

AMERICAN UNIVERSITY OF BEIRUT

IMPACT OF PROFESSIONAL LEARNING COMMUNITIES
ON TEACHER PERFORMANCE AND STUDENT
ACHIEVEMENT: A SYSTEMATIC REVIEW

by

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ABSTRACT

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This thesis aims to understand the effects of implementing Professional Learning Communities (PLCs) in improving teachers' performance and raising learners' achievement levels through analysis of current literature. The practice learning discussions are based on principles of partnership practice: practitioners and learners, as well as mentors, are incorporating professional confidence based on best practice principles; all these elements are becoming the key to integrating transformative learning technologies in the education systems. This work aims to establish their contribution to developing teacher self-efficacy and improving instruction and student achievement in various school settings.

In the current systematic review using PRISMA guidelines, 12 research studies published between 2019 and 2024 were identified and included from the ERIC database, Google Scholar, and other research databases. TDXs were identified from these studies based on the following criteria: PLCs and methodological quality within the last five years. The study demonstrates that PLCs promote improved teacher collaboration, self-confidence, and professional development more evidently when favourable leadership and resource support are given. Furthermore, the research shows that functional PLCs are beneficial to enhancing engagement, academic achievement, and learning achievement, and therefore, PLCs have a twofold effect on instructors and learners.

However, the review also reveals obstacles, including uneven adoption, limited resources, and competitive resistance. Therefore, the established results support contextual implementation, continuous leadership participation, and effective collaboration of schools, which are valuable for optimizing the PLCs. Suggestions for future research include following the PLC for a more extended period, performing comparative studies in different countries, and using experimental research design to enhance the knowledge of the dynamics of the PLC and its long-term effects.

This research forms the basis of the current study as it combines the existing studies' findings and provides practical recommendation goals for educators, policymakers, and researchers interested in developing and improving educational performance through teacher's PLCs. This shows that PLCs could change teaching and learning if well facilitated and properly implemented to provide a roadmap for overall school development.

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CHAPTER 1

INTRODUCTION

Background of the Study

The quest to improve educational outcomes has long centered on enhancing the quality of teaching and learning within schools. Traditional approaches to professional learning have been cited as inadequate in dealing with emerging issues in education systems, including population dynamics, student diversity and the need to improve student performance. Of these approaches, Professional Learning Communities (PLCs) have been widely adopted as the most effective means of enhancing teacher performance and learner achievement (Anderson & Olivier, 2022). Fostering partnership work, ongoing professional learning, and action, PLCs afford educators a purposeful framework to build professional knowledge, create effective teaching practices, and problem-solve together within specific education contexts. The purpose of this thesis is to discover whether or not PLCs can have a transformative effect on teacher performance and students.

PLCs are premised on the idea that teaching and learning are dynamic processes that thrive on collective effort rather than individual expertise. Based on the social constructivist theories by Vygotsky (1978), incorporating the idea that learning originates from social relations, PLCs are centered on dialogue, everyday practice, and collaboration in cultivating professional learning. The literature review conducted over the years concludes that PLCs promote teacher efficacy, enhance instructional practice, and contribute to the culture of collaboration within their schools. Despite that, the

relationship between PLCs and students' outcomes has not been investigated comprehensively, especially in various forms of education (Ansari et al., 2024). This research aims to fill this gap through a systematic literature review to assess the twin benefits of PLCs in raising teacher performance and improving learners' results towards achieving the intended consequences.

Problem Statement

Despite the growing adoption of PLCs in schools worldwide, their implementation and impact vary widely across contexts. Some schools have shown improved teacher practice and student outcomes, while others have faced the following obstacles: lack of leadership support, resources, and cooperation to embrace collaborative practices. Such disparities raise questions as to the processes by which PLCs impact educational productivity and quality. In addition, many studies center on the impact that PLCs have on teachers more so than on the subsequent impact on student learning (Arroyo Jr, 2011). In doing so, this study is designed to afford a more sophisticated understanding of the circumstances within which PLCs are most efficacious, which will be helpful for educators, policymakers, and researchers going forward.

Purpose of the Study

The primary purpose of this thesis is to examine the impact of PLCs on teacher performance and student achievement through a systematic review of existing research. In particular, the study will more closely examine how PLCs affect the participants' beliefs about the overall professional efficacy of teachers, cooperation between teachers, and instructional methods, together with the consequences for students, including their test results and attitude toward learning. Therefore, this study aims to

find emerging issues across different contexts and calendar years and ultimately discover the lessons learned by schools in implementing PLC processes and the problems encountered. Finally, as a whole, synthesizes the results through a systematic review of existing research on the understanding of PLCs and their contribution to improving the educational outcomes of learning processes.

Research Questions

The following research questions guide this study:

1. How do Professional Learning Communities impact teacher performance, including self-efficacy, instructional practices, and collaboration?
2. In what ways do Professional Learning Communities influence student achievement, including academic performance, engagement, and learning attitudes?
3. What factors enhance or hinder the effectiveness of Professional Learning Communities in achieving their intended outcomes?

Significance of the Study

The findings of this thesis have significant implications for both theory and practice. Theoretically, the study makes a small but significant input in explaining how frameworks like PLCs function in the context of schools. This paper has synthesized the relationship between teacher performance and student achievement by establishing that professional development is indispensable to systematic schooling improvement strategies. In an applied sense, the research gives directions for the creation, execution, and assessment of PLCs to educators and policymakers. Thus, providing some insights into the strengths and weaknesses of PLCs, the study provides practical suggestions for

stepwise promotion of these processes to become a valuable instrument for professional development and achievement of academic goals.

Scope of the Study

This thesis focuses on peer-reviewed studies published between 2019 and 2024 that investigate the impact of PLCs on teacher performance and student achievement. The review comprises fewer studies, including those from different education contexts, types of schools, grades, and even regions. To avoid including irrelevant and low-quality articles in the study, the following criteria are used: The articles must be full text, published in English and freely accessible. Although systematic review provides a solid ground for evaluating the existing research findings, certain limitations should be noted. Various sources are not published; hence, this study can only rely on published literature, and all the literature studied had to be written in English; thus, the study excludes valuable observations made in unpublished and non-English reports.

