55	very high
Overall	0.42	4.52	very high

The results show that team effectiveness among the respondents is very high. This implies that team effectiveness among public elementary schools is always evident. The result showed that the teachers manifested the characteristics needed to achieve team effectiveness. Teamwork is present as teachers are informed of its purpose, mission, and goals, know the alignment of activities with the school's mission and vision, and understand their contribution in the team. Moreover, teachers also manifested the values of resourcefulness, flexibility, and responsibility in attaining team progress.

The very high descriptive levels on every indicator of team effectiveness showed that public elementary school teachers in Region XI showed high regards on purpose and goals, skills and learning, roles, team relationships, passion and commitment, team processes, intergroup relations, and problem solving to maintain team effectiveness. The results imply that public elementary school teachers in Region XI manifested these practices all the time. This is coherent with the findings of Pervaiz et al (2021) who posited that improved team practices are obtained when employees participate in goal-setting practices and are informed of the targets and expected outcomes. Moreover, participants' involvement in planning and implementation encourages role playing in the performance of the tasks given and thereby avoids future problems. This proactive behavior builds leader-employee relationship necessary to improve team performance.

In addition to this result, the very high-level description of purpose and goals alongside skills and learning and roles greatly contribute to team performance. The very high-level description supports the claim of van der Hoek et al (2018) on the importance of providing clear team goals to participants to produce better team performance. However, there are other factors that influence team effectiveness. Self-management (van der Hoek et al, 2018), leadership styles, supportive team behavior, communication, and performance feedback (Salcinovic et al, 2022) were identified which are also manifested on the results, where other indicators obtained very high levels.

3.2. Level of School Culture in Public Elementary Schools

Shown in Table 2 is the level of school culture in public elementary schools in terms of collaborative leadership, teacher collaboration, professional development, unity of purpose, collegial support and learning partnership. The obtained overall mean at 4.52 signifies a very high level. This indicates that the level of school culture in public elementary schools is manifested or evident all the time. Among the indicators, unity of purpose got the highest mean of 4.66, which is described as very high. Collegial support followed with a mean of 4.57 which is described as very high. Then, professional development had a mean of 4.55 which is described as very high.

Table 2. Level of School Culture in Public Elementary Schools

Indicators	SD	Mean	Descriptive Level
Collaborative leadership	0.57	4.42	very high
Teacher collaboration	0.54	4.37	very high
Professional development	0.50	4.55	very high
Unity of purpose	0.48	4.66	very high
Collegial support	0.50	4.57	very high
Learning partnership	0.47	4.55	very high
Overall	0.44	4.52	very high

Further, learning partnership got a mean of 4.55 which is described as very high. Collaborative leadership had a mean of 4.42 which is described as very high. Consequently, teacher collaboration had the lowest mean of 4.37 but still falls under very high level.

The very high level of implementation of the indicators in school culture manifested among public elementary schools in Region XI in terms of collaborative leadership, teacher collaboration, professional development collegial support, unity of purpose and learning partnership imply that the schools established their school culture. The community is guided with informed directions through its mission and vision reflecting the values of the community. The culture of trust and collective efforts also contribute to efficiently and effectively plan practices that help develop students' sense of responsibility and thereby improved school outcomes.

The very high level of practice in terms of school culture is in line with the findings of Cruse (2021) who stated that teachers are motivated to learn, develop, and grow professionally when teachers incorporate collaborative practices in schools. Aside from this factor, the very high-level result on the indicator unity and purpose strengthens the assertion of Eger and Prášilová (2020) who believe that people work harder when the goals are shared with them, and they are involved in the planning and implementation practices to produce a safe community.

3.3. Level of Community of Inquiry in Public Elementary Schools

Presented in Table 3 is the level of Community of Inquiry in public elementary schools in terms of teaching presence, social presence, and cognitive presence. The level of community of inquiry in public elementary schools in Region XI attained an overall mean of 4.46 which is described as very high. This means that the level of community of inquiry in public elementary schools in Region XI is manifested or evident all the time. The three indicators recorded very high mean scores. Teaching presence obtained the highest mean at 4.49, followed by social presence with a mean of 4.46, and the cognitive presence, which obtained the lowest mean score at 4.42. The level of community of inquiry in public elementary schools in Region XI is very high.

