IMPACT OF PROFESSIONAL LEARNING COMMUNITIES (PLCs) ON THE PROFESSIONAL DEVELOPMENT OF TEACHERS AT THREE ELEMENTARY SCHOOLS IN ST. LUCIA

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Approval of the Thesis

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Doctor of Philosophy in Education

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Abstract

IMPACT OF PROFESSIONAL LEARNING COMMUNITIES (PLCs) ON THE PROFESSIONAL DEVELOPMENT OF TEACHERS AT THREE ELEMENTARY SCHOOLS IN ST. LUCIA

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Despite the growing research on teacher development and Professional Learning Communities (PLCs) globally, there is limited research on the development and practices of PLCs in Saint Lucia and other Eastern Caribbean Islands elementary schools. Thus, this multi-site case qualitative study continued this line of inquiry and examined twenty- five teachers and three principals' beliefs on the impact of PLCs on professional development of teachers at three elementary schools in one educational district in Saint Lucia. This qualitative multi-site case study investigated principals and teachers' beliefs of the established professional learning communities, implementation processes, hurdles, impact of PLCs on teacher professional growth, and ways in which PLCs can be improved to meet the professional development needs of teachers.

The research was grounded in the theoretical framework of Wenger (1998) theories of communities of practice, Vygotsky (1978) social constructivist theory, and the broad dimensions of effective PLCs: "shared and supportive leadership, shared vision, collective learning and application, shared personal practice, and supportive conditions" (Hord, 2009 p. 12-13), shared responsibility (Little, 2006), facilitative and trusting relations (Hipp & Huffman, 2010), and external network and alliances (Stoll et al., 2006). Data gathered from focus groups, individual

interviews and document reviews were categorized, coded, triangulated, and analyzed to develop themes.

Findings revealed PLCs were viewed as collaborative planning teams which engaged in data driven instructional decision making geared towards enhancing student outcomes, common instructional planning, and ongoing learning. Major implementation hurdles included weak PLCs structures, constrained leadership participation, inadequate time, limited human resources, school related issues, and educational mandates. Findings endorsed PLCs provided many opportunities for professional growth through ongoing systematic instructional decision making, collaboration, and supportive structural arrangements which led to heightened teacher instructional capacity, promoted a culture of collegiality, improved teacher confidence, and teacher relations.

The implications of this study provide educational leaders and policy makers insight into critical structures and support systems which must be established to effectively implement and sustain PLCs models.

Declaration

I declare that this thesis has been composed solely by myself and that it has not been submitted, in whole or in part, in any previous application for a degree. Except where states otherwise by reference or acknowledgment, the work presented is entirely my own.

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Dedication

Dedicated to me for rising from the ashes of postpartum depression, taking on this journey, remaining resilient, and completing it successfully.

Acknowledgments

I would like to thank the Almighty God for bestowing His continuous love, grace, and mercy upon me while completing my doctoral journey. This incredible journey would not have happened without the love and support of my family, friends, and colleagues. This journey was made possible through the love, support, and encouragement from my mom, sister Germaine, my son Omari, my research supervisor Dr. Hanafi, study participants, Dr. Felicien my editor and encourager, and Ms. Leon who formatted the product. They were persistent in their support, encouragement, and motivation to ensure completion of this journey. I will be forever grateful and inspired by your love and support to remain resilient until the end

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List of Abbreviations

Ass. Degree P. Ed	Associate Degree in Primary Education
Bed	Bachelor of Education
Cert P. Ed	Certificate in Primary Education
CLASS	Classroom Assessment Scoring System
COPs	Communities of Practice
COS	Circle of Support
Dip P. Ed	Diploma in Primary Education
EDMU	Education Development Management Unit
ELP	Early Learners Programme
PLCs	Professional Learning Communities
OECS	Organization of Eastern Caribbean States
OESS	OECS Education Sector Strategy

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Nations around the world are increasingly pursuing educational reforms on curriculum, instruction, and assessment to equip students with the skills and knowledge to raise student achievement levels and ensure student preparedness for a twenty first century knowledge based, technologically driven society and workforce (Sun-Keing & Wang, 2016; Antinluoma, et al., 2018; Kinyota et al., 2019; Tuli & Bekele, 2020). A major global educational concern is providing learners with equitable access to quality education to meet dynamics of the twenty first century (Rasheed et al., 2020). Accordingly, UNICEF (2018 cited in Rasheed et al., 2020) advocates that quality of teachers globally must be enhanced to raise standards of teaching and learning in schools to ensure students are equipped to handle the dynamics of the twenty first century. Research evidence has confirmed that teacher quality is a fundamental factor in improving the education system to enhance student competencies and achievement (Hairon, 2016; Harris & Jones, 2017; Wang, 2015). Furthermore, a range of research evidence reveals that advancement in teacher quality high increases students' achievement and is paramount in improving the education system globally. (Darling-Hammond, 1996; Vangrieken et al., 2017; Stewart, 2014; Sun-Keing & Wang, 2016). The complex global dynamics and changes required to educate the twenty first century learner in the education system is escalating teacher tasks and demands a major shift in teachers' competencies and pedagogical knowledge. Teachers are expected to develop professionally due to continuous educational reform and societal changes that will impact their teaching profession (Atinuluoma et al., 2018; Owen, 2014; Vangrieken, et al., 2017). However, for teachers to maintain high levels of quality in teaching, there is a need for ongoing professional development in education systems globally to increase teacher capacity to ensure teaching practices are current

and aligned to the educational reform and societal needs (Antiuluoma et al., 2018; Darling Hammond, 1996; Kin et al., 2019; Owen, 2014; Piedrahita, 2018).

Globally, change in teacher quality and school improvement are dependent on teachers' professional development to upgrade and enable them to achieve their full capacity in the teaching profession and in turn raise the standards of the education system (Cole, 2012; Saad et al. 2017; OECS/EDMU Commission, 2019). Unfortunately, traditional models of professional development for teachers have been associated with fragmented, short workshops, seminars or courses which are based on new information developed by specialists; or content and methodology mandated by policy makers (Cole, 2012; Piedrahita, 2018; Kools & Bouckaert, 2018). Research on the traditional professional learning model consistently reveals this approach may be disconnected to teachers' needs; is inappropriately structured; lack relevance for varied school contexts, and do not necessarily enhance teaching practices (Cole, 2012; Stoll, et al., 2012). Given these consistent findings, teachers need professional learning which would provide support, tools, and learning circumstances to transform their teaching practices (Kinyota et al., 2019; Piedrahita, 2018).

The drive for excellence in education systems demand sustainable, well- designed professional development opportunities which will assist teachers in becoming active and engaged participants in the collective construction of knowledge on teaching and learning. This in turn will continuously build professional expertise, confidence, and social capital for positive and constant educational innovation in teachers (Harris & Jones, 2017; Kinyota et al., 2019).

To bring about critical changes that will be aligned with the demands of educational reform, an effective framework is required to promote professional growth for teachers and administrators that will lead to the improvement of teaching (Cole, 2012). This framework should encompass a structure which will incorporate collaboration, critical reflection, capacity building, exposure to

actual practices of good teaching, respect teacher expertise and creativity, evaluation, and feedback (Cole, 2012; Stoll, et al., 2012). A frequently recommended systematic strategy for ongoing professional growth of teachers and administrators is Professional Learning Communities (PLCs), which seemed to be more effective in the areas traditional forms of professional development have failed (Kin et al., 2019; Lee & Lee, 2013; Cole, 2012; Stoll et al., 2012). PLCs have been proven to be a viable, significant, and powerful professional development strategy among teachers in countries globally including the USA, Canada, Australia, Finland, United Emirates, United Kingdom, and Asia (Chen, 2020; Derk, 2019; Hassan et al., 2018; Kools & Bouckaert, 2018; Brand, 2020). PLCs can transform schools into learning institutions which lead to professional growth of educators and school leaders (Rasheed et al., 2020). Papadakou (2018 cited in Rasheed et al., 2020 p. 1383) advocate that PLCs transform schools to learning institutions at the "classroom, school and community level" where members enhance skills, knowledge, and pedagogical practices to improve student achievement. Several studies revealed that PLCs were found to create an environment which nurture collegial relations, professional dialogue, reflective practice, and evaluation to enhance teachers' capacity and improve student learning attainment (Barton & Stepanek, 2012; Hord, 2009; Liberman & Miller, 2011; Pirtle & Tobias, 2014; Sai & Siraj, 2015; Stoll, et al., 2012). Thus, the myriad benefits of PLCs in advancing and supporting sustainable teacher professional development and school system improvement and reform initiatives have attained the attention of education policy makers, practitioners, and researchers globally (Ismail et al., 2022; Tahir & Musah, 2020).

1.1.1 Identification of the Gap

The concept and development of professional learning communities (PLCs) has become popular in the past two decades as a critical job embedded professional development strategy to promote continuous teacher learning (Olsson, 2019; Jaludin et al., 2022; Lay, 2023). The growing and extensive body of global research reveal that the collaborative, supportive, and team-based practices of well- developed PLCs produce opportunities for teachers to jointly participate in ongoing professional development within the school context (Olsson, 2019; Jaludin et al., 2022; Lay, 2023). Studies also highlight that PLC embedded professional development strategies are highly effective in advancing instructional and learning processes (Olsson, 2019; Jaludin et al., 2022; Lay, 2023). These consistent findings have framed PLCs as a critical professional development strategy to enhance teacher quality globally. Globally, this has led to the establishment and implementation of PLCs within Grades K to 12 school contexts in the West to explore its impact on teacher instructional proficiency and student attainment. The value of PLCs as a sustainable teacher professional development strategy has propelled abundant reviews of PLCs studies in K-12 schools globally to determine the implementation processes, characteristics of effective PLCs, conditions for enabling, hindering, and sustaining PLCs, and their impact on teacher learning and professional growth.

Some critical reviews synthesize literature on PLCs from 1980 to 2000s (Stoll et al., 2006; Vescio et al., 2008; Dogan et al., 2016; Nguyen et al., 2022) provide insight into the implementation of PLCs in K-12 school settings globally. Stoll et al. (2006) and Vescio et al. (2008) research provide insight into the implementation of PLCs, core characteristics, enabling factors and their impact on teacher professional development though their findings are limited to the United States and other countries in the western hemisphere including the United Kingdom.

As a continuity of the work by Stoll et al. (2005), Vescio et al (2008) reviewed 10 American studies and one English study on the impact of PLCs on teaching practices and student learning. Although some studies present self-reports of positive impact, a few empirical studies examined the effect on teaching practice and student learning. The amalgamated findings of these studies suggest that well-established and functional PLCs have a positive impact on both teaching practice and student achievement.

A review by Dogan et al. (2016) provided a review of empirical studies investigating the impact of professional learning communities (PLCs) on science teachers' practices and knowledge. This perusal of 14 articles comprised 12 United Studies, and two non-US studies articles from the United Kingdom and Bangladesh with a major focus modification of science instructional practices, content knowledge and instructional content knowledge of K–12 science teachers. Dogan et al. (2016) examined the empirical evidence of PLC impact on teacher practice and student learning using research evidence up to 2015 which identified only studies with an established definition of PLC and then supplied results which illustrated modification of teacher instructional practice and/ or student learning. Dogan et al. (2016) reported the positive impact of PLCs on teachers' pedagogical and disciplinary knowledge. Overall, as Dogan et al. (2016) have envisioned that PLCs have become an international approach to teachers' professional development.

The reviews by Stoll et al. (2006), Vescio et al. (2008), and Dogan et al. (2016) were generally restricted to research in the United States and a few in the United Kingdom and provided insight on PLCs from these contexts, although Dogan et al. (2016) focused on a single aspect of the PLCs, its impact on teacher instructional practice (Dogan et al. 2016). Furthermore, these findings emerged from research carried out in the global west and accentuated a lack of research

from countries in the global south. To combat this dearth of literature, Nguyen et al. (2022) carried out robust research in the Global South which comprises low- and middle-income countries in Latin America, Asia, Africa, and Oceania. The purpose of this review was to attain contemporary findings from these countries in the south to provide evidence and insights to inform further research, policy, and processes for developing sustainable PLCs in schools across the global south. This review of 70 published articles for the period of 2000 to 2021 focused on the nature of PLCs, core processes or characteristics, factors enabling or hindering implementation PLCs sustainability, and impact of PLCs on teachers' professional development in K-12 settings.

Nguyen et al. (2022) review research which focused on teachers using PLCs as a strategy to enhance professional competencies. Nguyen et al., (2022) reviewed 70 scholarly articles from twelve countries across continents where 49 of the articles were authored in the Asian region. The remaining 16 research publications were in authored Africa, and the last 5 publications were in Latin America and Caribbean. Analysis of research contributions by country revealed that China hosted 23 research publications, followed by South Africa with 15, then Malaysia with 12 research publications, while Latin America and the Caribbean hosted only 5 research articles.

Other reviews by Olsson (2019), Jaludin et al., (2022), and Lay (2023) focused on international research literature on PLCs implementation to gain insight into how practice-based research in K-12 schools globally could foster the advancement of teaching and learning in schools. Olsson (2019) presents research literature from 96 western articles which accentuates a myriad of PLCs benefits, description of core characteristics, and conditions for enabling and sustaining PLCs to enhance learning, as well as critical recommendations for the establishment and sustainability of PLCs in the Swedish primary and secondary schools. Additionally, Jaludin et al., (2022) critically examined 12 studies from the USA, Africa, Singapore, Israel, Ireland, Finland,

Denmark, Malaysia. Canada, and Latin America between the period of 2018 and 2022 to identify PLCs challenges and impact on teacher innovation and proficiencies. Lay (2023) also carried out a systematic of literature of 15 studies from the USA, England, Ethiopia, Finland, Netherlands, Estonia, Ireland, South Korea, Turkey, Sweden, Malta, and Malaysia during the period of 2018 to 2022 to explore how PLCs advance teacher professional in primary school contexts. The findings of these reviews (Olsson 2019; Jaludin et al., 2022; Lay, 2022) provide insight into defining characteristics of PLCs, enabling, hindering and sustainable conditions for PLCs implementation, and valuable recommendations for educators, researchers, and policy makers design of effective PLCs to enhance teacher professional development which in turn will advance teaching and learning in schools. The three reviews clearly focus on studies from western and southern developed and developing countries and with limited studies from the Caribbean region.

The outlined reviews clearly demonstrate that the extensive literature on PLCs is focused on teachers in specific countries in the Western and Southern hemisphere with limited research on the implementation of PLCs in the Eastern Caribbean region (Soares et al., 2020; Nguyen et al., 2022). These studies clearly accentuate teachers play a critical role in the functioning of PLCs but based on the research presented from the global south and west, research on the PLCs in the Eastern Caribbean countries is limited and remain untapped (Stoll et al. 2006; Vescio et al, 2008; Dogan et al., 2016; Nguyen et al. 2022).

Additionally, Soares et al. (2020) revealed that PLCs function in distinct ways depicting their unique settings, society, and culture. Most of the research on PLCs implementation provide information to education stakeholders related to teacher professional development are studies with perspectives from specific Western countries including the United States, Canada, United Kingdom, and global south countries in Asia and Africa (Jaludin et al., 2022; Nguyen et al., 2022).

Furthermore, Jaludin et al., (2022) also recommend that future studies on PLCs should explore detailed implementation of PLCs as a professional development strategy in elementary contexts because this has not been sufficiently examined, especially in different cultures and developing countries (Soares et al., (2020). Despite the large volume of research on PLCs, there is inadequate research which unpacks elementary teachers' perspectives on the impact of PLCs on teacher professional development (Jaludin et al., 2022). Hence, Jaludin et al., (2022) and Song and Choi (2017) recommended that detailed research from elementary teachers' perspectives is required to understand how PLCs are established, implemented, and maintained in elementary contexts to gain deeper understanding of their impact on teacher professional development. Other researchers also recognize the significant gap in research between the theoretical benefits of PLCs and the collaborative practices of PLCs in elementary contexts (Raharinaivo- Falimanana, 2017; Sleegers et al., 2013). Furthermore, there is limited research on elementary teachers' perspectives of PLCs implementation processes and its impact on teacher professional development (Soares et al., 2020; Nguyen et al., 2022; Ndunda, 2022), specifically in developing countries of the Eastern Caribbean.

The recognition that previous and prevalent research from western and southern countries on PLCs in the literature may not reflect how PLCs function in developing countries in the Eastern Caribbean region especially in elementary school contexts, led to the researcher's interest to explore qualitative case study to focus on PLCs implementation and impact on elementary teachers in the Eastern Caribbean Island of Saint Lucia. The concept of teachers working in PLCs to enhance professional development in the Eastern Caribbean was implemented in 2018. Therefore, limited systematic research has been conducted on the implementation of PLCs to understand the impact on teacher learning and professional development. The international PLCs literature accentuates limited studies in the wider Caribbean and Latin America. There is no documented

research on PLCs developed and implemented in Saint. Lucia and other OECS member states to understand the implementation and impact of PLCs on teacher professional development. Therefore, it is an important question to be investigated. It is necessary to examine teacher learning in PLCs in the OECS island of Saint Lucian with a view to understanding PLCs implementation and impact on teacher professional development in a specific context. Moreover, teachers' and principals' beliefs about PLCs implementation processes and its impact on teacher professional development in the context of PLCs in Eastern Caribbean Island elementary schools is an unaddressed gap in the recent literature. Hence, this study is an attempt to add to international literature on the implementation of PLCs in the Eastern Caribbean elementary K-6 schools and the impact on teacher professional development. To address this gap, a qualitative case study on the impact of PLCs on teacher professional development will be explored at three elementary schools in one educational district in the OECS island of Saint Lucia

1.1.2 Context of Teacher Quality in the OECS

The Organization of Eastern Caribbean States (OECS) was created in 1981 as an intergovernmental organization for promoting cooperation, harmonization, and integration among its member states. OECS has developed a considerable amount of valuable knowledge sharing and direct technical assistance among Ministries of Education ((Knight et al., 2021). It has also been part of the Regional Education Strategy and has supported participatory planning and monitoring processes (Knight et al., 2021). In this regard, the OECS has a strong leadership role in education reform within the Caribbean States, and especially in supporting the countries that belong to this territory: Dominica, Grenada, St. Lucia and St. Vincent and the Grenadines. Education is a critical pillar for social development in the Eastern Caribbean (Knight et. al., 2021). Hence, for the OECS

Caribbean governments in advancing human capital through relevant quality education and training is deemed integral for sustainable regional economic growth and development. Education reform initiatives in St. Lucia and other OECS member states are currently guided by the OECS Education Sector Development Plan 2012-2028 under the guidance of the Education Development Management Unit (EDMU) of the OECS Commission (Knight, et al., 2021).

The OECS Education Development Management Unit (EDMU) has been a pivotal agency in the facilitation and coordination of education planning and reform among the OECS member states to ensure common implementation agenda of the OESS 2012-2028 policy (Knight et al., 2021). The Chief Education Officer and education planner of Ministries of Education for each OECS member state is part of a sub-regional team which convenes yearly to discuss national progress towards the achievement of education outcomes. This coordination and collaboration have been integral to achieving a common strategy among most OECS member states on major strategic imperatives for educational reform in the OECS (Knight et al., 2021).

In the Eastern Caribbean, the Education Development Management Unit (EDMU) of the OECS Commission and OECS Ministries of Education have mandated a sustainable orientation to professional development that will challenge teachers to reach their maximum potential through collaborative planning, professional dialogue, designing their own professional growth, and targeted research- based approaches (OECS/EDMU, 2019). This new orientation to professional development is required as there are calls for careful and deliberate improvements to the overall quality of teaching in elementary schools in Saint Lucia and other Eastern Caribbean Islands (OECS & USAID ELP Executive Summary, 2016; OECS Report on Teacher Education, 2018; OECS Situational Analysis, 2017). In addition, the Classroom Assessment Scoring System: CLASS Report, (2017) provided strong evidence that elementary education in Saint Lucia and

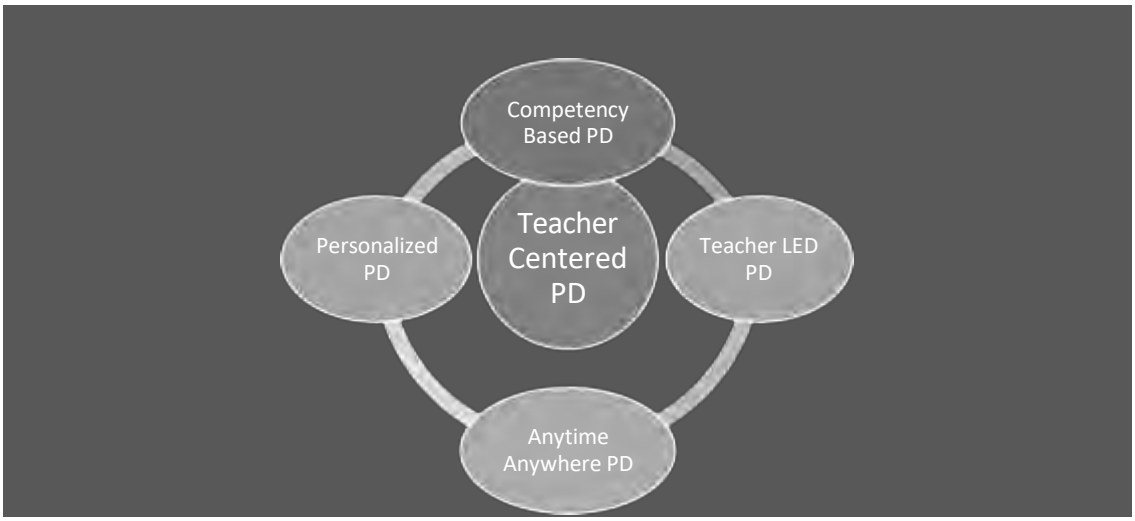
other OECS member states is not optimally associated with best teaching practices. Teachers do not regard themselves as professionals who must work collaboratively with colleagues and principals to create effective lessons to meet learning outcomes (OECS Report on Teacher Education, 2018). The EDMU also recognizes professional development as a crucial issue impacting the Eastern Caribbean where untrained or undertrained teachers at the primary school level account for 11 percent to 38 percent of the teaching workforce (OECS Report on Teacher Education, 2018). Therefore, teachers need to be empowered as educational professionals so as to develop their ability and to enable educational change which is required for improved outcomes in elementary schools. The OECS Commission and OECS Ministries of Education (MOEs) have recognized teacher quality can be renewed and improved through enhanced continuous, job-embedded professional development and training which is crucial to enhance teachers' pedagogical capacity and knowledge in the Eastern Caribbean.

1.1.3 OECS Professional Development Model

The EDMU of the OECS Commission promoted an evidenced-based teacher centered professional development framework based on the premise that Eastern Caribbean teachers possess great expertise and competencies which can promote the professional development movement in the OECS. This model is currently implemented using the PLCs framework in selected elementary schools in the OECS. The aim of this professional development model illustrated in Figure 1.1 is to establish the environment for a thriving colony of teachers working towards high quality student attainment.

Figure 1.1

OECS Professional Development Model



Note. Adapted from OECS PD Implementation Guide 2019 p. 5. Copyright OECS EDMU, 2019

This OECS professional development model was designed for the education sector. The elements in this model as outlined in the implementation guide are developed to work in conjunction to supply a powerful and extensive professional development programme at various levels from the individual, organizational to the sectoral level of the education system (OECS/EDMU, 2019). The amalgamation of the key aspects and experiences of this model should realize the required proficiencies, behaviours, and attitudes in teachers to cater to students learning needs and enhance student attainment (OECS/EDMU, 2019).

Figure 1.1 presents the components of the OECS PD Model as outlined in OECS/EDMU (2019, p. 1-6) which include:

- Personalized PD at the school, national and regional education level which addresses the personal needs of educators for which professional development is intended. This form of professional development opposes a one size fit all approach to PD. PD should be data informed, and flexible in the aspects of

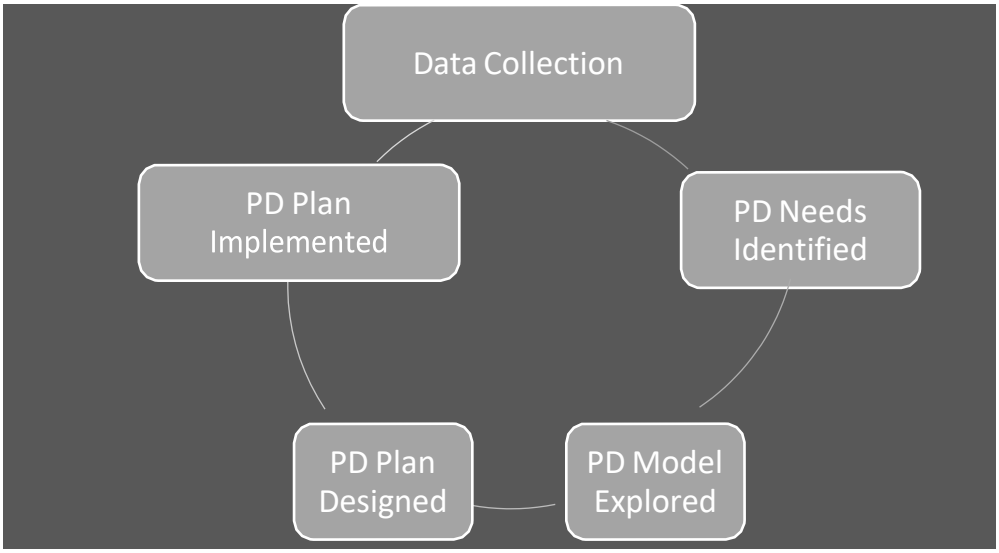
schedule and design to accommodate tactical strategies to address the distinct needs of teachers.

- Competency- based PD entail the utilization of student and teacher data to determine areas teachers need to enhance their capabilities along the novice to mastery continuum. This aspect of PD should be driven by school principals in collaboration with teachers.
- Teacher Led PD is professional development led by teachers from the initiation, implementation to completion. This form of PD acknowledges teachers possess existing proficiencies and capacity and can make valuable contributions. This PD encourages teachers to desist from over reliance on external facilitators for PD needs. It fosters an environment which empowers teacher growth and development by providing the platform for demonstration and sharing of knowledge and skills. This supportive environment embraces all teachers and provides the platform for advancement of knowledge, competencies, attitudes, behaviours through participation in varied modes of evidence- based PD.
- Anytime, Anywhere PD aspect of the model recognizes quality PD can occur anytime and anywhere. It places value of quality professional discourse which may happen outside of formal PD sessions. Continuous conversations which may provide insight and lead to change in pedagogical practices to enhance student attainment are deemed critical. This component encourages continuous PD which may take place in short sharing sessions during staff briefs, meetings, lunch time, after school, online, or in any format that teachers decide whether planned or unplanned.

The four teacher centered components of this OECS PD model do not operate as distinct or independent elements. These components are connected and overlap but create the possibility of multiple PD arrangements to enhance quality instruction. The application of this OECS PD Model is based on the mantra of the OESS Strategy 2012-2028 "Every Learner Succeeds" and that the four combined elements of this teacher centered model can create professional development sessions which are authentic, natural, and meaningful to produce quality teaching to advance student learning (OESS, 2012). The application of the OECS PD model implementation cycle outlined in Figure 1.2 requires principals and teachers to utilize student and teacher data from school data sources, to identify required competencies through self-reflection and professional discourse with peers. This information should then be utilized to create PD action plans in alignment with school contextual needs and school vision and mission. School PD plans should be flexible, allowing for changes as situations arise.

Figure 1.2

OECS PD Implementation Model Cycle



Note. Taken from OECS PD Model Implementation Guide 2019, p. 13. Copyright OECS/ EDMU, 2019

After prioritization of competencies which need to be developed at an individual and school level, principals and teaching staff may peruse professional literature and explore training and professional development opportunities through different mediums (OECS/EDMU, 2019). These may include but are not restricted to webinars, conferences, training by facilitators, action research, teacher-led presentations after reading research on competencies which need to be developed. A critical phase beyond the professional development sessions at a school level is the monitoring of the effect of PD and training following assessment phases to determine growth and mastery of competencies being addressed at the individual and school level (OECS/EDMU, 2019). There must be ongoing monitoring and assessment to ensure continuity and growth of teachers as experts in education.

The components of the OECS Professional Development Model are in keeping with the 2012-2028 OECS Education Sector Strategy (OESS, 2012-2028). The 2012-2028 imperatives of OESS are to improve teacher professional development with an outcome of improved teacher quality. The pre-service training and professional development initiatives are to be in place for all prospective and in-service teachers, relevant to each stage of their career" (OESS, 2012-2028, p.12). The OECS professional development model illustrated in Figure 1.1 is also aligned to The Caribbean Community (CARICOM) Human Resource Development 2030 Strategy (CARICOM, 2017), which focuses on the promotion of inclusive and equitable quality education and life-long learning opportunities as the main outcome for teachers and students.

1.1.4 Application of the OECS PD Model in Saint Lucia

One of the major actions emanating from OECS analysis of teacher quality situation in the Easter Caribbean outlined in OECS and USAID (2016) ELP Report as well as the OECS Report

on Teacher Education (2018) for school reform and the enhancement of teacher teaching quality, student learning outcomes and professional development in the OECS islands is the United States Agency for International Development (USAID) and OECS Early Learners Programme (ELP). The OECS and USAID ELP programme was established in March 2015, and it emphasized teacher professional development and training. This is to enhance teacher expertise and competencies in the instruction for Grades K to 3 students across the six independent states of the OECS including Antigua and Barbuda, The Commonwealth of Dominica, Grenada, Saint Lucia, St Kitts and Nevis, and Saint Vincent and the Grenadines. Since the establishment of the OECS and USAID ELP project, there has been a shift in professional development with the implementation of the strategy and model of Professional Learning Communities (PLCs) in OECS elementary schools.

PLCs utilize mechanisms which provide teachers with the platform to evaluate and regenerate their practices collaboratively; examine their current beliefs on teaching and reassess their students' learning requirements. These will then lead to improving the school culture, effective teaching and enhance student achievement (Barton & Stepanek, 2012; Hord, 2009; Pirtle & Tobias, 2014; Sai & Siraj, 2015; Stoll et al., 2012). The PLCs model is guided by the theories of social learning and constructivism, and communities of practice based on the premise that school professional learning occurs constructively, collaboratively, and actively in social environments to help improve school culture, teaching practices and learner achievement (Broadley, Martin & Curtis, 2019; DuFour 2014; Hord & Hall, 2014; Teague & Anfara Jr, 2012; Pirtle & Tobias, 2014). In the OECS, PLCs serve as a major medium for teachers to learn collectively and collaboratively so as to advance the teaching and learning process in elementary schools. The OECS Commission through the EDMU Unit and Ministry of Education mandated PLCS be piloted in select St. Lucian elementary schools in 2017 across the eight educational

districts, to improve student outcomes. PLCs were implemented in the OECS member state of St. Lucia in primary school sector in 2018 in pilot schools across eight educational districts with the expectation that the model would be extended as quickly as possible to all seventy-four elementary schools in Grades K to 6 by 2020 (OECS & USAID ELP Report, 2016 p. 12).

Three elementary schools in one educational district in Saint Lucia established the PLCs in 2018 under the OECS ELP pilot phase of the project to enhance teacher quality and student learning outcomes. This study will thus investigate teachers and principals' beliefs on the impact of established PLCs on the professional development of teachers at three elementary schools in one educational district in Saint Lucia.

1.1.5 Context of Elementary Education in St. Lucia

St Lucia is member of both international and regional organizations. This includes regional organizations such as the OECS and CARICOM. CARICOM is grounded in encouraging four pillars of integration which are economic integration; foreign policy coordination; human and social development; and security while St. Lucia's membership in the intergovernmental OECS according to the Revised Treaty of Basseterre, allows access to "a single financial and economic space where goods, people and capital move freely," within the Eastern Caribbean (OECS, Teacher Education Report, 2018). St. Lucia is also an affiliated member of the international organizations United Nations and UNICEF, which also help shape the direction of local education policies particularly those on equity and inclusion.

The education system in St. Lucia is currently guided by the OECS Education Sector Strategy 2012-2028. There are eight educational districts in St. Lucia as geographically illustrated in Table 1.1. According to Table 1.1, elementary education in St. Lucia and OECS member states

is provided at infant, primary or combined schools. Elementary education is compulsory for all children and the formal school age ranges from five (5) to eleven (11) years.

Table 1.1

Elementary Education Structure in Saint Lucia and OECS Member States

Infant	Grades K-2	Ages 5-7
Primary	Grades 3-6	Ages 8-11
Combined	Grades K-6	Ages 5-11

Note. Adapted from St. Lucia Education Statistical Digest 2020. Copyright Corporate Planning Unit, Department of Education, Innovation and Gender Affairs (2020).

Table 1.2 outlines the number of elementary schools per district, student enrollment and teacher assignment for the period 2018/2019 and 2019/2020 academic year. There are 74 elementary schools in St. Lucia distributed across both urban and rural communities in eight educational districts labelled A to H are as illustrated in Table 1.2. Elementary school enrolment in St Lucia was fourteen thousand, seven hundred and fifteen (14,715) in 2018/19 and fourteen thousand, five hundred and fifty-three (14553) in 2019/20. For the academic year 2018/2019 and 2019/20, there were one thousand and ten (1010) teachers assigned to elementary schools in Saint Lucia.

Table 1.2

2018-2020 St. Lucia Education Districts Student Enrollment and Teacher Assignment in Elementary Schools

ED District	No of schools	2018-2019 Student Enrollment	2019-2020 Student Enrollment	No Regular Teachers	No Specialist Teachers
A	10	2333	2337	156	43
B	7	2731	2679	158	42
C	8	2079	2040	130	37
D	9	1365	1373	106	27
E	9	1853	1818	137	36
F	10	2217	2226	143	33
G	11	1139	1095	104	29
H	7	997	986	75	20
Total	74	14715	14553	1010	267

Note. Adapted from St. Lucia Education Statistical Digest 2020. Copyright Corporate Planning Unit, Department of Education, Innovation and Gender Affairs (2020).

In 2012, to advance the quality of education in the elementary sector, along with regular classroom teachers, specialist teachers were assigned in elementary schools. Areas of specialization include Special Education, Music, French, and Physical Education. Where the capacity and resources are available, other specialist teachers are assigned to teach other areas, including Information Technology, Agriculture Science, Theatre Arts and Spanish. Table 1.2 presents a summary of St. Lucia education districts student enrollment and teacher assignment in elementary schools. According to Table1.2, during the academic year of 2019 and 2020 a total of

two hundred and sixty-seven (267) specialist teachers were assigned across the eight educational districts.

PLCs were implemented in approximately 30% of St. Lucian elementary schools across the eight educational districts. This qualitative study was carried out in one Eastern St. Lucian Educational District E. The Eastern Educational District E comprise eight public elementary schools and one private elementary school. There are approximately 1800 students at the nine elementary schools. There is a Numeracy, Literacy, and Assessment, and Early Learners Programme (ELP) coordinator assigned to the district. During the period of 2018- 2020, three of the nine elementary schools piloted PLCs and engaged in several training exercises geared at tooling and re tooling the teachers. Schools within the Eastern Educational District E are led by a school principal and assigned teaching staff. Table 1.3 presents the schools elementary structure, student enrollment, as well as the number of regular and specialist teachers assigned to the three elementary schools.

Table 1.3

Composition of Schools in Eastern Educational District Which Piloted PLCs in 2018-2020

School	Student Enrollment	Total Teachers Per School	Regular Teachers	Subject Specialists
School 1 Combined	392	24	18	6
School 2 Primary	224	15	10	5
School 3 Combined	214	12	10	5
Total	830	54	39	15

Note. Adapted from St. Lucia Education Statistical Digest 2020. Copyright Corporate Planning Unit, Department of Education, Innovation and Gender Affairs (2020).

As illustrated in Table 1.3, the three elementary schools have an enrollment of 830. School 1 is Combined elementary school from Grades K to 6 has 392 students and 24 teachers. School 2 is a Primary School with Grades 3 to 6 and comprise 224 students and 15 teachers. School 3 is a Combined Elementary School with Grades K to 6, has 214 students and 15 teachers. The three schools comprise regular elementary school teachers and specialist teachers. School One has 18 regular teachers and 2 Physical Education specialists and one specialist in Special Education, French, Music, and Information Technology. Schools 2 and 3 each has 10 regular teachers and one specialist in the five areas of Physical Education, Special Education, French, Music, and Information Technology. The three elementary schools in this educational district in Saint Lucia established the PLCs in 2018 under the OECS ELP pilot phase of the project to enhance teacher quality and student learning outcomes. This study will thus investigate teachers and principals' beliefs on the impact of established PLCs on the professional development of teachers at three elementary schools in one educational district.

1.2 Statement of the Problem

The OECS Education Sector Strategy 2012-2028 identified enhancement of teacher quality as imperative for the improvement of elementary student learning achievement in the Eastern Caribbean Islands (OESS, 2012-2028). Research on teacher development in Saint Lucia and other Eastern Caribbean Islands affirmed the traditional short-term workshop professional development model utilized to enhance teacher quality was inadequate for the sustainable professional growth of elementary teachers (Mark & Murphy, 2017; OECS & USAID Early Learners Project (ELP) Report, 2016; OECS Report on Teacher Education, 2018; OECS/EDMU, 2019). Furthermore, Eastern Caribbean elementary teachers demanded immediate professional development intervention that would equip them with the tools and confidence to ensure good teaching theory

is translated into best teaching practices (OECS & USAID ELP Executive Summary, 2016). Hence, the EDMU of the OECS Commission implemented an evidenced-based teacher centered professional development framework. This is based on the premise that Eastern Caribbean teachers possess great expertise and competencies which can promote the professional development movement in the OECS. The aim of this professional development model is to establish the environment for a thriving colony of teachers working towards high quality student attainment. This professional development model was designed for the elementary education sector and is in keeping with the OECS Education Sector Strategy (OESS) 2012-2028. One of the imperatives of OESS 2012-2028 is the need to improve teacher professional development with an outcome of improved teacher quality. "While the pre-service training and professional development initiatives are to be in place for all prospective and in-service teachers, relevant to each stage of their career" (OESS, 2012-2028, p.12). The professional development model is also aligned to The Caricom Community (CARICOM) Human Resource Development 2030 Strategy (CARICOM, 2017) which focuses on the promotion of inclusive and equitable quality education and life-long learning opportunities as the main outcome for teachers and students.