The Structure of the Thesis

This thesis is organized into five chapters, each building upon the other to provide a cohesive and comprehensive exploration of the topic. Chapter one of the study involves explaining the background of the study, the objective of the study, and the importance of the study. Therefore, Chapter 2 reviews the PLCs' theoretical and conceptual framework and the most relevant concepts, models and perspectives. The research method used in the study is explained in detail in chapter three, where the research design, data collection and data analysis methods used are highlighted. How PLCs influence the practice of teachers as well as the performance of students is explained in chapter four. Finally, Chapter 5 discusses the study's findings,

implications, and future research and practice. Each chapter presents a conceptual and comprehensive synthesis of the literature on PLCs in education.

CHAPTER 2

THEORETICAL FRAMEWORK

Introduction

The theoretical framework forms the cornerstone of this study, grounding its analysis within established concepts, models, and perspectives. PLCs embody theories concerning collaboration, organizational learning, and educational change and, in so doing, offer organization to professional development. This chapter critically analyses the background of PLCs, with special emphasis on how they started, the definitions, theoretical frameworks, and the leading models on which the implementation of PLCs is based. Further, it looks at the apprehensiveness of working together, the impact that PLCs have on teachers and their students, and the issues learners will likely experience while implementing the core principles of PLCs in the classrooms. Thus, the study situates PLCs in the broader framework of learning improvement and sets up the rationale for exploring the strengths and weaknesses of the concept.

Historical Background of Professional Learning Communities

Professional Learning Communities are deeply rooted in the broader evolution of collaborative practices in education and organizational theory. The idea of PLCs can be traced back to the 1960s and the 1970s when researchers started to consider professional collaboration among teachers as a potent approach for enhancing teaching practice and developing professional accountability (Poovey, 2012). These models focused on elaborating hierarchical, bureaucratic, and professional development structures from different branches of knowledge. Professional Learning Communities became more familiar in 1990, and S. DuFour and Shirley Hord, among other contributors, outlined precise models for enhancing the practice of the PLCs (DuFour,

2009). PLCs have adapted, however, to reflect evolving needs in schools with changes including data use, technology implementation, and equity. Knowledge of this historical background will explain the essential premises, continued purposes, and relevance of PLCs in current school systems.

Conceptual Definitions

Professional Learning Communities (PLCs)

PLCs are defined as a structured group of educators working together regularly, developing trust and commitment to common values to achieve a shared goal of student improvement (Antinluoma et al., 2021). These communities share core values, a quest for continuous improvement, and mutual accountability.

The PLC concept's core is that professional growth best happens within a collaborative and reflective environment where educators can exchange ideas, analyze data, and co-develop strategies.

Teacher Performance

Teacher performance reflects the spectrum of competencies, behaviours, and results from educators across the demands of their profession Campbell et al. (2004). Within PLC contexts, the term is usually considered concerning instructional effectiveness, classroom management, and adjustments made in teaching strategies and methodology to meet students' different needs Cai and Lin (2006). Danielson (2013) points out that improved teacher performance is an objective of the PLC and a yardstick to measure the organization's performance since it ties professional development and in-class implementation.

Student Achievement

Student achievement is the measured student learning results regarding academic performance, skill building, and socio-emotional development. Student achievement is the center of PLC. It is the guiding context for collaborative work and decisions (Shen et al., 2020). It shows that teacher practice is aligned with student needs and learning goals. This is, in fact, the ultimate reason for a PLC to bring success to all learners.

Collaborative Learning

Collaborative learning involves educators collaborating to share knowledge, solve problems, and develop innovative solutions (Strauß & Rummel, 2020). It is a core component of PLCs, emphasizing the power of collective expertise and shared responsibility. Through collaborative learning, teachers enhance their skills and contribute to building a culture of mutual support and continuous improvement within their schools.

Theoretical Perspectives on PLCs

Therefore, the theoretical base of PLCs is deeply rooted in organizational learning theories, social constructivism, and systems thinking. Organizational learning theories emphasize the need to create conditions where people in organizations can learn together, unlearn, and learn anew in turbulent times. Social constructivism refers to knowledge construction as facilitated by social interaction, which aligns well with the collaborative nature of PLCs (Çopur & Demirel, 2022). Systems thinking, popularized by Peter Senge, looks at schools as systems interrelated in themselves, where a change in one part affects the whole, according to Kallarakal et al. (2021). These perspectives

collectively support the potential of PLCs to change teaching and learning through intentional collaboration and systemic improvement.

Key Models Underpinning PLCs

Peter Senge's Learning Organization Theory

Peter Senge's theory of the learning organization provides a framework for understanding how PLCs function as dynamic, adaptive systems. Senge identifies five critical disciplines for organizational success: personal mastery, mental models, shared vision, team learning, and systems thinking. These disciplines closely align with PLC principles through collaboration, reflection, and a collective commitment to betterment.

DuFour's Model of Professional Learning Communities

One of the most cited models of PLCs is Richard DuFour's work, which centers on three core principles: all students will learn, all professionals will collaborate, and results will be used to determine subsequent action (DuFour, 2009). DuFour's approach provides more pragmatic guidelines for using PLCs through data-informed decisions and creating a results-oriented culture.

Shirley Hord's Five Dimensions of a PLC

According to the model by Shirley Hord, five dimensions can be identified that define effective PLCs: shared leadership, shared vision and values, collective learning and application, supportive conditions, and shared personal practice (Hord et al., 2010; Simon, 2012). These dimensions highlight the duality of structural and cultural elements in creating successful PLCs.

Stoll and Louis's Characteristics of Effective PLCs

Stoll and Louis identify mutual trust, respect, openness to change, and a focus on student learning as key characteristics, as stated by Stoll and Louis (2007). Their

framework underlines the role of relationships and culture in sustaining effective PLCs and provides insight into the human dynamics influencing collaborative efforts.