Table 3. Level of Community of Inquiry in Public Elementary Schools

Indicators	SD	Mean	Descriptive Level
Teaching presence	0.50	4.49	very high
Social presence	0.51	4.46	very high
Cognitive presence	0.53	4.42	very high
Overall	0.48	4.46	very high

The findings of the study suggest that the frameworks of community of inquiry is lived through the delivery of its activities to improve teaching-learning practices through online learning community. Teaching presence is observed in the online community since the data revealed that facilitators are virtually present to deliver the learning objectives, provide discussion boards on relevant issues and help clarify participants' thinking. Social presence is also manifested as data showed very high implementation on letting the participants feel comfortable working on online community, reinforcing sense of community, and incorporating activities that promote collaboration. Lastly, cognitive presence is highly manifested as the online community employed brainstorming activities and posed questions that directed teachers to reflect and discuss concepts.

This result is consistent with the findings of Herman (2019) who asserts the importance of setting clear expectations and goals to produce successful online PLCs. Moreover, teachers are motivated to learn and grow professionally when their leaders incorporate collaborative practices in the school (Cruse,2021). They are driven best to work harder to produce a safe community when the goals are shared with them, and they are involved in the planning and implementation practices (Eger & Prášilová, 2020). Additionally, the presence of teachers/facilitators during online classes improved learning outcomes (Caskurlu, Maeda, Richardson, & Lv, 2020), because they are motivated and engaged to see them virtually (Turk, Heddy, Danielson, 2022).

In addition, the findings of Çakıroğlu and Kılıç (2018) reflected cognitive and social presences dependency to teaching presence in terms of efficiency development. He stresses the crucial role of teaching presence that when it is done well, successful implementation of cognitive and social practices also progressed.

3.4. Level of Professional Learning Communities in Public Elementary Schools

Displayed in Table 4 is the level of professional learning communities in public elementary schools which is measured in terms of shared and supportive leadership, shared values and vision, collective learning and application, shared personal practice, supportive conditions-relationship, and supportive conditions-structure. It obtained an overall mean of 4.51 which indicates that professional learning communities are manifested or evident all the time. Two indicators got the highest mean; collective learning and application and supportive conditions-relationship at 4.54 which is described as very high. Shared personal practice followed with a mean of 4.52 which is described as very high. Next is shared values and vision with a mean 4.49 which is described as very high. Then, shared and supportive leadership followed with a mean of 4.49 which is described as very high. Supportive conditions- structure obtained the lowest mean at 4.47 which is described as very high.

Table 4. Level of Professional Learning Communities in Public Elementary Schools

Indicators	SD	Mean	Descriptive Level
Shared and supportive leadership	0.57	4.49	very high
Shared values and vision	0.52	4.50	very high
Collective learning and application	0.50	4.54	very high
Shared personal practice	0.51	4.52	very high
Supportive conditions-relationship	0.51	4.54	very high
Supportive conditions-structure	0.56	4.47	very high
Overall	0.48	4.51	very high

This study demonstrates that professional learning communities among public elementary schools in Region XI is always evident. Data showed very high implementation of collaboration practices as the central core of PLCs. Teachers maintained collegial relationships by working together to seek knowledge, skills, and strategies to improve practices. Teachers also apply their new learnings and display commitment to programs that enhance learning. They also plan and work together to address students' diverse needs build around caring relationships, trust, and respect.

The indicators that received the highest mean are shared between collective learning application and shared and supportive leadership. This finding is similar with Antinluoma et al (2018), Holmquist (2020), and White-Jeffries (2022) assertion that effective instructional and assessment practices can be learned through professional collaboration. A school with a high collaborative culture brings about positive indication of teachers' readiness and ability to work together among colleagues during PLCs. Further, the the vital role of open communication (Seaton,2019) and the presence of trust and positive working relationship among teachers in the practice of PLCs ignites teachers to share and confide work difficulties and challenges among colleagues. The harmonious relationship enables them to feel safe and take part in diverse discussions to improve teaching practices (Akinyemi, Rembe, & Nkonki, 2020).

3.5. Relationship between Team Effectiveness and Professional Learning Communities in Public Elementary Schools

Shown in Table 5 are the results of the test of the relationship between team effectiveness and professional learning communities in public elementary schools. As displayed in the hypothesis, the relationship was tested at 0.05 level of significance. The total r-value of 0.815 with a p-value of less than .05 indicated that the null hypothesis was rejected. It demonstrates that there is a strong link between team effectiveness and professional learning communities. The correlation coefficient $r = .815$ signifies a strong association between team effectiveness and professional learning communities of public elementary schools.