One of the actions emanating from the OECS and USAID ELP Report (2016) and the OECS Report on Teacher Education (2018) for school reform and the enhancement of teacher teaching quality, student learning outcomes and professional development in the OECS islands is the United States Agency for International Development (USAID)/ OECS Early Learners Programme (ELP). The OECS/ USAID ELP programme established in March 2015, emphasized teacher professional development and training to enhance teacher expertise and competencies in instruction for Grades K to 3 students across the six independent states of the OECS including Antigua and Barbuda, The Commonwealth of Dominica, Grenada, Saint Lucia, St Kitts and Nevis,

and Saint Vincent and the Grenadines. Since the establishment of the OECS and USAID ELP project, there has been a shift in professional development with the implementation of the strategy and model of Professional Learning Communities (PLCs) in OECS elementary schools. Consequently in 2018, the PLCs framework was piloted in thirty percent of Saint Lucia and other Eastern Caribbean Islands elementary schools to improve teacher quality and ensure sustainable professional development; (OECS Report on Teacher Education, 2018). Researchers and professionals confirm PLCs as a beneficial and systematic professional development framework with pertinent characteristics to enhance teachers' expertise, student learning outcomes and school culture (Barton & Stepanek, 2012; DuFour, 2014; Dehdary, 2017; Dogan, Pringle & Mesa, 2016; Lee, Zhang & Yin, 2012; Owen, 2014; Prenger, Poortman & Handelzalts 2017; Ratts Pate, Archibald, Andrews, Ballard & Lowney, 2015; Warwas & Helm, 2018; Vanblaere & Devos, 2016). PLCs are regarded as a powerful job-embedded professional development strategy with the capacity to renew pedagogical and learning practices and, proficiently furnish teachers with diverse learning opportunities to raise student achievement (Harris, Jones & Huffman, 2018; Oliver & Huffman, 2016; Vangrieken et al., 2017). Theoretically, PLCs have made a significant contribution globally as a sustainable professional development strategy to enhance teacher pedagogical expertise and learning. Literature on PLCs is found extensively in countries such as United States, Australia, Singapore Canada, United Kingdom, Finland and is also growing in the United Emirates, Malaysia, and parts of Africa (Chen, 2020; Hassan et al., 2018; Tahir, & Musah, 2020), which are mainly developed countries in the global west and south. Despite the growing research on teacher development and PLCs implementation in education sectors globally, there is limited research on the concept, development, and practices of PLCs in developing countries of Saint Lucia and other Eastern Caribbean Islands elementary schools. Thus, this study will address

this gap and continue this line of inquiry to examine teachers and principals' beliefs on the impact of PLCs on professional development of teachers at three elementary schools in one educational district in OECS member island of Saint Lucia.

1.3 Purpose of the Study

Three elementary schools in Saint Lucia have implemented PLCs to ensure teachers critically analyze, reflect, and review their practices so as to promote school culture, teacher development and enhance student performance. The purpose of this multi-case qualitative case study is to investigate teachers' and principals' beliefs on the impact of PLCs on the professional development of teachers at these three elementary schools in one education district in Saint Lucia. To fulfill this purpose data will be collected via semi-structured focus group and individual interviews as well as document analysis, this qualitative research sought to gain insight into teachers and principals':

1. beliefs of Professional Learning Communities as a professional development framework.
2. beliefs on the implementation processes of the established Professional Learning Communities
3. beliefs on ways in which Professional Learning Communities impact the professional development of teachers in Saint Lucia.

1.4 Nature of the Study

The proposed research questions, sampling procedures, and data collection and analysis techniques, are aligned to the use of a qualitative case study research approach. A case study refers to "a systematic and methodological way of collecting data about a specific experience or entity, be it a person, group, institution, class, or group" (McMillan, 2004, p.27), and is relevant for several reasons. "It will provide a rich understanding of the context of the research and the

processes involved" (Saunders et al., 2012, p.179). It is appropriate for the education discipline "to study processes, problems, and or programmes to produce understandings which can improve practices" (Ponelis, 2015, p. 536). Additionally, it can generate comprehensive and significant data by conversing and studying participants' behaviours, documents, and artefacts in their natural contexts (Cresswell, 2012). The "flexible and adaptable nature of case study design also allows for multiple methods of data collection and analysis to carry out a research investigation" (Ponelis, 2015, p. 540).

The unit of analysis for this multi-site case study are teachers and principals from three elementary schools in one educational district in Saint Lucia. This multi-site qualitative case study investigation will utilize purposive sampling to collect data through semi-structured focus groups, individual interviews, and document analysis. The criteria for perusal of documents, the items in the semi structured focus groups and individual interviews will address the research questions and purpose of the study. The use of multiple data collection methods in this study will "give the researcher the confidence to generate deeper and broader insights and attain a richer picture" (Saunders et al., 2012, p.164). It will also allow for unexpected developments; and allow appropriate emphasis at different stages of the research process (McMillan, 2004). Likewise, "the use of multiple sources of data enables data triangulation, which would increase the internal validity of the study. This would lead to similar conclusions and approach the same issue from different angles and can help develop a holistic picture of the phenomenon" (Crowe et al., 2011, p. 6). The gathered data will be grouped into larger meanings such as codes, categories, and or themes to generate perspectives and interpretations of the impact of PLCs on the professional development of teachers at three elementary schools in one educational district in Saint Lucia.

Overall, this design will elevate the value of the interpretations; and strengthen the consolidation and connection of findings.

1.5 Significance of the Study

1.5.1 Advancing Theoretical Scientific Knowledge

An amalgamation of Vygotsky's (1978) social constructivism and Wenger's (1998) social learning concept, Communities of Practice (COP) served as the theoretical framework for PLCs as a professional development strategy in this multi-site case study. According to Vygotsky (1978), learning and development stem from the zone of proximal development (ZPD) with more knowledgeable others in PLCs. Vygotsky (1978) ZPD explicates reciprocal actions between peers and frames PLCs as productive strategy for staff professional development. The PLCs framework is aligned Vygotsky (1978) social constructivism as it situates teacher professional development as educational opportunities occurring within a social environment where teachers are empowered and supported to learn from peers, coaches, mentors, and facilitators. According to Vygotsky (1978), collaborative learning is crucial for internalization of concepts and practices among peers but is most effective when there is social interaction to develop shared understanding.

PLCs also correspond with Wenger's (1998) communities of practice (COPs). COPs are collaborative teams of people with similar issues who meet regularly to resolve, and reconstruct knowledge, skills, and experiences to renew their practices. Wenger (1998) advocated that the concept of communities of practice is a critical condition for learning which entails the creation and transmission of knowledge. A major feature of COPs is to advance members capacity through the incorporation of training and infusion of contemporary practices in the culture of

organizations (Kin et al., 2019). Community members acquire new practices through training in which their learning is supported by knowledgeable peers through coaching, modeling, and mentoring in the work context (Lave & Wenger, 1998). Additionally, a crucial element of communities of practice is new and novice members can work alongside more experienced others as they gradually enhance their competencies and become more grounded members (Lave & Wenger, 1998). COPs serve as a platform for participation and engagement with peers, comparison of problems and seeking resolutions; and is an effective framework for teachers in schools to advance their capacity to improve student attainment (Vangrieken et al., 2017). The PLCs framework can be an effective strategy for enhancing learning quality through collaboration between teachers. This collaboration fosters educator sharing and advancing knowledge. Collective engagement in social alliances and sharing of practices lead to organizational learning which is the overarching aim of PLCs.

Each of these theories were utilized due to their relevance, linkage and alignment to professional development and PLCs. Collaborative learning is the core feature of COPs and social constructivism. (Vangrieken et al., 2017). COPs and Vygotsky's social constructivism theories are the basis for the PLCs framework functioning as a collaborative platform for enhancing teacher professional development and learning through regular connections and reflection on practice. The theories unpack PLCs as an effective strategy for enhancing teacher identity and professional development by fostering collective relations in schools, ensuring continuous renewal of beliefs, practices, and knowledge, leading to ongoing improvement of teachers cognitive, social, emotional capacity to enhance student achievement (Kin et al., 2019). Hence, PLCs serve as a sustainable platform for teachers to work collectively in authentic ways

to acquire new knowledge and instructional strategies to enhance curriculum and instructional design for student learning (Hord, 1997; Kin et al., 2019).

This study anticipated advancing the body of existing research on Wenger's (1998) COPs and Vygotsky's (1978) social constructivism and ZPD by exploring teachers and principal's beliefs on PLCs implementation processes, enabling, and hindering factors and PLCs impact on teachers in three elementary schools in one educational district in the OECS island of Saint Lucia. Despite the growing research on teacher development and PLCs globally, there is limited research regarding the concept, development and practices of PLCs in Saint Lucia and other Eastern Caribbean Islands elementary schools. Thus, the implementation of PLCs as a professional strategy to enhance professional development of elementary teachers in Saint Lucia will address the research gap of limited studies on this phenomenon in this global south (Nguyen et al., 2022), region of the Eastern Caribbean. Furthermore, because PLCs implementation are affected by social, cultural, and contextual factors (Soares et al., 2020), the findings of this study will address the gap that exists on dearth in information from the perspective of OECS member state of Saint Lucia. Overall, the study will add to these theories by providing a lens into teachers and principals beliefs into the impact of PLCs on teacher professional development in an Eastern Caribbean context. Consequently, this study will add to the growing body of research on teachers' and principals' beliefs on the impact of the implementations and practices of PLCs and its overall impact on in-service teachers' professional growth. Hence, the current study is a noteworthy contribution to research on PLCs implementation in elementary schools in a different geographical context.

This study is significant and offers Saint Lucian teachers' and principals' beliefs on the impact of PLCs implementation processes and practices on teacher development in elementary

schools. This study will also provide critical insight for governmental and funding agencies on PLCs implementation and its impact on teacher professionalism after it was officially launched and introduced in elementary schools in the OECS island of St. Lucia in 2018 under the ELP pilot project. Consequently, the findings of this investigation will broaden understanding of this critical education issue in another global context by contributing literature in the field of education for Saint Lucia and the OECS.

1.5.2 Significance for Applied Scientific Knowledge

Professional Learning Communities (PLCs) are regarded as effective vehicles to enhance teacher professional development (DuFour, 2004; Hord, 2009; Cole, 2012; Teague & Anfara Jr, 2012). This investigation provides a closer look at the impact of PLCs on the professional growth of teachers at three elementary schools in one Saint Lucian educational district. It places vital attention on the impact of PLCs from the lens of principals and teachers. The findings from this current study will provide different perspectives from the lens of St. Lucian educators and add valuable insight for teachers, researchers, instructional leaders, principals, teacher educators, ministry of education officials and teacher professional development institutions on the use of professional learning community model to enhance teacher quality.

The findings of this study will provide insights regarding implementation processes, content and context and assist in the development of professional development programs so as to enhance teacher quality and learner outcomes in Saint Lucia. Moreover, recommendations stemming from this investigation can serve as a basis for further research; and inform instructional leaders on the use of PLCs in the professional development of novice and in-service teachers in other elementary schools, and educational districts locally, regionally, and globally.

The study will obtain results and data on the extent of PLCs implementation processes, factors which facilitate or hinder PLCs and their impact on teacher development. These findings may offer suggestions that intend to support and promote the practice of PLCs in other elementary schools where they are not currently applied. Additionally, the study will yield practical findings which can be utilized to improve professional development initiatives in other elementary schools with practicing PLCs. Moreover, the findings of this study are also significant for administrators of teacher education training institutions to ascertain teacher training institution curriculum prepare novice and in-service teachers for participation in PLCs as job embedded professional development strategy.

1.6 Research Questions

The undertaking of a qualitative case study investigation includes these essential features: defining the case, developing research questions; selecting the sample; collecting and analyzing data; criteria for interpreting the data; and reporting the findings (Crowe et al., 2011; Saunders et al., 2012). The literature consistently highlights that clear and carefully developed research questions permeating from existing literature, theoretical issues, and studies are very pertinent in concisely determining the case (Saunders et al; 2012, McMillan, 2004; Stake, 2010). Research questions provide direction at the beginning of the research process; and are required for data gathering and focus for making conclusions from the study findings (Rojon & Saunders, 2012). Qualitative case studies usually begin with initial research questions and may be amended and refined as the investigation progresses (Gay et al., 2009). Accordingly, the literature recommends that case study research is most likely to be appropriate for “how” and “why” questions, so it is important in the initial stages of the research process to clarify the nature of the study with

questions in this regard (McMillan, 2004; Saunders et al; 2012). In light of these recommendations emanating from the literature, this qualitative case study will be initially guided by the following research questions:

1. How do principals and teachers at the three elementary schools view PLCs?
2. How are PLCs created and implemented at the three elementary schools?
3. How do PLCs impact the professional development of teachers at three elementary schools in one education district of Saint Lucia?

1.7 Definition of Terms

The following terms are defined to ensure a common understanding is provided throughout this case study.

1.7.1 Professional Learning Communities (PLCs) are described as teams of teachers at subject specialization, grade, and whole school level in elementary schools who meet regularly on the shared goal of using a systematic process to collectively analyze and improve educators' pedagogical skills, knowledge, and practices to provide responsive instruction to advance the learning needs of students (DuFour, 2004; Hord, 1997).

1.7.2 Professional Development are a myriad of continuous job-embedded collective training and professional learning activities aimed at helping principals and teachers enhance individual and collective professional skills, expertise, and knowledge to improve student learning (Guskey, 2002)

1.7.3 Elementary School is defined as a period of formal education following pre-school. It is schooling which consists of kindergarten and Grades 1 to 6 where students learn the basics of the core subject areas including mathematics, science, language arts and social sciences among others and other life skills.

1.7.4 Beliefs are defined using a range of synonymous terms including: "attitudes, values, judgments, axioms, opinions, ideology, perceptions, viewpoints, conceptions, preconceptions, implicit theories, personal theories, and internal mental processes, rules of practice, practical principles, and perspectives" (Pajares, 1992 p. 307), which impact how individuals think, act, and feel (Shah, 2021).

1.8 Scope of the Study

Despite the growing research on the implementation of PLCs globally as an effective job-embedded professional development framework to enhance teacher professional development, there is limited research on the use of PLCs in Saint Lucia and other Eastern Caribbean Islands. PLCs were implemented in some elementary schools in the eight Saint Lucian educational districts in 2018. This qualitative case study examined only 3 principals and 25 teachers' views on the impact of PLCs implementation on teacher professional growth at three elementary schools in one educational district in Saint Lucia. Data was collected within the time frame of December 6, 2020, to January 20, 2021, through focus groups, individual semi-structured interviews, and document analysis of PLCs artefacts. This study was limited in scope to 28 participants who were actively involved in school PLCs implementation for a period of one to two years during the period of 2018-2020 and were readily available to participate in this study. The study was restricted to analysis of PLCs documents and participants' self-reported views of their experiences with PLCs

implementation and its impact on teacher professional development within the context of three schools within one educational district in Saint Lucia. Therefore, the findings of this case study cannot be generalized to other schools or educational districts in Saint Lucia.

1.9 Assumptions, Limitations, and Delimitations of the Study

This segment presents the assumptions, limitations, and delimitations of this study.

1.9.1 Assumptions

Researchers have no control over assumptions. An assumption is making a presumption that something exists without any corroboration by the investigator (Gay et al., 2009). Researchers make assumptions and prove them afterwards (Denzin & Lincoln, 2011). Though assumptions are fundamental, research problems cannot prevail without them (Leedy & Omrod, 2010). Assumptions for this investigation are methodological, theoretical, and content specific in nature.

1. Participants were involved in member checking to corroborate their views of PLCs. Member checking entails participants reviewing transcripts to ascertain accurate data (Litchman, 2013).

2. A methodological presumption of this qualitative case study was that participants provided honest responses to individual semi-structured interview questions and focus groups. It was assumed that all participants provided self-reports of experiences and views of PLCs honestly and impartially. According to Yin (2014), assumptions of accuracy must be illustrated in their personal narratives, experiences, and views. This assumption was realized because the researcher ensured rapport was developed with participants through the interview process so that all participants could express their views comfortably (Seidman, 2013). Furthermore, participant anonymity and

confidentiality maintained to ensure experiences and views could be shared without reservations.

3. One content- based assumption was that current PLCs existed three schools selected in the educational district among chosen participants. The presumption was participants had adequate collaborative experiences with PLCs framework to divulge views on implementation processes and its impact on teacher professional development. The supposition is that all participants were collectively engaged in PLCs to enhance their pedagogical capacity (DuFour, 2004; Hord, 1997).

1.9.2 Limitations.

Limitations are possible inadequacies in the research investigation which are not controlled by the researcher (Denzin & Lincoln, 2011; Simon, 2011). According to Gay et al. (2009), limitations are realized when researchers are unable to control aspects of a study but think there might be a negative outcome. A qualitative case study also has weaknesses which are limitations. Notwithstanding the outlined assumptions, limitations, and delimitations, this qualitative research study can make notable contributions to the body of literature on PLCs.

1. One limitation of the study may be the number of schools and participants who volunteered to participate in the study. This study was limited in scope to three schools and 28 participants who were actively involved in school PLCs implementation for a period of one to two years during the period of 2018-2020 and were readily available to participate in this study. Preferably, studies should include a larger sample which is a better representation so that results can be generalized (Gay et al., 2009; Robinson, 2014). The sample comprised persons who volunteered to participate in the study.

2. The study was restricted to analysis of PLCs documents and participants' self-reported views of their experiences with PLCs implementation and its impact on teacher professional development within the context of three schools within one educational district in Saint Lucia. Therefore, the findings of this case study cannot be generalized to other schools or educational districts in Saint Lucia. The results of this study are only applicable to this population.

3. Another limitation of this case study was the challenges participants may face in expressing their views which may impair the quality of details or events presented (Yin, 2014).

This qualitative case study did not produce generalizable results. This is because the essence of qualitative research is contextual and results cannot be generalized to broader contexts (Gay et al., 2009; Yin, 2014).

1.9.3 Delimitations.

Delimitations are qualities that restrict the capacity as well as outline the confines of a study (Simon, 2011). The researcher has authority over the boundaries of a research investigation.

1. One delimitation of this case study was choosing three elementary schools in one educational district to collect data. The school district and three elementary schools shared similar and distinct demographics, which allowed for generalizations where similarities exist. The findings of this case study can be generalized to teachers of the selected district who were involved in PLCs.

2. This case study also had a delimitation with regards to the selected elementary schools. The study was carried out in public elementary schools and did not comprise private elementary schools.

1.10 Summary

Researchers and professionals confirm PLCs as a powerful, systematic, job-embedded professional development strategy with the capacity to renew pedagogical and learning practices and, proficiently furnish teachers with diverse learning opportunities to raise student achievement (Harris et al., 2018; Oliver & Huffman, 2016; Vangrieken et al., 2017). PLCs have made a significant contribution globally as educational reform and sustainable professional development strategy to enhance teacher pedagogical expertise and learning.

The focus of this qualitative case study is to investigate teachers' and principals' beliefs on the impact of PLCs on the professional development of teachers at these three elementary schools in one education district in Saint Lucia. Through data collection via semi-structured focus groups, individual interviews as well as document analysis, this qualitative research gained insight into principals and teachers of three elementary schools in one St. Lucian educational district views of the PLCs framework, PLCs establishment and implementation processes, and PLCs impact on teacher professional development.

The findings from this study may add to the field of education by providing education experts, educational leaders, school leaders, and teachers with information that will equip teachers for immersion into school level PLCs, as well as structure professional learning communities in a way that is considered high-quality professional development for teachers' professional growth in teaching and learning.

This dissertation consists of five chapters. The first three chapters are the bedrock of this qualitative case study. Chapter l presents a comprehensive synopsis of the background, problem, and purpose; significance of the study, guiding research questions, concise description of the research methodology; definition of key terms; and the scope, assumptions, limitations, and delimitations of the study. Chapter 2 offers the conceptual and theoretical underpinnings of the study and a comprehensive review of the literature. The extensive literature review offered vital research on PLCs including the history of PLCs, unpacking PLCs definitions and core characteristics, conditions which enable and hinder PLCs implementation and viability, And the impact of PLCs on teacher professional development. Chapter 3 presents extensive details on the research methodology and processes. Comprehensive explanations of the research design, population and sampling, data sources, data gathering, and data analysis processes are provided. Chapter 4 is the explanation of the gathered qualitative data, data analysis processes, and the study findings. Chapter 5 examines the summary of the findings, implications, and recommendations for future research and practice.

CHAPTER 2: LITERATURE

2.1 Review of the Literature

The purpose of this multi-case qualitative study is to examine the impact of Professional Learning Communities (PLCs) on the professional development of teachers at three elementary schools in St. Lucia from the perspective of PLCs participants. This section includes a literature review consisting of the theoretical framework, conceptualization and definition of PLCs, characteristics of PLCs, factors which enable and sustain PLCs, factors which hinder PLCs implementation and sustenance, and the impact of PLCs on teacher professional development in elementary schools. The review of literature consisted of a myriad of sources to reach a level of satiation on the topic impact of PLCs on teacher professional development in elementary contexts. Search terms such as professional learning communities; communities of practice, learning communities; learning organizations; origins of PLCs; characteristics of learning communities; factors which enable, sustain and hinder PLCs implementations; limitations of PLCs, effects, benefits, outcomes, and impact of PLCs on the professional development of teachers in elementary contexts assisted in locating peer-reviewed journals, websites, books, and dissertations. Peer-reviewed journal articles and other texts ranging from 1978 to 2022 were found in the following databases: EBSCO Publishing, Google Scholar, Academia .edu, Researchgate.net, ProQuest Central, and Education Research Information Center (ERIC). The literature presented in this chapter provides a review of academic research requirements aligned to the goals of this case study, and the issue under investigation.

2.2 Theoretical Framework

Educational reformers view professional learning communities (PLCs) as a notable, logical, and extensive organizational framework for dynamic teacher professional identity development with the capacity to review teaching and learning routines, and efficiently implement diversified learning experiences which coincide with the needs of the students and school system (Hairon, 2016; Olivier and Huffman, 2016; Oiao et al., 2018; Tai & Omar, 2019; Vangreiken et al., 2017). PLCs are regarded as collective school unions which utilize mechanisms to advance the capacity of students, educators, and institutions (Flores et al., 2015; Hairon et al., 2017). The goals of PLCs are to activate and spread innovation about learning and teaching practices, as well as elevate collaborative and individual professional identity to improve student performance.

Wenger (1998) advocates that teachers are always striving to become individuals aligned to their goals for future self -improvement. According to Ahmad et al. (2019), this means that teachers are always seeking a professional identity required to attain their goals. Teacher professional identity is viewed as dynamic, ongoing, and ever changing (Beauchamp & Thomas, 2009 cited in Ahmad et al., 20019). Teacher professional identity comprises a combination of attributes developed in specific settings which entail sentiments, critical reflections, dialogue, and human agency (Ahmad, et al., 2019). Additionally, Izadinia (2013 cited in Ahmad, et al., 2019) assert that the cognitive elements of critical reflection, relations with students, peers and parents, sense of control, self-consciousness, analytical concision, teacher beliefs, self-assurance, and intellectual knowing are critical for developing teaching professional identity. Overall, teacher professional identity is viewed as a collection of abilities which comprise teacher discourse, subject content knowledge, self-consciousness, student learning, pedagogical practices and knowledge, and participation in teacher professional learning communities.

The theoretical foundations for teacher professional development in PLCs have emanated from social- constructivist and socio- cultural processes (Ahmad et al., 2019; Kin et al., 2019). Teacher professional identity development is nurtured in social contexts which impact "teacher beliefs, perceptions, teaching practices and teacher identity" which influences teacher performance (Ahmad et. al., 2019 p. 8). This clearly indicates that teacher professional development is a multidimensional process, and one theory is inadequate to examine it (Ahmad et. al., 2019 p. 8). As a result, Ahmad et al. (2019) and Kin et al. (2019) recommend examination of teacher professional identity development through a socio-cultural lens as opposed to cognitive lens.

Wenger (1998) communities of COPs is a common theory utilized to examine teacher professional identity development as teacher learning is situated within a socio-cultural model. Communities of practice comprise people working together with the goal of enhancing their practices (Lave & Wenger, 1991: Wenger, 1998). According to Wenger (1998), COPs entail collective learning which leads to social, cognitive, and emotional renewal which enhances teachers' professional capacity and identity. Therefore, COPs facilitate teacher professional development through ongoing participation in a social learning context which advances teacher professional identity.

Ahmad et al. (2019) advocate that great care is required in the implementation of COPs in distinct settings, as it may not be the most appropriate theoretical framework where teacher learning is not realized from social and collective interactions. COPs' places significance on shared frameworks of practices and experiences through critical discourse with peers; however, in school cultures teachers participate and share in communities of practice where discourse is based on an agenda set by community leader usually appointed by the principal (Ahmad et al., 2019). Hence, implementing COPs in contexts where school principals mandate the functional processes is not

regarded as authentic collaborative practices and discourse (Ahmad, et al., 2019). This view is supported by Xu (2017 cited in Ahmad, et al., 2019), who advocates that the traditional social tenets of COPs were not formulated to examine teacher professional identity development in all situations, and therefore an additional collaborative research theory is required to study PLCs in different contexts. When teacher learning occurs through social relations, Wenger (1998) communities of practice may be adequate; but if outsiders or novices are included, the boundaries of social interplay would require inclusion of Lave and Wenger (1991) peripheral participation. Additionally, if teacher trainers, facilitators, mentors, coaches, or more knowledgeable personnel are included, Wenger's (1998) "communities of practice" would not be sufficient to serve as a theoretical foundation, and consequently Vygotsky's (1978) socio –cultural zone of proximal development will be incorporated (Ahmad et al., 2019). Based on this reasoning, Vygotsky's (1978) theory of social constructivism and Wenger's (1998) community of practice have the capacity to serve as an instructive base for the examination of collaborative professional development occurring within the context of PLCs (Ahmad et al., 2019).

2.2.1 Vygotsky's Social Constructivism Theory

The goals of PLCs can be linked to the social constructivist theory which promotes professional development. Social constructivist theory is grounded in the notion that people actively work together to solve issues, hence the collaborative nature of effective professional development. The constructive theory emphasizes collective construction of knowledge among learners and practitioners within an organization (Lave & Wenger, 1991). As reported by Lave and Wenger (1991), an organization's experiential facility is located in alliances among experts and in pedagogical, cultural. and administrative experiences of the community. Social

constructivism is evident in PLCs which encourage teachers to collaborate to examine information and develop further understandings to address classroom, school, and eventually societal issues. This theory promotes community of practice to attain learning goals and recognize that teachers are distinctive with significant background knowledge and experiences.

Vygotsky's (1978) social constructivism theory also serves as a theoretical base for professional development in PLCs. Vygotsky's (1978) advocates that knowledge is constructed in the contexts of social interaction between more knowledgeable and less knowledge peers. The core principles of underlying the social constructivism theory are:

- Learning occurs before development.
- Language is the main vehicle for thinking.
- Mediation is critical for learning.
- Social interaction is a critical base for learning for learning and development. Learning is also training and incorporation in which skills and knowledge are converted from social to cognitive use.
- The zone of proximal development (ZPD) is the main activity platform in which learning takes place.

According to Shabani (2016), social constructivist learning from a Vygotskian point of view is a "socially mediated process influenced first by different semiotic tools, the most significant which is language. Social mediation combined with dialogic negotiation leads to advanced mental performance (p.3). Furthermore, Vygotsky maintains that social, emotional, intellectual, and contextual functions are essentially social, presenting behaviour and intellect and social participation and awareness as elements of a unified system (Shabani, 2016). Based on this

perspective, the process of change does not happen autonomously, immediately, or spontaneously. Change in social behaviour is a complex and extended process which necessitates the involvement of two or more persons in a practical session (Shabani, 2016). Hence, social interaction or collective involvement in activities which stop before internalization occurs may not lead to development. Accordingly, Eun (2008 cited in Shabani 2016) postulates that social interaction which leads to development must be situated within activities with clearly articulated goals, such as collective problem resolution and critical reflection on practice. Therefore, Vygotsky's social constructivists theory is aligned with PLCs because it is a school embedded model of professional development based on the school vision and mission which afford teachers opportunities to advance knowledge and professional capacity by working collectively with peers, engaging in critical discourse, and personal reflection to enhance professional learning in the school community. Vygotsky's (1978) learning and development evolves within the zone of proximal development (ZPD), which is the "distance between the actual development level as determined by independent problem solving and level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p.86). Hence, within the context of PLCs, learning results from collaboration with more knowledgeable peers within PLCs. Through collaboration, learners are introduced to new knowledge and skills, so they use them autonomously. When learners have attained autonomous mastery of these new skills and knowledge, they can assist their peers in the development of the same skills and knowledge. The implementation of schools into PLCs necessitates that leaders and teachers become learners who advance knowledge and skills through collaboration. The social constructivist theory illustrates within the context of PLCs both highly skilled and less skilled community members make invaluable contributions to skills, strategies and knowledge which must be attained and applied in

the work contexts (Tenenberg & Knobelsford, 2014). Accordingly, Vygotsky's (1978) ZPD explains reciprocal actions between colleagues and situates PLCs as a productive framework for staff professional development. Hence, in the case of teachers, Vygotsky's (1978) theory positions teacher professional development as educational exercises set within a social terrain where teachers are motivated, encouraged and supported to learn from their peers as well as coaches, mentors, and facilitators.

The PLCs framework is situated within the social constructivism theory. Vygotsky (1978) asserted that social interaction is an integral aspect of learning. The core aspects of social constructivism are the development of an authentic collaborative ethos, collective learning, problem resolution, and sharing of knowledge and skills with colleagues (Kivunja, 2014). Hence, learning activities which occur within the context of PLCs are characterized by the core elements of active participation, critical inquiry and dialogue, problem resolution, and collaboration with peers (Hord, 2009). Social constructivism is also grounded in the premise that social interactions are connected to individual thought processes. Vygotsky (1978) advocated that knowledge is developed through critical discourse and active participation with others. The social constructivism theory provides educators with opportunities to position education and instruction in a social context to utilize teaching as a medium for social discourse, resolution of issues, and advancement of learning (Jones et al., 2013). Therefore, within the contexts of PLCs knowledge, understanding and learning is framed in many ways including training, active learner involvement and inquiry, mentoring, coaching, observation of peers, engagement in an array of collaborative interactions, experiences. and goals of the learner (Guskey, 2000; Doubleday et al., 2015; Shabani, 2016). As a result, knowledge is developed within a group context and learning is a social and collective endeavour rather than an individual experience (Doubleday et al., 2015; Shabani, 2016). Moreover,

personal conceptualizations and meaning are continuously renewed emotionally, socially, and cognitively because of collective group interaction and critical dialogue within the community setting.

Vygotsky's (1978) social constructivism theory is also regarded as a social and cultural learning model. Vygotsky advocated that learning is a process which occurs within the context of community (Shabani, 2016). Social constructivism does not coerce individual learning but embraces the contributions of community members in the learning process (Shabani, 2016). Vygotsky also asserted that through collective interactions and critical dialogue knowledge meaning is reconstructed for learning (Harcourt & Jones, 2016). Individual meanings are always distinct due to unique personal experiences; hence critical dialogue is the core factor which fosters communication and advances learning outcomes (Kiraly, 2014). Furthermore, teacher learning and professional identity development are realized through individual, contextual, and professional interactions which are aligned to the individual histories, knowledge, skills, beliefs, and experiences they possess (Shabani, 2016). Professional development within the context of PLCs is therefore influenced and developed through ongoing social interaction. Professional development within the context of PLCs framework necessitates ongoing teacher cooperation with colleagues, analysis of student and teacher data, bridging student achievement gaps, and implementing research-based instruction techniques. Overall, PLCs frame teacher learning and professional identity development in a social constructivist context and necessitates implementation in educational institutions from a situational and community perspective.

2.2.2 Wenger's Communities of Practice (COPs)

The concept of social learning describes sustainable professional development, forms the basis for the progression of PLCs and corresponds with the work of Wenger's (1998) communities of practice (COPs). According to Wenger (1998), "social learning in communities of practice results in social, cognitive, and emotional development which renews "who we are and what we can do" and thus it is regarded "as an experience of identity" (p. 125). Wenger Dermott and Snyder (2002 cited in Vangrieken et al., 2017) "define communities of practice as groups of persons who experience similar interest, dilemmas, or sentiment about an issue who enhance their knowledge in the area by connecting regularly" (p.4). Wenger (1998) emphasized that community-based learning is vital for professionals to collectively reconstruct knowledge and experiences to renew their practices. In essence, Wenger (1998) stressed that "new experiences, contexts, conversations and relationships necessitate reframing previous understandings, as meaningfulness of engagement in our world is not a state of affairs, but a continual process of renewed negotiation" (p.54). Therefore, teacher professional development is a social learning situation where the teacher professional identity grows (Wenger, 2010).

Community of practice comprise several components which are needed to facilitate collective learning within organizations (Wenger, 1998). These include the "domain, community and practice and identity" (Wenger, 1998 p.5). 'Domain' is the field of knowledge that connects personnel within the community (Wenger 2004 cited in Smith et al., 2017, p. 211). 'Community' comprises groups who belong to a relevant domain defined by boundaries which foster collective relations (Wenger 2004 cited in Smith et al., 2017, p.211). This implies that there must be members of a specific domain interacting and engaging in shared activities. The manner of engagement builds relationships which support teachers to learn from each other. Practice is a collective range

of resources and implements that teachers generate through social interaction and ways of handling common matters (Wenger 2004 cited in Smith et al., 2017). 'Identity' is holistic growth realized by participants through collective learning within the context of the learning community (Wenger 2004 cited in Smith et al., 2017, p.213).

A major undertaking of communities of practice is to strengthen members' capabilities by incorporating prior training experiences and injecting modern practices and knowledge into the culture of the institution (Smith et al., 2017). Community based learning requires colleagues to direct attention to common teaching struggles as they collectively determine understandings of the issues and resolutions leading to the negotiation of future action plans (Vangreiken et al., 2017). By negotiating within a community of practice, participation and engagement from colleagues can result in purposeful solutions (Wenger, 1998).

Amid working collaboratively to resolve problems, communities of practice establish initiatives determined by their members to organize complementary sessions to share an assortment of ideas and experiences cultivated over an extended period (Wenger, 1998). Furthermore, Lave and Wenger (1991) recommend that community members be immersed in different ongoing experiences which will influence the group's capacity to focus on significant matters. Therefore, teachers in PLCs are expected to develop the agency, motivation, and capability to produce knowledge accordingly through common vision and ideals, within a frame of collective obligation, joint effort, and professional learning events (Kin et al., 2019). Moreover, Smith et al. (2017) describe that for communities of practice to function efficiently, it requires the formation and alteration of common assumptions, competencies, and knowledge while developing joint reserves of resources. PLCs situated within collective organizational alliances proposed by

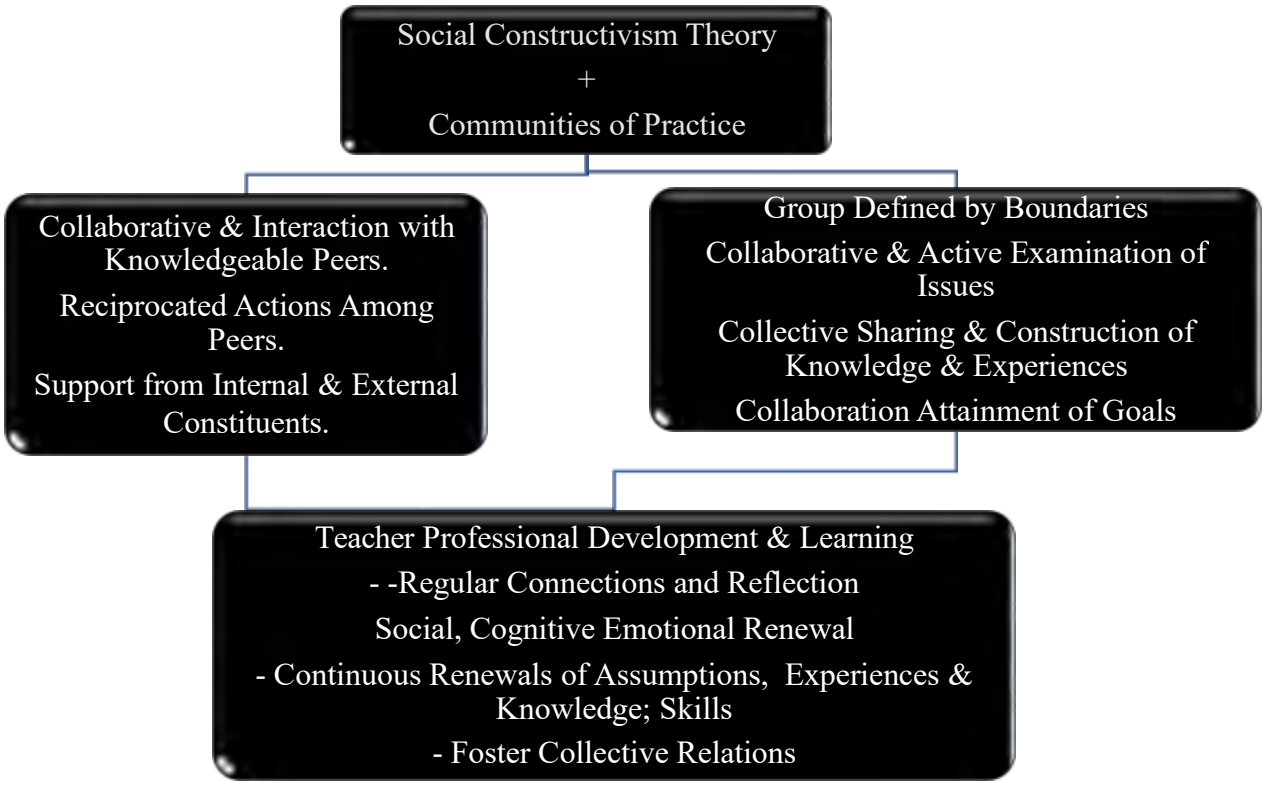
Wenger (1998) are proficient structures for teachers within schools to manage issues and apply knowledge to attain results outside of the customary boundaries (Vangreiken et al., 2017).