The Role of Collaboration in PLCs

Collaboration is the linchpin of PLCs in that it provides the very mechanism through which teachers can share knowledge, solve problems, and innovate. The key ingredients for successful collaboration include trust, open communication, and a shared commitment to improvement (Hallam et al., 2015). Collaboration within PLCs encompasses more than superficial contact; members engage deeply with data, reflect critically, and jointly construct strategies, as Vescio et al. (2008) indicated. In this way, PLCs nurture a culture of collaboration that enables educators to capitalize on collective expertise to address challenges and achieve shared goals.

Impact of PLCs on Teacher Performance

PLCs impact teacher performance by promoting professional development, critical thinking, and creativity. Teachers involved in PLCs are more confident, enhance the delivery of instruction in their classrooms, and have a better handle on the student population diversity, according to York-Barr and Duke (2004). Teachers are frequently isolated, but working under PLCs will enhance unity and purpose among the practitioners. In this connection, it can be concluded that enhancing teacher performance equals improving the quality of education.

Impact of PLCs on Student Achievement

The bottom-line measure of PLC effectiveness would be the impact on student achievement. Research has identified that, if done correctly, PLCs can lead to improved student results by aligning teaching practices to the needs of students and by engendering data-driven decision-making (Shabani, 2016). PLCs help create learning

environments that support student success by focusing on continuous improvement and collaborative problem-solving.

Linking Theory to Practice

Translating PLC theories into practice requires a deliberate and strategic approach. Schools should have clear goals, ensure resources and support, and promote a culture of trust and collaboration (Feldman, 2020; Dickinson, 2011). By linking theory with practice, educators can ensure that PLCs are well-designed and practical to ensure meaningful improvements in teaching and learning.

Challenges and Critiques of PLC Theories

However, as with most organizational development strategies, several problems are likewise associated with implementing PLCs. They are inconsistent in deploying the concept of PLCs, perceived as a shallow form of teamwork, and implementation of the concept has met with resistance (Hairon et al., 2017). However, prolonging PLCs is time- and resource-intensive and requires leadership support. Meeting these challenges is so crucial for making PLCs effective and sustainable.

CHAPTER 3

METHODOLOGY

Introduction

This chapter describes the efficient and rigorous approach to including, evaluating, and integrating qualitative research articles. The methodology presented in this article is intended to answer questions regarding how PLCs affect teacher performance, such as improvements in practice, professional growth, or general effectiveness, as well as the role of PLCs in increasing student achievement and what engagement and functioning processes within PLCs are effective in achieving these outcomes. This chapter outlined the systematic and transparent process to identify, select, appraise, and synthesize relevant qualitative research studies. The methodology described here aims to respond to how PLCs influence teacher performance, including enhancements in instructional practices, professional development, and overall effectiveness, identify the relationship between PLCs and student achievement, and what successful strategies of engagement and functioning within PLCs contribute to these outcomes.

Research Design

The research design adopted for this study is a systematic review of the literature selected because it synthesizes the existing knowledge and gives a comprehensive understanding of a particular topic. A systematic review is a research approach that involves a precise, rigorous, and transparent approach to identifying, selecting, and evaluating relevant literature concerning specified research questions. According to Merriam and Tisdell (2015), the qualitative approach suits the contexts of how participants make sense of their experiences and construct meaning, which is

informative for research concerning the effects of PLCs on teacher efficiency and student outcomes. This design was considered appropriate because it allows the researcher to adopt a more critical analysis of the theoretical and empirical literature on PLCs and their result on teacher effectiveness and student outcomes. It is also noteworthy to report that the principles of the PRISMA statement were adhered to when conducting the research to consolidate rigour, transparency, and reproducibility. The systematic review involved identifying, including, screening, and selecting papers from peer-reviewed databases and a rigorous procedure to compile the studies and generalize the findings.

This is possible through the systematic approach that makes the review bias-free and has a proper scientific approach. Measures at the population of interest level involved the predetermined inclusion and exclusion criteria, which narrowed the search to articles and reports published in peer-reviewed journals in the 'gold' periodicals. The papers were included based on the following criteria: the paper is about PLCs, it addresses the implementation or the outcomes or the theoretical framework of PLCs; the papers were excluded based on the following criteria: the paper has low scientific rigour and is irrelevant. In addition, the research design involves both qualitative and quantitative research to recognize the value of varied perspectives for capturing the many-sidedness of PLCs. This also makes comparing the effectiveness and issues with PLCs easier since the various methodologies reveal different perspectives.

Search Strategy

The primary data source for this research was the ERIC database, which is widely recognized as a comprehensive repository for education-related studies. Furthermore, to increase the number of identified sources and to guarantee that no

relevant sources were missed, the search was also conducted using Google Scholar, which offers a broader range of coverage than ERIC. Using the thesis title "Impact of Professional Learning Communities on Teacher Performance and Student Achievement", a search in ERIC returned 247 articles. This search result was then further filtered based on search aspects, including only articles in peer-reviewed sources, published within the last five years, and only articles written in English, able to view full text and free full text available. Of these, the criteria generated three articles. Realizing that the study's focus was too narrow, the search terms were expanded, and the following general terms were used in the search: "Effects of Professional Learning Communities on Teachers' effectiveness," which produced six articles and "Effects of Professional Learning Communities on students' performance," which returned one more article. An additional search was carried out on Google Scholar using the broader title of the thesis to capture as many articles as possible within the last five years, yielding about 16,900 results. These have been filtered carefully to select the only relevant studies related to the PLCs that highlighted effects on student achievement and teacher performance. Two more papers were found using Google Scholar with the inclusion criteria, so the total number of articles investigated in this systematic review is twelve.