More specifically, the results show that all the indices of team effectiveness have significant relationship with professional learning communities, as the p-values are less than .05 and total r-value is .755 on skills and learning, .738 on passion and commitment, .697 on intergroup relations with, .694 on team relationships, .688 on problem solving, .637 on team processes, .627 on roles, and .592 on purpose and goals. As shown in Table 5, all indicators of each variable are related. Thus, there is a favorable relationship between the two variables.

Table 5. Significance on the Relationship between Team Effectiveness and Professional Learning Communities in Public Elementary Schools

Team Effectiveness	Professional Learning Communities						Overall
	Shared and Supportive Leadership	Shared Values and Vision	Collective Learning and Application	Shared Personal Practice	Supportive Conditions-Relationship	Supportive Conditions-Structure	
Purpose and goals	.487** .000	.542** .000	.548** .000	.590** .000	.579** .000	.520** .000	.592** .000
Roles	.514** .000	.579** .000	.599** .000	.610** .000	.602** .000	.556** .000	.627** .000
Team processes	.663** .000	.635** .000	.547** .000	.541** .000	.560** .000	.551** .000	.637** .000
Team relationships	.758** .000	.699** .000	.579** .000	.584** .000	.575** .000	.608** .000	.694** .000
Intergroup relations	.744** .000	.699** .000	.611** .000	.574** .000	.568** .000	.628** .000	.697** .000
Problem solving	.570** .000	.648** .000	.641** .000	.671** .000	.648** .000	.618** .000	.688** .000
Passion and commitment	.746** .000	.705** .000	.657** .000	.654** .000	.651** .000	.641** .000	.738** .000
Skills and learning	.601** .000	.722** .000	.720** .000	.729** .000	.722** .000	.673** .000	.755** .000
Overall	.771** .000	.787** .000	.734** .000	.740** .000	.733** .000	.720** .000	.815** .000

This result is also supported by the finding of Antinluoma et al (2018) which revealed that teachers possess the knowledge, skills and dispositions needed in professional collaboration. They furthered that their collaborative skills such as conflict resolution, consensus building, problem solving, and team building helped them work with others to learn effective teaching and assessment strategies to improve student learning.

3.6. Relationship between School Culture and Professional Learning Communities in Public Elementary Schools

Displayed on Table 6 are the results of the assessment on the relationship between school culture and professional learning communities in public elementary schools. As displayed in the hypothesis, the relationship was tested at a 0.05 level of significance. The total r-value of 0.780 with a p-value less than .05 indicated that the null hypothesis was rejected. It can be deduced that there is a strong relationship between school culture and professional learning communities in public elementary schools.

Individually, all indicators of school culture correlate positively with professional learning communities, having a p-values less than .05 and the r-value of .760 on professional development, .691 on professional development, .677 on learning partnership, .653 on teacher collaboration, .652 on collegial support, and .611 on unity of purpose. As a result, there is a significant relationship between school culture and professional learning communities.

Table 6. Significance on the Relationship between School Culture and Professional Learning Communities in Public Elementary Schools

School Culture	Professional Learning Communities						Overall
	Shared and Supportive Leadership	Shared Values and Vision	Collective Learning and Application	Shared Personal Practice	Supportive Conditions-Relationship	Supportive Conditions-Structure	
Collaborative Leadership	.782** .000	.756** .000	.634** .000	.692** .000	.641** .000	.667** .000	.760** .000
Teacher Collaboration	.563** .000	.617** .000	.595** .000	.627** .000	.614** .000	.579** .000	.653** .000
Professional Development	.539** .000	.614** .000	.683** .000	.679** .000	.694** .000	.608** .000	.691** .000
Unity of Purpose	.466** .000	.548** .000	.604** .000	.603** .000	.584** .000	.569** .000	.611** .000
Collegial Support	.521** .000	.595** .000	.651** .000	.655** .000	.621** .000	.561** .000	.652** .000
Learning Partnership	.552** .000	.622** .000	.667** .000	.689** .000	.631** .000	.577** .000	.677** .000
Overall	.664** .000	.725** .000	.737** .000	.759** .000	.728** .000	.687** .000	.780** .000