2.2.3 Amalgamated PLCs Theoretical Framework

The theoretical framework which guides this case study is an amalgamation of Vygotsky's (1978) and Wenger's (1998) theories on community-based learning within organizations is summarized and depicted in Figure 2.1, serves the basis for examining teacher professional growth within the context of PLCs.

Figure 2.1

PLCs Theoretical Framework



Each of these theories were utilized due to their relevance, linkage and alignment to professional development and PLCs. Collaborative learning is the core feature of COPs and social constructivism. (Vangrieken et al., 2017). COPs and Vygotsky's social constructivism theories are the basis for the PLCs framework functioning as a collaborative platform for enhancing teacher professional development and learning through regular connections and reflection on practice. The theories unpack PLCs as an effective strategy for enhancing teacher identity and professional development by fostering collective relations in schools, ensuring continuous renewal of beliefs, practices, and knowledge, leading to ongoing improvement of teachers cognitive, social, emotional capacity to enhance student achievement (Kin et al., 2019). Hence, PLCs serve as a sustainable platform for teachers to work collectively in authentic ways to acquire new knowledge and instructional strategies to enhance curriculum and instructional design for student learning (Hord, 1997; Kin et al., 2019).

This study was aligned to Wenger's (1998) communities of practice and Vygotsky's (1978) social constructivism because they both illustrate where learning occurs when teachers interact in meaningful collaborative ways with the others in small communities within the school context. This study anticipated advancing existing literature of social constructivism and social learning founded by Vygotsky (1978) and Wenger (1998) to explore teachers and principals' beliefs on the impact of PLCs on teacher professional development at three elementary schools in one educational district in the OECS island of Saint Lucia. Overall, Vygotsky's (1978) social constructivist theory and Wenger's (1998) communities of practice are connected because they promote professional development within the context of PLCs based on the notions:

- Principals and teachers work in teams at a grade, discipline, or whole school level to collaboratively resolve common instructional issues to improve pedagogical knowledge and practices to advance student learning.
- Both theories recognize and embrace team members' distinct background experiences, knowledge, skills, and proficiencies.
- Learning is situated in the zone of proximal development which emerges from collaboration with more knowledgeable peers, facilitators, and outside experts.
- Both theories explain the importance of reciprocal actions between team members to foster collective learning.
- Regular sessions entail ongoing dialogue and critical reflection of practices which realizes collective reconstruction of knowledge and practice, beliefs, and assumptions.
- The professional development outcomes from the amalgamated theories are ongoing collective activity which fosters collaboration and collegial relations, holistic professional development in the form of cognitive, emotional, and social renewal, and ongoing advancement of teacher professional capacity.

2.2 Field/Industry Description: Structure of the Dissertation Literature Review

The aim of this dissertation is to gain insight into principals' and teachers' views on the impact of PLCs on the professional growth of teachers in three elementary schools within one educational district. Researchers recommend that effective research investigations on the application, performance, viability, and impact of PLCs in educational institutions require thorough understanding of the complex nature of the PLCs concept. (Sleegers et al., 2013; Hairon,

et al., 2017). The next section will indicate the aspects of the concept of PLCs which will be explored in this literature review to enable methodological rigor and analysis in this study.

2.2.1 Concept of Professional Learning Communities (PLCs)

The PLCs concept is still in the initial phases of theory conceptualization (Soares et al., 2020). There is no consensus on the global meaning of PLCs (Tahir & Musah, 2020). Conceptualizations of PLCs differ due to the research methods and varied cultural contexts and geographical locations of researchers (Zhang & Sun, 2018). Professional learning within the contexts of PLCs is integrated in the social and institutional processes of schools (Kin et al., 2019). PLCs are generally described as a professional development framework incorporated into educational institutions based on collective examination of practices to enhance teacher expertise for improvement of student attainment (Olson, 2019). Hairon et al., (2017) recommended that to proficiently investigate the application of PLCs in educational settings there must be clarity of the complex concept of PLCs.

The concept of PLCs is described as multifaceted and multi-tiered in nature (Sleegers et al., 2013; Stoll et al., 2006). According to Stoll et al. (2006), PLCs comprise three critical elements namely, professionalism, learning and community. Professionalism's focus is aligned to the development of professional agency and self-sufficiency by enhancement of knowledge and expertise, and pedagogical approaches to meet clientele needs (Stoll et al., 2006). On the other hand, the core of learning is critical, reflective, collective learning which encompasses individual, team and school professional learning (Stoll et al., 2006). While the notion of community entails the development of supportive structures and collaborative relationships among all members within the community to enable learning and advancement of pedagogical practices for

enhancement of student achievement (Stoll et al., 2006). Similarly, Sleegers et al. (2013) described the PLCs concept as professional capacity development at the individual, group, and educational institutional levels to improve students' learning. Individual capacity is communicated as the ability of each professional to examine practices and knowledge about teaching to improve student performance (Sleegers et al., 2013). Group capacity is described by Sleegers et al., (2013) as a collective climate where groups and individuals responsibly and collaboratively share and examine practices to improve professional expertise and student performance. On the other hand, institutional capacity refers to a range of operational and organizational systems that enable and sustain PLCs for individual and community learning and enhancement of student achievement (Sleegers et al., 2013). The explanations of the PLCs construct outlined by Stoll et al. (2006) and Sleegers et al. (2013) revealed similar, broad features of PLCs which entail ongoing, collective examination and sharing of pedagogical practices to enhance student learning; collective responsibility for enhancing learning goals for students; a range of sustainable operational and organizational conditions; and personal and collaborative institutional learning. These broad characteristics play a pivotal role in the application and sustainability of PLCs in school contexts (Olsson, 2019). Therefore, researchers need to acquire clarity of these broad characteristics to investigate the operations of PLCs and their impact on teacher professional growth (Hairon et al., 2017). As a result, one section of this -literature review will explore the broad characteristics of the PLCs construct.

The comprehensive nature of PLCs has also been represented in several literature reviews through a range of consistent categories (Bolam et al., 2005; Stoll et al., 2006; Antinuloma et al., 2018; Hassan et al., 2018; Olsson, 2019). Bolam et al. (2005) carried out research to determine the impact of operational processes of PLCs on teacher growth and organizational development; and

outlined factors that enable sustain and hinder PLCs in schools in the United Kingdom. Stoll et al. (2006) built on existing research from the work of Bolam et al. (2005) to elaborate on the implementation processes, effects on professional development at the teacher and institutional level, and factors which enable, sustain and hinder PLCs from an international perspective. In addition, Antinuloma et al. (2018) carried research on growth of thirteen Finnish schools and outlined PLCs operational and organization factors which influence pedagogy, leadership, and teacher professional development. Furthermore, Hassan et al. (2018) developed a concept paper which examined all the core aspects of PLCs through comprehensive examination of secondary data in Malaysian and international contexts and described the core variables required to build sustainable and effective PLCs. Additionally, Olsson (2019) focused on the impact of PLCs components to promote action research to enhance teacher pedagogy and student achievement in Swedish primary and secondary schools and delineated the core processes which enable, sustain, and hinder this professional development framework. The five research reports captured the complexity of the PLCs constructed in literature through the portrayal of logical categories which include: origins, definitions, characteristic features; PLCs establishment approaches and stages of PLCs implementation; factors which hinder and sustain operational conditions, and the effects of PLCs. These categories outlined the range of variables which are pivotal in the implementation and sustainability of PLCs. Moreover, this coincides with the recommendations of Timperley (2008 cited in Kin et al., 2019), that to proficiently investigate the processes, implementation and effectiveness of PLCs, there is need to concentrate on the myriad of factors which shape PLCs in educational contexts. Therefore, this literature review will be developed around the recommended categories to determine elementary teachers' views of the impact of PLCs in an Eastern Caribbean context.

The literature reviews of Stoll et al. (2006); and Hassan et al. (2018) also identified a range of logical operational and organizational factors which determine the sustainability of PCLs in educational contexts. According to Stoll et al. (2006) and Hassan et al. (2018), the school site, support mechanisms, resource capacity, student educational history, educational policies, and beliefs of school internal and external community members are among the range of institutional variables which affect the application, performance, and viability of PLCs in educational institutions. Furthermore, Ahmad et al. (2018) further outlined leadership, appropriate sources, and support systems to maintain PLCs; and promotion of personal and collaborative organizational learning; as critical contextual conditions for the implementation of efficient PLCs. The two research reviews explored the operational and institutional PLCs conditions which enable, sustain and hinder teacher professional growth. These research reports also affirmed the views of Oliver and Huffman (2016), that a myriad of contextual variables determine successful implementation and sustainability of PLCs within educational institutions. Furthermore, these varied dimensions of PLCs are regarded as interdependent; and any future investigations on the impact of PLCs would necessitate a thorough understanding of these aspects of PLCs (Hairon et al., 2017). According to Hairon et al. (2017), "there is need to establish methodological rigor in understanding the PLCs dimensional constructs and their relationships. This will require proper operationalization of the PLCs multi-dimensional construct to aid in theoretical analysis" (p.77) of investigations studying the implementation of this strategy in schools. Therefore, this literature review will also focus on the operational and organizational processes and factors which enable, sustain, and hinder the implementation of PLCs in educational institutions. Moreover, it was crucial that these conceptual aspects: origins of PLCS, defining PLCs, characteristics of PLCs; PLCs establishment approaches

and developmental stages; processes for enabling or hindering sustainable operations of PLCs; and the impact of PLCs served as the frame to understand and analyze findings of this investigation.

The goals of this study, and the theoretical and operational understandings of the multi-layers of PLCs will guide the formulation of this literature review. Therefore, the aspects of PLCs which embedded this literature review for systematic exploration and validity are:

- 2.3: Origins of PLCs
- 2.4: Conceptualizing and Defining PLCs
- 2.5: Characteristics of PLCs
- 2.6: PLCs Establishment Approaches and Development Phases
- 2.7: Conditions which Enable and Sustain PLCs Implementation
- 2.8: Factors which Hamper the Establishment and Implementation of PLCs
- 2.9: Effects of PLCs on Teacher Professional Development in Elementary Schools

2.3 Origin of Professional Learning Communities (PLCs)

The concept of PLCs grew prominently thirty years ago in the United States when educational systems sought reform initiatives to improve teacher professional capacity so as to enhance student success (Kin et al., 2019; Sai & Siraj, 2015; Vangrieken et al., 2017). Teacher capacity was identified as one of the most significant elements of school reform (Darling-Hammond, 1996; DuFour, 2004). However, to sustain teacher quality, continuous professional development was regarded as a critical strategy for enhancing teacher skills, knowledge, and pedagogical practices (Vescio et al., 2008). As a result, professional development was deemed the

pillar of efficient education improvement initiatives so as to enhance teacher expertise and raise students' achievement (Vescio et al., 2008).

The PLCs concept emerged among researchers in the 1960's when this strategy presented an option to teacher isolation in the education system. Stenhouse (1975) advocated teachers should engage in class and school-based research and become active participants in school curriculum development. This led to school-based curriculum development movement of the 1970's and a myriad of initiatives and events materialized into the thinking school, problem solving school (Bolam, 1977 cited in Chediak et al., 2018), and the renowned Creative School (CERI, 1978 cited in Chediak et al., 2018).

Education reform initiatives in the 1980's utilized classical professional development models which entailed prescribed short-term workshops and lectures by specialists who shared information and strategies with teachers as to how to implement it in their classrooms (Darling-Hammond, 1996; Darling-Hammond & McLaughlin, 2011). Regrettably, these traditional professional development models did not attend to individual teacher and school learning needs which would enable modifications in teacher pedagogy (Darling- Hammond, 1996; Darling-Hammond & McLaughlin, 2011)). These conventional models encouraged teachers to maintain insulated classroom practices and did not foster sustainable professional development or school improvement (Darling-Hammond, 1996). These findings catapulted research investigations to look for modern professional development models with structures which focused on the unique needs of teachers and schools, fostered institutional cooperation and critical examination of pedagogical practices to enhance teacher capacity and students' attainment (Vescio et al., 2008; Lee & Lee, 2013).

Years of extensive research from a range of scholars on effective professional development models, led to the birth of PLCs framework which entailed collective, reflective, research based, sustainable and systematic processes of organizational learning for building teacher capacity (Vangreiken et al., 2017; Oliver & Huffman, 2016; Sai & Siraj, 2015; Olsson, 2019). PLCs is not regarded as a new concept as it was linked to the work of several authors and researchers. The origins of the PLCs concept stemmed from research within and outside the field of education (Teague & Anfara Jr., 2012; Liberman & Miller, 2016.)

PLCs research became implicit in the late 1980's and 1990's in the work of several researchers which focused on personal reflection and renewal, and school evaluation and renewal (McMahon et al., 1984). Thus, the concept of PLCs emanates from a range of sources including the work of Dewey (1986 cited in Lee & Lee, 2013), Little (1982), Schon, (1983), Rosenholtz (1989), Wenger (1998), Senge (1990), Louise and Kruse (1994), Newmann and Wehledge (1995), Hord (1997) and DuFour and Eaker (1998).

The concept of PLCs has been linked to Dewey's work on inquiry and reflection in schools (Bolam et al., 2005; Lee & Lee, 2013). Dewey (1986 cited in Lee & Lee, 2013) insisted that reflection was a fundamental aspect of humanistic intelligence. The deepening of knowledge and skills relied on regular and periodic reflection to enhance professional capacity (Dewey, 1986 cited in Lee & Lee, 2013). Research further revealed that enhanced learning in educational organizations resulted from practitioners' continuous deliberation on work issues to realize resolutions to improve practice (Lee & Lee, 2013). This collective reflection process incorporates sharing of information and practices instead of working in isolation.

Another instrumental researcher in the PLCs movement was Schon (1983) who studied architect collective development on designs and discovered the concept of reflective practice.

Reflective practice according to Schon (1983) entailed the practitioner experiencing unprecedented conditions of bewilderment or disorientation. These extraordinary circumstances would create opportunities to acquire additional knowledge, abilities, and advancements in practice (Liberman & Miller, 2016). Schon (1983) regarded reflective practice as a prerequisite for ongoing professional learning and went on to explain two types of reflective practice: *reflection in action* and *reflection on action*. Schon described *reflection in action* as the ability for professionals to contemplate while engaged in an experience to determine how this could be approached differently and making immediate modifications. On the other hand, Schon (1983) clarified that *reflection on action* involved collective and critical analysis of practice to identify issues and find resolutions which are fundamental elements of PLCs in educational settings (Liberman &Miller, 2016).

Little (1982) on the other hand studied the link between school professional development initiatives and the relations among teachers that contributed to the essentials of PLCs. Little's (1982) ethnographic investigation on six city schools discovered that ongoing professional development initiatives were successful because these schools functioned as collective learning enterprises. Several essential features of schools as collective learning enterprise are: (a) frequent teacher engagement in critical and reflective dialogue about their practices, (b) regular and constructive examination of colleagues' instructional practices, (c) collective teacher instructional preparation and scheming, and action-based research; and (d) modeling and coaching best practices of teaching to colleagues (Teague & Anfara, Jr, 2012). Little (1982 cited in Bolam et al., 2005) was determined that critical examination and reflection on practice would enhance professional expertise. Another major input by Little (1982), was classroom teacher insulation which was unfavourable for enhancement of schools. According to Little (1982), school

improvement was realized through the development of collegial workspaces which fostered critical examination of practices, enhancement of pedagogy through sharing of practices and finding solutions to meet the needs of students. Overall, Little (1982) affirmed that educational districts departments made advancements when schools operated as collaborative workspaces which later led the way for the PLCs movement.

Rosenholtz (1989) as well as others (Bolam et al., 2006; Sai & Siraj, 2015; Teague & Ankara Jr. 2012) also contributed fundamental groundwork for the progression of PLCs through research on the organizational circumstances of teachers. Rosenholtz (1989) studied seventy-eight (78) elementary schools in the United States and found that collaborative school communities enhanced sustainable professional learning and higher levels of attainment. The findings distinguished between the characteristics of high and low performing schools, where high performing schools collectively developed aims and protocols for teachers and students' pursuance while low performing schoolteachers worked in isolated classrooms. Rosenholtz (1989b) also affirmed the critical role of principals in coordinating the operations of the school. Although Rosenhotlz did not utilize the label of PLCs, workspaces which embodied systematic participation, critical reflection, and problem resolution to enhance teacher professionalism and motivation were accentuated for the establishment of dynamic schools (Sai & Siraj, 2015). Rosenhotlz' findings were corroborated by Mc Laughlin and Talbert (2006) when they reported that continuous opportunities for collective engagement in the workplace led to enhanced professional performance of teachers.

The exploration of origins of PLCs was also connected to the handiwork of Etienne Wenger (1998) Teague and Ankara Jr, (2012) and Liberman and Miller (2016). Wenger investigated the journey of novices' development in acquiring membership in a craft association. Wenger coined

the notion of communities of practice (COPs), in which practitioners cultivate a collective reservoir of tools, expertise and knowledge which can be utilized to collaboratively address common issues of practice. Wenger (1998) explained that these communities evolved naturally and played a significant role in the workplace. COPs encompassed procedures and practices which asserted participation in continuous forms of engagement so as to enhance organizational and professional status. Liberman and Miller (2016) affirmed that Wenger's (1998) work was an extension of Schon's (1983) work on collaborative reflective inquiry which added to the origin of PLCs as collective associations that participated in critical examination of practices. Collective communities of practices are fundamental to PLCS because it creates trustworthy and respectful spaces for teachers to examine their practices and share their reservoirs of expertise and tools to enhance educational achievement.

The notion of PLCs emerged in the research literature in the 1990's and stems from the work of Peter Senge (1990) on organizational learning in the business sector (Antinuloma et al., 2018; Liberman& Miller, 2016; Robert & Priutt, 2009). Senge (1990) published a work entitled "The Fifth Discipline", which propelled schools to examine novel methods for enhancement of the organizational operations and competencies of teachers and principals (Robert & Pruitt, 2009). Senge (1990) whose work concentrated on firms rather than schools advocated that firms' longevity was dependent on their capacity to refashion themselves into learning organizations for sustainable development. Senge (1990) recommended and categorized five learning areas that must be expertly implemented to produce a learning organization: "systems thinking, personal mastery, mental modes, building shared vision, and team learning" (Sai & Siraj, 2015 p. 67-69). The implementation of these five disciplines would enable collective learning and advanced productive methods of performance.

2.3.1 PLCs in the Education Setting

Spurred by these findings during the middle of the 1990's several researchers broadened their work on Senge (1990) to determine its suitability for the educational context. For example, Louise and Kruse (1994 cited in Hassan et al., 2018) developed the concept of learning organizations referred to as School-based Professional Community (SBPC). SBPC was based on three premises of improving collaborative responsibility within the institution so as to drive teacher performance and student attainment; developing work commitment and competence; and self–empowerment to complete work roles efficiently (Hassan et al., 2018).

In addition, Newmann and Wehlage (1995) created the concept of Circle of Support (COS) to explicate learning institutions and for education system reform in the United States. COS comprised four aspects for effective reorganization of schools which entailed collaborative assessment of teacher pedagogy that would enhance student performance; improved teacher pedagogy; schoolwide sharing of practices; and external support from governmental educational agencies (Hassan et al., 2018). The implementation of the four aspects of COS would assist schools in improving student performance, teacher expertise and school capacity (Hassan et al., 2018). Using COS, Newmann and Wehlage (1995) carried out large scale research using exam results, survey conclusions and extensive case studies on 1200 schools. Their research examined the effect of collective organizational processes on student attainment. Their findings also produced evidence that outstanding schools operated as learning organizations as conceptualized by Senge (1990). The findings of Newmann and Whelage (1995) confirmed two major characteristics of PLCs that were relevant: "(a) teachers must collectively develop goals within their PLCs and (b) schools must develop a collaborative ethos that encourages growth of teacher expertise" (p.38).

There are others such as Darling-Hammond (1996) who continued the groundwork on PLCs as a suitable framework for collective teacher learning. Darling- Hammond (1996) proclaimed that schools with scheduled collective sessions for teachers raised teacher motivation and productivity which improved student performance. The significance of collective decision making, development of mutual goals, and sharing of expertise was also accentuated. The findings from Louise and Kruse (1994); Newmann and Whelage (1995) and Darling–Hammond (1996) prompted the transformation of teacher professional development models to adopt collaborative organizational strategies congruent to Senge's (1990) framework.

In 1997, Shirley Hord carried out further work on Senge (1990) learning organization framework. Hord utilized the term PLC to study the effect of educational leaders and teacher quality on student academic performance. Findings from Hord's study (1997) revealed that collective working engagement among school leaders and teachers was critical for sustainable learning in schools to advance student performance. Hord (1997) further implemented a model with five dimensions of PLCs- namely shared and collective leadership, shared values and vision, collective learning, and application, shared individual practices and supportive conditions which have become the core of PLCs initiatives and scholarly investigations globally.

Hord's work (1997) was then adapted by DuFour and Eaker (1998). These researchers affirmed PLCs were the educational equivalent to Senge's (1990) construct of learning organization (Vangrieken et al., 2017). DuFour and Eaker (1998) incorporated the dimensions of creating collective school mission and vision, and school leaders' roles in PLCs. In addition, they created a publication of proven professional methods for developing PLCs and their positive effects on student attainment. In their publication, the authors differentiate between the term "organization" which was linked to proficiency and systematic processes within firms, whereas

"community" was connected to collective learning and sharing of common areas of interest within school contexts (DuFour & Eaker, 1998). The publication by DuFour and Eaker (1998) provided teachers and educational leaders with comprehensive research for altering schools into collective learning communities. The DuFour and Eaker (1998) model of PLCs supplied teachers with a framework to alter the school ethos and to develop the ability for making and maintaining change. The DuFour and Eaker model also stressed the significance of internal and external stakeholders in the implementation of the PLCs.

The work done by Hord (1997) and DuFour and Eaker (1998) formalized the PLCs concept which was to be regarded as a viable professional development vehicle through the description of specific characteristics. The concept was an effective way to revolutionize schools into collective learning institutions and served as a catalyst for learning organizations being named PLCs (Hord, 1997). Their work continued to have relevance in the implementation of PLCS and research investigations in educational contexts globally. Overall, these researchers recommended that the future of education institutions rested on schoolteachers and administrators implementing learning as a tool through engagement in continuous and collective dialogue on issues and practices in school communities (Sai & Siraj, 2015; Dehdary, 2017). These dimensions of PLCs outlined by these researchers (Hord, 1997; DuFour & Eaker, 1998) will be explained in another subtitle of this literature review as they are critical constructs for understanding the impact of PLCs on elementary teachers' professional growth in this investigation.

Following the initial work by Hord (1997) and DuFour and Eaker (1998), there are researchers who have updated the PLCs models (Hord, 2004, 2008; DuFour, 2004; DuFour et al., 2010) to meet the future needs of education system globally. PLCs have become a prominent tool for professional development reform globally (Antinluoma et al., 2018; Oliver & Huffman, 2016;

Hairon et al., 2017; Olsson, 2019; Sai & Siraj, 2015; Zhang & Pang, 2016). Globally contemporary education reform and research continue to implement PLCs as a viable vehicle for professional development in the education systems and these have grown across the continents to explore: the dimensions of PLCs; their impact on teacher expertise and student performance and implementation processes and factors required to develop and maintain PLCs in education institutions (Pang & Wang, 2016; Sai & Siraj, 2015; Olsson, 2019). Despite the large number of investigations globally, there is no research in the Eastern Caribbean education system in the literature. As PLCs become a critical aspect of elementary schools in the Eastern Caribbean; this investigation seeks to fill the gap. This investigation is significant to gain the views of teachers at the elementary school and educational district level on the creation of PLCs, processes of implementation, factors which hinder or sustain PLCs, and the impact of this professional development framework on teacher professional development and quality in the Eastern Caribbean context.

2.3.2 Summary

PLCs grew out of educational reform initiatives thirty years ago that placed demands on teachers to improve their professional capacity to enhance student attainment (Bolam et al., 2005; Oliver and Huffman, 2016; Sai & Siraj, 2015; Olsson, 2019; Vangrieken et al., 2017). The tenets of PLCs originate from the organizational learning model (Bolam et al., 2005; Sai & Siraj, 2015; Olsson, 2019). Globally, the model of PLCs served as a sustainable tool for educational initiatives and research to enhance collective professional growth of teachers and school leaders; deal with constant global changes and enhance student learning.

2.4 Conceptualizing and Defining PLCs

2.4.1 Perspectives of PLCs Definitions

There is no universally confirmed definition of PLCs in the literature (Stoll et al., 2006), which is explicated by three major reasons. Firstly, there are varied theoretical perspectives utilized to explain the PLCs concept including learning organizations (Hord, 1997), communities of practice, COPs (Wenger, 1998), or reflective practice (Schon, 1983). Secondly, PLCs can be designed in distinct mediums including study teams, action-based research or inquiry teams, lesson study groups, virtual communities, grade level teams, subject level teams, and school level teams (Ghbban, 2022). Thirdly, the PLCs concept and processes are impacted by different organizational, social, and cultural settings in which they are implemented (Stoll et al., 2006; Wenger, 1998). Hence, these varied theoretical perspectives utilized to interpret PLCs are considered responsible for the lack of a universal definition of PLCs.

PLCs definitions are generally conceptualized using the four overlapping interpretations of "space, network, approach, and process" (Nguyen et al., 2022 p. 15-17). However, Shan (2023) advocates that these interpretations of PLCs are best explained through the five angles of Who? Where? What? How? and Why?

Who are the PLCs aimed at?

PLCs are generally referred to as a collaborative and self- reflective team of specialists with a common vision to enhance student learning (Bolam et al., 2005; Dufour, 2004; Hord, 2009). A more precise description of PLCs is a team or network of persons (Lomos et al., 2011; Stoll et al., 2005, Pang et al., 2016; Goncalves et al., 2021; Liang et al., 2020; Zhang et al., 2020). These individuals in educational institutions include teachers, school leaders, other school staff, and

across school interpretations who share collective interests in improving pedagogy and learning with the ultimate goals of advancing student learning and the institution (Nguyen et al., 2022).

Where do PLCs take place?

Several definitions in the literature also suggested PLCs as a space for job-embedded learning (Mu et al., 2018; Woolway et al., 2019), which may be physically or virtually positioned (Nguyen et al. 2022). These virtual or physical spaces are arranged with the goal of advancing collective exploration, professional discourse, and additional shared tasks (Nguyen et al. 2022). The literature consistently states that PLCs exist within school settings (Stoll et al., 2006; Olsson, 2019). The membership of a PLCs network has professional level connections which "operate at both the teacher and whole school level" (Zhang & Pang, 2016 p.12), may also occur outside schools (Stoll et al., 2012), as well as between and across schools (Harris & Jones, 2017). These perspectives delineate PLCs as physical or virtual spaces for professional learning where teachers engage in collective reflection on practice and other collaborative actions to attain new ideas and experiences to improve student achievement.

What actions do PLCs entail?

PLCs are also outlined in the literature as a process of developing a collective culture to advance the professional capacity and learning of teachers and educational leaders (Wang et al., 2017; Zonoubi et al., 2017). Akinyemi et al. (2020) and Ye et al. (2022) highlight PLCs as a process where teachers work collectively to enhance their professional capacity and to fulfill educational duties and goals. Additionally, Zhang et al. (2020) and Moodley (2019) situate PLCs as a network where teams of teachers engage in ongoing and collective sharing, examination and evaluation of common issues and job-related techniques with the goals of finding solutions and

advancing the school and student achievement. Overall, PLCs conceptualizations postulate member engagement in a wide range of collaborative learning processes which comprise collaborative reflection on practice, sharing of experiences and teaching practices, common planning, and critical discourse focused on instructional practices, examination of assessment data, and observation to enhance learning at an individual and organizational level.

How are PLCs advanced?

The PLCs concept is presented by researchers as a community of members actively working collectively in a collaborative, reflective and learning environment which continuously advances individual and organizational growth (Stoll et al., 2006; Bolam et al., 2005; Hord, 1997; DuFour, 2004). Other researchers conceptualize PLCs as a strategy for teacher professional development (Chauraya & Brodie, 2018; Gonclaves et al., 2020). Chauraya and Brodie (2018) alluded to the current literature which accentuates PLCs as a job-embedded professional development method to enhance the pedagogical capacity and knowledge base of teachers. Similarly, Gonclaves et al., (2020) promote PLCs as one of the popular reform methods utilized to improve efficient, collective, and continuous professional growth among teachers. Hence, PLCs are consistently outlined in the literature as a job embedded professional development strategy which enables the development of a collective culture to advance the professional capacity and learning of educators and educational leaders.

Why are PLCs enacted?

There are three major aims for the implementation of PLCs within educational institutions (Shan, 2023). Firstly, PLCs aim to enhance team members' professional expertise and development (Bolam et al, 2005; Lee et al., 2011) by continuously enhancing group members

pedagogical strategies and experiences (Hamos et al., 2009; Hardar & Brody, 2010), promoting collective learning with peers on issues, creating shared interpretations, outlining common aims related to issues under examination (Hord, 2009), and facilitating innovation (Mitchell & Sackney, 2000; Stoll & Louis, 2007). Secondly, PLCs are implemented to ensure teacher expertise is enhanced to advance student learning (Bolam et al., 2005; Lee et al., 2011; Lomos et al., 2011). Thirdly, PLCs are created to enhance organizational performance (Bolam et al., 2005; Zonoubi et al., 2017) by cultivating a collaborative and sustainable cultural learning context (Hipp & Huffman, 2010 as cited in Ho et al., 2016). These three objectives accentuate the purpose of PLCs as educational strategy which enables ongoing teacher professional development to enhance student learning and organizational advancement through individual and collective collaboration and critical inquiry within school contexts.

Overall, these overlapping perspectives of PLCs presented through the lens of "who", "where", "why", "what", and "how" revealed critical points with regards to: the targeted audience for PLCs, the various contexts within which PLCs may operate, the range of processes teachers implement in PLCs, and the overarching aims of PLCs to enhance teacher professional capacity to enhance student achievement. The essence of these five perspectives consistently situates PLCs as a sustainable, collective, organizational professional development strategy which is used to enhance teacher instructional capacity to enhance student attainment.

2.4.2 Unpacking Definitions of PLCs as a Professional Development Strategy

The term PLCs has a range of definitions in the literature. There is no standard interpretation of the term PLCs but there is agreement that the general nature of PLCs within the educational settings entail networks or teams of professionals actively involved in collective and

ongoing processes of professional learning with the intention of upgrading professional expertise to increase learner attainment. This perspective of PLCs as professional development strategy is promoted in a range of definitions by several researchers (Hord, 1997; Stoll et al., 2006; McLaughlin & Talbert 2006; Tan & Caleon, 2016).

Hord (1997) defined PLCs as a school group which include professionals, administrators and instructors who are collectively devoted to acquiring new information and dispensing updated methods regularly with the aim of enhancing students' academic attainment consequently promoting school performance. While Stoll et al. (2006) explained that PLCs are "a group of people sharing and critically interrogating practice in an ongoing, reflective, collaborative, inclusive, learning-oriented, growth-promoting way, operating as a collective enterprise (p.223). Additionally, McLaughlin and Talbert (2006) described PLCs as an institutional system in which teachers work collectively to critically review their practices, analyze data to find connections between pedagogical approaches and student achievement; and utilize this evidence to amend their teaching methods and to enhance student performance. Furthermore, Tan and Caleon (2016) classify PLCs as teams of persons who are involved in continuous cooperative activities to pursue established targets; construct together, participate, and distribute information; and collaborate and examine personal practices.

The four definitions are distinct, and all accentuate fundamental elements of PLCs. PLCs are described as a sustainable professional development framework that is embedded within educational contexts (Hord, 1997; Stoll et al., 2006; McLaughlin & Talbert 2006; Tan & Caleon, 2016). The focus of PLCs is determined through the analysis of data collected on student learning needs and teacher pedagogical issues faced within the educational context (McLaughlin & Louis, 2006). Additionally, these researchers affirm the collaborative system of PLCs nurture a collegial

culture which advocates regular sessions with colleagues to dialogue, analyze and consult on pedagogical knowledge and practices in the daily realities of classrooms. They aim to reform their professional capacity and curriculum as well as to increase student attainment (Hord, 1997; Stoll et al., 2006; McLaughlin & Talbert 2006; Tan & Caleon, 2016). PLCs also create a systematic transparent learning process for teachers and school administrators within the school environment that promotes professional identity through change in the way teachers understand their pedagogical practice and knowledge; and foster change in teachers' behaviours and perspectives toward attaining better student results and organizational goals (Hord, 1997; Stoll et al., 2006; McLaughlin & Talbert 2006; Tan & Caleon, 2016). In addition, school leaders and teachers are collectively committed to implementing equitable and supportive professional development processes and organizational structures within the institution to ensure the learning targets for students are achieved (Hord, 1997; Stoll et al., 2006; McLaughlin & Talbert 2006; Tan & Caleon, 2016). All outlined elements are connected and work in concert to realize the aim of PLCs which is to improve student performance. Overall, the definitions presented by these researchers (Hord, 1997; Stoll et al., 2006; McLaughlin & Talbert 2006; Tan & Caleon, 2016) epitomize the general nature of PLCs and the starting point for explaining their essence (Al Jammal, 2015). Therefore, the persistent features gleaned from the four definitions will serve as defining properties of PLCs in this investigation.

The general features outlined in the definitions of these researchers (Hord, 1997; Stoll et al., 2006; McLaughlin & Talbert 2006; Tan & Caleon, 2016) are also congruent with the prominent, broad dimensions of effective PLCs promoted in the academic literature. The expansive PLCs dimensions are "shared and supportive leadership, shared values and vision, collective learning and application, shared personal practice, and supportive conditions" (Hord,

2009, p.12-13), shared responsibility (Little, 2006), facilitative and trusting relationships (Hipp & Huffman, 2010), and external networks and alliances (Stoll et al., 2006). These comprehensive PLCs dimensions outlined by Hord (2009), Little (2006), Hipp and Huffman (2010) and Stoll et al. (2006) are universally accepted (Zhang & Pang, 2016); and served as the frame for PLCs implementation and research in educational contexts (Hassan et al., 2018). These eminent dimensions by Hord (2009), Little (2006), Hipp and Huffman (2010), and Stoll et al. (2006) provide deeper explanations of PLCs core elements (Olsson, 2019). Accordingly, Vanblaere and Devos (2016 p. 4), postulate that presenting the concept of PLCs into "clear and identifiable characteristics largely increases the usefulness of research for practice and theory because it provides information about how specific elements of PLCs can be encouraged. Therefore, explanation of these expansive PLCs dimensions is required for analyzing the impact of PLCs on sustainable professional growth and institutional development (Watson, 2014 cited in Hairon et al., 2017) in this investigation. Based on these recommendations, the notable characteristics of PLCs will be explored in the next segment of this review to maintain the rigour of this investigation.

2.5 Characteristics of Professional Learning Communities (PLCs)

The literature on the research-based characteristics or dimensions of PLCs has grown extensively over the last thirty years. The foundational and defining characteristics of PLCs are linked to the three PLCs concepts of professionalism, learning and community (Olsson, 2019; Sleegers et al., 2013; Hairon et al., 2017). These characteristics are connected and serve as the framework for school PLCs (Hord, 1997; 2004), to foster enhancement of organizational capacity through purposeful professional development within educational institutions. A range of

researchers (Louis et al., 1996; Hord, 1997; DuFour & Eaker, 1998; Huffman & Hipp, 2003; Hipp & Huffman, 2010; Bolam et al., 2005; Stoll et al., 2006; Reichestetter, 2006; Little, 2006; Sleegers et al., 2013; Burns et al. 2018) have also made critical additions to the PLCs characteristics literature which are pertinent for the establishment of effective and sustainable implementation of PLCs in educational contexts. An understanding of these attributes provides researchers and educators with a common purpose for examining PLCs (Al- Jammal, 2015; Olsson, 2019). These integral characteristics of proficient PLCs promoted in the literature include "shared values, vision and goals; supportive and shared leadership; collective learning and application; shared individual practice; and supportive conditions" Hord (2009, p.12-13), shared responsibility (Little, 2006), facilitative and trusting relationships (Hipp & Huffman, 2010), and external networks and alliances (Stoll et al., 2006). This segment will outline the characteristics of effective PLCs, and their significance of each in relation to work- infused professional development is demonstrated using pertinent literature.

Many models of PLCs were generated during the period of 1990 until 2018. Researchers have advanced a range of conceptual constructs to comprehend the characteristics of PLCs predicated on their specific backgrounds (Ismail et al., 2022; Zhang & Sun, 2018) as illustrated in Table 2.1. Prominent PLCs models discussed in the literature differ in the usage of nomenclature, importance, magnitude, and attributes, but include central and comparable characteristics which are aligned to the same aim of developing learning institutions and enhancing the professional capacity of organizational members to ultimately advance student attainment (Hassan et al., 2019).

Table 2.1

PLCs Conceptual Models Proposed by Different Researchers

Authors	Characteristics
Louise, Marks & Kruse (1996), Newmann (1996)	shared norms and values; collective focus on student learning, collaboration; deprivatized practice; reflective dialogue
Hord (1997), Huffman & Hipp (2003) Hipp & Huffman (2010)	shared and supportive leadership; shared values and vision, collective learning and application; shared personal practice; supportive conditions.
Dufour & Eaker (1998)	shared mission, vision and values, collective inquiry, collaborative teams, action orientation and experimentation, continuous improvement, results orientation.
Thompson et al. (2004)	systematic thinking; personal mastery; mental models, shared vision; team, learning, relationship/trust; data informed, decision making; results orientation.
Bolam et al. (2005) Stoll et al. (2006)	shared values and vision; collective responsibility; reflective professional inquiry; collaboration; group as well as individual learning is promoted, mutual trust, respect and support among staff members; inclusive membership; openness networks, and partnerships.
Reichestetter (2006)	shared mission, vision, values, and goals; commitment to continuous improvement; Collaborative culture; supportive and shared leadership; supportive conditions

Authors	Characteristics
Little (2006)	shared values and purposes; collective focus and responsibility for student learning, Collaborative and coordinated efforts to improve learning, practices supportive of teacher learning. collective control over important decisions affecting curriculum.
Sleegers et al. (2013)	Personal capacity: active and reflective construction of knowledge, currency. Interpersonal Capacity: shared values and vision, collective learning, shared practices. Organizational Capacity: resources, structures and systems; relationships and climate; stimulating participative leadership.
Burns et al. (2018)	foundations to learning community culture; building leadership teams; administrative leadership; student learning; assessment; system of intervention; continuous improvement

Note: Combination of Work of Warwas and Helm, (2018) and Zhang and Sun (2018)

Table 2.1 illustrates a range of characteristics of PLCs presented by researchers which showed three phases of PLCs model development (Warwas & Helm, 2018; Zhang & Sun, 2018). Early PLCs models were created in the 1990's and comprised five characteristics and can be segmented into similar but distinct categories. The first category of the five characteristics by Louis et al. (1996) consisted of reflective dialogue, practice sharing, collaboration, shared norms and values and collective focus on student learning. The next group of characteristics was by Hord (1997) which were utilized extensively in PLCs research investigations including sharing of

practices, collective learning and application, shared values, and vision, shared and supportive leadership and supportive structures. The second set of PLCs models were developed in the early 2000's were broader models with additional characteristics. Examples of these extensive models were the work of Bolam et al. (2005) and Stoll et al. (2006) which segmented the learning characteristics into two segments of individual and team learning. Additional features included membership and openness, networking, and partnership. The third group of PLCs models were developed after 2010 and were based on multiple and wide-ranging components which connected the teacher individual capability and institutional capabilities to construct the characteristics of PLCs (Sleegers et al., 2013). The various models illustrated a range of characteristics and were crucial for effective implementation of PLCs. The similarities and differences outlined in the models revealed there is no established number of PLCs characteristics and usually involved five to eight (Ismail et al., 2022). Furthermore, Burns et al., (2018) indicated that PLCs characteristics are complex with each characteristic consisting of several critical elements.