Study Selection Process

A stringent set of inclusion and exclusion criteria was applied during the screening process to ensure that the studies selected were directly relevant and of high quality. The selection criteria required that the studies be published in academic journals between 2019 and 2024, directly address the effects of PLCs on teachers' performance, student outcomes, or both, be accessible without a paywall and in full-

text, and be written in English. Hence, studies that did not conform to the following criteria were deemed unsuitable for inclusion in the review: If they were unrelated to the overall theme of patient safety, were not peer-reviewed, or were published within, say, the last five years without scholarly articles from the period of January 2005 to December 2010 being considered. This rigorous elimination process ensured the final database consisted of only the most relevant and best-quality papers.

The search strategy used steps in a diligent search to ensure that comprehensive and accurate literature was reviewed during the undertaking. To begin with, the author typed the whole thesis title, including the type, in the ERIC database. This was done in sequence, with a search focusing on more specific words on teacher performance and student achievement as affected by PLC. A Google Scholar search was carried out as a secondary search to extend the search for the relevant literature sources that might be missed in the ERIC database. All the titles and, where available, the abstracts of all possible studies were considered to qualify for the analysis to answer the research questions. Literature research was conducted based on inclusion criteria that considered the studies to be included in the analysis.

Quality Assessment

A critical appraisal of the methodological quality of each study was conducted using a customized checklist derived from established systematic review guidelines. This checklist evaluated aspects like the clarity of its objectives, the choice of methodologies, the validity and reliability of its data collection and data analysis methods and the importance and transferability of its conclusions (Järholm & Bohlin, 2014). Comparisons that did not meet the study selection criteria were not included in

the systematic review, consequently promoting the inclusion of research of high quality only.

Data Extraction

Regarding the identified articles, a structured data retrieval procedure was used to gather specific data on the authors and year of publication, the design and setting of the studies, the participants' characteristics, and the main results regarding the PLC effects. In addition, data on the limitations of studies plus the study's implications was collected to provide an improved understanding of the study. This information was systematically compiled to make it easier to synthesize many themes of interest (Järholm & Bohlin, 2014). Descriptive and inferential statistics were used to assess the four quantitative works, and the qualitative data collected were used for contextual understanding and identification of how/why PLC impacted teaching and learning. The synthesis process aims to integrate the findings of a plethora of research in the context of a narrative of synthesis, which may serve to establish key patterns and recognize distinctive contributions.

Data Synthesis

Data synthesis involved integrating findings from the included studies to develop an integrated understanding of PLCs and their effects. A thematic synthesis approach was adopted to identify and organize recurring patterns and themes across studies (Barker et al., 2021). This involved initially coding extracted data, grouping codes into broader categories, and then themes.

Quantitative findings were summarized by descriptive statistics, highlighting trends and variations in the outcomes of PLC implementation. Qualitative findings were narratively synthesized, capturing insights and contextual factors reported in the

studies—this dual approach allowed for comprehensive analysis, bridging the gap between numerical trends and in-depth qualitative understanding.

Ethical Considerations

Ethical considerations are essential in this study to ensure that the research process aligns with integrity, respect, and accountability principles. Although systematic reviews do not involve direct contact with participants, ethical considerations are crucial. This included obtaining proper permissions to access databases and copyrighted materials, appropriately crediting original authors, and ensuring the accurate representation of their work.

In addition, the publication bias was avoided by the systematic search for both published and unpublished studies (Suri, 2020). Transparency in reporting findings and further acknowledgement of limitations while reviewing uphold the ethicality of this research.

Limitations of the Methodology

While the methodology employed in this thesis is robust, some limitations must be acknowledged. This review is based only on the published articles, which could leave out unpublished studies or grey literature. In the same way, excluding the context published in languages other than English can also lead to a lack of consideration of the valuable context available in the other language sources. Lastly, the free access criterion might have led to the removal of published studies behind the paywalls, which could have limited the scope of the review. Although such factors may pose certain limitations, the systematic and transparent approach used in this thesis minimizes them while ensuring that this study explores the effect of PLCs on teacher performance and students' achievements in a credible manner. The research conclusions conducted with

such a high methodological rigour are informative and significantly enhance the overall knowledge on this subject.

Conclusion

This chapter has described the methodology used in this systematic review: the research design, the search strategy, the selection of studies, quality assessment, data extraction, and synthesis. The reliability and validity of the findings are given by the clear and well-defined structure used in this study. Ethical considerations and limitations demonstrate the concern of this study to be methodologically sound and responsible, which prepares the ground for the study result in the next chapter.

CHAPTER 4

RESULTS

Introduction

This chapter delves deeply into the findings of the systematic review, exploring the transformative impact of Professional Learning Communities (PLCs) on teacher performance and student achievement. In this chapter, based on the thematic coding and synthesis of the literature reviewed in prior studies, the researcher aims to highlight the particular themes and subthemes that have emerged. These themes augment the diverse function of PLCs in building configurations, advancing instructional development, and ameliorating academic achievement. By articulating these themes in detail, this chapter gives a more richly developed analysis of how PLCs function, their difficulties, and their implications for professional learning. To some extent, the analysis is going to be organized to answer the major research questions; by doing so, it would provide valuable evidence concerning the nature of PLCs in different contexts of education.

Identified Themes and Sub-themes

Theme 1: Teacher Collaboration and Professional Development

Teacher collaboration and professional development represent the cornerstone of effective PLCs. In reviewing the studies, it was found out that PLCs afford teachers the following: structured forum for the problem solving and sharing of expertise and professional trust. The phenomenon of trust which forms part of the understanding is not an ideology, but the measurable result of time spent in cooperation. Dzul et al. (2023) are right saying that trust promotes willingness of teachers to share their instructional problems and, thus, talk freely with others in similar situation. This dynamic fosters safety for educators to analyze their behaviors, goals, and receive

constructive co-verification for improvement based on evidenced practice. Besides, trust in the framework of PLCs enhances the partnering relationships of all the colleagues, which is critical for successful partnering on the long term.