This finding is supported with the themes that emerged in some qualitative studies of Sims (2022) and Bryd-King (2018) on how PLCs influence the development of school culture. That effective implementation of PLCs processes brings about improved school culture in some rural schools in Georgia. Further, teachers in Finland were motivated to bring out their knowledge, skills, and dispositions to improve students' learning (Antinluoma et al (2018). In addition, recent mixed-method research on identifying conditions that facilitate and hinder professional learning community both 21st century and traditional layouts revealed that improving instructional practices is achieved when teachers come together and discuss ways to improve teaching and learning practices. Further, being at the same level and in proximity provides opportunities for collaboration that help them learn and find support in their field (Howard,2022).

3.7. Relationship between Community of Inquiry and Professional Learning Communities in Public Elementary Schools

Shown in Table 7 are the results of the test of relationship between community of inquiry and professional learning communities in public elementary schools. Data showed an overall correlation coefficient of .771 at 0.05 level of significance. It means that there is a significant relationship between community of inquiry and professional learning communities in public elementary schools.

Table 7. Significance on the Relationship between Community of Inquiry and Professional Learning Communities in Public Elementary Schools

Community of Inquiry	Professional Learning Communities						Overall
	Shared and Supportive Leadership	Shared Values and Vision	Collective Learning and Application	Shared Personal Practice	Supportive Conditions-Relationship	Supportive Conditions-Structure	
Teaching presence	.585** .000	.668** .000	.666** .000	.696** .000	.671** .000	.673** .000	.718** .000
Social presence	.652** .000	.707** .000	.689** .000	.716** .000	.690** .000	.656** .000	.746** .000
Cognitive presence	.611** .000	.655** .000	.635** .000	.674** .000	.661** .000	.640** .000	.703** .000
overall	.658** .000	.723** .000	.708** .000	.743** .000	.720** .000	.701** .000	.771** .000

Specifically, when indicators of community of inquiry are correlated with professional learning communities, all the indicators were found to be significant, with social presence having a correlation coefficient at .746, teaching presence with .718, and cognitive presence with .703 and a p-value less than .05. This indicates that the community of inquiry asserts a positive linkage with professional learning communities.

The significant relationship between community of inquiry and professional learning communities is

validated by Wang and Zhang (2023), and Martin et al (2022). They claim that there is a strong connection between teachers' online learning quality following the frameworks of community of inquiry and professional learning communities. Accordingly, the three presences had significant relationships between satisfaction, actual learning, and perceived learning. Although the three presences recorded variations of effects, they have contributed to the satisfaction and learning outcomes in both online and blended learning environments. The significant relationship that existed in teaching presence with satisfaction and actual learning in this study is consistent with the findings of Caskurlu et al (2020) who found moderately strong correlation between teaching presence and satisfaction.

3.8. Influence of Team Effectiveness, School Culture and Community of Inquiry on Professional Learning Communities in Public Elementary Schools

Presented in Table 8 the influence of team effectiveness, school culture and community of inquiry on professional learning communities in public elementary schools. The presentation revealed that the standard coefficient of team effectiveness has the highest beta of .433. It indicates that team effectiveness has the greatest influence on the professional learning communities of public elementary schools compared to community of inquiry with .280, and school culture with .238 respectively. Further, as indicated by the F-value of 335.377 with a corresponding p-value of 0.000, the regression model is therefore significant. Hence, it leads to the rejection of the null hypothesis. It could be stated that there is a variable that can predict the professional learning communities in public elementary schools.

In addition, the R2 of .755 signifies that 75.5 percent of the variation in professional learning communities is explained by the predictor variables, team effectiveness, school culture and community of inquiry. This means that 24.5 percent of the variation could be attributed to other factors aside from these three variables.

Table 8. Significance on the Influence of Team Effectiveness, School Culture and Community of Inquiry on Professional Learning Communities in Public Elementary Schools

Professional Learning Communities				
Exogenous Variables	B	B	t	Sig.
Constant	-.163		-1.094	.275
Team effectiveness	.493	.433	9.695	.000
School culture	.261	.238	4.986	.000
Community of inquiry	.283	.280	6.298	.000
	R	.869		
	R2	.755		
	ΔR	.753		
	F	335.377		
	P	.000		

This result is in alignment with the results of several studies conducted. Seaton (2019) showed the vital role of open communication to successful implementation of PLCs. On the other hand, Antinluoma et al (2018) noted that Finnish schools showed a strong school culture of collegiality, trust, and commitment that engaged and motivated teachers to work with colleagues which allowed them to bring out their knowledge, skills, and dispositions to improve learning. Meanwhile, Herman (2019) emphasized that when facilitators and teachers work closely following clear expectations and goals successfully, the objectives of online PLCs are attained.