Table 2.1 also exhibited clear distinctions amongst PLCs conceptual frameworks presented by the various researchers based on three explanations. Firstly, varied conceptual understandings have been developed to comprehend the PLCs concept including learning organizations (Senge, 1990; Hord, 1990; Thompson et al., 2004), community of practice (Wenger, 1998; Little, 2006; Horn & Little, 2010), and reflective practitioner (Schon, 1983). Secondly, PLCs can be implemented in a range of configurations (Hord,1997) such as class or school level action research inquiry, online groups, and may be implemented in the content areas, grade level, subject departments, or at the school level (Little, 2002). Thirdly, the PLCs construct is broadly affected by distinctive organizational, societal, and community-based factors (Wenger, 1998; Stoll et al., 2006). Hence, the understanding of PLCs is usually generic.

The PLCs models outlined in Table 2.1 also have different conceptual understandings, but several basic and interrelated characteristics can be gleaned from these models for effective and sustainable implementation of PLCs. The models have outlined eight distinct and intertwined PLCs characteristics which include numerous components, critical actions, and conditions (Ismali et al., 2021) for PLCs implementation and viability. The first characteristic is shared values and vision with a critical and common goal of student learning (Vescio et al., 2008). Collective learning and inquiry, the second characteristic entails teachers jointly question, design, examine and enhance their pedagogical practices and knowledge base (Hord, 1997). The third characteristic of shared personal practice relates to teacher frequent interaction and observation of peers to supply pertinent feedback to advance pedagogical expertise (Louise et al., 1996). Shared or collective responsibility, the fourth characteristic involves teacher collaborative commitment to student attainment and organizational improvement (Little, 2006). Shared and supportive leadership, the fifth characteristic is fundamental for school leaders to inspire teachers to engage in collaborative institutional decisions and create professional and supportive conditions for collective learning (Reichsetter, 2006). Supportive conditions, the sixth dimension, deals with the structural, financial, physical, human resources, and mechanisms (Hord, 1997). The seventh feature conducive relations relate to an ethos of common trust, compassion for others, and teamwork fostered to bolster PLCs advancement (Hipp & Huffman, 2010; Thompson et al., 2004). External support systems, the eighth distinct characteristic encompass alliances with parents, educational district, and associations with institutions such as other schools, universities, educational and local agencies (Stoll et al., 2006). Hence, clear understanding of these interrelated characteristics serves as the foundation for the development of effective and sustainable PLCs (Zhang & Sun, 2018; Ismail et al., 2021). Furthermore, (Shan) 2023 advocates that the breakdown of PLCs into characteristics

advances the utility for research which examines PLCs practice and theory because it provides pertinent insight into how the pertinent aspects of PLCs can be established, implemented, and sustained. Hence, the eight PLCs characteristics presented in this section of the literature review focus on the aims of PLCs and strategic establishment and sustainable implementation techniques which focus on enhancing institutional capacity, as well as the individual and collective capacity of teachers and leaders to enhance student learning.

2.5.1 Shared Values, Vision, and Goals

This characteristic accentuates the significance of a community where organizational members share values and vision (Hairon et al., 2017). Shared values and vision are regarded as a significant characteristic of PLCs to maintain a learning ethos among leaders, teachers, and students (Olsson, 2019; Hord, 1997; Bolam, et al., 2005; Stoll et al., 2006). These researchers affirm that teachers must develop a common vision and value system which is focused on student attainment to implement PLCs efficiently. PLCs are based on social and collaborative learning theories and necessitate educators collectively to develop mutual values and goals; and organize groups to attain these goals (Oliver et al., 2003). Vision, mission, values, and shared goals entail institutional members sharing a common vision and mission to enhance student attainment, teaching goals, school enhancement and productivity (Ismail et al, 2021). This characteristic necessitates the engagement of school staff, faculty, and other stakeholders in PLCs implementation (DuFour & Eaker, 1998: Hord, 1997). The vision, mission, values, and goals developed must also be aligned to national and educational mandates (Ismail et al, 2021). This indicates the PLCs are a medium where teachers collectively develop a culture to improve

pedagogical skills and learning outcomes for students via the sharing of common vision, mission, goals, and values (Zhang & Pang, 2016).

Shared values create awareness of the mode in which PLCs members are required to work collaboratively and autonomously in groups (Kouzes & Posner, 2002). Developing essential values is a collective operation which entails deliberation and review to ascertain adoption by members (Kouzes & Posner, 2002). In addition, values must be apparent in the vision, mission, and management routines of the institution. Furthermore, shared values are required for PLC members to function collaboratively and purposefully (Kouzes & Posner, 2002). PLCs rely on the development of common values to form individual, competent, and trusting alliances and to cooperatively work to attain goals (Vangrieken et al., 2017). Therefore, enunciating shared values is a fundamental aspect of developing a collaborative and trusting ethos for effective functioning of PLCs.

The development of a shared vision on the learning goals of schools is outlined as pivotal to PLCs in schools to maintain an ethos for enhancing pedagogy and student performance (Hassan et al., 2018; Stoll et al., 2006). To realize this common purpose, institutional members must collectively engage in the development of a concise, and compelling vision which operate as the guidepost for making critical, and collective decisions about developments and hurdles within the school setting to propel and enhance student outcomes. According to Jones et al. (2013), establishing “a vision is a significant aspect of school improvement for school leaders because it reflects the continuous action, re-evaluation, and communication among principal and staff” (p. 360). Additionally, Al-Mahdy and Hendway (2016) advocate a shared vision delineates what the educational institution strives to evolve. Shared vision, which outlines what the school should become, and must be collectively developed by teachers. The vision should be followed by shared

values articulated within the vision which determines how organizational members will collectively spend their time, the kind of issues which should be addressed, and how resources should be allocated to realize and sustain that vision (Dufour et al., 2010; Hord, 2004; Hord, 2009). During the process of attaining the collective vision, values operate as the belief process embraced by stakeholders. According to Barth (2001), values are "complex patterns of norms, attitudes, beliefs, behaviours, ceremonies, traditions, and myths that are deeply ingrained in the very core of the organization" (p.8). Values are fundamental for developing change as they intrinsically steer members to vision attainment (Fullan, 2001).

The shared vision is conveyed via the school mission and devises a representation which serves as guiding principles for institutional processes (Hord, 2004). A well- developed mission statement renders clarification of the aims and can assist in the development of arrangements that will direct decision making (DuFour et al., 2010). A shared vision ensures PLCs members understand what processes must be undertaken and supplies clarification about the main aims. In addition, Hord (1997), advocates that "staff are encouraged to utilize the vision as a guidepost in decision making about instruction, administrative processes and professional learning within the school" (p.19). Several researchers also affirm that a shared vision is required for teachers to operate individually and collectively to realize the common goals of enhancing student attainment (Bolam et al., 2005; Stoll et al., 2006; Botha, 2012). Additionally, a school's vision serves as the yardstick in evaluating teachers' pedagogical capacity and influence on student learning processes (Hassan et al., 2018). Moreover, Hord (2004) contends that a shared vision should promote legitimate engagement of all teachers. Overall, the shared vision serves as the frame which outlines the conditions for schools' cultural modifications, development of behavioural norms, pedagogical

and learning decisions, professional development and sustainable growth and student learning (Zhang & Pang, 2016).

The vision operates as a pathway for stakeholders, while goals function as the guide throughout the process. O' Neil (2000) formulated SMART goals to formulate goals for steering the vision while working in two Wisconsin elementary schools. The acronym SMART means Specific, Measurable, Attainable, Results-Oriented, and Timely. *Specific* is associated with stakeholders who will be engaged in goal development procedures and who will be affected by the goals. *Measurable* outlines the analytical system in which each goal will be evaluated for successes. *Attainable* indicates reversal thinking of goal formulation permits institutional members to ponder on processes which should occur and prospective steps to accomplish success. *Results-Oriented* assures that organizational members are devoted to the results, and the procedures. This permits community members to work in reverse towards the ultimate outcome. *Timely* illustrates the timespan for attainment of goal along with the smaller measures in the process. Hence, O' Nieil (2000) recommended the use SMART goals to success of teachers experiencing while working collectively in PLCs to advance student attainment.

Teachers work collectively to develop PLCs when they share a common vision, attain similar goals and function using the same values (Johnson & Johnson, 2000). School leaders must motivate teachers and other stakeholders to create goals which are aligned to the collective vision to advance student learning. According to Sergiovanni (1996), organizational members become connected to stakeholders when they build common values. Overall, the notion of shared vision, mission, values, and goals are integrated and is critical to PLCs viability and effectiveness; the conceptualization of vision steers the procedure of goal formulation and necessity of values, thus demonstrating the main aim of this PLCs characteristic.

The explanations and establishment and implementation strategies aligned to the PLCs characteristic, shared values, vision, mission, and goals presented in the literature consistently endorses this is a critical characteristic for the successful establishment, implementation, and sustainability of PLCs. This characteristic clearly emphasizes that all stakeholders need to be onboard, including students recognizing and valuing learning. The value aspect is postulated as a critical motivator for principals, teachers, and key stakeholders to develop a common vision and mission to advance the quality of instruction for student attainment and organizational progress. The literature also accentuates that the focus of the vision and mission is to enhance student learning which must be a collective effort of the school community. Furthermore, the school vision and mission should be utilized as the yardstick for measuring the quality of instruction and its impact on student attainment. Additionally, the collective development and sharing of the school vision and mission is a requirement for school improvement. This collaborative effort means that all stakeholders and communities whether internal and external to the school need to be supportive to assure the school vision and mission is realized. These collective alliances with principals and teachers necessitate the identification and significance of the school vision and mission and not simply agreeing to ways to enhance the organization. Overall, the PLCs characteristic vision, values, mission, and goals provides the foundation for building collective agreement, equitable decision making, and commitment among school community stakeholders to advance student learning. Notably, this characteristic should not remain fixed but consistently reviewed and refashioned within the school setting to ensure the instructional capacity of teachers is enhanced and realized to advance student learning.

2.5.2 Shared and Supportive Leadership

Another critical characteristic of effective PLCs is shared and supportive leadership (Antinuloma et al., 2018; Belibas et al., 2016; Hassan et al., 2018; Hord, 1997; Mahimuang, 2018; Zhang & Pang, 2016). Shared and supportive leadership is regarded as an influential resource and undertaking which entail distribution of leadership roles and duties among educational leaders and class teachers for effective sustainability of PLCs (Sleegers et al., 2013; Bellibas et al., 2016). Hence, Hairon et al. (2014), recommend that:

> "School leaders should ensure the PLCs initiative is linked to school organizational learning goals. This is because teachers and other stakeholders must see PLCs are not disconnected activities from school learning goals. Thus, school leaders must provide direction and guidance on PLCs matters - specifically on how PLCs can serve for school improvement and school outcomes" (p.11).

The collective endeavour between school leaders and teachers to split specific roles propels the leadership capacity of the PLCs (Hord, 1997). Teague and Anfara Jr. (2012) contend that leaders of impressive PLCs need to facilitate capacity building of teachers within the institution through joint learning and professional training opportunities by splitting strategic and instructional leadership duties. Similarly, Mahimuang (2018) advocates when teachers are entrusted to partake in the instructional and managerial roles and decision making of schools to institute modifications in teaching and learning to improve student attainment, PLCs are expected to succeed. Therefore, Hord (1997) affirms it is imperative that educational leaders split the leadership of PLCs and embrace teachers as equivalent associates that claim the efforts and accomplishments of PLCs. Furthermore, Vescio et al. (2008), revealed that affording opportunities for teachers to make decisions in PLCs and school administration bolster constructive changes in teaching practices.

Research indicates that high quality supportive leadership is critical for attaining powerful PLCs (Brodie, 2019). Supportive leadership emanates from the school principal and consists of senior teachers such as vice principals and department heads (Brodie, 2019). School leaders are crucial in promoting and sustaining a culture of professional development to enhance teacher professional capacity (Owen, 2014; Sims & Fletcher-Wood, 2021; Vangrieken et al., 2017). This culture accentuates teachers learning, discourse, and crucial reflections because they impact the social and physical aspects of the school ethos (De Matthews, 2014). Supportive and shared leadership are collective interactions between school leaders and teachers to enable making decisions in a risk-free atmosphere (Hord, 1997). School leaders' social relations with educators and other organizational leaders can promote the cultivation of trustful relations, cooperation, and dissemination of skills and information (De Matthews, 2014). School leaders also advance the main components required to implement and sustain PLCs through their talk and interactions with educators (De Matthews, 2014). Owen (2014) advocates that supportive leadership include a range of components including the systems for effective communication, adequate time for PLCs sessions, socializing of staff, assistance, and capacity building for novice and mature teachers. These are fundamental for fostering successful teacher learning and assuring that educators remain devoted to professional development aims and values. Leaders also focus on aspects of human capital development such as enhancement of self-efficiency, teacher welfare, and providing opportunities for self-reflect (Ismail et al., 2022). Supportive leadership may be administrative by granting teachers time from other substantive tasks and assigning spaces for PLCs meetings and actively participating in sessions (Brodie, 2019). It also means leaders shielding teachers from district and national mandates, and rapid educational changes which agitate the progression of school enhancement initiatives (De Matthews, 2014). Overall, supportive leadership entails

furnishing the scope, resources, and systems for PLCs to operate efficiently (Stoll et. al. 2006). Thus, supportive leadership is a fundamental characteristic in the implementation of PLCs for advancing teacher abstinence or engagement in PLCs (Brodie, 2019), and supporting teacher autonomy and collective learning capacity (Kinyota et al., 2019; Vangrieken, et al., 2017).

Distributive and supportive leadership entail a range of critical components to establish and implement PLCs. School leaders must develop a risk-free atmosphere which is aligned with the fostering of adult collective learning and interactions (De Matthews, 2014; Johnson & Voekel, 2019). Additionally, leaders must have the capacity to assist teachers with classroom management problems, schedule time for planning and lessen instructional interruptions. They must also possess emotional intelligence to address the human aspect of leadership because educational change and innovations such as PLCs can cause teacher fear, confusion, and mistrust (Harms & Crede, 2010 cited in De Matthews, 2014). Leaders must develop their emotional intelligence to be able to support teachers at each phase of change to ensure emotional support can be provided when there are periods of dissonance and discomfort (De Matthews, 2014).

PLCs require shared or distributive leadership because of the increased demands, duties and skills required to support teachers in PLCs establishment and implementation (De Matthews, 2014). According to Hassan et al. (2018), various types of leadership are necessary to create effective PLCs. Distributive leadership clarifies the range of responsibilities to be undertaken by school leaders, educators, and other organizational members and the way their interactions, positioning, and leadership adds to institutional learning (De Matthews, 2014; Johnson & Voekel, 2019). Distributive leadership also accentuates how leadership is disseminated throughout the institution and entails coordinated effort from educators and school principals (De Matthews, 2014; Johnson & Voekel, 2019). Effective PLCs rely on participatory leadership methods which

conjointly empower all organizational members to engage, serve and steer in establishment and implementation of the instructional and learning vision (Carpenter, 2017). According to Hord (1997), there are a range of positive effects when teachers and leaders share the authority in attaining the school vision. This perspective is further supported by Louis and Kruse (1995) and Hassan et al. (2018) who identified six ways in which shared leadership can build leadership capacity among PLCs membership and success of PLCs. There is easier interaction among staff; teacher support and active participation in PLCs; use of the school vision to drive all PLCs processes; developing an ethos for ongoing professional learning; handling constraints and differences in the workplace; and leadership approach utilized function as the framework for success of PLCs within the organization. Therefore, it is imperative that school leaders implement a participatory leadership structure where all teachers partake in instructional and operational decision processes to fulfill the vision of PLCs.

Recent research by Nguyen et al. (2022) accentuated ten articles which corroborated the critical role of supportive leadership in establishing, implementing, and maintaining PLCs. The ten studies cited by Nguyen et al. (2022) included the work of Kin and Kareem, 2021; Zahedi et al., 2021; Somprach et al., 2017; Lui & Yin, 2020; Luyten and Bazo, 2019; Ozdemir, 2019; and Zhang and Wong, which identified a range of moral, instructive, and transformative leadership strategies required for the development of effective and sustainable PLCs in educational institutions. Overall, the amalgam of actions affiliated with effective supportive leadership include: creating a collaborative vision, supplying supportive structures which enable team and individual accommodation, encouraging innovation, creativity as well as critical thinking and problem solving; and establishing a collective ethos which enables ongoing reflection on practice

to promote members professional growth and development, and the implementation and viability of PLCs (Hassan et al., 2019; Ngyuen et al., 2022).

The consensus which emerges from the literature on the PLCs characteristic shared and supportive leadership consistently advocates it as one of the most fundamental aspects for establishment, implementation, and maintenance of the PLCs framework. The critical role of school leaders and teachers sharing roles and responsibilities in the school setting is the focus of this characteristic. This characteristic requires changes in the school's operational processes. The literature consistently postulates that school leaders and principals need to distribute responsibilities, reins of power, and perspectives to effectively realize the school mission and vision. Furthermore, school leader's effective establishment and development necessitate the creation of a risk-free ethos which encourages community members working as a unit to collectively fulfill the school mission and vision, ensure that teachers are provided with required resources, structures, training, skills, and facilities, as well as leader active engagement in all aspects of PLCs. The use of effective shared and supportive leadership technique in PLCs would lead to stakeholders using the vision as the guide for implementation processes, easier interaction, supportive teachers working closely with principals who are actively involved in PLCs: and the strengthening of the professional and leadership capacity of teachers to handle issues as well as the running of PLCs.

2.5.3 Collective Learning and Application

This imperative PLCs characteristic entails instituting collaborative measures to stimulate educators to engage in collective work and shared responsibility for advancing student achievement (Bolam et al., 2005; Dufour et al. 2013). Collaboration is crucial because the

primary goal of PLCs is to realize joint alterations in pedagogical capacity (Stoll et al., 2006: Hairon et al., 2017). The viability of PLCs is dependent on collective relations developed by teachers and attempts to advance communication mechanisms and a collaborative school culture (DuFour & Eaker, 1998). Collaboration is defined as organized procedures which require teachers to conjointly work towards advancement of teaching capacity and knowledge to enhance organizational outcomes (DuFour et al., 2010). According to Dufour et al. (2013), it is these powerful collaborative processes where teachers inquire and learn conjointly which lead to the development of effective PLCs. Powerful collaboration entails teachers working in teams to hold discourse and inquiry on the factors impacting pedagogical practices (DuFour, 2004). Collaboration amongst teachers takes time to develop and attain significant learning outcomes. Hence, teachers must be dedicated to engaging in discussions and examination of pedagogical practices, to progress learning of PLCs members, and to raise student attainment (DuFour, 2004). Furthermore, it is critical that teachers involved in collective processes have clarity about the aims and address the pertinent teaching and learning issues to improve student outcomes (Dufour et al., 2010). Thus, Dufour et al. (2010) outline four questions that should be used for effective collaboration and ongoing discourse to propel the aims of PLCs.

1. What skills, concepts, and knowledge are students expected to learn?
2. How do we determine individual students are acquiring the essential skills, knowledge, and concepts?
3. How does the school address students who do not acquire the required skills, knowledge, and concepts?
4. What school structures are in place for students who already possess these requisite skills, knowledge, and concepts?

According to DuFour et al. (2010), ongoing discourse focused on these four questions is pertinent for effective functionality of PLCs. Educational organizations will make tremendous

gains when these questions drive PLCs (DuFour et al., 2010). Hence, ongoing advancement is steered when teachers and other stakeholders work provides opportunities to work collectively and learn from their peers (DuFour & Eaker, 1998; DuFour et al., 2013). Overall, PLCs become more viable in educational institutions when teachers conjointly working to attain shared goals than educators working alone (Brodie, 2019).

Collective learning and its application are a significant characteristic of high-performing PLCs (Hord, 2009; Stoll et al., 2006). This is a continuous teacher professional development procedure integrated in routine school processes which focus on improving pedagogical practices to augment student attainment (Hord, 2004; Huffman & Hipp, 2003; Marzano et al., 2016). Collective learning and application processes involve PLCs members' collaborative and critical examination of student data and teaching practices to find solutions to increase student performance (Olsson, 2019). According to Hord (1997), continuous learning is pivotal in the PLCs processes and necessitates examination of novel information and its application is in classroom teaching. Several researchers affirm that collaborative learning and application is built on the assumption that teachers open their classrooms to carry out a range of processes which include: peer assessment of instructional practices; observation and examination of student data to modify instruction and curriculum; sharing knowledge, practices and discourse; collective resolution of instructional problems; and evaluation of newly applied knowledge and teaching techniques in classrooms (Hord, 1997; Stoll et al., 2006; Botha, 2012; Carpenter, 2017). These processes ensure PLCs members continuously review student data and construct pedagogical strategies that are responsive and relevant to the learning requirements of students (Vescio et al., 2008). Moreover, as PLC s members maintain a culture of ongoing discourse about pedagogy and student learning, approaches to instruction are employed to ensure teachers work collaboratively to enhance

instructional approaches (Hipp & Huffman, 2003). Overall, these processes are associated with the common values and vision of efficient PLCs which is the sustainable enhancement of teacher expertise to improve student attainment and school quality (Olsson, 2019; Hassan et al., 2018).

The significance of collective learning and application is in improving student learning and teacher instructional capacity has been verified by several researchers. Vescio et al. (2008) in their literature review of North American and English studies on the effects of PLCs on pedagogical methods and student attainment identified eleven research investigations which demonstrated enhanced student performance. These studies revealed that when teachers engaged in community based and group learning and concentrated on assessing student data, this will strengthen teacher instructional capacity (Vesico et al., 2008). Similarly, Hassan et al. (2018) in their extensive secondary data analysis of international PLCs literature identified four studies which affirm that a collaborative learning culture within PLCs contexts where student data is continuously assessed through collective dialogue and problem solving, propelled teachers to initiate interventions which enhanced teaching and learning expertise and student performance. Vesico et al. (2008) and Hassan et al. (2018) findings corroborate that PLCs provide a frame for continuous examination of student performance, instructional strategies, and processes to support responsive, relevant modifications and interventions where required to meet student learning Overall, PLCs create an ethos that establishes the essential link between student performance and ongoing professional development and learning of teachers (Vesico et al., 2008).

The literature on collective learning and application characteristic clearly articulates that the establishment and implementation of PLCs is a continuous process which entails collaborative learning within the school community. Collective learning and application are significant because it requires the examination of new knowledge and practices which can be applied in classroom

teaching and learning. The characteristic advocates that teachers and principals continuously enhance the knowledge and skills in the different content areas as well as advance their pedagogical knowledge and skills to assure student learning and progressive institutional quality. Overall, collective learning and application mandates that teachers need to work jointly in the twenty first century to continuously advance their pedagogical knowledge and instruction design capacity to provide relevant instruction to address students learning needs.

2.5.4 Shared Personal Practices

Sharing personal practices is also referred to as sharing the best practices which entail collective work. This is when PLCs members are involved in discourse which is aimed at improvement of student learning (Ismail et al., 2022; Kinyota et al., 2019). These collective discussions enable the identification of pertinent issues and resolutions which facilitate the creation of novel practices and knowledge (Louis et al., 1996). This characteristic promotes an ethos of innovation and encourages educators to engage in ingenious activities such as enhancing instruction capacity through classroom-based research, using research-based practices, and implementing creative activities after continuous reflection on teaching and learning techniques (Ismail et al., 2022). This characteristic is also reliant on other elements such as respect, trust, shared and supportive leadership and a collective school culture (Kinyota et al., 2019).

Shared practices are a critical characteristic of PLCs for driving modifications in individual classrooms and propelling comprehensive advancement of educational institutions. According to Sujirah (2011 cited in Hassan et al., 2018), individual or personal sharing is a system that advocates teachers to collaborate and experience colleagues' effective professional method, and practices acquired during instructional activities. PLCs generate professional spaces for teachers to engage

with colleagues so as to enhance their own instructional capability through mutual peer engagement (Hord, 2004; Marsh et al., 2015). This process of reciprocal peer sharing is about de-privatization of pedagogical practices and teachers serving as drivers of change through collective support, collegial mentoring and fostering trust and respect among peers (Hord, 2004). Shared practice in the PLCs context enables regular teacher dialogue and reflections on vital educational issues impacting student learning; classroom observation and monitoring of teaching processes; peer guidance and peer training and sharing practices with colleagues in risk free spaces (Hord, 2004; Olivier et al., 2003). Overall, the shared practice framework provides a medium for teachers to learn from their peers, acquire relevant information, mutually strengthening their instructional capacities (Zhang & Pang, 2016), to make effective instructional decisions and to enhance student learning and organizational quality.

Sharing practices in effective PLCs is an essential aspect of work -infused professional development to share instructional practices and acquire good, innovative pedagogical experiences (Carpenter, 2017). This would require adjustments in conventional duties and personal and professional beliefs (Al Mahdy & Hendway, 2016). This new culture of thinking and sharing would entail teachers opening their classrooms for regular dialogue, co-planning, peer observation, constructive analysis of instructional practices, and feedback and intervention among and between peers (Huffman & Hipp, 2003; Mahimuang, 2018). Analysis and feedback should encompass analysis of student performance data and all facets of instruction as teachers work collaboratively to acquire deeper insight of how pedagogical practices impact student learning (Carpenter, 2017; Hassan et al., 2018). Personal sharing should also entail perusal of instructional practices which commemorate successes and assess failures in endeavours to enhance professional capacity by offering suggestions, finding resolutions, and encouraging colleagues (Sai & Siraj, 2015). This

ethos of peer sharing, and assistance should be non- judgmental, supportive, and focused on instructional effectiveness (Hord, 1997). These circumstances would foster trusting and respectful relations, support, and dialogue about good practices needed to facilitate instructional improvement (Thacker, 2017; Hassan et al., 2018). As teachers gain a greater understanding of instructional methods and activities, they would be better able to support their peers as co-instructors, coaches, and guides (Bellibas et al., 2016). Therefore, professional development of teachers would be a major outcome of ongoing collective knowledge sharing among colleagues within PLCs. Overall, the ongoing professional processes teachers encouraged to engage within the frame of shared practice in PLCs as this would enhance learning at the individual, institutional and student level (Hairon et al., 2017).

The literature on shared practice characteristic conveys this as a process which promotes teacher interaction and sharing of their knowledge, skills, resources, approaches, best teaching practices and experiences they have acquired through ongoing teaching and learning. This means that teachers need to work collectively with their colleagues by examining best practices. Exposure to knowledge and best practices of other teachers will furnish teachers with knowledge, techniques, and varied experiences to heighten the quality of instructional design to enhance student learning. Additionally, the common sharing of pedagogical knowledge and best practices and resources adds value for each teacher and is also a source of motivation for individuals and peers within the community. Furthermore, this sharing of practices provides a collaborative lens for teachers to become innovators to address student learning needs.

2.5.5 Collective or Shared Responsibility for Student Performance

Traditionally, teachers work in isolation within their classroom spaces (Ball et al., 2014). The issue of teacher isolation has been the focal point of educational reform to enhance educational practice and student attainment. This characteristic relates to teachers assuming collective commitment for student attainment and school improvement (Little, 2006). Hence, the implementation of the PLCs framework requires educational institutions to adopt a cultural change of collaborative praxis (Martin et al., 2020). PLCs implementation and effective functioning is reliant on a culture of shared responsibility which comprises teachers, educational leaders, clerical and housekeeping staff, and other associates (Vanblaere & Devos, 2016). PLCs consist of a range of roles and require the involvement of stakeholders (Vanblaere & Devos, 2016). There is consensus that PLCs members should commit to collective responsibility for student outcomes (King & Newman, 2001). Additionally, PLCs members are not only responsible for student attainment but also for individual and peer learning. The collective understanding and acceptance for individual and other organizational members' learning is a crucial component of PLCs (Grossman et al., 2001). This collective commitment will lessen the requirements for policies to drive the daily operations of PLCs (DuFour et al., 2013).

A commitment to shared responsibility empowers teachers to remain fixated on enhancing student achievement (Hargreaves, 2007). Teachers' work must collectively facilitate effective and equitable student learning (Dufour et al., 2016). The focal point of teacher`s' engagement in shared responsibility is to assess student data for gaps and areas of weakness and to design instruction to enhance student learning. This dedication affords teachers experiences to appreciate the gains of collaborative commitment and inspires them to abstain from insulative classroom practices (Vanblaere & Devos, 2016). Teachers in PLCs also work conjointly to make certain their

professional capacity is continuously advanced. The ongoing and collective engagement of teachers enhances pedagogical and instructional capacity (DuFour et al., 2016). Student achievement progresses when educational leaders and teachers engage in collective responsibility (Hipp & Huffman, 2010). Overall, it is through the systematic processes of collective responsibility that PLCs are maintained (Hipp & Huffman, 2010).

Collective responsibility for learning entails active and reflective learning by teachers focused on enhancing instructional expertise to advance student learning. This dedication to ensuring students attain necessary, knowledge, skills and attitudes for each grade level must be entrenched in decisions regarding instructional methods and policies within the school context. This involves individual and group learning which comprises collaborative reflection on practices, sharing of instructional practices, critical discourse, with the aim on enhancing instructional capacity to improve student learning. This fundamental goal of advancing student learning requires movement away from the conventional mode of teaching in isolation. This characteristic requires the development of a collaborative ethos which aims at promoting teacher and student learning, where educators assume collective responsibility for each student's level of attainment. Hence, community members must work in tandem to fulfill the goal of improving levels of learning for all students.

2.5.6 Supportive Conditions

Huffman and Hipp (2003) describe "supportive conditions as the glue that holds the other four characteristics of PLCs together" (p.146). Supportive conditions serve as a framework for collective learning, shared leadership, problem resolution and innovative work in the context of PLCs (Hord, 1997). To create a climate that advances regular sharing between peers, supportive

institutional systems must be organized and maintained (Huffman & Hipp, 2003). Supportive conditions are categorized as relational and physical systems (Hord, 1997). Hipp and Huffman (2003) agree with Hord (1997) that PLCs can only operate efficiently when educational institutions have institutional reinforcement with regards to the connection between the human relations and physical school systems. These two categories of supportive conditions ensure PLCs can be successively implemented and sustained in schools (Hassan et al., 2018).

Relational support mechanisms are required to develop human capacity within PLCs (Hord, 1997; 2004). According to Hord (1997; 2004) human capacity in the context of PLCS entails collaborative learning, distributed leadership, and community-based sharing of professional expertise in a harmonious ethos. This capacity would require PLCs members to exercise propriety in receiving critical feedback, handling discord, and becoming active contributors and players in the social processes of this framework (Hord, 1997; 2004). The relational support mechanisms to facilitate human capacity comprise of several elements which include favourable attitudes, trustworthiness and reverence, caring connections, appreciation and respectfulness, commemoration of achievements, taking risks, common vision; and ongoing reflective discourse and critical examination of practices within the school community (DuFour & Eaker, 1998; Hord, 1997). These collegial traits play a critical role in enabling distributed leadership, sharing professional expertise, individual and institutional improvement, and good relations in PLCs (Cormier & Olivier, 2009; Sai & Siraj, 2015). Teachers in PLCs need to establish these systems to promote a collegial culture of especially open professional dialogue with colleagues and other stakeholders; collective examination of cultural practices and sharing of pedagogical approaches (Bellibas, et al., 2016; Louis et al., 2010). According to Huffman and Hipp (2003) these collegial associations are required for the establishment of a climate of care and respect among PLCs

members to realize the change agenda. Furthermore, Huffman and Hipp (2003) advocate the focus on building supportive relationships reduces resistance which is the characteristic when institutions implement change initiatives.

A recurring recommendation is requisite support systems to regulate the capability of PLCs in educational institutions (Hord, 1997; Sleegers et al., 2013). The recurring structural conditions outlined in the literature include institutional size and facilities; peer proximity; communications mechanisms; time relegated for institutional activities such as dialogue, reflection on instructional approaches, decision making and collective learning; and institutional resources and funding (Hord ,1997; Sleegers et al., 2013; Sai & Siraj, 2015; Hassan et al. ,2018). Teague and Anfara Jr. (2012) affirmed that established supportive systems with considerate facilities, effective communication mediums, schedules, resources, and shared planning which fostered collective learning and responsibility were regarded as organizational systems that positively influenced the productivity of PLCs. Overall, the knowledge and abilities acquired through regularized, efficient organizational structures tend to advance teacher quality and collaboration which are the critical qualities required for effective implementations and maintenance of PLCS.

The research on supportive conditions clearly asserts schools require physical and structural conditions, as well as solid human relations to implement effective and sustainable PLCs. Structural conditions in the form of scheduled time and spaces to hold PLCs, adequate learning implements, fiscal resources, effective communication mechanisms are required for educators to operate as collective units committed to enhancing the learning needs of all students. Furthermore, a risk-free and collaborative ethos must be developed to enable open spaces for teachers to share common concerns and practice, respect and build trust, celebrate successes, and develop positive relations with peers. These cultural changes would require school leaders and

teachers working in concert to assist each other in advancing knowledge, skills, and instructional practices. Hence, in the implementation of PLCs, the school culture must promote collaboration, common sharing and understanding among teachers, as well as unequivocal support from school principals.

2.5.7 Trusting and Positive Relationships

PLCs are also characterized by trusting and positive relationships (Bolam et al., 2005; Stoll et al., 2006; Muhimuang, 2018; Reynolds, 2016; Brodie, 2019). Effective school PLCs thrive on positive work relations and collaboration among internal and external stakeholders (Kruse et al., 1998 cited in Muhimuang, 2018). Positive and caring relations comprise four components of trust which include "respect, competence, empathy, and integrity" which are considered crucial drivers of professional development (Bryk & Schneider cited in Muhimuang, 2018 p.32). According to Bolam et al. (2005), PLCs facilitators must exude high levels of trust and respect for members or the ethos which he regarded as unsafe. This does not necessitate all members having close and strong relations, but the collective sharing of pedagogical practices and experiences rest on colleagues having the confidence they will experience during professional interactions and discourse (Bolam et al., 2005; Stoll et al., 2006). PLCs with high levels of trust and shared respect create a non-threatening space which facilitates teacher learning and professional development (Magrafter, 2017). According to Bryk et al. (1999 cited in Mahimuang, 2018), when teachers display trust and respect for colleagues, it serves as a compelling social support system to collectively hold reflective discourse on instructional challenges and curricular changes, sharing of practices, and crucial assessments of relationships. Hence, a safe PLCs ethos of trust operates

as an emotional and professional platform to connect, reflect, assess, and share experiences (Magrafter, 2017).

Trust is an essential component of collective and efficient learning relations in PLCs (Brodie, 2019; Shakenova, 2017). According to Fullan and Hargreaves (1992), “trust in people is important, but trust in expertise and processes supersedes it” (p.98). Hence, clear communication is a critical aspect of collaboration and essential provision for developing organizational trust (Shavenova, 2017). Trust and collaboration are reciprocal and dependent processes for effective, collective, communication and the establishment of productive relations (Shakenova, 2017) in PLCs. Schools comprise vertical relations and when teacher morale is reduced, the trust needed to maintain involvement and interest in PLCs may be challenging to acquire (Brodie, 2019). Hence, the two drivers of teacher engagement in PLCs are trusting that colleagues will work collaboratively for the overall development of the organization and the perception that teacher and students will benefit from productive PLCs (Brodie, 2019).

An organizational learning ethos of trust established through common beliefs is crucial for PLCs effectiveness, but this can be a hurdle if teachers do not possess appropriate attitudes about collective learning (Reynolds, 2016). Organizational learning requires teachers to question their colleagues’ views and praxis to avert defensive behaviour, disagreement, and forced collegial relations (Brodie, 2019). An ethos of trust is developed when teachers are comfortable in taking risks, making errors, and openly admitting errors without critical judgment from peers (Hallam et al., 2015). An ethos of trust can be established when teachers develop common beliefs which consist of appreciation for varied learning styles and utilization of distinct learning methods to cater for the needs of diverse learners (Owen, 2014). Teachers’ common beliefs are a crucial

initiation phase which can lead to the development of teams, routines, norms, and a shared vision which is essential for team building (Venables, 2011 cited in Reynolds, 2016).

The research literature clearly articulates that establishment of trust among members of a PLCs community is fundamental for effective implementation and sustenance. School leaders are called out to ensure that a trusting climate is established in schools. Trust is a critical component of alliances which foster collective processes between PLCs members. A lack of trust would not be conducive for teachers' engagement in common sharing of knowledge, experiences, and good practices. The development of a school ethos with a high value on trust will foster better collaboration and relations among community members. High levels of trust will also enable open sharing of individual practices, experiences, and knowledge with peers. Hence, trust is significant for the development of amicable alliances required for collaborative learning within the PLCs framework.