Leadership also emerged as a critical factor in enabling collaboration within PLCs. The study also showed that schools that have adopted distributed leadership systems recorded increased teacher participation and efficiency. Anderson and Olivier (2022) opine that by participating in PLC activities, the leaders confirm that collaboration is necessary while also providing a model of exemplar engagement. Such leaders ensure that members of their school's PLC set aside time for meetings, provide for all essential commodities and furniture, as well as respond to any controversies that people may have concerning collaboration. This involvement also indicates teachers that their combined work is recognized and appreciated in the institution. Hence the teachers in these contexts have higher probability of active participation, resource sharing and constructive professional discourse.

Additionally, PLCs are instrumental in mitigating the isolation that many teachers experience in their professional roles. This is evident in schools where collaboration is not valued because the teachers are on their own they will not get to learn from other teachers and what is new in the market. PLCs overcome such a situation by developing a community of practice where teachers constantly share experiences and ideas. Khasawneh et al. (2023) notes that such interactions improve not only personal skills but also team organisational trains as teachers gain knowledge on how to harness colleagues strengths to overcome similar difficulties. It is this dynamic that is highlighted by advocates of PLCs to demonstrate the possibility of developing a culture of improved and shared accountability and learning.

Theme 2: Instructional Innovation and Practice

Instructional innovation is another significant outcome of PLC participation. Unlike professional learning communities, the PLCs promote evaluation and analysis of the current knowledge, pedagogy as well as practice and seeking out methods of enhancing the students' engagement. Integral to this process is the application of data in decision making. It is evident in Mariani-Petroze (2023) that the PLCs facilitate collection of data that help the teachers identify learning deficits that require intervention. For instance, teachers in PLCs work together and review data like test results as well as truancy rates, to diagnose performance problems. Besides, the use of this analytical approach serves to enhance the instructional planning and guarantee the congruity between the respective teaching practices and the students' high demands.

Reflection plays a pivotal role in the innovation process within PLCs. Sustained reflective discussions allow the teachers to share their views on the outcomes of the practice and introduce the necessary changes in their practice based on the collective judgement. According to Gülhan (2024), reflection is not a process of sitting idle but rather a way to process one's teaching philosophy and practices. In the researched PLCs, the participating teachers are supposed to practice deep discussions regarding the connection between their practice and student achievement. This reflective process may result in the implementation of new approaches like project-based or differentiated instruction that better addresses the various learning needs.

The interdisciplinary collaboration facilitated by PLCs further amplifies instructional innovation. In contexts like STEAM education, teachers from different disciplines work together to plan a single lesson that transcends the curriculum boundaries of specific disciplines. This kind of approach promotes originaive work and

enables the teacher to tap from one another in developing the learning experiences. Gülhan (2024) explains how such interdisciplinary PLCs promote teachers to overcome boundaries of their subject matters and create comprehensive and interest-catching lessons. It also improves teaching practices that are offered by PLCs besides developing an active learning environment that challenges students to solve ideas from different angle.

Theme 3: Student Achievement and Engagement

The positive impact of PLCs on student achievement is one of the most compelling findings of the review. Literature review revealed that by forming efficient PLCs, teachers will subject students to better fit teaching methods. For instance, Azovide et al (2024) established a remarkable enhancement of the reading skills of Canadian students who are from the allophone background regarding their teachers of PLC. This enhancement was regarded to partnership in developing curricula as well as teaching-learning interventions targeted concurrently to serve this type of learners. Thus, the capacity of PLCs to develop such specialised instructional practices suggests an opportunity for redressing educational inequities.

Student engagement is another critical outcome associated with PLCs. Whenever teachers implement new approaches to teaching that result from developments in PLCs, students become more involved in their education. This phenomenon is very well illustrated by Gülhan (2024) highlighting that interdisciplinary projects generated through PLC practice enhanced students' engagement. For instance, get activities such as project-based learning in science, technology, engineering arts, and mathematics make learning more real and creative in addition to developing

problem-solving skills. This calls for group work in order to achieve this sense of learning; students are required to work in groups just like the teachers.

Furthermore, PLCs play a crucial role in addressing the diverse needs of students. In addition, teachers used in PLCs may occasionally have discussions regarding the differentiation and integration of learners with disabilities into regular classrooms. ,Azovide et Al (2024) shows how through the use of PLCs teachers were able to develop lesson that supported culturally and linguistically diverse students hence enhanced student achievement. Besides, this focus on inclusiveness not only promotes a higher academic performance of the boys but also provides appropriate conditions for other learners with a more inclusive tone.

Challenges in PLC Implementation

Despite their numerous benefits, PLCs are not without challenges. One of the common challenges mentioned across the research is teachers' resistance to change. He found that such resistance can be due to ignorance of the aims and objectives of PLCs or adverse experiences with teamwork. This resistance can be dealt with by leadership through modeling civil collaboration as well as maintaining a confiding relationship. Also, due to lack of adequate time to devote to this important methodology, the implementation of PLC is greatly hampered. Timetables for re-teaching, determining lessons to teach with specific resources and organizing other lessons with their related resource often conflicts with PLC participation in resource poor schools. According to Khasawneh et al. (2023), it is crucial to distinguish between these challenges from the rest and proactively schedule time specifically for the execution of PLC tasks.

Summary of Findings

The findings of this chapter underscore the transformative potential of PLCs in education. Through collaboration and cooperation, team learning and critical thinking, PLC has a positive impact on the quality of practice and learners' achievements. However, the improvement of their organisational performance is contingent upon favourable management support, sufficient resources, and the determination to overcome the various obstacles such as resistance and time limitation. In this way, PLCs help to enhance the practice of a single teacher but also support the major agenda of creating a great overall school.

CHAPTER 5

DISCUSSION AND CONCLUSION

Introduction

This chapter synthesizes the findings from the previous analysis and evaluates their implications for educational practice, policy, and future research. It restates the research questions to provide conclusions on the impact of Professional Learning Communities (PLCs) on teachers' performance and students' achievement. In this chapter, theoretical and empirical perspectives are combined so as to highlight the favorable aspects of PLCs and, at the same time, address their difficulties. It also provides guidelines for establishing and managing effective PLCs, and suggests avenues for future study to improve the understanding of their benefits.