3.9. Generated Models

With its main objective at finding the best fit model, this study had generated five (5) models which are reflected in the appendices part. Table 9 presents the summary of the reliability of fit of the 5 generated models. To be identified as the best fit model, all indexes must fall within the allowed boundaries. The chi-square/degrees of freedom number should be less than two but larger than zero and the matching p-value should be greater than 0.05. The root mean square error approximation value should fall below 0.05, while the related P-close value should be more than 0.05. Meanwhile, the other indices, like Normed fit, Tucker-Lewis, comparative fit, and goodness of fit must be greater than 0.95.

Table 9. Summary of Goodness of Fit Measures of the Five Generated Models

Model	P-value (>0.05)	CMIN / DF (0<value<2)	GFI (>0.95)	CFI (>0.95)	NFI (>0.95)	TLI (>0.95)	RMSEA (<0.05)	P-close (>0.05)
1	.000	12.026	.591	.801	.787	.778	.166	.000
2	.000	10.428	.604	.831	.817	.810	.154	.000
3	.000	9.298	.595	.851	.836	.833	.144	.000
4	.000	8.951	.613	.858	.844	.840	.141	.000
5	.074	1.300	.971	.997	.985	.995	.030	.959

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

The first generated model did not show the interrelationships of the exogenous variables; team effectiveness, school culture, and community of inquiry, but manifested direct causal relationship with the endogenous variable, professional learning communities. Model 1, as reflected in Figure 3 under appendices, indicated that all indicators in both exogenous and endogenous variables are retained.

However, data revealed as displayed in Table 9, that the values either fell beyond or above the given criteria, and failed to reach the acceptable ranges, hence model 1 shows a very poor fit.

The second generated model presented the interrelationships of the exogenous variables; team effectiveness, school culture, and community of inquiry, and its causal relationship with the endogenous variable, professional learning communities. Model 2, as reflected in Figure 4 under appendices, also showed retained indicators of the two variables. However, as displayed in Table 9, model 2 also failed to obtain the standard criterion of all the indices to receive a reasonable fit, hence model 2 is considered a poor fit.

In the same manner, the third generated model presented the interrelationships of exogenous variables school culture to team effectiveness and community of inquiry, and the causal relationship of team effectiveness and community of inquiry with the endogenous variable, professional learning communities. Model 3, as reflected in Figure 5 under appendices, also showed retained indicators of the two variables. However, as displayed in Table 9, model 3 also failed to obtain the standard criterion of all the indices to receive a reasonable fit, hence model 3 is considered a poor fit.

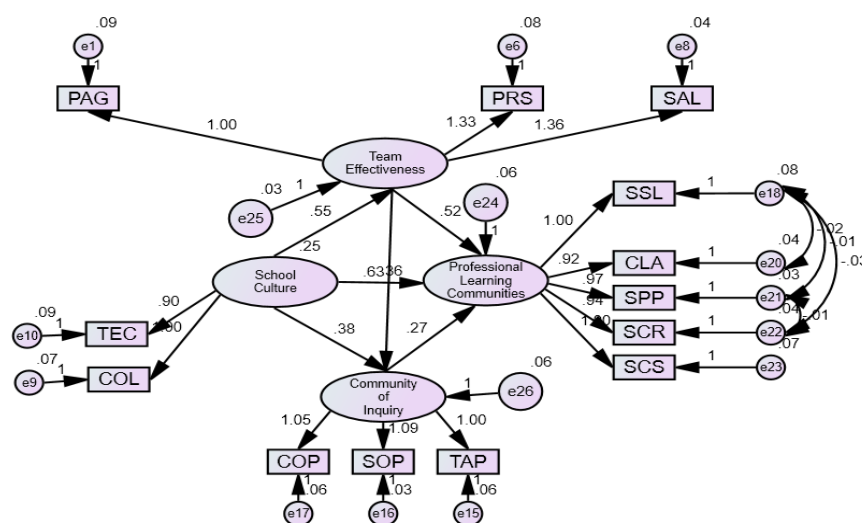
Like the first three generated models, the fourth model also displayed the strong link of the exogenous variables: team effectiveness, school culture, and community of inquiry, and its causal relationship with the endogenous variable, professional learning communities. Model 4 also retained all indicators of the two variables, but the data indicated a very poor fit since all the indices did not fall within the standard criteria.