2.5.8 Openness, Networks and Partnerships

The focus of this characteristic is the engagement of a range of stakeholders and members of the external communities to reinforce PLCs development (Ismail et al., 2022). PLCs should be focused on the development of democratic learning communities which spreads out within the school and educational districts but also encompasses external institutions, networks, experts, and communities (Ismail et al., 2022; Stoll et al., 2006). Collaborative alliances with teachers, parents and community members are a crucial attribute of effective PLCs (Bolam et al., 2005). According to Osmond- Johnson et al. (2019), the establishment and implementation of PLCs are not reliant only on the internal school community but also necessitates the collusion of external constituents and community partners. Learning with and from external stakeholders consist of all relations with

the external community such as collective engagement with parents and other associates in the educational sector, as well as partnerships with other educational institutions and relations with external experts (Admiral et al., 2021), to provide training and support to develop teacher's capacity (Ismail et al., 2022). This PLCs characteristic requires teachers and school leaders to be open to novel ideas and to work collaboratively with other staff of the school community and with staff of other educational institutions. Schools functioning as PLCs acknowledge the significance of alliances with parents and establish techniques to develop these affiliations (DuFour & Eaker, 1998). Research advocates that the involvement of parents and community members in school goals can have a greater impact in the advancement of student attainment (Darling-Hammond, 1996). Schools operating as highly functional PLCs ensure parents have a thorough understanding of the school vision and mission and afford parents opportunities to aid and support the school in attaining these goals. This clearly illustrates that external stakeholders have a pivotal role in PLCs implementation.

The viability of PLCs also rests on connections with the range of partners and networks (Prenger et al., 2019). There is an emphasis for the promotion of internal alliances, between school, and beyond school alliances (Chapman, 2014). Educational districts have a pivotal part in the establishment and implementation of PLCs. Researchers have alluded that support from educational districts is critical for schools to be productive (Dufour et al., 2016). When the district is part of the reform initiative to develop effective educational organizations the development, implementation and viability of PLCs is eminent.

Other external institutional channels used for establishing PLCs are school–university alliances (Olsson, 2019). Accordin to Bolam et al. (2005), school members should actively engage with external partners and other learning networks with other schools, centers, colleges,

universities, and other educational agencies. The aim of school PLCs with university partnerships is to change into learning organizations to enhance classroom instructional practices and the school curriculum with external resources that will advance student and teaching learning (Olsson, 2019). This would mean engagement of external expertise such as university lecturers and teacher training institution faculty in critical and purposeful learning (Olsson, 2019). University lecturers can assist and support teachers in the establishment of PLCs networks (Feng et al., 2015 cited in Qiao et al., 2017). According to Qiao et al. (2017), university researchers can perform varied functions at different phases of PLCs. At the initial phase of PLCs development, university lecturers can serve as experts and models in demonstration of strategies and lessons, and technological integration in in the different subject discipline (Qiao et al., 2017). At the next phase, the role of facilitator can be undertaken to provide support for teachers when they experience hurdles. Wong (2010 cited in Qioa et al., 2017) indicated that school PLCs established alliances with external teacher education organizations and solicited the support of external expertise. These studies verify that teacher education lecturers and academic researchers can create collective programmes and work conjointly in partnerships (Qiao, et al., 2017), where risks, creativity and critical and innovative discourse are undertaken to realize the aims of school PLCs (Bolam et al., 2005).

Sustainable and effective PLCs gain support from the external and internal stakeholders and support mechanisms (Bolam et al., 2005; Hargreaves, 2007 cited in Prenger et al. (2019). Education change requires systemic collaboration and connections (Harris & Jones, 2010). Alliances or networks of educational institutions may leverage a wide array of support systems, resources, and proficiency than individual schools (Prenger et al. 2019). Networks provide avenues for individual and collective examination of practice and enhance participation in collaborative professional development (Hargreaves, 2007). Networking within schools can increase sharing of

knowledge and skills. Overall, the development of effective PLCs requires the incorporation of distributive systems which entail the establishment of alliances, partnerships and networks which will enhance teacher instructional leadership expertise (Prenger et al., 2019).

The literature delineates that effective implementation and sustainability of PLCs also depend on support from external stakeholders. Leaders and teachers should not be solely reliant on the internal school community but seek assistance from external constituents and community partners. Alliances with external stakeholders should comprise collective involvement of parents, the education sector, wider community, partnerships with higher education institutions and relations with other agencies, as well as experts or trainers to facilitate training, resources, and assistance to enhance educators' professional repertoire. Schools must ensure internal and external stakeholders are apprised of the PLCs vision and mission in improving students learning. Parents, higher education institutions and other external agencies and alliances should be afforded opportunities to aid and support the school in attaining these goals. Alliances, networks, and support from these critical stakeholders may avail a wide array of support systems, resources, and proficiencies than individual schools. These recommendations from the literature reveal that schools need to form partnerships, and networks with external stakeholders because their support is pivotal in the effective implementation and maintenance of PLCs.

2.5.9 Summary

The eight consistent characteristics of PLCs emerging from a range of PLCs characteristics models generated through the period of 1990 until 2018, serve as a framework for implementation and maintenance of PLCs. The PLCs models differ in the usage of nomenclature, magnitude, and attributes, but are all aligned to the same aim of developing learning institutions and enhancing the

professional capacity of organizational members to ultimately advance student attainment. These characteristics develop the three PLCs concepts of professionalism, learning, and community. The first characteristic accentuates the significance of community sharing to develop joint ideals and vision. The second, distributive leadership affirms the prominence of professionalism through collective decision making and responsibility for student performance. Collaborative learning and implementation, the next characteristic identifies the influence of teacher engagement in critical examination of student data and pedagogical techniques to upgrade pedagogical methods and learning at the student, teacher, and institutional level. The fourth characteristic shared personal learning accentuates the usefulness of learning at the personal and group level. The fifth, supportive conditions emphasize the importance of building and maintaining community by creating supportive systems and collegial relations. The sixth characteristic, **c**ollective or shared responsibility for student outcomes alludes to educators assuming collective commitment for student attainment and school improvement. The seventh PLCs characteristic, trusting and positive relationships accentuates effective PLCs thrive on positive work relations and collaboration among internal and external stakeholder. The eighth PLCs characteristic openness, networks and partnerships relates to the development of democratic learning communities where schools form collaborative alliances with teachers, parents and community members, school and educational districts, and external educational institutions, networks, experts, and communities. These characteristics provide a structure for researchers, schools leaders and teachers to establish, implement, monitor, and assess processes of PLCs. Collectively, these characteristics indicate the ethos of collaborative school based professional learning which must be created to advance shared decision making, teacher capacity and increase student performance. Overall, these eight interrelated PLCs characteristics mandate a collaborative school culture which focuses on

advancing organizational development by continuously developing teacher professional capacity to enhance student learning. These characteristics must be integrated in the establishment approaches (Soares et al., 2020), and developmental phases of PLCs (Olsson, 2019) which are presented in the next segments of this review.

2. 6 Establishment of PLCs

This section presents the establishment approaches and the developmental phases of PLCs as articulated in the literature.

2.6.1 PLCs Establishment Approaches

There are queries regarding whether PLCs are established through top down or bottom- up approaches, or through the spontaneous actions of teachers and leaders in schools (Soares et al., 2020). The literature accentuates contrived, project-based, and teacher-instituted strategies as three interdependent methods used to establish PLCs in educational organizations (Nguyen et al, 2022).

A contrived strategy for the establishment of PLCs usually stems from broad-ranging educational reforms (Soares et al., 2020), mandated by national education authorities to educational districts and schools (Zhang & Yuang, 2020; Zheng et al., 2021). This top-down approach is usually initiated with the goal of advancing collective professional growth of teachers. These school PLCs are usually organized at subject specialization level or grade level (Harris & Jones, 2017; Soares et al., 2020). Educational institutions are directed to establish PLCs as a mechanism for regular engagement in ongoing professional development exercises such as collective planning of lessons, observation of colleagues in classrooms, and joint action research

investigations (Yuan & Burns, 2017 and Zhang & Yuan, 2020 cited in Nguyen et al., 2022). This is also viewed as a scripted framework where schools are provided with prescribed objectives, focus areas, learning logistics, frequency of sessions, and guidelines for PLCs implementation (Soares et al., 2020). Additionally, this top-down approach is focused on instructional knowledge and strategies advocated by an extensive professional development program or national education reform initiatives (Soares et al., 2020). Moreover, Avalos (1998 cited in Soares et al., 2020) advocate that the contrived approach to PLCs establishment in schools can bolster a collaborative culture among teachers and leaders but may not issue incentives for teacher involvement. Hence, the contrived strategy is a top-down mandate usually carried out through reform projects. These projects usually do not take into consideration specific contexts but are usually an intervention which require leaders and teachers to implement to fulfill a policy mandate. Existing school culture and vision as well as operational systems of schools may have to be amended to fulfil the requirements of implementation of PLCs utilizing a contrived approach.

A project -based strategy entails establishing PLCs as a component of professional development (Murugaiah et al., 2019 cited in Nguyen, 2022) or an undertaking or action-based inquiry (Gonclaves et al., 2020 cited in Nguyen, 2022). This is a systematic PLCs model where teachers are provided with resources outlining steps for discourse within the PLCs (Soares et al., 2020). This formalized PLCs model can be a one-time initiative promoted by education departments or may be part of a broader project (Soares et al.,2020). This model allows a level of teacher independence with regards to selection of issues to be addressed and instructional skills to be honed within the confines of the formal initiative (Soares et al., 2020). For instance, Zhang and Lui (2019 cited in Nguyen, 2022) study examined a five- year online PLCs project for teachers implemented by the Chinese Ministry of Education. PLCs participants engaged in 120 hours of

online PLCs which required fulfillment of three responsibilities including observation of video situations, discussions, and collaborative reflections on practice. Murugaiah et al., (2013 cited in Nguyen 2022) also described a project-based strategy inquiry developed between a Malaysian school and university where virtual PLCs were installed as a collaborative forum for teachers to enhance technology infusion in lesson. Additionally, Brodie (2014 cited in Nguyen, 2022) studied an action-based inquiry which focused on the implementation of miniature PLCs consisting of approximately four teachers and a team leader. The aims of these PLCs were to hold discourse on techniques which can be utilized to address prevalent challenges students face with Mathematics. Thus, a project -based strategy for establishing PLCs is an aspect of professional development or action-based research. This strategy may be a short-term initiative of a larger project where teachers and leaders receive prescribed steps and resources to carry out dialogue within the contexts of PLCs. This strategy promotes teacher autonomy regarding issues to be resolved in PLCs and the pedagogical skills which must be harnessed within this formalized intervention.

A teacher instituted method establishes PLCs based on the requirements of small teacher teams to facilitate collective encouragement and support from peers to enhance pedagogical knowledge and expertise (Gonclaves al., 2020 cited in Nguyen et al., 2022). Ndlovu (2018 cited in Soares et al., 2020) recommended that a teacher-initiated method is bottom up, and viable teacher-led approach essential for organizational learning and professional development. According to Soares et al. (2020), teacher instituted models are also referred to as an autonomous framework where educators determine the initial steps, areas of focus and goals as well as the purpose and design of PLCs. This PLCs model is formed naturally in school contexts and is not part of formal professional development initiatives (Soares et al., 2020). Furthermore, Soares et al. (2020), indicated there is no dependence on outside experts or resources to determine the focus

of sessions, or any incentives for educator participation in PLCs. The work of Vandeyar (2013 cited in Nguyen et al., 2022) outlined South African teachers installed an autonomous teacher-led PLCs as a supportive mechanism to implement an information and communications technology national project in their classrooms. Teachers encountered many hurdles in the implementation of the nationally mandated ICTs project due to inadequate direction and support from respective educational districts (Vandeyar, 2013 cited in Nguyen et al., 2022). Likewise, Goncalves et al. (2020), studied one team of physical education teachers who implemented a PLCs with the assistance of one external facilitator who provided pedagogical and content knowledge and professional expertise. Hence, PLCs initiated through teacher instituted method are created based on the needs of teams within schools to advance their instructional repertoire collaboratively with peers. A school-initiated PLCs is a teacher led initiative required for institutional enhancement and professional development. Teacher initiated PLCs are regarded as an independent project where teachers determine the focus, aims, purpose and design of PLCs to suit their instructional and learning needs. These are naturally occurring interventions which rely on internal experts and resources for institutional improvement.

Overall, the literature outlines contrived, project-based, and teacher-instituted strategies as three interdependent methods used to establish PLCs in educational organizations (Nguyen et al, 2022). PLCs approaches are also established and implemented through several developmental phases as presented in the next section.

2.6.2 Developmental Phases of PLCs

The development of PLCs with prevalent characteristics is dependent on the articulation of this framework as a developmental process (Dufour et al., 2010; McLaughlin & Talbert, 2006).

The development of an effective PLCs rests on educational leaders and other stakeholders gaining an understanding of PLCs developmental stages (Dufour 2004; Grossman et al., 2001). Several researchers have accentuated that PLCs undergo several developmental stages (Bolam et al., 2005; Dufour et al., 2010; Chen & Wang, 2015; Grossman et al., 2001; Hipp et al., 2008; Mintrop and Charles, 2017; Schneider et al., 2012; Stoll et al., 2012; Taylor et al., 2014; Olsson, 2019). These studies articulate the development of PLCs in four steps:

- The non-initiated phase or pre-initial phase: In this stage, school membership is cognizant of the notion of PLCs and its characteristics. However, the educational institution has not actually implemented the PLCs framework. During this phase, teachers have not established the vision and goals for enhancing student outcomes (Dufour et al., 2010).
- The initial phase: At this level, the school has decided to implement some configuration of the PLC framework. At this point, teachers endeavour to undertake the PLCs goals and ideas and create collective teams (Botha, 2012). A range of priorities also exist, which are not illustrated in daily routines and PLCs processes (Leclerc et al., 2012). Collective engagement and conditions may be challenging because of weak human and physical arrangements, and social discord within the organization (Leclerc et al., 2012). Furthermore, major decisions are taken by the principal and sharing of expertise is restricted and PLCs teams may utilize inaccurate student data to evaluate the impact of the innovation on student learning progress (Leclerc et al., 2012).
- The implementation phase: At this phase, teachers embrace PLCs and make required shifts in traditional organizational practices to meet learner education needs (Botha, 2012; Olsson, 2019). There are systematic processes established to enact the PLCs framework at the school. Schools at this phase have established a concise and shared vision which is

connected and reflected in the daily processes (Leclerc et al., 2012). These measures include the development of new routines and norms (Olsson, 2019), and a collaborative culture with appropriate social and physical arrangements requirements for enhancing the school environment to function in the PLCs structure (Leclerc et al., 2012). Distributed leadership practices have also been established and PLCs teams utilize more accurate data to measure the impact of the initiative on the advancement of student outcomes (Leclerc et al., 2012).

- The institutionalization or sustainability phase: At this point the PLCs platform is fully accepted and incorporated in the daily processes of the educational institution (Schneider et al., 2012; Hipp et al., 2008; Chen & Wang, 2015). PLCs serve as a platform for making pedagogical adjustments to enhance student outcomes (Botha, 2012). The school has efficient and highly functional PLCs (Olsson, 2019), which consist of a clearly articulated vision reflected in the instructional applications, sharing and collaboration inspired by social and physical arrangements, sharing of leadership practices with teachers, and collaborative sessions to address student learning and teacher professional development (Leclerc, 2012). However, Grossman et al. (2001) highlighted PLCs must be efficiently managed and maintained. Hence, the viability of PLCs at this phase is dependent on the establishment of ongoing monitoring and renewal processes to ascertain the required resources and support systems are in place for enhancing practices and transparency (Mc Laughlin & Talbert, 2006; Botha, 2012).

Several researchers recommended that persons involved in the development and implementation of PLCs should be able to recognize the current developmental stage and modify

their processes by utilizing that knowledge (Bolam et al., 2005; Chen &Wang, 2015; Schneider et al., 2012). PLCs development stages require distinct supportive structures for effective development and sustenance (Olsson, 2019). PLCs development from initialization to sustainability is characterized by member engagement in critical discourse and interpretation and these processes may be lengthy and difficult (Olsson, 2019). Hence, ongoing assessment should be utilized to identify gaps and requirements of PLCs within each developmental stage (Woodland, 2016).

The literature emphasizes PLCs should be implemented in four critical phases. These phases require stakeholder consultation, buy in, establishment of critical structures and resources, routines, and protocols. Furthermore, time must be allotted for trial and error to adopt and adapt the processes of established PLCs through ongoing monitoring and critical examination of the processes at each phase to ensure suitability for school context. Overall, the viability of PLCs rests on continuous support, a range of conditions, and requisite monitoring structures for guiding and modifying PLCs development at each phase to ensure effective PLCs implementation and maintenance.

2.6.3 Summary

This section outlined contrived, project-based, and teacher-instituted strategies as three interdependent methods used to establish PLCs in educational organizations (Nguyen et al, 2022). PLCs establishment undergo several stages and effective PLCs development and implementation rests on educational leaders and other stakeholders gaining an understanding of PLCs pre-initial phase, initial, implementation, and institutional phases (Dufour 2004; Grossman et al., 2001).

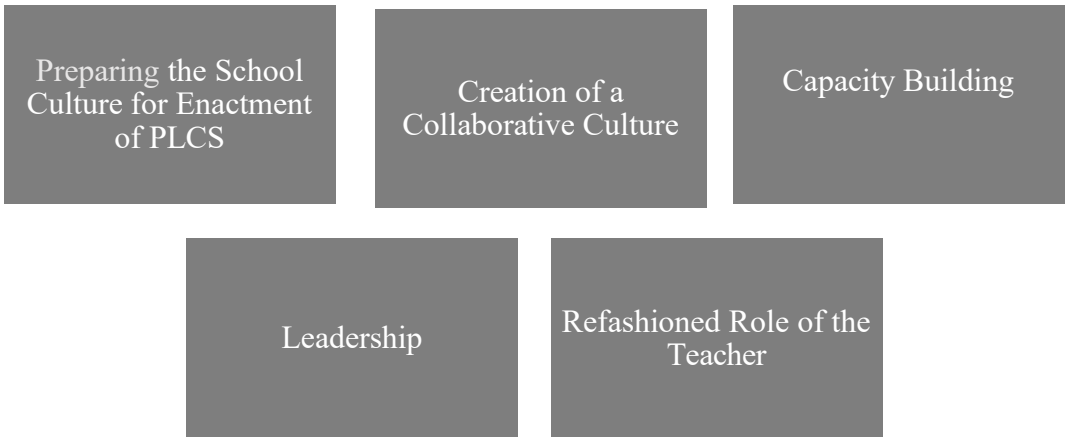
2.7 Conditions which Enable and Sustain Implementation of PLCs

The PLCs literature asserts there are no standard measures on how to develop and sustain PLCs (Olsson, 2019). Researchers have drawn on literature related to PLCs, school enhancement, change management and capacity development (Bolam et al., 2005; Stoll et al., 2006); and created a range of overlying frames, components and conditions that assist in the establishment and maintenance of PLCs (Murphy, 2014). Furthermore, scholars recommended modification of these frameworks and measures to fit school settings in which PLCs will be developed and implemented (Darling- Hammond, 2011; Craig, 2013; Hipp et al., 2008). The development and maintenance of PLCs rely on several internal and external actions outlined under the broad categories of institutional and functional processes (Williams et al., 2008; Antinuloma et al., 2018) Institutional processes consist of school culture, leadership, teacher roles, and capacity building, while functional processes consist of focus on learning, professional development, utilization of data which focus on results, common planning, reflective dialogue, systematic trust, and use of a systematic processes to develop effective PLCs. This section describes the institutional and operational processes which play a vital role in the effective development, implementation, and sustenance of PLCs.

Figure 2.2 illustrates the institutional processes consisting of school culture, leadership, teacher roles, and capacity building which are enabling conditions for the implementation of effective and sustainable PLCs.

Figure 2.2:

PLCs Enabling Institutional Processes



2.7.1 Institutional Processes

i. School Culture

The school culture is one of the critical organizational elements in creating, implementing, and sustaining PLCs (Fullan, 2001). School culture describes the character and functions of the institution which comprise of the norms, values, beliefs, traditions, rituals, and social relations (Antinuloma et al., 2018; Sai & Siraj, 2015). Additionally, culture frames organizational consistency, productivity, self-identity, principles, social interaction, specific procedures, and direction for sustainable growth (Teasley, 2017). According to Sai and Siraj (2015), the school culture influences members' actions, beliefs, perspectives, and problem-solving practices because positive culture requires all stakeholders to recognize and pursue school improvement initiatives. Moreover, effective school culture contributes to organizational learning, professional contentment, efficacy, self-confidence, and shapes a climate which augments student attainment and cooperation (Antinuloma et al., 2018). Therefore, developing an effective school culture is

pivotal for the development and implementation of PLCs, because school culture affects preparedness for innovation and successfully forming a collegial atmosphere (Fullan, 2001).

A critical premise of PLCs is the enactment of a site-based approach which embraces the operations, issues, and other facets of the organizational culture (Allen, 2013; Musanti, 2017). This means the existing organizational culture should be examined to determine the institutional, instructional, and operational strengths, weaknesses, barriers, and opportunities for PLCs development in the school context (Pirtle & Tobia, 2014; Olsson, 2019). Additionally, cultural, instructional problems and routines should serve as the base for promoting vital PLCs processes (Stoll et al., 2006; Olsson, 2019). Consequently, a site-based approach enhances the capacity for effective collective learning including learning between teachers and school leaders, in partnerships with experts and universities, and among teachers in PLCs (Olsson, 2019). Furthermore, the development of PLCs around the operations, practices, and organizational issues are more likely to transform instructional practices, beliefs, and collaboration within PLCs (Pirtle & Tobias, 2014; Olsson, 2019). This strategic approach to PLCs development would most likely be supported and embraced by educators (Pirtle & Tobia, 2014). Therefore, a situated development approach will realize an instructional culture in which PLCs will enhance teacher cooperation and advancement, limit teacher isolation, develop collective accountability, and guarantee ongoing professional learning (Olsson, 2019).

The literature revealed that schools with intentions of establishing and implementing the PLCs framework need to critically examine their culture before refashioning. This means that schools must examine their cultural strengths, weaknesses, opportunities, and threats before implementation of PLCs. This examination will determine the cultural and instructional issues which would serve as the basis for the enactment of PLCs. Furthermore, a school or site- based

approach must be enabled to develop teacher professional capacity through consultation with internal and external alliances with higher education institutions and experts. This consultation with all stakeholders will most likely lead to the school community embracing PLCs. Hence, a site-based approach which involves all stakeholders would most likely lead to the development of a collaborative culture which advances continuous professional development.

ii. Creating Collaborative Cultural Structures

Research on PLCs development and sustenance asserts schools must reorient their existing cultural arrangements to develop collective and social contexts (Murphy, 2014). According to Fullan (2001), the development of PLCs involves reimagining the culture from a "situation of limited attention to assessment and pedagogy to a situation in which teachers and others routinely focus on these matters and make associated improvements collectively" (p.582). Therefore, cultural contexts must be refashioned through a range of frameworks and strategies to enhance collaboration within the school community (McLaughlin & Talbert, 2001).

Researchers advance a myriad of strategies pivotal in the creation and maintenance of powerful collaborative school communities (Bolam et al., 2005; Stoll et al., 2006; Murphy, 2014). The promotion of both official and unofficial opportunities is a recommended mechanism for constructing collective communities (Cosner, 2009; McLaughlin &Talbert, 2001). This entails teachers coming together informally and formally to develop work- based alliances, values, and relations; all critical elements required for effective PLCs development (Murphy, 2014). An additional approach is constructing systems that foster cross sectional and top-down connections and interchanges. These are collective frameworks that encourage novel relationships through mediums that permit teachers in different grade levels, disciplines and (Richmond & Manokore,

2010; Carpenter, 2015; Philpott & Oats 2017; Schapp & Bruijn, 2018), divisions (Kruse et al., 1995), within and across schools (Smith et al., 2016) to work together in groups with overlaying borders and members (Murphy, 2014). These mediums include induction and mentoring programs, team teaching, observing of peers' pedagogical best practices, common planning, action-oriented research groups, curriculum improvement, parental and community involvement, outside experts, and refashioned staff forums (Cosner, 2009; Ilomaki et al., 2017; Stoll et al., 2006). Accordingly, these collaborative mediums will only be effectively developed and maintained if schools schedule time regularly throughout the academic year for facilitation of high-intensity, collective work focused on improving student attainment and professional learning (Lerclec et al., 2012; Morrisey, 2000).

Collective structures which consist of critical discourse and community support systems which build reciprocal relations and openness are crucial for establishing effective PLCs (Reynolds, 2016). These collective structures would require teachers at varying grade levels or subject specializations to engage in critical discourse where sharing of skills and knowledge is a reciprocal process (Routman 2008 cited in Reynolds, 2016). Critical discourse would necessitate teachers trying out shared ideas, problem solving, and collaboratively reflecting on pedagogical practices to enhance their instructional repertoire (Phyalto et al., 2015). Additionally, teachers' ongoing engagement in critical discourse would present varied viewpoints and learning strategies and promote collective accountability and a supportive ethos (Massey & Crouch, 2015 cited in Reynolds, 2016). The establishment of a collaborative and supportive ethos will enhance teacher productivity, confidence, and resilience when issues arise (Phyalto et. al. 2015). In addition, when teachers collectively address instructional issues in PLCs, this can lead to community motivation and a supportive system to enhance professional capacity (Hargreaves & Fullan, 2012). Moreover,

the establishment of effective collaborative structures promote connectedness, respect for common goals, peer assistance (Phyalto et al., 2015), collective human resource capacity and a trust-worthy ethos (Hallam et al., 2016) required for effective and sustainable PLCs.

Close- proximity is another procedure for establishing a collaborative community. This can be nurtured by weaving participatory leadership across the educational institution by having educators design and drive forums where teacher teams can connect (Leithwood et al., 2006). Furthermore, schools can cultivate synergistic PLCs through predictable, scheduled systems where educators can assemble continuously to carry out their duties (Murphy, 2014). These predictable, timetabled structures are deemed one of the most effective approaches for increasing PLCs among teachers (Pounder, 1999). Overall, these approaches provide supportive mechanisms for the development and maintenance of powerful PLCs.

The literature on PLCs outlines the development of a collaborative culture is fundamental for the viability of PLCs. A range of recommendations are outlined in the literature with regards to developing a collective ethos. Firstly, refashioning of schools into PLCs requires development of collection and social ethos using a range of sharing frameworks. Secondly, there must be collaborative establishment of structures and policies to guide the operations of these collective sharing frames and critical discourse. Next, leaders must develop collective structures for reflective and critical discourse and community support to create reciprocal relationships and openness. Hence, leaders must encourage participative leadership where educators design and enact forums where team members can connect regularly. This means leaders must ensure that community-based alliances include teachers across grades, discipline specialists and at a whole school level. Additionally, sharing frameworks such as mentoring, team teaching at the grade and content area level, observation of peers, parental and community participation, and alliances with

outside experts must be established as mediums to share knowledge, skills, practices, and experiences to advance educators instructional repertoire. These sharing frameworks can serve as the space for continuous and collective discourse on instructional and learning issues, and the arena to propel teacher drive, confidence, and productivity levels. Overall, the development of collective structures is required for forging community connections, peer collaboration, and creating a trusting ethos to raise teacher professional capacity for increased student learning.

iii. Capacity Building

Capacity building is critical for enhancing the development, implementation, and integrity of PLCs (Hargreaves & Fink, 2006 cited in Antinuloma et al., 2018). School capacity consisted of the reciprocal and interrelated classifications of personal understanding, expertise, and temperament; nature of collective relations among staff; and institutional structures that assist or impede the development of PLCs (Mitchell & Sackney, 2000). Capacity building is necessary for the fulfilment of professional responsibilities which entail human, social and decision- making roles (Hargreaves & Fullan, 2012). According to Massell and Goertz (2002 cited in Williams, et al., 2008), capacity building supports conformability and direction for PLCs development, but it necessitates adequate time and encouragement to modify pedagogical techniques. Therefore, capacity building must be facilitated through teacher learning and institutional supportive frameworks (Murphy, 2014), to enhance community, build trust and stronger professional collaboration (Antinuloma et al., 2018) within schools.

Effective PLCs implementation and sustainability are also achieved through the development of professional competencies, knowledge and skills that promote sustainable teacher learning and growth. Teachers generally have limited experience in adult learning and require

essential administrative and relationship building expertise to work efficiently with peers in PLCs (Adams, 2010). Additionally, it is imperative for members of PLCs to receive training in developing interpersonal connections; to foster effective working relations with peers. These critical human relation proficiencies include self-reflection, individuation, and analytical expertise (Murphy, 2014). Expertise in a range of interpersonal skills supplies foresight to uncover ideals, actions, predispositions, and professional requirements that govern individual practice and to understand the perspectives and actions of their peers (Murphy, 2014).

Another cluster of inclusive proficiencies that boost professional relationships in PLCs are listening to techniques, facilitation skills, consultative skills, and group process skills for organizing and understanding PLCs dynamics (Murphy, 2014). Furthermore, communities of learning are also sustainable when teachers have "well-developed skills in communication, problem solving, decision making, conflict management and conflict resolution" (Murphy, 2014 p.163). Moreover, the viability of PLCs necessitates the enhancement of the teacher's content knowledge and research based pedagogical practices in the subject disciplines (Sai & Siraj, 2015). Overall, ongoing professional learning in this extensive array of competencies and skills make PLCs members receptive to other perspectives, address barriers to team productivity, assist in the development of efficient collaborative work settings, and ensure personnel are versant in discipline and research-based instructional practices (Song & Choi, 2017; Murphy, 2014).

Developing viable and sustainable PLCs necessitates a shift from a culture of isolation to a collaborative ethos. This shift mandates refashioning of leaders and teachers' duties. The literature advocates that viable and sustainable PLCs require supportive conditions within schools to strengthen the institutional and personal proficiencies of teachers to efficiently fulfill the human, social, decision-making, and instructional design duties. Therefore, leaders should ensure the PLCs

members attain ongoing training in a critical range of areas including group building, communication skills, conflict resolution, problem solving, data analysis, reflective practice, discipline specific content, and research based instructional practices. Capacity building in these areas will equip leaders and teachers with proficiencies to work collectively with peers. Furthermore, ensuring PLCs members possess these competencies will increase receptiveness to team building and working in a collaborative setting.

iv. Leadership

The literature epitomizes the significance of educational administration and leadership in school's capacity to build and sustain PLCs (Bolam et al., 2005; Stoll et al., 2006; Murphy, 2014; Sai & Siraj, 2015; Antinuloma et al., 2018; Olsson, 2019). Educational leaders, particularly principals, play a pivotal part in establishing the ethos for developing school PLCs (Olsson, 2019). School leaders have critical roles of building operational and structural conditions; and managing the natural tumult associated with educational innovation and change (Murphy, 2014). School leaders must assist in maintaining the viability and vibrancy of PLCs by adopting a range of supportive instructional and transformational leadership strategies (Hassan et al., 2018).

Supportive leadership is the combination and top down and bottom-up approaches which comprise of principals and other educational leaders facilitating supportive measures for PLCs (Olsson, 2019). One aspect of this approach is the deep involvement of educational leaders in the community through a range of supportive and essential roles such as displaying suitable deportment, developing collective school vision and values; creating program aims for school improvement jointly, exercising transparency, regular attendance of PLCs sessions, conducting learning and classroom visits to audit the development of PLCs initiatives, and showing respect

for all (Botha, 2012; Olsson, 2019). Deep engagement in the PLCs community culture intensifies the authenticity of the principal and allows for more competent usage of people-oriented leadership which is necessary for working collectively (Olsson, 2019).

Another aspect of this mixed leadership approach is the cultivation of shared or distributed leadership (Bolam et al., 2005; Botha, 2012), through the establishment of teacher leadership which is critical for effective and sustainable PLCs (Carpenter, 2017). Shared leadership can be promoted via professional engagement in collaborative processes such as mentoring, collective inquiry, problem resolution, assessment of student learning; data analysis and action research to enhance pedagogical practices to meet students learning needs (Lerlec et al., 2012; Wilson, 2016). Teacher and principal engagement in these processes will result in leadership growth at all levels, referred to as shared instructional leadership (Lerlec et al., 2012). Overall, it is critical that educational leaders maintain combinations of strategic leadership practices to suit the school context to ensure PLCs flourish (Sai & Siraj, 2015)

Researchers who endorsed enabling PLCs protocols and policy structures are critical supportive tasks for educational leaders (Murphy, 2014; Olsson, 2019). This would entail discourse with teachers to accommodate and frame institutional policies using approaches that establish collaboration and decrease conflict in the operations of PLCs (Olsson, 2019). School leaders must ensure that staffing policies are established to outline standards, expected outcomes, and operational protocols of PLCs (Murphy, 2014). This would comprise supplying time intervals, scope, and inducements for these efforts (Bolam et al., 2005; Stoll et al., 2006).

Another component of establishing policies would be examination of existing policies to adjust them to strengthen PLCs creation and implementation processes (Darling-Hammond & McLaughlin, 2011). This would necessitate principals and other educational leaders to assess and

adjust outside pressures so as to ensure they do not contradict PLCs processes, but bolster their progress (Murphy, 2014; Olsson, 2019). Moreover, the enactment of auxiliary policy infrastructure would ensure learning communities are explicit, accepted, and achievable and foster collective efforts in the implementation and maintenance of PLCs (Murphy, 2014).

Another crucial component of supportive leadership is the establishment of a collaborative climate that fosters critical inquiry. Educational leaders can promote critical inquiry by developing a climate of trust and receptiveness (Bolam et al., 2006; Darling-Hammond, 2011). This requires leaders to develop and maintain trusting relations in risk free spaces where teachers feel comfortable to engage in professional discourse, to air challenges, errors, and reflections on aspects of their instructional practices (Darling-Hammond & McLaughlin, 2011; Pirtle & Tobias, 2014). Furthermore, school leaders can propel a collective professional climate of critical inquiry through PLCs by organizing collegial novel experiences, motivation, inducements, and aspirations. Moreover, Wang (2015) advocates that these collegial experiences should be nurtured in a responsive, constructive, and favourable way, to have a significant part in modifying the school climate and ensuring the sustenance of functional PLCs.

Reynolds (2016) advocates that the effectiveness of PLCs rests on school leaders who can be trusted to assist with rising conflicts, promote teacher independence, and celebrate successful outcomes. Trusting leaders prioritize the development of trust by demonstrating and interceding when there are trust issues in PLCs teams (Tschannen-Moran, 2004 cited in Reynolds, 2016). According to Hallam et al. (2015), leaders develop trust when they show teachers how to engage in genuine and critical conversations. This will enhance work motivation, job satisfaction, and trust in colleagues. School leaders also ensure teachers are equipped with conflict resolution strategies to solve issues in the workplace (Tschannen-Moran, 2004 cited in Reynolds, 2016). Furthermore.

the school leader's involvement is critical for the building of effective PLCs teams which are autonomous, committed, and supportive (Tam, 2014). The promotion of autonomous decision making will drive teachers to make decisions about their practices to enhance student achievement without being coerced by leaders (Hargreaves & Fullan, 2012). Additionally, school leaders must be committed to maintaining effective PLCs by continuously examining their own practices and making required modifications (Hargreaves & Fullan, 2012). As PLCs experiences win, leaders should accentuate them publicly to ensure there is clear cut transparence in the professional development of educators (Reynolds, 2016). Overall, when leaders accentuate successes, this demonstrates that PLCs can be productive when a collective and person-centered approach committed to human development and student achievement is implemented with requisite structures and processes (Reynolds, 2016).

Research on school improvement also advocate leaders should provide support by seeking structural and human resources from all echelons of the education system and wider community to efficiently implement and maintain the collective work of PLCs (Stoll et al., 2006; Murphy, 2014; Pirtle & Tobia, 2014; Olsson, 2019). Educational leaders must provide teachers with sufficient, scheduled time for PLCs sessions; school facilities; essential educational and technological implements; requisite supplies to be productive in classrooms; and technical and instructional assistance from internal and external experts and the extended school community (Pirtle & Tobia, 2014; Fink, 2018). Furthermore, teachers are advantaged to learn from internal and external expertise in areas such as data analysis, learning benchmarks, instructional best practices, discipline content, pertinent research and facilitative skills, and the utilization of student data as a reflexive device to alter teaching to fit student learning requirements (Murphy, 2014; Pirtle & Tobias, 2014). Overall, the infusion of these supportive structures will enable the

development of joint discourse and group skills, strengthen professional conduct and practices, lessen non-adaptive attitudes, and curb the natural turmoil associated with school innovation (Cosner, 2011; Emerling, 2010).

The literature emphasizes that school principals are critical for the development and viability of PLCs. School principals need to coordinate PLCs establishment and implementation in collaboration with teachers and other stakeholders. Leaders must ensure the structural and operational systems, and policies which guide PLCs are established conjointly with teachers. Furthermore, leaders must be active participants who attend sessions, monitor, encourage teacher autonomy to lead sessions, as well as provide guidance in data analysis and critical decision making. Additionally, school principals must ensure that the supportive conditions including the cultivation of a risk-free ethos, creation of varied sharing and learning frameworks, adequate time for scheduled sessions, sufficient physical resources, capacity building for membership, and developing teacher autonomy to serve as facilitators are in place to ensure the viability of PLCs.

v. Role of the Teacher

The implementation of PLCs entails extensive amendments where teachers are at the heart of change mandated by education officials and reform specialists (Fullan, 2001; Hargreaves, 2007). Implementation of PLCs are reliant on the participation of teachers who are empowered to make required modifications. Teacher perception of the reform is dependent on their participation in the reform processes (Fullan, 2001). Researchers accentuate the significance of teachers in decision making processes of extensive school reforms (Darling Hammond, & McLaughlin, 1995). Therefore, teachers must participate in the planning and implementation of PLCs to develop personal connections and assume ownership of this reform initiative.

The PLCs framework has refashioned teacher's duties (Al-Jammal, 2015). Educational institutions operating as PLCs inspire and enable teachers to shift from their conventional views of isolated practice to active participants in a collaborative learning environment (Al-Jammal, 2015). Teachers are enabled as they embrace reform, engage in risk taking, undertake leadership roles, and gain confidence as professional specialists (Cormier & Olivier, 2009). According to Eaker et al. (2002 cited in Cormier & Olivier, 2009 p. 48), teachers assume these wide ranging and vital duties in PLCs:

- Embrace and work collectively with peers.
- Comprehend, establish, and implement PLCs concepts in the school context.
- Collaboratively develop a common vision, mission, and values
- Share the vision, mission, and values with stakeholders (students, school staff, leaders, wider community)
- Work effortlessly towards attaining the vision which drives PLCs and become professional experts.
- Develop PLCs short and long-term goals which prioritize individual and collective professional goals.
- PLCs work is steered by research and data driven processes.
- Teachers engage in ongoing learning, sharing, and reflective dialogue to renew their professional repertoire.