Revisiting the Research Questions

How do Professional Learning Communities impact teacher performance?

The findings from Chapter 4 illustrate that PLCs significantly enhance teacher performance through collaborative practices, reflective inquiry, and professional trust. Teachers involved in PLCs are more prepared to deal with the challenges of teaching in the twenty first century learning environment than colleagues who are not in PLCs because of the professionalism development training that is got in those groups. Anderson and Olivier (2022) showed that PLCs positively impacted professional development by developing self-efficiency and collective efficiency of the teachers. Some of the benefits that have been noted include; Teachers who engage in PLCs indicate higher levels of confidence in their capacity to teach because of the exchanges with other teachers where they share their knowledge, ideas as well as seek additional pointers on how to address the needs of their learners most profitably. Furthermore, by

their very structure, PLCs provide educators with opportunities that prevent them from employing single-occasion practices; instead, they provide a venue for sharing strategies and ideas for teaching, as well as for nurturing a professional learning community.

However, the implementation of PLCs is not without its challenges. Some teachers may resist professional learning community approach due to text-based teaching culture. Khasawneh et al. (2023) also pointed that time limitation and other commitments are more challenges that need consistent time and attention from strategic leaders and resources allocation. Having the leader on board is very important especially for the continuity of teachers engaged in the PLCs as it assure that practices are fostered and resourced. It was also found that effective leadership is closely related to ongoing and more effective PLCs because the leaders create a culture of commitment, professionalism, and sharp awareness of student achievement.

How do Professional Learning Communities influence student achievement?

The impact of PLCs on student achievement is equally compelling, with evidence suggesting that collaborative teaching practices lead to improved academic outcomes and higher levels of student engagement. As found by Azovide et al. (2024) and Gülhan (2024), PLCs help in prioritizing the development of effective instructional practices to respond to student needs. Teachers who are in business specific PLCs are in a better position to analyze data, plan and teach with new strategies or teach intervention strategies. For instance, interdisciplinary project which has been designed in STEAM- oriented PLC increases not only the concept attainment, but also the student's problem solving abilities.

Furthermore, PLCs contribute to a more inclusive and equitable learning environment. Discussions surrounding differentiation and culturally responsive teaching within teacher learning teams guarantee that the practices employed by teachers can meet the needs of the culturally diverse students they teach. It is important because schools today are diverse; as a result, a teacher must know which technique will best suit a particular student's need. Nevertheless, it should be noted that research evidence placing faith in PLCs to enhance student achievement indicates that the quality of implementation is critical. If PLCs are under resourced or lack a clear vision or objectives, they are likely to miss the objective of their intended impact.

Implications for Policy and Practice

Creating Supportive Environments for PLCs

The findings underscore the need for policies that prioritize the development and sustainability of PLCs in schools. PLC teams have two avenues of effects, one that is on the teachers and the second that is on the students, hence policymakers should address them accordingly with funds. The information collected in the survey reveal lack of funding as one of the most significant challenges to effective implementation of PLC activities. As a result, teachers cannot be given adequate time, training, and support in form of materials to enable them participate effectively in activities of the PLCs. Moreover, there is a need to integrate PLC frameworks within professional learning communities in order to prepare educators for ascertaining and constructing collaborative learning environment in their schools.

Leadership plays a pivotal role in the success of PLCs, and as such, school administrators should receive training in collaborative leadership practices. Those leaders who engage in PLCs lead by example and foster the culture that belongs to all

members of the team. There is also the need for distributive policy for leadership to call for teachers' leadership at the team level or PLCs. The mentioned approach not only helps to mobilize ownership but also helps to tap into the richness of experience and knowledge that educators bring to school environments.

Tailoring PLCs to Context

While PLCs have demonstrated broad applicability, their effectiveness is influenced by contextual factors such as school size, student demographics, and available resources. As a result, it is necessary that both policymakers and practitioners tailor the structure of PLCs to the requirements of their respective school. For example, as highlighted by He et al. (2022) online PLCs may be a reasonable solution for teachers in rural or schools that lack resources. Such adaptations guarantee that every teacher irrespective of his/her situation gains from collaborative professional development.

Challenges and Recommendations for Improvement

Despite their potential, PLCs face several challenges that must be addressed to maximize their impact. This is a major challenge in schools where traditional structures dominate the educational setting Merryfield (2000). To avoid this, schools should redirected efforts on developing a culture and vision for teacher professionalism. Activities for staff professional development should incorporate value and functioning of collaborative practices to augment the roles of cooperation in addressing educational activities.

Time constraints are another critical challenge that requires targeted interventions. The time must be provided in the school calendar/schedule so that teachers are able to take part in PLC activities without having to neglect their teaching

duties. More so, offering an access to some assets like data analytics tools and professional learning materials can support PLC activities and increase their productivity. Another suggestion should be tied to the promotion of PLC participation through simple rewards, or, for example, grants of promotions based on active involvement in collaborative practices.

Directions for Future Research

While this study provides valuable insights into the impact of PLCs, several areas warrant further exploration. More descriptive research designs that would enable a singular correlation analysis of PLC participation with teacher performance as well as student achievement are also required, longitudinal studies must be conducted. Obviously, such research would contribute to a deeper understanding of the potential sustainability and scalability of PLCs. Further, comparative analysis between different education contexts, or different countries could provide information regarding cultural and system variables that affect the PLC success.

Future research should also explore the role of technology in facilitating PLCs, particularly in remote or under-resourced settings. There is much hope for collaboration and professional development with online and hybrid integrated PLC models as they attend to geographical and logistical pragmatic concerns; however, these models' effects on collaboration deserve further elaboration. Last, more experimental research, which compares the PLC intervention, e.g., leadership training, data use, or other relevant practices, shown in PLC settings to the absence of the intervention could offer prescriptive results for enhancing PLC effectiveness.