Meanwhile, as displayed in Table 9, model 5 showed the most reasonable fit since all its indices fall under the required criteria and did not necessitate to generate more models. Therefore, the null hypothesis that there was no best fit model for professional learning communities was rejected.

3.10. Best Fit Model

Expounded in Figure 2 the Best Fit Model showing the interrelationships of the latent exogenous variables, team effectiveness, school culture, and community of inquiry and its direct causal relationship with the latent endogenous variable, professional learning communities in public elementary schools.

As can be gleaned in model 5, the best fit model, team effectiveness, school culture, and community of inquiry are exogenous variables that have direct causal relationship on professional learning communities. The model also revealed the interconnectedness of these three exogenous variables. School culture had a direct relationship with team effectiveness and community of inquiry. Further team effectiveness also had direct relationship with community of inquiry.



Legend:

Figure 2: Best Fit Model in Standard Solution

PAG-purpose and goals	COL-collaborative leadership	SSL-shared and supportive leadership
PRS-problem solving	TEC-teacher collaboration	CLA-collective learning and application
SAL-skills and learning	COP-cognitive presence	SPP-shared personal practice
	SOP-social presence	SCR-supportive conditions-relationship
	TAP-teaching presence	SCS-supportive conditions-structure

Table 10 shows the regression weights exhibited by the influence between latent variables and between measured and latent variables. Among the paths presented in this model, only the school culture obtained a p-value within 0.01. This indicates that school culture significantly explained the professional learning communities in Region XI.

Table 10. Estimates of Variable Regression Weights in Generated Best Fit Model

			Estimate	S.E.	Beta	C.R.	P-value
Team Effectiveness	<---	School Culture	.568	.044	.867	12.915	***
Community of Inquiry	<---	School Culture	.354	.100	.391	3.540	***
Community of Inquiry	<---	Team Effectiveness	.661	.151	.478	4.377	***
Professional Learning Communities	<---	Team Effectiveness	.624	.140	.435	4.456	***
Professional Learning Communities	<---	Community of Inquiry	.274	.069	.264	3.986	***
Professional Learning Communities	<---	School Culture	.218	.087	.232	2.519	.012
PAG	<---	Team Effectiveness	1.000		.719		
PRS	<---	Team Effectiveness	1.331	.091	.832	14.643	***
SAL	<---	Team Effectiveness	1.362	.086	.911	15.911	***
COL	<---	School Culture	1.000		.866		
TEC	<---	School Culture	.914	.052	.820	17.629	***
TAP	<---	Community of Inquiry	1.000		.879		
SOP	<---	Community of Inquiry	1.097	.041	.950	26.538	***
COP	<---	Community of Inquiry	1.047	.046	.878	22.693	***
SSL	<---	Professional Learning Communities	1.000		.802		
CLA	<---	Professional Learning Communities	1.008	.047	.931	21.243	***
SPP	<---	Professional Learning Communities	1.043	.049	.935	21.406	***
SCR	<---	Professional Learning Communities	1.013	.052	.908	19.604	***
SCS	<---	Professional Learning Communities	1.089	.053	.888	20.663	***

Moreover, as shown in Figure 2, three out of eight indicators of team effectiveness, namely, purpose and goals, problem solving and skills and learning, remained significant predictors of professional learning communities. While school culture had two out of six indicators, namely, teacher collaboration and collaborative leadership, were found to affect professional learning communities. On the other hand, the community of inquiry maintained all its three indicators, namely, teaching presence, social presence, and cognitive presence, that significantly affect professional learning communities. Based on the result, it can be deduced that the professional learning communities in Region XI was best anchored on team effectiveness which was measured in terms of purpose and goals, problem solving and skills and learning; school culture in terms of teacher collaboration and collaborative leadership; and community of inquiry in terms of teaching presence, social presence, and cognitive presence.