Furthermore, in teachers' efforts to continuously enhance student learning, Al Jammal (2015) outlines PLCs educators should also:

- Collaboratively develop assessments, engage in common planning, align curriculum to cater to diverse student needs and share teaching practices with peers.

- Treat all students equitably in a collaborative ethos.
- Collectively identify students' needs, conjointly differentiate instruction, and find interventions to address instructional needs.

The renewed range of teacher's roles in PLCs emphasize teachers as the bedrock of effective school PLCs implementation and viability. Dufour and Eaker (1998), accentuated "the success of PLCs is reliant on the dedication of school professionals, particularly teachers" (p.206). Effective schools are developed with high quality teachers, just as PLCs are established with teachers who operate as highly effective professionals (DuFour & Eaker, 1998), specialists, and change agents (Fullan, 2006). Overall, PLCs necessitate teachers committing to diverse roles, lifelong learning, and ongoing renewal of professional knowledge and practices to ensure students receive relevant instruction.

The perusal of the literature postulate teachers as the heart of effective and sustainable PLCs. Teachers are required to shift from isolated instructional practices to working in a collaborative school community. PLCs require refashioning of teachers' roles. A range of critical roles must be assumed by teachers to effect viable PLCs which include examination of instructional practices and student data, critical decision making for relevant instructional design, collective and equitable instructional design at grade and or discipline level, and leadership roles as facilitators or specialists in the vein of enhancing instructional capacity to enhance learning for all students. This paradigm shift of teachers operating as professional specialists, instructional designers and implementers, and change agents is not a seamless and immediate process. These refashioned roles require time, guidance, ongoing professional development, and monitoring by leaders. The effective cultivation of these extensive roles would foster teacher confidence to work

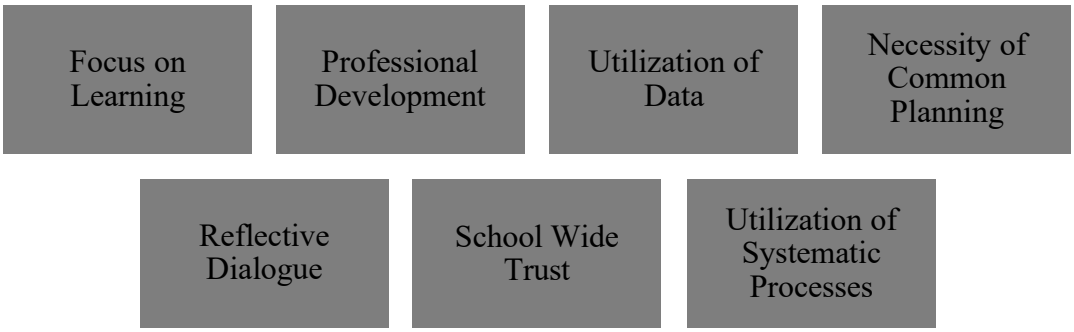
in collaborative contexts. Hence, provision of time to undertake these varied roles in a collective community is critical for teacher commitment to continuous professional learning to enhance student learning.

2.7.2 Functional Processes

There are several functional processes linked to effective implementation and sustainability of PLCs as illustrated in Figure 2.3. These practical processes in Figure 2.3 are a shift to focus on learning, professional development, utilization of data, common planning, reflective dialogue, system wide trust and utilization of systematic processes to develop effective PLCs (Williams et al., 2008; Reynolds, 2016; Antinuloma et al., 2018).

Figure 2.3

Enabling PLCs Functional Processes



i. Focus on Learning

The PLCs framework stems "from the assumption that the core mission of formal education is not to simply ensure students are taught but to ensure that they learn. This shift from a focus on

teaching to a focus on learning has profound implications for schools" (Dufour 2004, p.8). This focus should be clearly articulated to all member and spelt out in the PLCs aims and agenda (Nguyen et al., 2022). This emphasis on learning is the mission which steers PLCs so members can collectively analyze student learning needs and monitor learning (Dufour et.al., 2013). Hence, PLCs processes must amplify the levels of student attainment (DuFour et al., 2016), and ensure students obtain the fundamental knowledge, skills, attitudes for required courses and grade standards (Garcia & de la Morena Taboada, 2017). The other aspects of PLCs stem directly from the major change in beliefs about the aim of educational institutions which is to focus on learning (Garcia & de la Morean Taboada, 2017).

PLCs educators must exhibit dedication towards advanced learning levels for every learner (Al Jammal, 2015; Dufour et al., 2013; Leclerc, 2013). According to Dufour (2004), institutional systems, instructional processes and policies should be examined through the lens of these questions. Will this process assure greater levels of student attainment? What are the effective techniques? What must students learn at different stages? How should student learning be assessed? How should learning needs be assessed? How should strong or weak learners be supported? Responses to these questions rest on the commitment of teachers to PLCs major goal of advancing students learning (Dufour, 2004). Dedication to the focus on learning also lean on ongoing professional learning structures which guide teachers to utilize age-appropriate pedagogy for varying types of learners and grade levels and use awareness of skills and knowledge students possess to ensure active involvement in instructional experience (Jafar et al., 2022). Thus, the central focus on learning is aligned to ongoing teacher professional learning within or outside the school contexts.

Research has provided evidence which reveals that concentration on learning accentuates the pivotal role of schools operating as learning institutions for students and teachers (Jafar et al., 2022; Zhaedi et al., 2021; Zhang & Lui, 2019). Zahedi et al (2021) mixed methods study examined the implementation of grade and discipline level PLCs in two Indian educational settings which comprised one five to nine teachers and a facilitator. PLCs processes included specific routines, an agenda and at least two monthly meetings. Zahedi et al. (2021) corroborated a critical condition of highly successful PLCs meetings with a great emphasis on learning and instruction. In addition, Zhang and Liu (2019), analyzed the aspects affecting 520 elementary and secondary school teachers' learning involvement in virtual PLCs. They had participated in a Chinese Ministry of Education training which necessitated observation of video cases, participation in online discourse, and reflective writing. Study results revealed that teachers participated more actively in PLCs if they thought sessions were pertinent to learning and pedagogy. This evidence clearly reveals those other enabling conditions for PLCs implementation and viability stem directly from the major shift of schools operating as effective learning institutions for students and teachers (Gracia de la Morena Taboada, 2017).

The literature advocates the goal of PLCs is for schools to operate as learning organizations for teachers and students. This means that schools must make the shift to operating as learning institutions. The school's vision, operation policies and systems must focus on continuous analysis and monitoring of student learning needs. This means leaders and teachers must continuously examine teacher instructional practices to ensure that there is equitable and relevant instruction for all students. Hence, there must be ongoing collective analysis and reflection of instructional design mechanisms to ensure teachers instructional capacity is relevant and responsive to the needs of all learners.

ii. Professional Development

The sustainability of PLCs is dependent on research based and efficiently coordinated ongoing job embedded professional development (DuFour, 2004; Kennedy, 2014; Darling-Hammond et al., 2017). Darling-Hammond and McLaughlin (1995) and Darling Hammond et al. (2017) advocate that ongoing professional development at the individual and community level must focus on teachers' needs through critical review. This critical examination would supply teachers with collaborative professional development circumstances to enhance student learning (DuFour, 2004). Through these collective sessions, educators can outline pertinent aspects to improve pedagogical practices and student attainment. Furthermore, professional development should be part of the day-to-day collective operations in classrooms and schools as educators accrue and disseminate pedagogical knowledge and techniques, apply new expertise in their classrooms, and reflect on these novel experiences and knowledge (Hargreaves & Fullan, 2012). Moreover, school-based professional learning can be organized in many forms such as team teaching, coaching, and advising methods; action- based research, engagement in pedagogical groups and system; participation in school enhancement initiatives such as curriculum development, design, and implementation; and involvement of parents, community members and external specialists (Stoll et al., 2006; Ilomaki et al., 2017). Overall, this job embedded forms of professional learning make PLCs viable by promoting collegial trust, teacher expertise and identity, peer collaboration and student learning (Richmond & Manokore, 2011).

Job-embedded professional development consists of the crucial elements of ongoing and extensive periods of training. This includes concentration on procedures which must be utilized for students to acquire and apply content effectively in learning situations. In addition, it is an opportunity for educators to collectively address students' academic outcomes (Darling-Hammond

et al., 2017). These elements of effective professional development were further explored and amplified by Darling-Hammond et al. (2017, p. 7-8) who accentuated several crucial attributes:

- Content – focused-concentration on process which must be utilized to ensure students acquire content and apply appropriately. Professional development zero in on pedagogical techniques for different subject disciplines.
- Active learning - Active learning also entails instructional design, trying out novel pedagogical strategies which must be implemented in classrooms to teach diverse students. Professional development also requires the use of authentic, interactive, and new 21st century learning techniques.
- Promotes collaboration: Highly productive professional development which nurtures spaces for sharing, collective learning to modify the instructional culture at the grade, subject, school, and district level.
- Models effective practice: professional development should utilize a scaffolded approach which draws on previous knowledge and skills.
- Coaching and expert support: This also entails coaching and expert support involves the sharing of expertise about content and evidence-based practices, focused directly on teachers' individual needs.
- Ongoing feedback and reflection: Effective professional learning should offer ongoing opportunities for feedback and facilitate reflection on practice to modify instructional practices to assist teachers in becoming expert practitioners.
- Time frame - Professional learning should be ongoing and over extensive periods. Sustainable and effective professional learning should facilitate

adequate time to learn, practice, implement, and reflect upon new strategies that facilitate changes in their practice.

PLCs is a job-embedded professional development framework for enhancing the pedagogical skills of teachers (Darling-Hammond et al., 2017). PLCs entailed teacher participation in discourse associated with teacher instructional practices and students' learning (Feldman, 2020). Teacher involvement in professional development entailed ongoing collaborative discourse to assess instructional practices and enhance their pedagogical capacity which leads to enhanced students' attainment (Darling-Hammond et al., 2017). Hence, it is crucial for teachers and leaders to engage in collaborative, ongoing job embedded professional development and to enhance their pedagogical repertoire to positively affect student attainment (Dennis & Hemmings, 2019).

Job-embedded professional development must be conducted with systematic care and protocols to assure integrity in the implementation of PLCs strategy (Burke et al., 2010). Professional mechanisms would include curriculum documents, and specified explanations of pedagogical practices while systematics processes would comprise pedagogical practices and PLCs routines (Burke et al., 2010). Successful job embedded professional development initiatives are linked to implementation processes which consist of professional mechanisms and systematic controls (Burke et al., 2010). Additionally, Darling-Hammond et al. (2017) recommended that to enhance the professional capacity of teachers in PLCs, they must be exposed to ongoing training and education on a range of pedagogical strategies, collective decision-making techniques, problem-solving and critical thinking skills. Overall, Melesse and Gulie (2019) advocated that ongoing job-embedded professional development which administers the systematic and procedural protocols and provides teachers with the requisite skills sets for collaborative learning in PLCs is

an effective vehicle for enhancing the instructional repertoire of teachers to advance students' outcome.

Effective PLCs function with teachers who provide relevant, equitable, and responsive instruction to meet the needs of students. The literature advocates the importance of job -embedded professional development which ensures teachers possess the instructional expertise to meet the needs of 21st century learners. These professional development sessions should be ongoing and be delivered via different mediums including mentoring, coaching, action-based inquiry, teacher observation of peers, subject specialist or grade level teams, parental and stakeholder participation, and external expert sessions. Hence, continuous job-embedded professional development is a critical factor for the viability of school PLCs. Job-embedded professional development should focus on ensuring school leaders and teachers attain and strengthen the proficiencies for carrying out PLCs processes as well as advance their instructional design and pedagogical practices. Professional development sessions should develop content knowledge in different disciplines, active and reflective inquiry, collective curriculum, and instructional design, entail scaffolding, coaching, and mentoring of teachers; provide feedback over extensive periods to monitor adoption and implementation of practices to ensure reflection on new instructional practices. Additionally, PLCs proficiencies such as collective decision making, problem solving, team building, and critical thinking should also be part of ongoing job-embedded professional development to ensure teachers work collectively. A systematic approach must be implemented for continuous professional development as a critical aspect of PLCs to continuously equip teachers with requisite and relevant proficiencies to meet the needs of learners.

iii. Utilization of Data

The collection and use of data are a pivotal operational factor for the implementation and sustainability of PLCs (Williams et al., 2008; Dufour et al., 2016). Munoz and Braham (2016) made an explicit link between effective implementation of PLCs and the utilization of standard and appropriate data that permit for systematic tracking of student learning to modify teaching and learning for school wide improvement. Additionally, Munoz and Braham (2016) also affirmed that effective and sustainable PLCs are results-driven, and regularly complement professional development and viable data. Viable data is meaningful and pertinent knowledge for teachers (DuFour, 2004) and it accentuates formative appraisal of student attainment (Guskey, 2007). Therefore, PLCs primary focus is learning before attainment and evaluation, to realize advanced learning outcomes (Hargreaves, 2007). Moreover, the advancement of learning in PLCs necessitates information from internal and external information; user-friendly, multiplex data aggregation systems and information derived from cultural introspection (Hargreaves, 2007). This means PLCs must adopt systematic examination of data and accumulated evidence from the educational community to reflect on instructional practices, make informed and ongoing instructional decisions, enhance student learning, and school-wide improvement (Stoll et al., 2006; Williams et al., 2008).

Student attainment is the focal point of PLCs. The work of effective school PLCs must be aligned to institutional and education system goals and propelled and conducted based on student results (DuFour et al., 2016; Reynolds, 2016). According to Owen (2014), professional development linked to school goals, collaborative and critical discourse on instructions among teachers will promote trusting relations among peers. Effective PLCs must concentrate on students' attainment and data which corroborates students' learning outcome (Garcia & de la

Morena Taboda, 2017). According to Dufour et al., (2016), schools are rife with data but may not use this data properly. Hence, PLCs need to adopt results-oriented strategies which will make data relevant for educators to function effectively (Dufour, 2004). Furthermore, a results-oriented focus will assist PLCs members to create and embark on proscribed goals and develop assessments to verify students' achievement and outcome (DuFour et al., 2016). Teachers need to utilize students' results and to hold systematic instructional discourse which will examine pedagogical strengths and weaknesses. This will enhance individual and collective instructional capacity and ensure improvement of students' learning outcome (Dufour et al., 2016; Reynolds, 2016). These students' data driven discussions lean on the supportive structures of PLCs which facilitate the creation of safe spaces where peers can learn together (Reynolds, 2016). Overall, ongoing examination of students' results and attained goals are critical tools for maintaining effective and viable PLCs in educational institutions.

The collective examination of student and teacher data is a crucial factor which drives PLCs planning. Data is utilized to determine instructional strategies which must be aligned to meet student needs and advance learning. Therefore, teachers must be trained to be proficient in data analysis to make informed decisions regarding instructional training and design for school wide learning. Hence, schools must utilize systematic collective, results-based strategies where teachers engage in critical discourse focused on strengths and weaknesses to develop action plans which will provide responsive instruction to address the needs of learners.

iv. Necessity of Common Planning

A critical aspect of effective PLCSs is common planning for professional development which concentrates on members working collectively. A PLCs is focused and productive when there is a well-designed innovation plan with overarching goals that concentrates on student

learning and deter teacher communication issues (Reynolds, 2016). Common planning is the manner in which teachers plan and create a mutual vision collaboratively (Jafar et al., 2022). A well-developed plan enables a systematic process. where educators take on the role of decision makers through active involvement in developing the plan collaboratively (Jafar et al., 2022) to make PLCs effective and sustainable.

Common planning necessitates teachers are cognizant of what knowledge and skills they need to attain, identification of abilities they already possess, and to create learning aims grounded in assessment for learning standards (Davies et al., 2008 cited in Reynolds, 2016). In the creation of goals, the plan must entail constant meetings with a long-term sustainable approach (Provini, 2012 cited in Reynolds, 2016). This comprehensive long term-plan must be designed through a variety of meetings to incorporate elements such as preparation, meeting frequency, roles of members, how responsibilities will be shared, operational roles for participation, required resources, to ensure the individual and collective professional needs of teachers are addressed (Davies et al., 2008 cited in Reynolds, 2016). Despite the goals of the plans being aligned to students' achievement, teachers make decisions regarding innovation goals and the assessment of outcomes (Owen, 2014). PLCs which function without a systematic and well-developed plan are more likely to express communication challenges which will ultimately result in malfunctioning of PLCs teams (Weber, 2011 cited in Reynolds, 2016). Hence, shared planning is fundamental for successful implementation and sustainability of PLCs (Jafar et al., 2022).

Common planning is a collaborative and fundamental function of effective PLCs. These ongoing planning sessions are based on the school vision and entail collective decision making on the instructional needs of teachers to cater to students learning needs. This necessitates principals and teachers possess pertinent pedagogical knowledge and instruction design skills to assess

learning needs and develop appropriate instructional plans to meet student learning needs. This process must include systematic processes with clearly articulated session routines, member responsibilities, required resources, expertise, and time to address instruction design and learning needs for overall school improvement.

v. Reflective Dialogue

Gathering with colleagues regularly to decisively engage in dialogue, to examine pedagogical practices, and advance teacher professional capacity with the aim of enhancing student learning is significant for the viability of PLCs (Olsson, 2019). Louis et al. (1996 cited in Vanblaere & Devos, 2015) stated that reflective dialogue encompasses deep discussions about educational challenges such as curricular, teaching, and student attainment. Through collective reflective dialogue and interactions teachers attain new knowledge which is applied to address students learning needs (Hord, 1997). Researchers highlighted that the focus should not be restricted to educators enhancing their pedagogical repertoire but examined to advance student attainment (Bolam et al., 2005; Stoll et al., 2006). According to Magrafta (2017), highly effective teacher professional development consists of reflective practice which entails examination of teaching practices and constant self-assessment. Reflective repertoire stems from teachers allowing peers into classrooms for sharing of practices, deep observation of pedagogical practices (Bolam et al., 2005; Botha, 2012; Carpenter, 2017; Stoll et al., 2006), trying out different novel techniques, building rational inquiry about instruction and learning, and examining their impact on student achievement (Carpenter, 2017).

Teachers assuming the role of reflective practitioner and participating in reflective discourse with subject and grade level colleagues within the context of PLCs have been verified to be an effective form of ongoing job-embedded professional learning (Stoll et al., 2006). The

capacity of teachers to collectively engage in reflective examination is a critical aspect of teacher professional growth and productivity (Magrafta, 2017). PLCs can furnish the formation of collaborative discourse about what is realized from reflection on practices and how it is aligned to instructional and learning assumptions. Hence, Hargreaves and Fullan (2012), espoused that PLCs "should be neither inconsequential talking ships nor a statistical world of scores and spreadsheets that take on a life of their own, far removed from real students where focused conversations lead to improvements" (p.163). Instead, PLCs should be spaces which facilitate very clear discussions and explorations. This will inspire professional development and transcend advanced standards of teaching quality and equitable instruction. Therefore, PLCs effectiveness and viability rest on a shift in practice to reflective practitioners where teachers collaboratively examine and explore their assumptions and practices.

Critical and collective reflective discourse in PLCs is a crucial condition for ongoing change in the instructional and learning climate. Collective dialogue is necessary for examination of factors which inhibit and or advance teacher professional capacity as well as student learning. This requires deep conversations which examine curriculum, pedagogical capacity, and any matters affecting student learning. These discussions provide a lens into individual and collective practices, issues and create an ongoing forum for feedback on instructional practices utilized in classrooms. Reflection on practice should occur in collective risk-free spaces at grade, subject and whole school level where teachers voice issues affecting instruction and learning. The outcomes of collective discourse are to share and make collective decisions to continuously review and renew instructional practices to advance student learning experiences.

vi. School Wide Trust

Trust in peers and educational leadership are fundamental for the creation and viability of PLCs (Gray, 2015). Trust is described as a high-powered system for promoting the operational processes of cooperation and critical discourse in PLCs (Bryk et al., 1999). Additionally, Forsyth Adams (2010) affirmed that trust serves as the foundation of effective social relations, leadership, group work and successful organizations. This is because operational processes of educational institutions rely on trusting relations, between teachers and their peers, and between educational leaders and teachers to heighten the effectiveness and sustainability of PLCs (Gray et al., 2014). Furthermore, Hargreaves (2007) also asserted that high levels of collegial trust are linked to appreciation of peer's individuality and professionalism, commitment to students' learning, utilization of student data to improve instructional practices, and interrogation of peers' pedagogical practices. Moreover, establishing collegial trust among teachers and educational leaders is critical for fostering modifications in instructional practices (Wahlstrom & Louis, 2008; Antinuloma et al., 2018). Therefore, a culture of trust builds appreciative communal relations and mutual commitment of teachers and leaders, which are fundamental characteristics for the establishment and maintenance of outstanding school PLCs (Morrisey, 2000).

A school wide ethos of trust that is established through common values is necessary for effective functioning of PLCs, but this may be difficult for teachers do not have collaborative views of working and learning with peers (Reynolds, 2016). An ethos of trust is developed when teachers can work in risk free spaces where they can make errors and reveal errors without anxieties of judgment by peers (Hallam et al., 2015). A trusting school culture can be established within PLCs contexts when teachers develop common goals, appreciate varied learning approaches, have a repertoire varied learning strategies to cater to students learning needs, and are

open-minded to novel learning and teaching strategies (Owen, 2014). Teachers' common values are the initiation point which can drive the development PLCs protocols and shared vision for constructing effective teams (Venables, 2011 cited in Reynolds, 2016). Hence, it is imperative that teachers focus on the development of an ethos of trust to drive the shift from the tradition of the teacher working in isolation to one where peers work collaboratively using goal-oriented planning to enhance student outcomes (Reynolds, 2016).

The literature asserts that viable PLCs operate in a collaborate risk-free ethos where members work collectively, and respectfully interrogate colleagues' practices. These processes can only occur in a school culture where there are trusting and amicable relations. Dysfunctional relations would have a negative impact on teacher participation and working with colleagues. Hence, it is critical that leaders work co-jointly with teachers to establish a collaborative ethos. Leaders and teachers should collectively establish the PLCs mission and operational procedures, share roles, so that trusting relations are cultivated. Furthermore, leaders must utilize strategies which accentuate appreciation for diverse individualities who possess a range of knowledge and skills to enable open mindedness to peers' perspectives and expertise. The establishment of an open and risk-free environment would encourage collective perusal of student data, and respectful examination of peers' instructional practices, as well as sharing of good practices and issues impact instructional expertise. Leaders are also required to encourage team members to exercise autonomy in the areas of facilitation, research, and innovation of practices to address the learning needs of students. Furthermore, leaders must promote an environment which accentuates success and professional growth of teachers publicly to showcase results attained by the school community. Therefore, a trusting and collective ethos with amicable relations is required for community

implementation of goal-oriented approaches to enhance teacher instructional capacity to enhance student learning.

vii. Utilization of Systematic Processes to Develop Effective PLCs

Several researchers advocate that once educational institutions have established the structural, social, and human systems, there must be engagement in systematic change processes to refashion the conventional school to effective PLCs (Dufour et al., 2016; Eaker & Keating, 2012; Garcia & la Morena Taboada, 2017; Pirtle & Tobia, 2014; Fink 2018). The literature has outlined logical and recursive processes schools should undertake to attain this feat based on the specific needs of the context.

- The initial step is school membership must buy in to the main premise of PLCs which is collaboration as an effective tool for identifying problems, problem-solving and decision-making (Eaker & Eating, 2012). Garcia and la Morena Taboada (2017) advocate schools should develop an alliance of teachers before presenting the PLCs initiative to the school community. Dufour et al. (2016) advocate the need to seek small teams to assist. This is because if a common vision is to be developed, this must not be coerced or sold, but realized through collective efforts and engagement of school members (DuFour et al., 2016). According to Bergstrom (2016), the most suitable persons to form this alliance are members with active voices and views in the school community who provide advice and influence the school members. Engagement of active and influential members will most likely lead to full school community participation in the PLCs initiative (Garcia & la Morena Taboada, 2017).

- The next phase entails appraising the school community or creation of shared knowledge (Garcia & la Morena Taboada, 2017). At this phase, the alliances share information with the school membership about the rationale for PLCs to enhance the instructional context, to enable critical decision making (Garcia & la Morena Taboada, 2017). According to Dufour et al. (2016), this is a critical step because the school community would be apprised of similar information to empower decision making and community buy-in of the initiative. Eaker and Keating (2012) advocate school membership must have a thorough understanding of the elements and conceptual premises of effective PLCs.

- Another step is the creation of collective groups using a range of structural arrangements (Garcia & la Morena Taboada, 2017). Structural arrangements for developing PLCs may be at a grade level, subject content teams, virtual teams, district or regional teams, and networks of teachers who work together for similar purposes which may include grade level, discipline, virtual, researchers and experts (DuFour et al., 2013). The established teams must be furnished with adequate time, space, resources, and support for ongoing collective work to enhance student learning.
- PLCs membership must create a vision and mission statement to steer the development of an appropriate ethos for the establishment and implementation of PLCs (Eaker & Keating, 2012). Once there is a clear vision and mission, clear structures must be established in the form PLCs routines and protocols (Garcia & la Morena Taboada, 2017; Pirtle & Tobias, 2014). This vision must be integrated through organizational PLCs processes including financial budgets, curriculum and

planning, and instructional interventions (Eaker & Keating, 2012). According to Erkens and Twadwell (2014), once PLCs teams have been developed, the goals, routines, protocols, methods, and standards for operation must be clarified. Members must exhibit the PLCs vision in their values and actions (Eaker & Keating, 2012). Talbert (2010) advocates teams to collaboratively establish their operating protocols to serve as a guidepost. PLCs norms must be the product of open and collaborative decision making among educators to ensure the shift in practices are fully embraced by the school community (Garcia & la Morena Taboada, 2017). According to Dufour et al. (2016) and Pirtle and Tobia (2014), the establishment of common norms and clear structures provide clarity to PLCs members on expectations, roles, relations, tools, knowledge, and skills students must master, identification of research best strategies, resources, and operating protocols for sessions. Essentially, the norm development process assists PLCs teams with developing trust and open-mindedness, working on attaining the goals of the initiative, and enable collective discourse about individual aspirations, and qualms about working together (Garcia & la Morena Taboada, 2017; Pirtle & Tobia, 2014).

- Once PLCs are functioning well as collaborative teams, the next step is the ongoing monitoring, provision of constructive feedback, and revision of the operations (Garcia & la Morena Taboada, 2017; Pirtle & Tobia, 2014). The continuous critical examination of practice, data -driven monitoring and revision of PLCs processes must be in sync with instructional and organizational goals and necessitates collective work of members to enhance teachers' professional repertoire and student outcomes (DuFour & DuFour, 2012; Pirtle & Tobia, 2014). The phase ensures

membership utilizes collective inquiry and research-driven practices and data driven processes that will always concentrate on enhancing student learning daily.

- The last phase requires the development of sustainable leadership practices which entail celebration of PLCs successes (Garcia & la Morena Taboada, 2017). Accentuating and celebrating successes will stimulate PLCs members to strive harder because positive reinforcement heightens the commitment to the collaborative process to attain the goals of the change initiative (Garcia & la Morena Taboada, 2017; Pirtle & Tobia, 2014).

Overall, the use of a systematic approach to PLCs implementation and sustenance are presented as progressive and recursive steps, which entail identifying and accentuating success when different phases of the process are attained (Dufour & Eaker, 2008). The different phases of this transformational approach are critical for establishment, implementation, and maintenance of school PLCs.

The literature delineates clear and systematic processes which can serve as a guide for PLCs establishment, implementation, and sustenance. This phased approach must be fashioned to suit the specific instructional and learning needs of schools. The first phase requires leaders to form alliances with the influential or active members of the community who can assist in apprising information and member buy-in of the PLCs framework. The second phase entails alliances holding consultation and sensitization of teachers and stakeholders using influential teams to apprise community members and stakeholders of the purpose, processes, and benefits of PLCs. The third phase requires the establishment of group arrangements for developing PLCs at a grade, subject, and or school level. These teams must be furnished with requisite resources, time, space, and supportive systems for collective community work. The fourth phase is the creation of a vision

and mission, and clear structures and functional routines to serve as standards for operations of PLCs. These operational procedures should assist PLCs teams with developing a trusting and collaborative ethos to achieve the goals of PLCs. Once PLCs are highly functional as collective teams, the next phase is the continuous monitoring and provision of feedback on PLCs processes for revision of operations. Ongoing examination of PLCs operations are critical to ensure they are aligned to developing teacher professional repertoire to provide equitable and responsive instruction for student learning. The latter phase ensures the sustainability of PLCs through celebration of successes to ensure members are recognized and remain committed to the collective goal of advancing student learning. A systematic approach to PLCs establishment, implementation and sustainability is recommended utilizing supportive leadership, appropriate structures, and adequate time via progressive as well as recursive steps to meet the specific needs of the school context.

2.7.3 Summary

A range of converging institutional and functional processes have been identified in the literature to facilitate the establishment and maintenance of PLCs in school contexts. These institutional processes include culture, capacity building and leadership; while functional processes consist of focus on learning, professional development, utilization of data, common planning, reflective dialogue, systematic trust, and utilization of systematic processes for effective PLCs establishment, implementation, and sustainability. This subsection explained the institutional and operational processes which are essential for effective development and sustenance of PLCs.

2.8 Factors that Hamper the Establishment and Sustainability of PLCs

PLCs are not a natural aspect of schools. PLCs are established and implemented in schools as a job embedded professional development framework. The PLCs framework entails ongoing professional development sustained through collaborative efforts of teachers and school leaders to improve teaching and learning capacity to enhance student attainment. PLCs development in educational contexts experience many hurdles in the process of improving teacher capacity (Ismail et al., 2022). According to Oper and Peddler (2011), the establishment of PLCs involves refashioning of "systems, support, and norms that encourage both individual and organizational learning and getting the balance between internal and external resources are difficult for most schools" (p. 3). This ongoing practice of PLCs can only be established and sustained through the support of a positive and collaborative school ethos, adequate financial, physical, structural, and external resources; and efficient school leadership (Ismail et al., 2022). The establishment, implementation, and maintenance of PLCs in educational institutions is challenging as there are several hurdles which may impede their viability. Several researchers outlined prospective challenges associated with the establishment and sustenance of PLCs in educational setting which include limitations of PLCs conceptual premises (Dufour et al., 2016; Garcia & de la Morena Taboada, 2017; Lee & Lee, 2013), structural hurdles which comprise existing and bureaucratic design of schools (Murphy, 2014), lack of buy-in (Voekel Jr. & Chrsipels, 2017), resistance to change (Carpenter, 2015), collaborative challenges (Stoll et al., 2006; Hairon et al., 2017), complexities of PLCs implementation (Dufour et al., 2016), no clear purpose (Dufour & Reeves, 2016), lack of resources (Belibas et al., 2016), and cultural hurdles (Hairon & Tan, 2017; Hord, 1997; Murphy, 2014). Other implementation and viability hurdles comprise inadequate time for professional learning (Akinyemi & Rembe, 2017; Hairon et al., 2014; Lieberman & Miller, 2011;

Magrafta, 2017; Zhang et al., 2017), teacher's psychological state (Akinyemi & Rembe, 2017; Hairon et al., 2014; Schaap & Bruijin, 2018), overwhelming workloads (Chua et al., 2020; Voekler Jr & Chrispels, 2017), inability to make data driven decisions (Brown et al., 2018; Dufour & Reeves, 2016), deficient leadership support (Akinyemi & Rembe, 2017; Hairon et al., 2014; Zhang et al., 2017), and school internal (Stoll et al., 2006; Bellibas et al., 2016; Zhang et al., 2017) and external constraints (Stoll et al., 2006; Zhang et al., 2017). This subsection explicates the aforementioned factors which may hinder the viability of PLCs.

2.8.1 Limitations of PL Cs Conceptual Premise

In spite of the advancement in PLCs, there are several limitations accentuated in the literature with regards to the explanations of PLCs framework. For example, the extensive and overlapping characteristics presented by various models, and the implementation of the framework (Dufour et al., 2016; Garcia & de la Morena Taboada, 2017; Lee & Lee, 2013), which may pose hurdles for PLCs implementation and sustainability.

The PLCs literature accentuated that many researchers are discontented with the excessive use or abuse of the term PLCs. Owen (2014) laments that the PLCs concept "is a current buzz term in business and education contexts, seemingly referring to anything from decision-making committees to regular meeting groups or collegial learning teams" (p.54). Dufour et al. (2010) also advocates concerns regarding the abuse of the term:

It has been interesting to observe the growing popularity of the PLCs concept. In fact, the concept has become so common place and has been used ambiguously to describe face to face, and virtually any loose coupling of individuals who share a common interest in education that it is in danger of losing all its meaning (p.10).

The literature clearly articulates a mix of distorted impressions, expectations, and values by educational organizations implementing PLCs (DuFour, 2015) This has resulted in many educational institutions establishing shallow versions of PLCs, where teachers refer to learning groups as PLCs without a clear understanding of the extensive requirements of the framework (Dufour, 2015; Garcia & de la Morena Taboada, 2017). Dufour (2015) opined the uncertainty experienced in establishing PLCs is because PLCs definitions articulate that teachers must work collaboratively, carry out research, share best practices, continuously reflect on practice to enhance their capacity to meet national standards, examine student data and align instruction and update curriculum, as well work closely with peers to enhance student outcomes. The requirements of the PLCs concept are broad and unless teachers are clear about the definition and essential characteristics, there will be mass confusion about PLCs implementation.

Taylor et al. (2014 cited in Garcia & de la Morena Taboada, 2017) also identify continuous definitions and weak methodical transparency as common issues in the PLCs research. Likewise, Fullan (2006) declared that the PLCs terminology spreads quicker and exceeds its conceptualization. Hence, Fullan (2006) warned that for teachers to acquire a clear understanding of the PLCs concept, there must be clear explanation of what PLCs are not. Dufour et al. (2016) in their text “Learning by doing: A handbook for professional learning communities” which outlined three facets that teachers mistake for PLCs. PLCs are often referred to as a program, a meeting, or a book club. In some instances, PLCs are confused with recommended programs which can be procured. Nevertheless, Dufour et al. (2016), elucidate the PLCs framework is not a program, but an ongoing job embedded initiative established to suit unique school contexts where cultural and organizational modifications are established to enhance the professional capacity of educators to advance student attainment.

PLCs are also mistaken with teacher meetings (Garcia & de la Morena Taboada, 2017). Teachers congregate for sessions at the grade, discipline, department, and school level, with the principal, district level leaders, and external experts. These group meetings are essential for viable and effective operations of schools and are also an aspect of PLCs implementation processes (Taylor et al., 2014 cited in Garcia & de la Morena Taboada, 2017). Nevertheless, these sessions should not be construed as PLCs, but a critical element of PLCs (Garcia & de la Morena Taboada, 2017). PLCs are viewed as an organizational learning framework and not the individual groups found in the school (Olsson, 2019; Sleegers et al., 2013). Overall, Dufour et al. (2016) advocate that the PLCs implementation processes cannot be carried out by one team, but realized through the collaborative efforts of school community, educational district and external support networks and partnerships.

Grossman et al. (2000) also advocate that PLCs are not book clubs where educators congregate to discuss books and research articles. These activities are not aligned to the definition and features of PLCs outlined in the literature (Garcia & de la Morena Taboada, 2017). Teacher engagement in reading of educational texts, articles and studies and discourse about them do not mean manifestation into action which will enhance professional capacity (Garcia & de la Morena Taboada, 2017). According to Garcia and de la Morena Taboada (2017), a major attribute of the PLCs framework is driving teachers to use information to make changes in instructional practices. Hence, congregating to share academic texts and articles does not assure that education will utilize the information and ideas to make changes in classroom practices (Garcia & de la Morena Taboada, 2017).

Louis (2006) stated that PLCs were also confused with accountability measures. School leaders may view PLCs as a technique to enhance teacher engagement with student attainment

specifics (Louis, 2006). Louis (2006) referred to one residential education school district where PLCs were implemented in all schools as part of the national reform initiative. This required schools to choose one educational district goal and utilize existing data to enhance student attainment. Louis (2006) maintained that the education district conceptualization of PLCs was inaccurate because assigning teams to examine data and zero in on exam results is a shift from the goal of PLCs. This was a deviation from the essence of PLCs which should focus on the collective examination of pedagogical practices to enhance teacher professional capacity to advance student learning (Garcia & de la Morena Taboada, 2017).

The multifaceted nature of PLCs and the interconnectedness of the distinct characteristics is not clearly articulated in the literature and leads to conceptual confusion (Soares et al., 2020). A few scholars (Huffman & Hipp, 2003; Sleegers et al., 2013) have clearly outlined the different characteristics of PLCs and their interrelatedness. This multifaceted nature of PLCs has been disregarded and limited studies provide definitions of PLCs which refer to teachers' individual capability with attention focused on the relational capacity of teachers (Sleegers et al., 2013).

The literature also presented PLCs concepts in distinctive ways (Ismail et al., 2022). Conceptual understandings are distinct in supportive or hindrances and how they are classified. Classifications in the literature consist of inside and outside factors, institutional factors, systematic factors, organizational context and school climate and membership (Soares et al., 2020). The same characteristics may also be conceptualized in various ways (Ismail et al., 2022). A characteristic may be perceived as an essential dimension in one conceptualization, and a factor required to sustain PLCs in another. For instance, mutual trusting collaborative relations was articulated by Stoll et al. (2006), as a core characteristic of effective PLCs. While Kruse and Louis (1993) and Hord (1997) presented it as a supportive factor, and Hord (1997) but Bryk et al., (1999)

outlined it as an organizational factor. There is insubstantial corroboration of existing conceptualizations in substantial resource environments, and hardly any justification in developing countries (Soares et al., 2020). Furthermore, most of the literature have emerged from the experiences of teachers and PLCs in Western countries such as the United States, England, and Netherlands (Soares et al., 2020). These varied conceptualizations and characteristics presented from the lens of Western countries can create confusion and do not provide adequate clarity on the PLCs' concept for establishment and implementation of the framework in other countries (Soares et al., 2020).