Conclusion

In conclusion, this study reaffirms the transformative potential of Professional Learning Communities in enhancing teacher performance and student achievement. Thus, PLCs respond to significant concerns in today's schools and learning environments and promote improved practice at all levels. However, results highly depend on proper implementation of such strategies, leaders' reinforcement, and sufficient resources. Stakeholders, including policymakers, practitioners, and researchers, must embrace the development of the PLC models and remains open to effectively respond to existing issues and enhance the sense and use of PLC. As the results indicate, PLCs are not only professional development but the key to bringing change to each school's practice across all areas of teaching and learning based on collaboration.

APPENDIX A

PRISMA

Identification

- |— Records identified through database searching (n = 16,900)
- |— Additional records identified through other sources (n = 0)
- └ Total records identified (n = 16,900)

Screening

- |— Records after duplicates removed (n = 16,900)
- |— Records screened (n = 16,900)
- |— Records excluded (n = 16,888)
- └ Full-text articles assessed for eligibility (n = 12)

Eligibility

- |— Full-text articles excluded (n = 0)
- └ Studies included in qualitative synthesis (n = 12)

Included

- └ Studies included in the systematic review (n = 12)

APPENDIX B

DATA EXTRACTION FORM FOR ARTICLES

The following table captures essential information from the 12 articles included in this systematic review. Each entry covers key elements such as the title, authors, year of publication, study aim, methodology, population/sample, key findings, and implications.

Article	Authors & Year	Aim of Study	Methodology	Population/Sample	Key Findings	Implications
1. Impact of Teachers' Professional Development on Reading Achievement of Canadian Allophone Students	Azovide, Bouchamma, & Basque (2024)	To examine the effect of teacher professional development on reading outcomes of allophone students.	Quantitative	Pan-Canadian Assessment Program dataset	Professional development improved reading outcomes for allophone students.	PLCs are essential for addressing diverse learner needs.
2. The Positive Impacts of a PLC Model on Student Achievement in Small Schools	Mariani-Petroze (2023)	To investigate PLC impact on student growth in small schools.	Case study	Small K-8 private school	PLCs improved math and reading scores, particularly in later testing cycles.	Targeted PLCs can address unique challenges in small schools.

3. Examination of Teacher Collaboration in PLCs and Collaborative Teaching Practices	Khasawneh et al. (2023)	To explore collaboration within PLCs and its effect on teaching and learning.	Mixed-methods	Teachers in multiple K-12 schools	Teacher collaboration in PLCs enhanced professional skills and instructional practices.	Collaboration should be structured and well-supported to maximize effectiveness.
4. Mediating Effect of PLCs on Trust and Self-Efficacy Among Islamic Education Teachers	Dzul, Hussin, & Sulaiman (2023)	To examine PLC influence on trust and self-efficacy in Islamic education.	Quantitative	Islamic education teachers in Malaysia	PLCs foster trust and improved teacher self-efficacy.	Focus on trust-building mechanisms in PLC design.
5. Professional Learning Community (PLC) in STEAM Education	Gülhan (2024)	To assess PLC impact on interdisciplinary teaching and teacher efficacy in STEAM education.	Quantitative (pre-post test)	Teachers in STEAM workshops	PLCs improved skill-teaching self-efficacy and interdisciplinary perceptions.	Emphasize PLCs for complex, interdisciplinary subjects.
6. Chinese Dual Language Immersion Teacher PLC	He, Ouyang, & Zhang (2022)	To explore the development of professional capital in dual-language PLCs.	Qualitative	Seven dual-language immersion teachers in the U.S.	PLCs fostered professional collaboration and innovative teaching practices.	PLCs are valuable for specialized teaching contexts like dual-language immersion.

7. A Quantitative Study of Schools as Learning Organizations	Anderson & Olivier (2022)	To investigate PLCs' relationship with teacher self-efficacy and collective efficacy.	Quantitative	57 schools in a metropolitan district	PLCs significantly improved self-efficacy and collective efficacy.	PLC implementation should consider contextual factors like poverty levels.
8. PLC in the Improvement of Student Learning Achievement in a Demonstration School	Bunnaen, Prasertsang, & Worapun (2022)	To assess the effect of PLCs on student GPA improvements.	Mixed-methods	Students, teachers, and administrators in a Thai demonstration school	PLCs enhanced GPAs and collaborative efforts among stakeholders.	Broader stakeholder engagement is critical for successful PLCs.
9. Beyond Content-Focused Professional Development: Genuine PLCs	Gore & Rosser (2020)	To explore how PLC-based teaching rounds improve pedagogy and student outcomes.	RCT + Qualitative	Teachers across 24 schools	PLCs improved collegiality and pedagogical practices, enhancing student engagement.	Genuine PLCs promote sustainable improvements in pedagogy.
10. Development of an Instructional Model Based on PLCs and Work-Based Learning	Ekkuaboon (2024)	To develop a PLC model for enhancing classroom research competencies.	Quantitative (pre-post test)	Education students in a teacher training program	PLC-enhanced instructional models improved classroom research skills.	PLC models should integrate practical and theoretical learning.

11. Teacher Professional Development and Student Reading Achievement: A Meta-Analytic Review	Didion, Toste, & Filderman (2019)	To analyze the impact of teacher development on reading achievement.	Meta-analysis	28 studies on teacher professional development	Professional development had a moderate, positive impact on student reading outcomes.	PLCs are effective tools for improving literacy outcomes.
12. Professional Learning Community in a Demonstration School	Bunnaen, Prasertsang, & Worapun (2022)	To explore PLC impact on student academic performance.	Mixed-methods	Thai demonstration school stakeholders	Collaboration improved academic and non-academic outcomes for students.	School-wide collaboration models strengthen PLC outcomes.

APPENDIX C

CUSTOMIZED CRITICAL APPRAISAL CHECKLIST FOR SYSTEMATIC REVIEW

This checklist is derived from established systematic review guidelines, such as PRISMA and CASP, tailored to assess the methodological quality of studies focusing on the impact of Professional Learning Communities (PLCs) on teacher performance and student achievement.