Furthermore, the generated structural model 5 shows a direct causal link of the exogenous variable with the endogenous variable. The endogenous variable professional learning communities is measured in terms of shared and supportive leadership, shared values and vision, collective learning and application, shared personal practice, supportive conditions – relationship, and supportive conditions – structure. However, the model displayed only five out of its six indicators that remained viable professional learning communities construct, namely, shared and supportive leadership, collective learning and application, shared personal practice, supportive conditions – relationship, and supportive conditions – structure. The indicators on roles, team processes, team relationships, intergroup relations, and passion commitment on team effectiveness; professional development, unity of purpose, collegial support, and learning partnership on school culture; and shared values and vision on professional learning communities were trimmed since their beta values and p-value did not obtain the desired values.

The direct causal link of team effectiveness, school culture and community of inquiry towards professional learning communities among public elementary schools in Region XI, corroborates the research outcomes revealed by Huusela (2020), Jones (2020), Pervaiz et al (2021), and van der Hoek et al (2018) that informed purpose and goal, with collaboration and support from teachers are central among other indicators in team effectiveness, school culture and community of inquiry in the successful implementation of PLCs. They furthered that when teachers understand the targets, outcomes, and processes in any professional learning activity, they remain focused and yield better team performance. The result is alignment with other empirical studies, giving importance on trust and positive working relationships (Akinyemi, Rembe, & Nkonki, 2020), open communication (Seaton, 2019), clear expectations and goals (Herman, 2019), and school culture of collegiality, trust, and commitment (Antinluoma et al., 2018), and the indispensable role of school heads in instituting shared leadership, commitment, common goals, participative decision- making processes, relationship of mutual trust, and openness among staff, and sharing of opinions in the implementation of team learning (Antinluoma, 2021).

Evidence suggests that the presence of trust and positive working relationship among teachers can be best achieved when they are facilitated, directed, guided, and encouraged by school heads to create this culture of dialogue to improve teaching practices (Brown, 2019). Sutarsih et al, (2019) noted that teachers show commitment and capacity to restructure and explore new ways to improve instruction and bring about quality learning among learners. In addition, Cruse (2021) also stressed that teachers are motivated to learn and grow professionally when their leaders incorporated collaborative practices in the school. Consequently, when there is steady and continuous implementation of PLCs, teachers applied learned concepts (Johnson, 2021), improved teaching-learning practices and the desired student outcomes were achieved (Dogan & Adams, 2018; Johnson, 2021). Further, in the recent study made by Guhao and Sioting (2023), it also indicated the retained variables collective learning application and supportive conditions-relationship that affect professional learning communities.

Presented in Table 11 the Goodness Fit Measures of Structural Best Fit Model compared to the generated models. The fit indices passed the accepted values, namely, p-value at .074, CMIN/DF at 1.300, GFI at .971, CFI at .997, NFI at .985, TLI at .995, RMSEA at .030 and p-Close at .959, which signify the best fit model. This means that this is the best model to explain professional learning communities in public elementary schools.

Table 11. Goodness of Fit Measures of Structural Best Fit Model

INDEX	CRITERION	MODEL FIT VALUE
P-value	> 0.05	.074
CMIN/DF	0 < value < 2	1.300
GFI	> 0.95	.971
CFI	> 0.95	.997
NFI	> 0.95	.985
TLI	> 0.95	.995
RMSEA	< 0.05	.030
P-Close	> 0.05	.959

Legend:

CMIN/DF	-	Chi-Square/Degrees of Freedom
NFI	-	Normed Fit Index
TLI	-	Tucker-Lewis Index
CFI	-	Comparative Fit Index
GFI	-	Goodness of Fit Index
RMSEA	-	Root Means Square of Error Approximation
P-close	-	P of Close Fit

The model fit for professional learning communities among public elementary schools is aligned with the Professional Learning Model Theory of DuFour (2004) which emphasizes the importance of collaboration in finding ways to improve teaching-learning practices. Further, the presence of these five characteristics; shared vision and mission, leadership sharing and supportive leadership, collective learning and learning application, personal practice sharing and organizational support manifests effective PLCs. Hord (2009) roots on the context that when professional learning community is implemented, learning of professionals takes place.

This is also supported by the social learning theory of Wenger (1998) that underpins the importance of social interaction, competence, and active learning. Learning is best achieved through communities of practice, where members share common interests and goals.