PLCs are grounded in the collaborative efforts of internal and external stakeholders. There are a range of viewpoints on how these collaborative processes are established and implemented (Lee & Lee, 2013). Some have a perspective of collaboration as way of developing consensus in the way teachers engage in their practices (Dufour et al., 2010), while others are of the view that collaboration involved conflicting negotiations at a collective and individual level (Fullan, 2001; Little, 2002a). There is also lack of agreement on the processes or issues which should be the focus of discourse in PLCs teams (Lee & Lee, 2013). One group of researchers focused on realizing positive results from PLCs discourse through collective solving of issues or teamwork in enhancing teaching practices and curriculum (Campbell, 2005 cited in Lee & Lee, 2013). On the other hand, some researchers view the source of collective professional development as ongoing reflective discussions to enhance pedagogical practices and learning opportunities to address the needs of students (McLaughlin & Talbert, 2006; Musanti & Lucretia, 2010). PLCs are also viewed as professional linkages which enhance students' learning outcomes cogently through collaborative efforts of associates and advisers (Hams, 2011 cited in Lee & Lee, 2013). Moreover, viewpoints of PLCs as collective organizational structures where inexperienced teachers acquire

knowledge and skills from proficient teachers (McLaughlin & Talbert, 2006), is distinct from the perspective that learning is bi-directional between parties (Hargreaves & Fullan, 2012). Overall, the varying views of collaboration in the PLCs literature creates confusion with regards to the content, context and establishment and implementation processes of this collective framework.

Another issue of apprehension in the PLCs concept is how genuine PLCs are to its academic roots in reflection on practice (Lee & Lee, 2013) There are diverse views on the nature of reflection on practice in PLCs. Several reasons raised question of whether reflection is to acquire in-depth perspectives (Louis et al., 1996; Nehrng & Fitzsimon, 2011 cited in Lee & Lee, 2013), or to address certain issues, solve problems, and improve teachers pedagogical craft (Schon, 1983 cited in Lee & Lee, 2013). Furthermore, a major aim of PLCs is to have mutual understanding of the beliefs, goals, vision, and action plan as a collective (Lee & Lee, 2013). However, there is no agreement on the extent of sharing with internal and external stakeholders (Fullan & Hargreaves, 1992) or whether this sharing is restricted to working with stakeholders to attain desired outcomes (Lee & Lee, 2013). Overall, the diverse views on the purpose of reflective practice in PLCs can create complications for PLCs establishment and implementation. Despite the advancement in PLCs conceptualizations, several limitations exist which create confusion for establishment and implementation of the collaborative framework. Existing limitations highlighted in the literature pertain to explanations of PLCs framework, the extensive and overlapping characteristics presented by various models, and the intellectual roots of PLCs, and implementation processes of the framework (Dufour et al., 2016; Garcia & de la Morena Taboada, 2017; Lee & Lee, 2013).

The literature highlights the complex nature of the PLCs framework as a limitation which may pose hurdles for effective implementation. The PLCs concept is used to refer to any group of teachers who meet regularly, but these groups may not embrace the essential characteristics of

PLCs. Furthermore, the literature outlines a host of definitions, characteristics enabling conditions, and collaborative processes which must be established to realize effective PLCs implementation. Hence, there is a need for clarity on critical understandings of PLCs definitions, characteristics, requirements for establishing and implementing sustainable PLCs framework to avert implementation challenges. Therefore, school leaders need to hold consultation with teachers on the PLCs concept, purposes, and processes so that stakeholders are clear about the requirements for establishing and implementing PLCs. Additionally, leaders should ensure PLCs are guided by a collectively developed school vision, routines, roles, and responsibilities which are context specific. Adequate time must be given for the collective establishment and implementation of PLCs so that school leaders and teachers have clarity of the framework processes to ensure it is a viable strategy to enhance teacher professional capacity and student learning.

2.8.2 Structural Hurdles

Several factors were found to hinder the development and maintenance of PLCs in educational institutions. Furthermore, current school systems are not very flexible, and this is a major hurdle for effective establishment of PLCs (McLaughlin & Talbert, 2001). The school structures have developed valid, well-grounded, reliable mechanisms which may integrate new change initiatives into current institutional arrangements without changing their existing framework (Murphy, 2014). However, PLCs require many changes to existing structures to ensure enhancement of professional practice and student achievement. Therefore, school leaders must work collectively with teachers to gradually make changes or integrate processes with existing structures which will facilitate collaborative ways of doing to fulfill the goals of PLCs to enhance teacher capacity and provide more responsive instruction to meet student learning needs.

i. Existing Hierarchical Systems

Another hurdle could be the existing hierarchical systems may be problematic for the development of viable PLCs. This includes the traditional role dynamic of school leaders as the sole leader and teachers' roles as subsidiaries. This responsibility system promotes segregation which is a hurdle for the distribution of instructional leadership mandates for effective PLCs (Murphy, 2014). According to DuFour (2004), advancing PLCs development in educational institutions is a major difficulty for school leaders. Scribner et al. (2007 cited in Schaap & Bruijin, 2018), revealed that the teacher engagement in the change initiative is reliant on principals being able to align the teacher's needs and institutional requirements to the development of PLCs. School principals may face challenges with establishing, organizing, and promoting PLCs, and grapple with PLCs capricious developments and issues (Schaap & Bruijn, 2018). School leaders manage the processes and outcomes of PLCs, while teachers focused on their professional independence (Hargreaves & O' Connor, 2018). Overall, to avert these challenges, school leaders must ensure PLCs are linked to existing school processes and address contextual needs. This requires collective examination of strengths, weaknesses, opportunities, and threats of existing school processes. There must be consultation with community members so there is buy in, and support to ensure the viability of PLCs. Hence, school leaders need to work collectively with teachers as well as be actively involved in PLCs establishment and implementation to ensure PLCs activities are closely tied to organizational goals, school processes and the contextual learning needs of the school. Moreover, teachers will most likely embrace PLCs processes if they are part of this change of the integration within school goals.

ii. Bureaucratic Design of Schools

In addition, the bureaucratic design of the school system may be a major hurdle for the viability of PLCs (Talbert, 2010). Schools are political institutions in structure, annals, and jurisdiction (Talbert, 2010). Accordingly, national and district instructional directives may take priority over the aim of schools to establish PLCs to ameliorate teacher professional expertise and student performance (Lieberman & Miller, 2011). Further, these bureaucratic directives may create teacher anxiety, weaken, and dissuade prolonged engagement in the PLCs reform initiative (Talbert, 2010). This would propel schools to discount the PLCs agenda and maintain conventional operational processes and instructional practices to fulfill systematic directives (Liberman & Miller, 2011). Overall, these traditional organizational systems of schools produce environments that foster disintegration, self-reliance and detachment which suppresses collaboration and undermines work climate conventions (Murphy, 2014), various obstacles for the development of viable PLCs.

School leaders need to examine bureaucratic policies which may impact PLCs establishment and implementation. Leaders need to be realistic with regards to the scope of PLCs integration in schools. PLCs should only be established and implemented after careful collective analysis of strengths, weaknesses, opportunities, and threats. PLCs should be integrated within the organizational goals for school improvement. It means that leaders must be strategically creative in the way PLCs are established and implemented so that they become integrated as part of the school processes. The establishment of PLCs should be a collectively developed initiative so that community members embrace gradual establishment and implementation.

2.8.3 Lack of Buy-In by Teachers

An imminent challenge is teachers may not see the merit of PLCs implementation in the school contexts. According to Voekel and Chrispels (2017), teachers may perceive collective decision making as medium to undermine their classroom autonomy and consequently be hesitant to commit to PLCs processes. Additionally, current organizational systems advantage some community members who will oppose or disapprove of other systems that may jeopardize their favored functions or stances (Chrispeels & Martin, 2002). Furthermore, the prevailing institutional structure is familiar to teachers, and any change to routine processes may result in the natural tendency of resistance (Murphy, 2014). This is because the development of new processes and actions are challenging, and it is always simpler for members to revert to well-acquainted routines than to adopt fresh processes required for change (Lieberman & Miller, 1999). This challenge can be addressed efficiently, if school leaders work collaboratively with teachers to develop the vision and mission for clear direction, work with all persons who are on board, then take initiative to celebrate successes using credible data. Dufour and Fullan (2013) advocate the complete buy-in is not a requirement for implementing PLCs or any organizational innovation. Other organizational members will get on board when others celebrate successful outcomes of the innovation within the organization. Hence, as with any change initiatives, organizational members will have to work before attaining constructive results. Teachers' views of PLCs as a job embedded professional development strategy will alter when there is evidence of valid results. Thus, the buy- in hurdle can be addressed by accentuating, celebrating, and creating successes to steer all teachers to commit to the PLCs implementation initiative and to acquire positive teacher professional development and student outcomes.

2.8.4 Resistance to Change

When educational institutions are implementing compulsory interventions, there will be members which may not embrace these changes. School leaders and teachers must devote themselves to the reform initiative by implementing PLCs with allegiance (DuFour & Dufour, 2012; Marzano, 2013). Teachers' resistance to change is one of the major difficulties encountered in the establishment and implementation of PLCs. Opposition to change within PLCs can hamper the desirable outcomes of this professional development model (Carpenter, 2015). Altering the mentality of some PLCs membership can be a formidable undertaking. However, modifying the school culture is an effective course of action to convince members who are opposed to developing PLCs to steer positive changes for student learning (Marzano et al., 2016).

There are range of reasons school members resist the PLCs initiative. Resistance to change stems from fear of change, the unknown or being able to make the required changes; or from fear of the work responsibilities becoming heavier and time consuming. Contention to change can also be an outcome of teachers being coerced to adopt or participate in pedagogical practices which are against their teaching philosophy, professionalism, or autonomy (Turner et al., 2018). Resistance and resentment can also stem from changes which challenged conventional responsibilities which opposed norms of isolation, independence, making decisions and democracy (Struyve et al., 2014) to reform roles of teacher leaders or coach being assigned to counterparts (Donalson et al., 2008 cited in Turner et al., 2018). Moreover, teachers may oppose the perceived difference in status of their peers as teacher leaders or coaches as no longer being equivalent (Smylie, 1992 cited in Turner et al., 2018).

Opposition to change may result in disagreements and debates among PLCs membership (Marzano et al., 2016). According to Marzano et al., (2016), squabbles and controversy are

imminent during reform processes because PLCs membership have distinct viewpoints and personal attributes. Furthermore, Marzano et al. (2016), lamented disagreements during the reform process were a fundamental part of change. Therefore, school leaders must ensure these conflicting situations are resolved before they hamper school enhancement. Hence, school leaders need to put systems in place to mediate, facilitate, find mutual understanding, and lessen conflict to develop effective collective working teams or else resistant and conflicting behaviours may sincerely hamper the establishment, implementation, and viability of PLCs.

2.8.5 Challenges in the Establishment of Collaboration Ethos

Collaboration is integral not because teachers' capacity is enhanced conjointly, but because the main goal of PLCs is to generate collaborative changes in pedagogical knowledge and techniques (Stoll et al., 2006; Hairon et al., 2017). Collaborate changes are more viable for educational institutions when teachers work collectively to attain mutual goals to realize successful outcome, than teachers working independently (Brodie, 2019). Authentic collaborative which realizes meaningful learning is a very challenging endeavour (Brown et al., 2018). Conventional teacher education training institutions do not foster requisite skills and qualities for the creation collaborative learning communities (Wilson & Wilson, 2019). Teachers are not exposed to the elements of collaboration (Wilson & Wilson, 2019), which is a hurdle to moving from a culture of isolation to a collaborative ethos. Thus, Hargreaves (1994 cited in Shakenova, 2017), asserted there may be negative outcomes in the establishment of collaborative arrangements, as it manifest into substantial forms of perils which can be reckless, unfavourable, and ineffective for teachers and students. Hargreaves (1994 p.2 cited in Shakenova, 2017) claims collaboration can take four forms which should be averted:

> "Collaboration can be (1). conformist, which can lead to groupthink that forbids working in solitude and ensures all ideas come from it; (2). contrived collegiality, where collaboration is controlled by administrators, so teachers work without desire and inefficiently, which may lessen teachers' motivation to work conjointly (3). cooperative, where teachers work to achieve goals set by others (4). comfortable and complacent, where teachers usually work together without shared values, share resources, and provide moral support; working practice is very flexible and not properly organized."

PLCs are theoretically aligned to Senge's (1990) organizational learning theories. Organizational learning is an extensive concept which fosters double loop learning (Argyris & Schon, 1978 cited in Derk, 2019), where members examine and interrogate beliefs and actions based on individual aims and actions. PLCs will only develop the attributes of an effective learning organization, when teachers are provided with the time and place to participate in double looping learning to collectively examine and reflect on the beliefs which drive teacher pedagogical practices (Derk, 2019). However, some empirical research highlighted that some school PLCs do not allow for double loop and learning but promote "performance training sets" (Hargreaves 2003, p.186), where learning communities serve as an instrument to encourage conformance and regularization which lessens respective teacher's professional acumen and imagination (Derk, 2019). Grossman et al. (2001) ethnographic research also validated that group routines and civility created challenges for members to identify and question variances which convey an image of uniformity and restrict opportunities for fruitful discourse. According to Watson (2014 cited in Derk, 2019), the optimistic collaborative composition and processes of PLCs can conceal deep issues. A critical element of PLCs is common vision and values which may lead to the development of social community ostracization for members who do not conform to the situation (Derk, 2019). Furthermore, Derk (2019), advocates members desire to sustain team collaboration and consensus can impair creativity, diverging viewpoints and change but instead promote herd mentality. Moreover, adherence to the status quo may lead to PLCs teams' engagement in uncontested

decision-making instead of utilizing exploratory techniques to make effective decisions to suit the institutional context (Derk, 2019).

Genuine collaboration which manifests into meaningful learning can be hard to attain (Horn et al., 2018 cited in Brodie, 2019). This difficulty may lead to contrived collegiality, where collective engagement of teachers is not voluntary but administratively coerced (Hargreaves & Fullan, 1992). Teachers' participation in PLCs is connected to levels of professional agency. Hence, teachers' participation in PLCs can manifest into dynamic and collective communities of practice, with productive and professional discussion and discord, while teachers' abstinence and rejection of learning communities may lead to collaborative difficulties in PLCs (Maloney & Konza, 2011 cited in Brodie, 2019).

The literature asserts that shift from isolated ways of working to a collaborative ethos is time consuming and a major paradigm shift in the way schools operate. Principals must work closely with teachers to ensure they are clear about the collaborative functions of PLCs. This will require ongoing professional development sessions which focus on teachers' attainment of collaborative skills which will assist them in the shift from isolation to collaborative ways of working. Furthermore, time must be provided for trial and error so that teachers gain confidence in holding critical discourse with peers. A collaborative and risk-free ethos must be enabled so that teachers are comfortable expressing their beliefs and do not simply conform but provide critical feedback to ensure the learning needs of teachers and students are addressed. Hence, one approach which can assist with the sessions is the provision of protocols or routines in the form of guiding questions or agendas to assist teachers in their critical discourse on teacher instructional practices, student data and ways they can enhance their pedagogical repertoire to enhance learning. Furthermore, various sharing frameworks such as modelling, scaffolding, sharing by experts

among others should be enabled at a school level so that opportunities to work collectively are varied. The initial phases of implementation may be strained as leaders and teachers refashion their roles, but with time and ongoing engagement in these collaborative practices, teacher confidence with these processes will be enhanced.

2.8.6 Complexities of PLCs Implementation

The transformational and implementation process of PLCs are complex and challenging (Dufour & Fullan, 2013). Most challenges are encountered during implementation processes (Dufour et al., 2016). Dufour and Fullan (2013, p. 3-4) outlined several factors which may present difficulties to innovation and implementation processes which include:

1. Major modifications to established school processes.
2. Relationships with people, schools, and systems change.
3. Conflicting situations
4. The multifarious nature of PLCs implementation
5. Implementation is an ongoing process of trial and error.
6. Process is incessant-ongoing improvement is always the journey and never a destination.

DuFour and Fullan (2013) claimed that many things can go awry during the implementation process of PLCs. People tend to be "vulnerable to quick fixes" and because PLCs have been proven to be effective, many view it as a "program solution" (Dufour & Fullan, 2013, p.16). The PLCs process comprise of complicated notions, and many are perplexed and cannot visualize the practical PLCs processes. Hence, Huffman and Hipp (2003) recommended the challenges of PLCs implementation can be averted through "intentional and ongoing engagement

of all teachers in the learning process, rather than in isolated pockets and in uncoordinated efforts, the capacity of the school to solve problems and maintain focus and commitment is powerfully enhanced" (p.77).

PLCs comprise many complicated establishment processes. Leaders must ensure adequate time is allocated to develop the myriad of processes for educator buy-in, building a collaborative ethos, establishing a collective vision and operational procedures, and ensuring stakeholders receive training in new proficiencies which are needed for the refashioned roles and responsibilities which will suit the context specific PLCs. Furthermore, leaders must ensure the requisite physical, financial, and human resources are attained to ensure that high functionality of PLCs. PLCs are a new school based professional development initiative and school leaders must ensure supportive measures are in place to guide the establishment and implementation of this framework.

2.8.7 No Clear Purpose

The effective implementation of PLCs is grounded in the establishment of a clear mission, values, and goals. Du Four and Reeves (2016) advocate that one of the gravest errors in PLCs implementation is when school leaders focus on the manner, they will accomplish PLCs and do not provide teachers with a clear purpose. A crucial aspect of highly effective PLCs is a shared mission, values and goals geared towards student attainment (DuFour & Fullan, 2013). When school leaders do not build and establish a foundation and collaboratively develop those aspects, PLCs implementation may face hurdles regarding the significance of working towards enhancing student attainment. Hence, another major obstacle to successful PLCs implementation is a lack of clarity about the concept and its essential influence on student achievement (Marzano et al., 2016).

According to Dufour (2007), this occurs when school leaders and teachers proclaim PLCs have been implemented, while critical structures have not been established. Dufour (2007) stressed that PLCs may not be viable due to confusion about their structural and operational elements. Further, DuFour and Reeves (2016) explained that many school principals and teachers may be engaged in collaborative decision making and inspiring work, but these activities lack focus and a shared vision and do not epitomize the characteristics of PLCs. Thus, teachers develop a sense of belonging, but the lack of a shared vision and ambiguity of the PLCs' purposes and implementation processes to enhance student learning are major hurdles to effectively implement PLCs (Hairon & Tan, 2017; Hord, 1997; Vescio et al., 2008). The viability of PLCs rests on the collective development of a clear vision and mission, operational routines and processes, roles, and responsibilities. Leaders must ensure all stakeholders are fully apprised of the PLCs concept, its purpose, characteristics, enabling factors, challenges and benefits as a job embedded professional development framework. Thus, dedicating time to collaboratively establish a common mission, vision, values, goals, and operational structures, roles and responsibilities geared towards enhancing student outcomes is crucial in advancing strategic changes in school interventions such as PLCs.

2.8.8 Lack of Resources

In addition, many educational institutions also lack required human, financial and structural resources which serve as major hurdles in the development of PLCs (Murphy, 2014; Belibas et al., 2016). According to Belibas et al., (2016) educational institutions have limited financial resources and did not possess a budget which is critical for providing supplies, technology, and other necessities for school programs. Financial resources are crucial for the effective implementation

of PLCs (Tahir & Musa, 2020; Zhang et al., 2017. Educational institutions will face difficulties in sustaining PLCs when financial resources are restricted (Nguyen et al., 2022). This financial hurdle would prevent schools from acquiring the necessary physical and structural resources to establish PLCs processes and mechanisms for collective learning and interactions (Tahir & Musa, 2020), and attain requisite human resources to support school leaders and teacher active involvement in PLCs (Zhang et al., 2017). This lack of school budgets propels school leaders to engage in time consuming, ongoing mobilization of funds and contributions from the wider community (Hosgorur & Arslan, 2014 cited in Belibas et al., 2016), for training, curriculum development, and other essential resources to assure effective PLCs implementation. Further, schools' plants are designed for teaching, and lack room and amenities for PLCs collaborative gatherings (Belibbas et al., 2016). Moreover, educational institutions lack internal experts to create appropriate schedules and ongoing learning needs for embedded professional development initiatives (Bellibas et al., 2016). Overall, the lack of financial, human, and structural resources may lower staff drive and foster unfavorable views of PLCs initiatives (Bellibas et al., 2016). ensure Therefore, financial, social, and human resource structures must be systematically allocated and integrated to render functional schools PLCs (Olivier, Hipp & Huffman, 2003; Talbert, 2010). Thus, the literature clearly postulates that the attainment of physical, financial, and human resources is crucial for establishing and implementing PLCs. Leaders must ensure that from the early stages of establishment support is sought from education ministries and wider community to gain access to financial resources which can be utilized to acquire physical resources and technologies, as well as to hire experts to assist with training of teachers for collaborative processes of PLCs. Furthermore, principals must work collectively with educators to find creative ways to use existing resources to find spaces to hold PLCs sessions as well as seek assistance from external stakeholders like parents, business

sector, higher education sector, and the wider community which can assist in the development and implementation of PLCs. Overall, the success of PLCs relies on leaders working closely with stakeholders to ensure they are clear about the role of PLCs in advancing school learning so that the requisite resources and support systems can be attained to develop viable PLCs.

2.8.9 Cultural Hurdles

The deeply rooted cultural standards or norms of educational institutions often create barriers to the successful growth of PLCs (Lieberman & Miller, 2011; Murphy, 2014). Many of these norms are not aligned with PLCs facets of collaboration and collective learning (Young, 2006). These school norms promote independence, privacy and isolation and do not nurture collegiality (Curry, 2008). The institutional norms of authentic teaching, separation between educators and leadership roles, control, independence, isolation, impartiality, and affability (Murphy, 2014), adversely affect the advancement of PLCs (Levine & Marcus, 2010; McLaughlin &Talbert, 2001).

School norms of authentic teaching, separation between teachers and leadership roles, and control create obstacles in the establishment and maintenance of PLCs. Similarly, the norm of authentic teaching grounded in the cultural environment of schools serves as a hurdle to the establishment of PLCs (Murphy, 2014). These are the views of the public and teachers that genuine teaching occurs within classroom spaces with students (Saunders et al., 2009), and any teaching outside of these classroom spaces may be invalid (Murphy, 2014). However, this norm does not support the collaborative nature of instruction that is associated with functional PLCs.

An additional norm which creates barriers to PLCs viability is the separation between educators and leadership roles (Murphy, 2014). This is the perception that the educator's duty to instruct and the leader's role is to manage. These customary school systems emphasize role segregation which require teachers to implement and follow bureaucratic directives (Murphy, 2014). This standard is misaligned with the shared leadership and collaborative mandate of PLCs. Furthermore, this standard is also linked to the norm of control or charge in existing school cultural systems (Murphy, 2014). This norm may ensue a further barrier for shared leadership in PLCs; where teachers may be disinclined to take up leadership tasks which oppose conventional leadership approaches to avoid disagreements (Bryk et al., 2010). These aforementioned norms hamper the development of collaborative spaces which is a crucial dimension of strong PLCs.

The work norms of independence, isolation, impartiality, and affability are also obstacles for PLCs establishment (Levine & Marcus, 2007). Teachers associate competence with working independently within their classroom spaces and do not intrude in the pedagogical matters of peers in the community (Murphy, 2014). This dominant standard of independence hampers the cultivation of fruitful relations which are the core of successful PLCs. Moreover, closely connected to the cultural principle of independence is professional isolation where teachers' self-sufficiency prevails (Levine & Marcus, 2007). This value system of professional isolation undermines cooperation, participation and collective accountability which are critical attributes of effective PLCs (Siu, 2008).

School culture is also grounded in the norm of impartiality in the teaching profession which is regarded as another hurdle to PLCs viability (York- Barr & Duke, 2004). Generally, teachers' hold similar assignments based on academic qualification and years of teaching experience; instead of expertise, in-depth understanding; functions or responsibilities maintain that all teachers

are equivalent (Murphy, 2014), which are not compatible with PLCs aims (McLaughlin & Talbert, 2001). According to Hairon et al. (2014), high levels of impartiality in educational institutions do not nurture the growth of PLCs. Additionally, the norm of affability usually handicaps the establishment of a collaborative community (Murphy, 2014). This is because schools are organizations which promote sociability and discourage critique and conflict among peers. Moreover, colleague critique is generally perceived as improper; and seeking support from peers is regarded as professional ineptitude (Dannetta, 2002).

Overall, these cultural norms nurture values of independence, isolation, and impartiality (Murphy, 2014), conservativeness and reluctance to take daring chances (Rosenholtz, 1989); actions may obstruct the growth of functional PLCs.

As school leaders work collectively with teachers to establish PLCs, one critical strategy which should be employed by the school community is an analysis of the school culture to identify areas of strength, weakness, opportunities, and threats. The cultural norms of independence, isolation, conservation, and fear of change are aligned to the traditional operations of isolated work in classrooms. The paradigm shift to a collaborative, trusting and risk-free ethos requires adequate consultation with community members. Furthermore, PLCs require refashioning of teachers and principal's roles and responsibilities. This would mean teachers may lack requisite proficiencies to fulfill these refashioned roles. Hence, it is critical that leaders work collectively with educators and experts to ensure that appropriate training is provided so that teachers attain requisite proficiencies. Additionally, teachers must work closely with leaders to develop a vision, mission and operational routines and roles for PLCs implementation. These processes of change must be allowed to unfold over a period so that community members embrace the initiative and are willing to shift from isolated ways of doing things to collaborative processes of PLCs. Overall, leaders

must be active members of PLCs who can provide support, guidance, monitor, and seek external assistance to ensure the established PLCs meet the needs of the school setting.

2.8.10 Insufficient Time

Inadequate time has been outlined as the greatest obstacle for establishing and implementing PLCs for collective learning in schools (Hairon et al., 2014; Hassan et al., 2018; Lieberman & Miller, 2011; Nguyen et al., 2022; Magrafta, 2017; Vangreiken et al., 2017). Time is required to establish and implement the PLCs processes (Magrafta, 2017). According to Magrafta (2017), time is necessary for PLCs members to interact and get acquainted, develop trust, and establish a vision and routines for initiation and implementation. This is because teachers are inundated with many pedagogical, learning, and other school operation responsibilities (Jiang, 2016). Additionally, it is also difficult for schools to allocate additional time for teachers to work collectively in PLCs because of the heavy agenda and syllabus (Akinyemi & Rembe, 2017). This makes it quite challenging to organize time slots for collaborative group sessions (Wang, et al., 2017). De Jong (2012 cited in Magrafta, 2017), also highlighted that PLCs will not function effectively in an educational institution which does not provide time and support to examine and reflect on pedagogical practices and student data to enhance student performance. Overall, Liberman and Miller (2011), advocate there are no expeditious approaches to the development of functional PLCs.

The empirical research accentuates that time constraint issue is intertwined with the heavy workloads of teachers and school leaders which consist of teaching, learning, assessment, and administrative functions (Akinyemi et al., 2019; Chua et al., 2020). Hence, time is a crucial condition and teachers are concerned time limitations will impede the processes required for the

effective initiation, implementation, and sustenance of PLCs in schools (Magrafta, 2017). The creation of PLCs is an extended cycle of consultation and critical dialogue to develop trust, identify instructional issues, and other matters affecting student learning (Lieberman & Miller, 2011). PLCs development must embrace individuality and permit community members to connect with each other to attain mutual understanding after a lengthy course of ongoing participation (Lieberman & Miller, 2011). Thus, with the hectic teaching and scheduled demands, teachers may view collective engagement and critical community dialogue as an infringement of their lean schedule (Hairon et al., 2014; Vangrieken et al., 2017; Wang et al., 2017). In addition, the hectic schedule and teaching agendas (Parsons et al., 2017) will diminish opportunities for effective teacher participation in PLCs (Hairon et al., 2014; Vangrieken et al., 2017; Wang et al., 2017). Furthermore, Banerjee, Stearns, Moller, and Mickelson (2017) indicate that educators require one fifth of their scheduled time for collective learning and effective development and implementation of PLCs. Therefore, based on hectic instructional processes of schools, inadequate time would be a major hindrance for the establishment and sustenance of school PLCs. Hence, the effectiveness of PLCs rests on educational leaders scheduling adequate time within teacher's workloads for collective learning and engagement in PLCs (Nguyen et al., 2022).

The literature maintains inadequate time intertwined with the heavy workload of educators is a major hindrance for the viability of PLCs. This emphasizes that PLCs require adequate time to unfold so they can be sustainable. This means that school leaders must find creative ways to integrate PLCs in the heavy workload of teachers. The workload of teachers must be examined to ensure equal importance is given to professional development via PLCs for more effective instruction and student learning. It will also mean leaders making decisions on what aspects of a teacher's work are more strategically fundamental than others and to ensure priority is given to the

establishment of PLCs for overall school improvement. Leaders must adopt the strategy of integrating PLCs with the school goals so that teachers do not view PLCs activities as isolated activities or add on of other duties. This means that leaders need to serve as active members, coordinators, monitors and guides on PLCs establishment and implementation to ensure the goal of enhancing teacher professional capacity to strengthen student learning is realized.

2.8.11 Teachers' Psychological State

Teachers' psychological state hamper engagement levels in PLCs development (Hairon et al., 2014; Toom et al., 2017). According to Piere et al., (2003 cited in Schaap & Bruijn 2018), an educator's "mental or psychological state is a feeling of owning a PLCs, which develops through mental or physical investment in the initiative" (p.112). Ownership is a product of collective interactions and engagement (Schaap & Bruijn, 2018). Ownership is also realized when PLCs are aligned to innovation and change management methods utilized in educational institutions (Fullan, 2001). Several factors have been outlined in the literature for impeding teacher engagement in PLCs. First, the uniqueness of teachers can pose challenges for PLCs implementation. Sjojer and Merirink (2016 cited in Magrafta, 2017) identified varied ways of thinking and learning styles of teachers as a challenge for PLCs implementation and sustenance. Teachers are unique from each other in their necessities, beliefs, and exploits (Magrafta, 2017), which may pose challenges for teachers to work collaboratively in PLCs. Additionally, teachers may be reluctant to openly criticize their peers but instead engage in safe dialogue. Collaborative experiences would not be effective if teachers engage in safe dialogue and do not hold critical discourse with peers (De Joing, 2012 cited in Magrafta, 2017). Second, the utilization of a top-down method to educator professional development without consideration for the social aspects of teaching would be a threat

to ownership and may negatively impact the aim of PLCs as a professional development framework (Schaap & Bruijn, 2018). A top-down approach would lead to several negative consequences on teacher motivation, ownership, and student attainment (Schaap & Bruijn, 2018). Additionally, teachers' uncertainty about their pedagogical capacities and fear of engagement in communal and collective learning will expose their inadequacies (Akinyemi & Rembe, 2017). Furthermore, teachers may not engage in collaborative activities to avoid condemnation from their peers and intrusion of individual professional spaces (Schecter, 2012; Akinyemi & Rembe, 2017). This is a challenge for school cultures which do not subscribe to collective learning with peers (Hairon et al., 2014; Akinyemi & Rembe, 2017). Moreover, Marzano et al., (2016) claim that PLCs implementation is hampered if there is lack of understanding of this collaborative framework and how it positively influences student learning. In addition, DuFour (2007) advocates that this lack of clarity of the PLCs concept may lead to school leaders and teachers' proclamations that PLCs have been implemented, while critical functional structures have not been established. According to Hibbert et al. (2016), unless there is an established culture of collective learning and critical inquiry, teachers will view community learning and critical analysis of teaching methods as a denouncement of their instructional capacity. Overall, De Neve and Devos (2016) and DuFour and Reeves (2016) maintained that this challenge is linked to teachers' ignorance of critical and reflexive introspection processes, poor social relations with peers, and the misunderstandings of the conditions and operations of functional PLCs.

The shift from isolated ways of working to collaborative processes in PLCs will be new ways of operating for leaders and teachers. Hence, leaders must hold consultation with all stakeholders from the onset to ensure clarity on the PLCs concept, purposes, processes, and benefits as a job embedded professional development strategy. To ensure teachers embrace and

adopt the PLCs concept training in required proficiencies must be provided via ongoing professional development. Leaders must also ensure that unique qualities of teachers are embraced. Furthermore, schools must collectively develop a collaborative and risk-free ethos where time is provided for trial and error as teachers learn how to engage in critical and reflective discourse as well as how to work closely with their peers to make decisions for enhancing instructional practices to advance student learning. Additionally, school leaders and teachers must ensure PLCs are established based on the learning needs of the school. The active engagement of leaders to serve as a guide while teachers learn to make the paradigm shift from isolated ways of working to the collaborative processes of PLCs is instrumental in ensuring the viability of PLCs. This will not be an easy process, but with support from leaders and assistance from experts' teachers can gradually make changes until they become more comfortable with working collectively with their peers to enhance organizational learning.

2.8.12 Overwhelming Teacher Workload

Teachers' workloads may also be a hurdle to effective PLCS implementation and sustenance. Teachers' responsibilities are demanding, driven by short term goals, overwhelmed with student instructional matters, instructional data, co-curricular activities, administrative tasks, and inundation with reform initiatives mandated by education policies, programs, and governmental assessments. These pose challenges for PLCs effective implementation (Chua et al., 2020; Voekler Jr & Chrispels, 2017). Lee and Kim (2016 cited in Brodie, 2019), stated a major drawback is the additional load of responsibilities that teachers involved in the establishment and implementation of PLCs must take on. According to Scribner et al. (1999 cited in (Voekler Jr & Chrispels, 2017), a two-year study revealed that it is challenging to effectively implement PLCs

because of tensions associated with PLCs processes and everyday duties which include student care, working collectively with peers, ongoing examination of practices, data analysis, as well as educational and accountability policies. Additionally, the implementation of PLCs necessitates teachers attain new skill sets, including data analysis, collaboration, observation of colleagues in their classrooms, and other management duties which may be taxing and cumbersome. Brown et al. (2018) stated that identification and examination of relevant instructional data is the cornerstone of effective PLCs. When teachers do not possess the requisite experience, data collection and analysis skills, PLCs are not effective (Schildkamp, 2019). There may also be hurdles associated with the teacher's workload which is traditionally carried out in isolated spaces. Despite the literature advocating teacher working collaboratively will enhance trust. It may be difficult for teachers to shift from isolated practices to a collective working ethos which entails a range of new roles and responsibilities (Dufour, 2004; Buttram & Farley-Ripple, 2016). Moreover, the overwhelming and heavy workload lessens opportunities for teacher collaborative efforts because there is inadequate time to meet and critically examine pedagogical practices with peers (Hairon & Tan, 2017; Tahir & Musa, 2020). Hence, some studies revealed the workload of PLCs has the capacity to develop submissive teacher involvement because of the tedious commitment to attain goals (Prenger et al., 2019; Schaap & Bruijn, 2018). The varied issues related to teacher workload would create roadblocks for engagement in critical reflection of instructional practices or dedicated time to create common goals and other aspects required for the effective development, implementation, and viability of school PLCs. Hence, it is essential that principals reassess teacher workloads and strategically adjust and integrate PLCs with school goals. Leaders must also provide direction and guidance on PLCs processes so that teachers would embrace the strategy to enhance professional expertise to enhance classroom instruction and student attainment. Overall,

teachers need to see the significance of PLCs activities as part of school goals so that they will work collectively to realize them.

2.8.13 Inability to Make Data Driven Decisions

Collecting data and analysis are fundamental for effective implementation of PLCs goal of school improvement (Brown et al., 2018). Teachers' lack of knowledge and experience with data collection and interpretation have been identified as a major stumbling block for successful PLCs (Schildkamp, 2019). Teachers need to be able to recognize weaknesses in instruction and student learning to be able to look for patterns and interpret student data (Schildkamp, 2019). However, DuFour and Reeves (2016), indicated that many schools with weak PLCs lacked appropriate systems for collecting and examining student data. This led to teachers' discourse on student "behaviour issues or sharing preferences on how to teach different skills or concepts" (Dufour & Reeves, 2016, p. 70). In other instances of weakly established PLCs, teachers perused data and utilized results for interventions and not for critical discourse of pedagogical techniques (Dufour & Reeves, 2016). Furthermore, Sims and Penny (2015) as well as Buttram and Farley-Ripple (2016) advocated that data analysis failed in PLCs when team members did not understand how to analyze data and were unable to make data-based decisions for instructional purposes. Hence, these researchers outlined the need to provide teachers with collective opportunities to hone data analysis and interpretation skills to fulfill the aim of PLCs (Buttram & Farley- Ripple, 2016; Sims & Penny, 2015).

Teachers' incapacity to make data-driven pedagogical decisions have been linked to the wealth of data and weak information syndrome (Farbam et al., 2014). In the field of education, this syndrome is a state in which teachers are overwhelmed with student data but lack the capacity

to communicate, examine, and explain the data patterns and themes (Mokhtari & Consalvo, 2016). To avert the hurdles produced by this syndrome, Salika (2017), recommended educational institutions should concentrate in utilizing strategies which can identify data patterns and trends, as well as questioning prompts which would enable strategic analysis of data to enhance instructional practices and student learning outcomes. DuFour and Fullan (2013) accentuate the significance of ensuring teachers acquire the capacity to strategically examine instructional data, to outline patterns and trends, to advance pedagogical and learning outcomes. Thus, it is imperative that teachers acquire the skills required for effective data-driven decision making to realize the aim of enhancing teacher professional development to promote student learning. Hence, principals need to acquire expert assistance to ensure teachers acquire data collection and analysis skills to make informed instructional design decisions. Overall, there must be ongoing professional development sessions where teachers learn how to collect and analyze data to gain confidence in these skills to make informed instructional decisions.