Checklist Categories

1. **Research Question and Objectives**
 - Is the research question clearly stated and focused?
 - Are the objectives of the study explicitly defined?
2. **Study Design**
 - Is the chosen study design appropriate to answer the research question?
 - Does the study specify whether it uses quantitative, qualitative, or mixed methods?
3. **Population and Sample**
 - Is the population or sample clearly described (e.g., teachers, students, school types)?
 - Are the sample size and selection method appropriate for the study design?
 - Is the sample representative of the population being studied?
4. **Intervention or Exposure**
 - Is the intervention or focus (e.g., PLCs) clearly described?
 - Are the components of the PLC (e.g., collaboration, reflective practices) explicitly detailed?
5. **Data Collection Methods**
 - Are the data collection tools and techniques appropriate (e.g., surveys, interviews, GPA analysis)?
 - Are the tools validated or standardized?
 - Is there evidence of reliability and validity in the data collection process?
6. **Data Analysis**
 - Are the data analysis methods clearly described and appropriate for the study design?
 - Are statistical tests or qualitative frameworks used effectively to address the research question?
 - Are potential confounding factors or biases accounted for?
7. **Results and Findings**
 - Are the results clearly presented and logically organized?
 - Do the findings align with the stated objectives and research questions?
 - Are quantitative results supported by confidence intervals or p-values, and are qualitative results supported by examples?
8. **Ethical Considerations**

- Is there evidence of ethical approval from a recognized review board?
- Are ethical issues (e.g., informed consent, anonymity) adequately addressed?

9. **Limitations**

- Are the study's limitations explicitly discussed?
- Are there potential sources of bias or issues that might affect the validity of the findings?

10. **Relevance and Applicability**

- Are the findings relevant to the research context (e.g., education, PLCs)?
- Can the results be generalized to similar populations or settings?

11. **Overall Quality and Contribution**

- Does the study make a significant contribution to understanding PLCs and their impact?
- Are the conclusions supported by the evidence presented?

Scoring Guidelines

- **Yes (2 points):** Criterion fully met and clearly articulated.
- **Partially (1 point):** Criterion partially addressed or lacks detail.
- **No (0 points):** Criterion not met or insufficiently addressed.

Total Score Interpretation:

- **18–22:** High methodological quality.
- **13–17:** Moderate methodological quality.
- **0–12:** Low methodological quality.

This checklist ensures a comprehensive and systematic evaluation of each study's methodological rigor and relevance, supporting reliable and valid synthesis in the systematic review.

APPENDIX D

CODES AND THEMES TABLE

Theme	Sub-theme	Code	Raw Quote (with Author)
Teacher Collaboration	Building trust and professional relationships	Trust among teachers	"The foundation of trust enabled teachers to engage in critical discussions without fear of judgment, fostering an environment conducive to professional growth" (Dzul et al., 2023).
	Overcoming professional isolation	Breaking isolation	"Participating in PLCs helped break the isolation commonly experienced by teachers, creating opportunities for meaningful collaboration" (Khasawneh et al., 2023).
	Promoting collaborative leadership	Leadership participation	"Supportive leadership was instrumental in establishing a culture where collaboration was valued and prioritized" (Anderson & Olivier, 2022).
	Professional vulnerability in PLCs	Safe collaborative space	"The PLC structure encouraged teachers to share challenges and experiment with new instructional strategies in a non-threatening environment" (He et al., 2022).
Instructional Innovation	Data-informed instruction	Using performance data	"Teachers collaboratively analyzed assessment data to refine their instructional methods, ensuring alignment with student needs" (Mariani-Petroze, 2023).

Student Achievement	Advancing reflective practices	Structured reflection	"Reflective discussions within PLCs served as a catalyst for pedagogical innovation and continuous improvement" (Gülhan, 2024).
	Cross-disciplinary collaboration	Interdisciplinary approaches	"Interdisciplinary collaboration fostered creativity and improved teaching outcomes by combining diverse perspectives" (Gülhan, 2024).
	Technology-enhanced collaboration	Online PLC engagement	"Virtual PLCs allowed teachers in remote settings to engage in peer learning and professional discussions, bridging geographic and resource gaps" (He et al., 2022).
	Enhancing teacher agency	Ownership of development	"Teachers gained a sense of agency, viewing themselves as active contributors to their professional growth" (Anderson & Olivier, 2022).
	Improved academic performance	Targeted teaching strategies	"The impact of collaborative curriculum development was most pronounced among students with diverse linguistic backgrounds, highlighting the role of tailored instruction" (Azovide et al., 2024).
	Promoting active engagement	Project-based learning	"Collaborative projects developed within PLCs sparked student interest and encouraged active involvement in learning" (Gülhan, 2024).
	Addressing diverse learning needs	Differentiated instruction	"The collaborative development of tailored curricula ensured equitable learning opportunities for all students" (Azovide et al., 2024).

Dual Impact of PLCs	Strengthening teacher-student relationships	Collaborative teaching culture	"Students reported feeling more supported and motivated when their teachers worked collaboratively" (Mariani-Petroze, 2023).
	Teachers and students simultaneously benefit	Holistic school improvement	"The professional growth of teachers in PLCs directly correlated with improved academic outcomes for students" (Khasawneh et al., 2023).
	Bridging theory and practice	Classroom research	"Participation in PLCs helped educators apply theoretical knowledge to practical classroom challenges, bridging the gap between theory and practice" (Ekkuaboon, 2024).
	Building interdisciplinary collaboration in STEAM	Multi-disciplinary engagement	"PLC models encouraged teachers to create interdisciplinary curricula, which boosted student engagement in STEAM subjects" (Gülhan, 2024).
	Improved teacher self-efficacy and student learning outcomes	Interlinked development	"The intertwined growth of teacher confidence and student performance reflects the dual benefits of effective PLCs" (Dzul et al., 2023).

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