As reflected in the appendices, Table 23 showed the direct and indirect effects of the latent endogenous variables to the latent exogenous variable. Team effectiveness shows the highest beta value of 0.624, which indicates that it has the greatest impact on the professional learning communities of teachers in the public elementary schools. In addition, community of inquiry shows a beta value of 0.274, and school culture with .218, indicating an impact towards professional learning communities in public elementary schools.

Meanwhile, displayed on Table 24 under appendices the regression weights exhibited by the influence between latent variables and between measured and latent variables. The paths presented in this model obtained a p-value of more than 0.01. However, the path between professional learning communities and school culture has a marginal p-value of 0.012, which falls close to the specified p-value of 0.01. This indicates that team effectiveness, and community of inquiry greatly contributed to the professional learning communities of teachers in public elementary schools more than school culture.

4. Conclusion

As assessed by public elementary school teachers in Region XI in the Philippines, the levels of team effectiveness, school culture, community of inquiry and professional learning communities are very high. The test of correlation revealed that there is a significant relationship between team effectiveness and professional learning communities, school culture and professional learning communities, and community of inquiry and professional learning communities in public elementary schools of Region XI.

Team effectiveness, school culture, and community of inquiry are significant predictors of professional learning communities in public elementary schools.

The best fit model successfully passed all the conventions of a reasonable. Hence, it is the most parsimonious model among the five generated models. Therefore, Model 5 is the best fit model of professional learning communities in public elementary schools.

The direct causal link of team effectiveness, school culture and community of inquiry towards professional learning communities among public elementary schools in Region XI, corroborates the research outcomes revealed by Huusela (2020), Jones (2020), Pervaiz et al (2021), and van der Hoek et al (2018) that informed purpose and goal, with collaboration and support from teachers are central among other indicators in team effectiveness, school culture and community of inquiry in the successful implementation of PLCs. They furthered that when teachers understand the targets, outcomes, and processes in any professional learning activity, they remain focused and yield better team performance. The result is alignment with other empirical studies, giving importance on trust and positive working relationships (Akinyemi, Rembe, & Nkonki, 2020), open

communication (Seaton,2019), clear expectations and goals (Herman, 2019), and school culture of collegiality, trust, and commitment (Antinluoma et al.,2018), and the indispensable role of school heads in instituting shared leadership, commitment, common goals, participative decision- making processes, relationship of mutual trust, and openness among staff, and sharing of opinions in the implementation of team learning (Antinluoma,2021).

5. Recommendation

Based on the findings and conclusions, as revealed on the best fit model, the researcher proposes a more rigorous but friendly implementation of professional learning development practice through professional learning communities. School heads as the lead facilitator in public schools are encouraged to continue to implement the school learning action cell or SLAC that promotes collaboration practices of teachers. They are encouraged to provide mechanisms to intensify this practice.

As team effectiveness that manifested greatest influence in professional communities appended in Table 1, it is highly recommended that school heads involve teachers in planning the different activities that promote professional development aligned with teachers' development needs identified during the Phase IV of the Results Performance Management System of teachers. Moreover, school heads may provide training to Master Teachers on how to facilitate authentic professional learning communities.

With school culture that shows strong relationship with professional learning communities, school administrators could intensify the culture of collaboration among teachers in the implementation of teaching – learning practices, such as but not limited to, planning, teaching, monitoring, coaching, and mentoring practices. It is also recommended to allow teachers to observe fellow teachers' way of teaching on the current trends and methodologies. Teachers may create journal or reflection notes on how this modelling practice impacts their way of teaching.

Furthermore, it is recommended that the Department of Education (DepEd) creates a doable online professional learning management system for teachers where they can access journals, research studies and courses aligned with the current trends in education. The availability of strong internet connectivity in schools is also advised.

To attain this program, DepEd is encouraged to provide supportive conditions/structures like construction of a separate and inclusive training building which is spacious, conducive, and comfortable enough for teachers' discussion and training purposes. DepEd institutionalization of time allotment for professional development in regular basis like allotting Friday as SLAC day since the present condition limits the implementation of PLCs because of the No Disruption of Classes policy with teachers' actual teaching loads and contact time with the learners covering all days of the week, is also appreciated.

Lastly, future researchers may replicate this study or add more variables to corroborate findings influential in implementing PLCs. They are also encouraged to conduct qualitative studies on determining what collaboration practices best suit teachers.

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