2.8.14 Inadequate Supportive Leadership

Lack of supportive leadership is another issue which threatens the viability of PLCs. PLCs development necessitates deviation from conventional modes of interaction to collaborative engagement, cultivation of a trusting climate, examination of peers' practices, and analysis of students' performance; processes promoted through relevant supportive leadership (Steyn, 2013). Research has demonstrated the effective establishment and implementation of PLCs is a difficult endeavour for school leaders (DuFour, 2004; Schaap & Bruijn, 2018). Generally, teachers will not engage in collective learning unless school leaders assist with organization and facilitation of instructional and professional learning processes within the school community (Akinyemi &

Rembe, 2017; Schaap & Bruijn, 2018). Educational leaders are often overwhelmed with the establishment processes of PLCs and may struggle with the structural, management, facilitation and unforeseeable processes, and results of PLCs (Burke et al., 2007 cited in Schaap & Bruijn, 2018) According to Hairon et al. (2017), strong instructional and transformational leadership are critical for the creation and maintenance of PLCs in educational institutions. Therefore, school leaders must support teachers in the development of collective learning and critical inquiry activities to nurture a climate of critical examination required for the development of functional PLCs (Nicholson et al., 2016). Overall, the development, implementation and maintenance of PLCs will be hampered without strong supportive leadership within the school community. Hence, it is critical that school leaders adopt a range of supportive roles to ensure the viability of PLCs. Principals need to be active members of PLCs who work closely with teachers where they contribute to sessions, as well as provide guidance and direction for sessions. Furthermore, leadership responsibilities must be shared so that teachers are given the autonomy to direct sessions based on their needs. Principals also need to ensure requisite physical, financial, and human resources are accessible so that teachers will have required support structures to enable effective implementation of PLCs. Therefore, school leaders must strategically plan within their heavy workloads how they can effectively serve as active members, coordinators, and monitors to ensure PLCs are highly functional.

2.8.15 Internal and External Factors in School

PLCs viability is dependent on existing internal and external school factors (Stoll et al., 2006; Bellibas et al., 2016). Two internal schools' factors which can hamper PLCs development is size and socio-economic status of students (SES) (Stoll et al., 2006; Bellibas, et al., 2016).

National policies, unsupportive wider school community; school labelling and deficient professional learning structures are external factors which may hinder PLCs establishment and maintenance (Stoll et al., 2006). These outside and inside school community factors can hamper PLCs viability.

The internal school factor of school size may hamper PLCs sustenance (Stoll et al., 2006; Bellibas et al., 2016). Small schools tend to adopt smoother transition in implementing change initiatives; while larger institutions' adoption of new initiatives may be hampered by larger membership (Stoll et al., 2006). Several researchers confirmed that larger schools with high student populations are less likely to engage in collaborative pursuits or embrace the notion of PCLS (Brookmeyer et al., 2006; McNeely et al., 2002). Similarly, Stoll et al., (2006), affirmed that larger educational institutions which comprise of numerous staff members, usually experience obstacles to develop communal systems, jointly develop vision and collective practices (Stoll et al., 2006). Therefore, school size could hinder the establishment of a collaborative and trusting climate; two critical elements of effective PLCs (Norwood, 2007).

Schools with low SES students also experience challenges in PLCs development (Bellibas et al., 2016). According to Bellibas et al. (2016), schools with low SES students experience high staff turnover, because teachers gravitate to posts in higher SES schools. This is because schools with high SES have the capacity to acquire financial and human capital from parents to back school pursuits (Bellibas et al., 2016); while parents of students in low SES schools do not possess the financial and social capability to support educational undertakings (Bellibbas & Gumus, 2013). Further, this high attrition rate in low SES schools lessens the establishment of the required climate for the functional PLCs. Moreover, DuFour (2007) affirmed that low SES schools with high staff renewal will not develop solid collegial relations, collective accountability for student attainment,

and feelings of commitment to institutional improvement, all fundamental elements for the establishment of effective PLCs.

Several external factors of schools may also hinder PLCs establishment and sustainability. Firstly, unsupportive wider school community attitudes can influence teachers' perceptions that the PLCs initiative is not worthy (Stoll et al., 2006). Additionally, change in policy decisions from national education departments can place greater demands on the growth of schools as PLCs (Reitz, 2018). Furthermore, attending to policy changes may lead to work overload and higher levels of stress and meltdown (Hargreaves, 1994). Further labelling bestowed on schools because of academic performance on national exams may contribute to poor teacher morale and feelings of ineptitude (Stoll et al., 2006) which will affect the staff motivation levels to implement change initiatives. Moreover, some schools may not possess the external professional learning structures such as access to experts and training initiatives required to create effective PLCs (Stoll et al., 2006). Therefore, these external school community factors may hamper PLCs establishment and sustainability.

The literature accentuates school leaders' need to consider the range of internal and external factors which may serve as hurdles for successful PLCs establishment and implementation. School leaders and teachers need to collectively examine these internal and external factors and seek required physical, financial, and human resources from the stakeholders to ensure the viability of PLCs. Assistance from parents, business sector, ministry of education, as well as higher education institutions and experts in the wider community can assist schools with the establishment and implementation of PLCs. Overall, the formation of networks and alliances with internal and external stakeholders would be fundamental in ensuring schools attain assistance

for requisite resources and support structures to address external and internal school factors to build effective and sustainable PLCs.

2.8.16 Summary

Educational institutions may encounter many hurdles in the development of PLCs for improving teacher professional capacity. These challenges include PLCs conceptual limitations, predominant structural and cultural systems, lack of teacher buy in, resistance to change, collaboration challenges, complexities of implementation, lack of resources, inadequate time, teachers' psychological state, overwhelming workload, inability to make data driven decisions, weak leadership structures, and school internal and external factors. An understanding of these hurdles should assist school leaders in making critical decisions regarding required structures and systematic processes which should be considered in the establishing and implementing sustainable PLCs framework to avert these articulated implementation challenges.

2.9 Impact of PLCs on Teacher Professional Development in Elementary School Contexts

There is consensus in the literature that the collective aspects of PLCs namely joint vision, collaboration, trust, distributive leadership, and collective responsibility are beneficial for sustainable professional development of teachers personally and jointly, to promote institutional competency and student learning capacity (Affandi et al., 2020; Stoll et al., 2006; Furquon et al., 2018; Hassan et al., 2018; Tam, 2015; Vescio et al., 2008). In educational settings, teacher professional development is commonly perceived as ongoing pedagogical learning. These entail exercises initiated individually and collectively to examine colleagues' teaching beliefs and

practices so as to attain suitable and varied knowledge and methods to enhance students' academic attainment (Bautista & Ortega-Ruiz, 2015; Ucan, 2016). Teacher professional development is attained through learning in PLCs contexts, and it comprises intellectual and behavioural characteristics (Gusky, 2002; Vanblaere & Duvos, 2015). The intellectual component of professional development entails modifications in teachers' beliefs, perceptions, and attitudes about students' learning; on their own knowledge, skills, and expertise, and working on the other hand, the behavioural aspects of professional development include adoption of new, varied pedagogical practices, pertinent curriculum, relevant instructional resources; and learning methods to facilitate student learning (Tam, 2015).

Educational institutions which implement PLCs realized that heightened professional practices lead to enhanced instructional practices and knowledge, collegiality and collective efficacy, and reduced isolation, and teacher leadership (DuFour & Fullan, 2013; Vescio et al., 2008). Thus, this section of the literature review will explain the impact of PLCs on teacher professional development in elementary school contexts.

2.9.1 Enhance Knowledge and Instructional Practices

PLCs supply work based professional development that is functional and pertinent to teachers' knowledge and instructional needs. According to DuFour and Fullan (2013), effective professional development occurs within the daily school operations to address practice issues. Teachers' professional knowledge is heightened through collaboration with teaching colleagues with a shared vision to improve pedagogical practices for progressive student learning (Buffum et al., 2018; Piedrahita, 2018; Song & Choi, 2017). Ongoing involvement in PLCs provides a context for teachers to have collaborative discourse, examine their teaching practices, find solutions for

student learning issues, plan together, and find suitable, innovative, and alternative research based instructional practices so as to develop knowledge and address students' needs (Barton & Stepanek, 2012; Dogan, Pringle & Mesa, 2015; Nguyen et al., 2022). Overall, PLCs promote a collective institutional culture of teaching and learning analysis to find solutions and enhance the professional capacity of teachers.

PLCs provide teachers with collective and supportive tools and instructional resources. The functional processes of PLCs enable teachers to work collaboratively and acquire a range of strategies, guidelines, best practices for student learning, application and implementation of strategies acquired from peers in their classrooms. In addition, PLCs need to utilize student data and educator reflections on pedagogical practices to monitor, examine, and modify instructional practices, as well as celebrate collective achievements which enhance student learning (Buffum et al., 2018). This extensive kit of instruction resources can steer teachers to implement novel approaches, best practices, and techniques to cater to the learning needs of students. PLCs facilitate life-long learning, advance educator professional repertoire opportunities, and are a fundamental source for mutual learning and acquisition of resources for enhancing instruction (Dimmock, 2016).

Several research investigations corroborate engagement in PLCs were found to produce positive effects on teachers' knowledge and instructional habits. As they engage in critical discourse on practices, this fosters positive modifications, enables an effective and collective school environment, and advances the community expertise to improve students' learning outcomes (Dogan & Adams, 2018; Dogan et al., 2015).

A comprehensive examination of twelve PLCs international studies by Dogan and Adams (2018) revealed that PLCs enhanced instructional practices. Dogan and Adams (2018) findings

showed teachers integrated alternative and student–centered, collective instructional approaches, formative assessment, technological and instructional tools through participation in PLCs. The enhancement of pedagogical practices was attributed to the five features of PLCs namely: critical reflection, collective learning, and supportive leadership. Similarly, Dogan et al. (2015) examined 14 studies to determine the effect of PLCs on science teachers' knowledge and pedagogical strategies. The findings of Dogan et al (2015) outlined the PLCs enhanced science educators' content and pedagogical content knowledge to shift from conventional to inquiry focused methods. Further, Sari et al. (2018) utilized a new PLCs model for primary schools to transform thirteen grade five elementary mathematics schoolteachers' knowledge and professional expertise. The findings by Sari et al. (2018), revealed that critical reflection with colleagues before, during and after instruction enhanced personal practices, instructional design capacity and pedagogical repertoire. These research investigations revealed that PLCs moved teachers from personal professional to collective engagement, increased professional functions, and assisted educators in examination of curriculum and instructional methods.

Additionally, three investigations carried out in elementary contexts produced similar findings on the impact of PLCs (Furquon et al., 2018; Sutarsih & Saud, 2019). The quantitative survey of Indonesian elementary school principals and teachers' perceptions on the effectiveness of PLCs activities in teacher professional development (Sutarsih & Saud, 2019). While Furquon et al. (2018) investigated the impact of PLCs as a tool for ongoing teacher professional development. Tahir and Musa's (2020) mixed method investigation of Malaysian rural primary school teachers' perspectives focused on the impact of PLCs on teacher professional development. The three investigations provided evidence that PLCs enhanced personal renewal abilities in the mode of knowledge and instructional methods of learning amongst teachers; increased capacity to

understand learner attributes to plan effectively; strengthened collective critical inquiry skills and facilitated the shift to varied student centered and active instructional methods (Furquon et al., 2018; Sutarsih & Saud, 2019; Tahir & Musa, 2020).

The research clearly articulates that PLCs promote professional development through strategies such as consultation, sharing of information, making collaborative instructional decisions to realize modifications in pedagogical practices and instructional design. This means PLCs create opportunities for teachers to become innovative agents by making regular instructional changes to ensure responsive instruction to meet the learning needs of students. Through ongoing PLCs sessions, teachers can develop knowledge, apply novel teaching practices, and evaluate new instructional practices to address common instructional and learning issues. The ongoing cycle of reflection on practice assist teachers to engage with PLCs members intellectually, socially, and pedagogically. Furthermore, teacher engagement in PLCs enables collective interrogation of instructional practices and expertise to analyze individual and collective teaching attitudes and beliefs. Thus, this will lead to knowledge building of PLCs members. Hence, PLCs activities enhance teachers' knowledge in subject content, curriculum and instructional design, and pedagogical knowledge. Therefore, PLCs employ job embedded mechanisms which entail constant interactions and decision making to empower teachers in the collective building of knowledge and instructional strategies for advancement of organizational learning.

2.9.2 Reduced Isolation

Another professional development benefit to establishing school PLCs is reduction of an isolation culture to develop a community culture where teachers work collaboratively to uncover functional methods to improve student attainment (Gray et al., 2015; Matthewson, 2016).

According to Matthewson (2016), PLCs promote teacher collaboration to enhance student outcomes and obtain positive results. The establishment of PLCs allows teachers to open their classrooms to the school community, share experiences, take risks, implement novel instructional techniques, and attain unlimited learning opportunities from peer interactions (Flores et al., 2015; Dehdary, 2017). According to Mertler (2018), teacher engagement in PLCs stimulated social relations among whole school, grade level teams and peers to address academic and instructional issues and professional units and deterred teacher isolation. PLCs are scheduled to provide teachers with spaces to hold conversations and plan weekly at grade or discipline or whole school level to address the needs of weaker learners through intervention plans and provide progressive instruction for stronger learners (Mertler, 2018). Hence, PLCs enable an ethos which empower teachers through ongoing professional development opportunities to heighten their instructional capacity (Marzano et al., 2016).

PLCs also foster a learning ethos for experienced and novice teachers. PLCs provide the medium for experienced teachers to share their expertise with novice teachers and gain insight into colleagues' practices and perceptions of instruction (Dehdary, 2017). Experienced and new teachers encounter instructional challenges every academic year and would necessitate the collective support of the school community. These interactions would result in identification of expert professionals with mentoring capacity for novice teachers in the school setting (Sari et al., 2018). This outcome is corroborated by Flores et al. (2015) qualitative study with seven teachers in two Mexican elementary schools which found that critical processes which occurred when senior and novice teachers had reflective and analytical discourse about their instructional practices, built community and teaching alliances. Similarly, Sari et al. (2018) qualitative study with thirteen elementary teachers in Indonesia revealed that ongoing expert and inexperienced

critical teacher discourse enhanced personal instructional design, confidence, and teaching capacity. Furthermore, PLCs processes developed collegial relations among teachers; promoted ongoing instructional design to meet student needs; connect theory and perceptions; and enhanced teacher personal learning through collective, critical discourse and examination of practices to improve student learning outcomes (Piedrahita, 2018). Moreover, the sharing of experiences between novice and experienced colleagues in PLCs renewed teachers' identity to become part of the wider school community, cultivated knowledge, and novel and alternative instructional approaches to meet the needs of the diverse student population. Overall, these sharing experiences among teachers demonstrated a practicable manner for promoting teacher professional development.

The research illustrates that PLCs promote a collaborative ethos where teachers can participate in professional dialogue and sharing frameworks which can enhance pedagogy and confidence to enact these improvements in practice. When teachers are afforded opportunities to work with peers and experts, they acquire innovative instructional awareness with regards to their own practice and that of their peers. Hence, knowledge creation can be realized through exploration of the teacher engagement in PLCs sharing activities with peers. When teachers are afforded varied opportunities to engage in sharing frameworks such as team teaching, coaching, mentoring, and lesson observation and common planning with peers, this can lead to collective learning which enhances the community members. Therefore, the ongoing activities of PLCs serve as a supportive platform for teacher generation and maintenance of responsive and inclusive instructional practices for continuous improvement at collective levels.

2.9.3 Collegiality and Collective Efficacy

Another positive outcome of PLCs on teachers is collegiality and collective efficacy. Collegiality entails an ethos where PLCs members work collectively, build respect, trust, and amicable relations (Jones et al., 2013; Tam, 2015) to become efficient workers (Sutarsih & Saud, 2019; Lian et al., 2020). Regular engagement in PLCs develops collegiality as educators meet frequently to learn, build fresh understandings, analyze, and solve issues and cultivate alliances required for the formation of a functional community (Flores et al., 2015; Pang & Wang, 2016). The PLCs strategy is grounded on the premise that if members collectively and productively participate in PLCs, collegial alliances will be formulated and this will realize joint professional efficacy in the organization (Tam, 2015; Vanblaere & Devos, 2015). Joint professional efficacy comprises teacher beliefs and collective ability to bring learning and instructional issues to the PLCs community, to get assistance, find solutions, and intensify efforts to improve student outcomes (Tam, 2015; Vanblaere & Devos, 2015). Joint teacher efficacy realized through PLCs strengthens educators' capacity to design and implement instruction and address teaching issues (Tam, 2015; Vanblaere & Devos, 2015). Therefore, effective PLCs promote a supportive school ethos which increases collegial interactions, collective efficacy, and teacher professional expertise.

Several researchers have corroborated that PLCs promote collegiality and teacher efficacy (Nguyen et al., 2022; Song & Choi, 2017: Dogan et al., 2015). Empirical research on PLCS in the global south identified three studies (Akinyemi et al., 2020; Akinyemi et al., 2019 cited in Nguyen et al., 2022) which verified that effective PLCs are built on a trusting ethos which is heightened through collective efforts of members. Effective collaborative efforts in PLCs promote educator team harmony and trust which stimulates teachers to be supportive of their peers for instruction (Nguyen et al., 2022). Additionally, Song and Choi (2017) cited three studies (Newman, 1996; DuFour, 2011; Thessin & Starr, 2011) which verified that the joint norms and collegial relations

built through engagement in PLCs learning sessions enhanced teacher collegiality and self-efficacy. The three studies identified by Song and Choi (2017), revealed that collegial school cultures emphasized collective learning and encouraged teachers to be engaged in critical examination of practices and utilize innovative instructional strategies to renew their pedagogical repertoire. Further, teachers in the three studies on PLCs, built trusting and respectful relations and supported the growth of instructional practices through continuous pursuit of novel instructional endeavours so as to enhance their professional expertise (Song & Choi, 2017). Similarly, Dogan et al., (2015) in their report on the thirteen PLCs studies had identified three PLCs studies (Jones et al, 2013; Mintzes et al., 2013; Wolhouse & Cochrane, 2009) which fostered the development of teacher self-efficacy. In the three studies, teachers indicated that PLCs interactions had increased their instructional capacity and creativity; bolstered interest and confidence in their work, promoted teachers' alliances and respect for colleagues (Dogan et al., 2015). These findings reveal that PLCs provide a space to enhance the spirit of collaboration. The ongoing participation in PLCs generates collegiality as teachers meet regularly to learn, build knowledge, and solve problems. PLCs provide the space where teachers can collectively address the instructional needs of students. When teachers effectively participate in the PLCs processes, collegiality will be the outcome which will promote collective efficacy among members. Additionally, PLCs collaborative processes can promote social relations and trust among members which can enable risk-free conditions to de-privatize teaching practices so that collective solutions and instructional practices are generated to advance students learning.

2.9.4 Teacher Leadership

Another positive outcome of educators' engagement in PLCs is the development of teacher leadership expertise. Teacher ongoing involvement in PLCs processes of shared learning, decision making, and other operational roles fostered teacher leadership (Dogan et al., 2015). The distributive leadership feature of PLCs allowed teachers to make decisions in the operational and administrative aspects in the educational contexts (Vescio et al., 2008). Tam (2015) indicated that teacher's involvement in decisions regarding PLCs processes of mentoring, workshop facilitation, and instructional and curriculum design, heightened teacher participation, creativity, and leadership capabilities. Similarly, Dogan et al., (2015) in their analysis of fourteen PLCs studies on the impact on science teachers' professional development revealed that when educators performed leadership roles as subject head and professional development facilitators this fostered the cultivation of a myriad creative strategies to increase teacher learning and thus, enhanced the professional growth of the school community. Likewise, Wilson (2016) and Cormier and Oliver (2009) emphasized that teacher leadership capability is cultivated when educators are encouraged to perform a range of roles and share their expertise to develop professional growth of the school community. Hence, an ethos of teacher leadership is promoted as teachers are assigned roles to develop efficiency in school operational and instructional practices (Dogan et al., 2015; Wilson, 2016). Overall, the development of teacher leadership in PLCs is nurtured through distributive leadership with a focus on collaborative decision making and participation for enhancement of professional capacity.

The literature clearly identifies ongoing engagement in PLCs enhances teacher leadership capacity. This occurs when teachers embrace opportunities to take on varied roles where their professional strengths and talents are shared with the school community to enhance the capacity of others to advance organizational learning. Ongoing participation in PLCs also requires teachers

to perform leadership roles aligned to the school vision and goals. Hence, PLCs advances teacher capacity to lead and chart the direction of the school aligned to the goals. PLCs allow teachers to be a part of shared leadership where they develop initiatives, facilitate sessions and other activities that will address student learning. Engagement in PLCs sessions empower teachers to work collectively to enhance organizational learning goals. Therefore, PLCs foster a learning culture because PLCs processes comprise collaboration between and among teachers and school leaders. Thus, provision of opportunities for teachers to initiate PLCs sessions and interventions provides the avenue to strengthen their competencies, bond with their peers, and grow as teacher leaders.

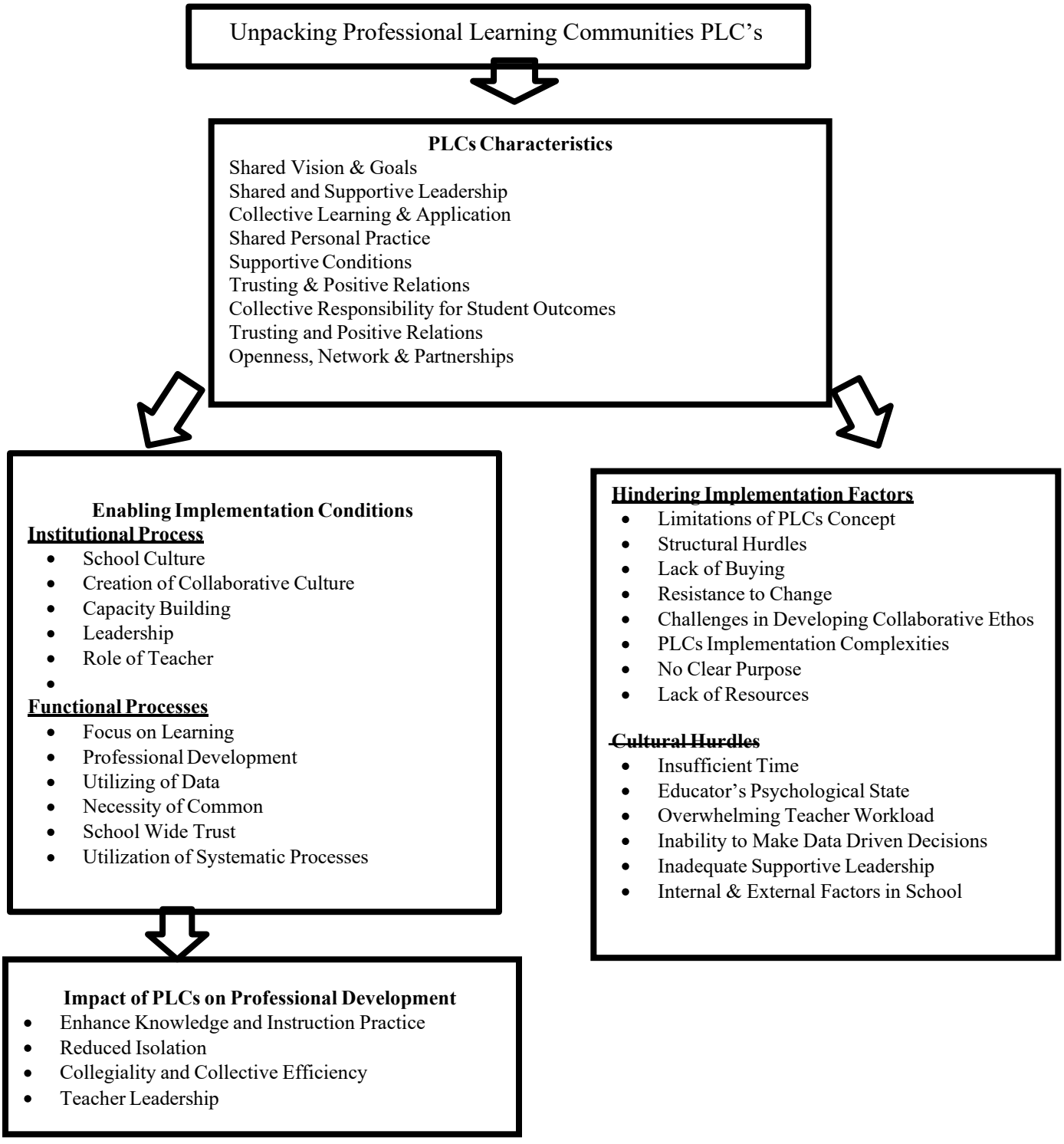
2.10 Summary

In the preceding sections, the main concepts associated with the PLCs model as a sustainable mechanism for enhancing the collective professional growth of teachers and school leaders are illustrated in Figure 2.4. This review began with the theoretical conceptualization of PLCs which is grounded in social learning and communities of practice (Wenger, 1998) and social constructivism (Vygotsky, 1978). Furthermore, the origins of PLCs as an organizational learning model (Bolam et al., 2005; Sai & Siraj, 2015; Olsson, 2019) were explored. Additionally, the three PLCs tenets of professionalism, learning, and community were conceptually unpacked and defined (Hairon et al., 2017; Sleegers et al., 2013; Olsson, 2019). Additionally, the eight characteristics of PLCs: joint ideals and vision; distributive leadership; collaborative learning and implementation; shared personal learning; and supportive conditions (Hord, 2009), shared responsibility (Little, 2006), facilitative and trusting relationships (Hipp & Huffman, 2010), and external networks and alliances (Stoll et al., 2006) were examined as framework for implementation and maintenance of PLCs. Additionally, the establishment approaches and developmental phases of PLCs were

presented. Further, the converging institutional processes of culture, capacity building and leadership, teacher roles; and interrelated functional processes of focus on learning, professional development, data utilization, common planning, reflective dialogue, systematic trust, and utilization of systematic implementation processes were explicated as the essential mechanisms for the establishment and maintenance of PLCs in school contexts (Bolam et al. 2005; Stoll et al., 2006; Dufour et al., 2016; Hassan et al., 2018). In addition, PLCs conceptual limitations predominant structural hurdles, collaboration challenges, implementation complexities, no clear purpose, lack of resources, and cultural systems, inadequate time, teachers' psychological state, overwhelming workload, inability to make data driven decisions, weak leadership structures, and school internal and external factors were outlined as hurdles in the development of PLCs for improving teacher professional capacity (Stoll et al. 2006; Murphy, 2014; Antinuloma et al., 2018). Moreover, the final section examined a range of studies which revealed that PLCs establishment in elementary educational schools positively impacted teacher professional development in the areas of instructional knowledge and practices, collegiality and collective efficacy, reduction in teacher isolation, and teacher leadership. Accordingly, this literature review unpacked the core conceptual multi -layers of PLCs which are summarized and illustrated in Figure 2.4. These core conceptual PLCs multi-layers serve as the frame for this investigation to systematically analyze the establishment, implementation, and viability of this professional development framework in three elementary settings.

Figure 2.4

PLCs Conceptual Framework



CHAPTER 3: METHODOLOGY

3.0 Research Methods and Data Collection

3.1. Introduction

The OECS Education Sector Strategy (OESS) 2012 - 2028 identified enhancement of teacher quality as the most critical factor for the improvement of elementary student learning achievement in the Eastern Caribbean Islands (OECS & USAID ELP Executive Summary, 2016). Research on teacher development in Saint Lucia and other Eastern Caribbean Islands affirmed the traditional short-term workshop professional development models utilized to enhance teacher quality were inadequate for the sustainable professional growth of elementary teachers (Mark & Murphy, 2017; OECS & USAID ELP Report 2016; OECS Report on Teacher Education, 2018; OECS, EDMU, 2019). Furthermore, Eastern Caribbean elementary teachers demanded immediate professional development intervention that would equip them with the tools and confidence to ensure good teaching theory is translated into best teaching practices (OECS & USAID ELP Executive Summary, 2016). Hence, the EDMU of the OECS Commission implemented an evidenced-based teacher centered professional development framework PLCs, based on the premise that Eastern Caribbean teachers possess great expertise and competencies which can promote the professional development movement in the OECS. The aim of this professional development model is to establish the environment for a thriving colony of teachers working towards high quality student attainment. This professional development model was designed for the elementary education sector and is in keeping with the OECS Education Sector Strategy (OESS) 2012-2028. One of the imperatives of OESS 2012-2028 is the need to improve teacher professional development with an outcome of improved teacher quality and pre-service training and professional development initiatives to be in place for all prospective and in-service teachers,

relevant to each stage of their career" (OESS, 2012-2028 p.12). The professional development model is also aligned to CARICOM Human Resource Development 2030 Strategy which focuses on the promotion of inclusive and equitable quality education and life-long learning opportunities as the main outcome for teachers and students. Consequently in 2017, to improve teacher quality and ensure sustainable professional development; OECS Ministries of Education implemented the PLCs framework in Saint Lucia and other Eastern Caribbean Islands elementary schools (OECS Report on Teacher Education, 2018). Researchers and professionals confirm PLCs as a beneficial framework to enhance teachers' expertise, student learning outcomes and school culture (Barton & Stepanek, 2012; DuFour, 2014; Dehdary, 2017; Dogan, Pringle & Mesa, 2016; Lee, Zhang & Yin, 2011; Owen, 2014; Prenger et al., 2017; Ratts et al., 2015; Warwas & Helm, 2018; Vanblaere & Devos, 2016). Despite the growing research on teacher development and PLCs globally, there is limited research on the development and practices of PLCs in Saint Lucia and other Eastern Caribbean Islands elementary schools. Thus, this study continues this line of inquiry to examine teachers and principals' beliefs on the impact of PLCs on professional development of teachers at three elementary schools in one educational district in Saint Lucia.

The purpose of this qualitative multi- case study is to investigate teachers' and principals' beliefs on the impact of PLCs on the professional development of teachers at these three elementary schools in one education district in Saint Lucia. This qualitative research seeks to gain insight into the principals and teachers':

1. beliefs of the established PLCs
2. beliefs on the implementation processes of the established PLCs
3 beliefs in the ways PLCs impact the professional development of teachers.

This chapter outlines the qualitative case study research design for this doctoral thesis to determine teachers' and principals' beliefs on the impact of PLCs on the professional development of teachers in three elementary schools in one Saint Lucian Educational district. The methodology is presented in three phases. Each phase mirrors the research processes adopted throughout this case study.

Phase One, Research Preparation Phase which present sections on:

- Research approach and design
- Review of research guiding the design
- Purposive Sampling of the three sites
- Participant recruitment
- Instrumentation

Phase Two, the Data Collection, Management, and Ethical Measures comprise sections on:

- Multiple types of evidence from the three schools: focus groups, interviews, and the sites PLCs documentation and artefacts
- Development and Maintenance of database
- Ethical Practices and Procedures
- Role of the Researcher in Establishing Validity and Reliability

Phase Three, the Methods for Data Analysis and Interpretation presents sections on:

- Data analysis
- Data interpretation processes

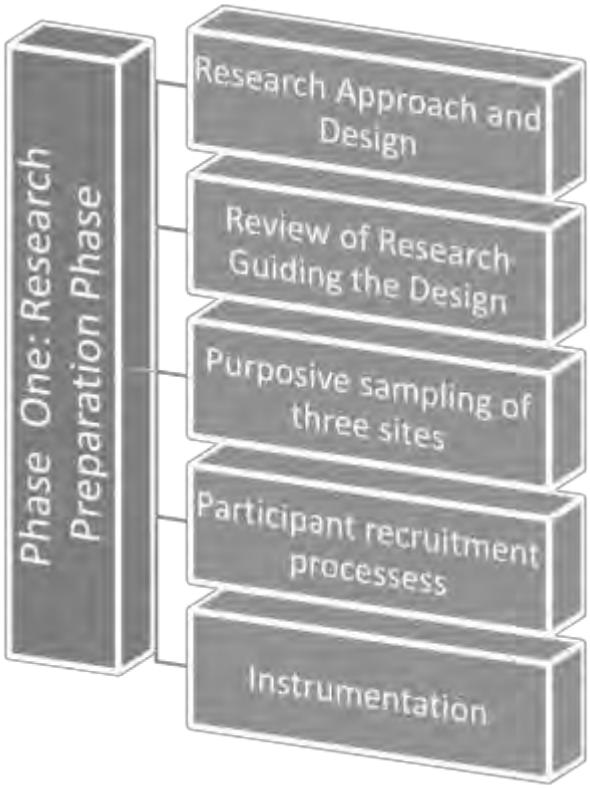
The adoption of three phases and their varied components were guided in the recommendations by Yin (2014), that good qualitative research design rest on rigorous processes which are aligned to the complexities of the social settings and phenomenon being investigated.

3.2 Phase One: Research Preparation

Figure 3.1 illustrates Phase One presented in five major sections.

Figure 3.1

Research Preparation Phase



3.2 1 Research Approach and Design

A qualitative multi-case study research design was selected for this doctoral thesis to explore educators' beliefs on the impact of PLCs on teachers' professional development in three elementary schools in one educational district. According to Pacho (2015), qualitative methods are suitable for exploring and understanding participants' histories, viewpoints and convictions within

an educational setting and time frame. Qualitative research designs provide tools for detailed understanding of complex issues within authentic settings through exploration of institutional systems and artefacts, participants' viewpoints, and researchers' capacity to draw conclusions from data collected (Yin, 2014; Persaud et al., 2019). Similarly, Yin (2014) advocated that a qualitative design is a credible, narrative approach most often appropriate for data collection on an issue from knowledgeable and proficient participants in authentic contexts. Further, Pacho (2015) asserted that qualitative research is practical and descriptive rather than inferential and provides a comprehensive understanding of the issue understudy in a specific setting. Lindlof and Taylor (2011) also claimed that qualitative approaches are receptive to social beliefs of a culture and depend on examination and explanation of individuals' actions and discourse and not measurement or statistical analysis.

On the other hand, quantitative methodology requires adherence to objectives and specific directions, while qualitative research method is a general term which incorporates a range of ways to study human beings. Literature accentuates both qualitative and quantitative research have advantages and weaknesses (Ponterotto, 2013). When researchers use quantitative methodology, standardized measures are employed to gain different perspectives and experiences situated in a restricted number of pre-established classifications (Patton, 2002). Additionally, quantitative research utilizes numerical data and statistical tests to outline or evaluate the connection between variables (Persaud, Devonish & Persaud, 2019). Furthermore, quantitative research designs are reliant on hypothesis testing, causal effect relations, and statistical interpretations (Persaud et al 2019). Quantitative approaches also explicate contemporary situations and explore correlations, as well as investigate cause effect anomalies (Gay et al., 2009). The fundamental premise of quantitative research is that things are steady and foreseeable and is measurable and

understandable, and results are generalizable (Gay et al., 2009). On the other hand, qualitative research is associated with meanings situated in different perspectives or contextual situations which are varied for individuals and groups, because there are multiple meanings and understandings in the world (Gay et al., 2009). Furthermore, the research questions were fashioned to gather beliefs and experiences, so quantitative research methods would not be able to investigate this phenomenon. Therefore, a quantitative design was not appropriate because the research questions were not measurable; and the researcher had no desire to measure variables or relationships (Cresswell, 2014) in this study. Consequently, a quantitative design would not adequately portray the beliefs of educators as accurately as a qualitative design. Hence, a qualitative methodology was utilized to gather the beliefs of research participants. The researcher is also the primary instrument of qualitative research. Thus, in this study interview data gathered was analyzed and presented through the lens of the researcher. Furthermore, qualitative methodology was apt because it facilitated the conveyance of the personal experiences of participants in school PLCs.

Marshall and Rossman (2016) state that qualitative research methodology

"Takes place in the natural world, draws on multiple methods that respect humanity of the participants in the study, focuses on the context, is emergent and evolving, and fundamentally interpretive" (p.2).

These views are supported by Nije and Asimiran (2014) who advocated that qualitative research provides deep information on the natural life realities presented as understood and analyzed by people in specific contexts (Nije & Asimiran, 2014). According to Nijr and Asimiran (2014), the way individuals infer real life experiences integrated with implicit assumptions that

regulate their actions is of importance for researchers pursuing qualitative research. The views of Marshall and Rossman (2016) and Nije and Asimiran (2014) were considered and employing qualitative research methodology was deemed quite suitable to gain insight into teachers' and principals views and experiences of educational phenomenon. Qualitative research methodology provided participants with opportunities during semi-structured focus groups and interviews to describe and elaborate on their educational experiences. Additionally, qualitative research methods facilitate participants disclosing new, emerging issues that were not initially contemplated and could unveil the complexness of the data (Lujan & Day, 2010). Thus, a qualitative case study was deemed pertinent for the purposes of this inquiry, as it permitted deeper understanding of principals' and teachers' beliefs of how the design and implementation of PLCs framework impacted their professional growth and development of teachers in three elementary settings in one Saint Lucian educational district.

3.2.2 Selection of the Research Design

The qualitative research literature outlines five qualitative research design categories which comprise phenomenological, ethnography, grounded theory, narrative, and case study (Cresswell, 2014; Bogdan & Biklen, 2007). The general characteristics of these qualitative research categories were assessed to select and develop a suitable investigation design.

Phenomenological research explores customary daily circumstances of a group of persons (Cresswell, 2014). The focus of phenomenological designs is to gain understanding of the important common daily behaviours of these persons in specific situations (Bogdan & Biklen, 2007). This study focused on three different elementary contexts which comprised distinct

organizational systems, experiences, and cultures; thus, a phenomenological design was deemed inappropriate.

Next, ethnographic design which entails the development of comprehensive, novel descriptions of customs and systems from the understanding of both the investigator and research participants was examined (Bogdan & Biklen, 2007). Ethnographic design involves immersion in a cultural setting for an extended period to attain a deeper understanding of a culture (Gay et al., 2009; Saunders et al., 2012; Astalin, 2013). The focal point of ethnographic research is the analysis of people. Ethnographic inquiry necessitates living with the people understudy (Asstalin, 2013). This study did not investigate individual human communities, nor did the research questions focus on the way of life of any society. Conversely, this research approach sought to attain principals and teachers' beliefs on the impact of the PLCs framework on their professional growth and development and did not require extensive immersion at the sites, therefore ethnography was not aligned to the purpose of this study.

Another qualitative design, grounded theory which necessitates construction of a theory when current theories are not related to the research problem, participants and procedures were also examined (Cresswell, 2014). Grounded theory design procedures include coding of extensive and distinct information, constant contrasting of data, developing classifications and devising a theory (Saunders et al., 2012). However, grounded theory was deemed unsuitable because the development of theory was not pertinent to explain or answer the research questions for this research investigation (Bogdan & Biklen, 2007).

Narrative qualitative designs are used to interpret the actual situations of research participants to generate stories and comprehensions of these experiences (Bogdan & Biklen, 2007). According to Cresswell (2014) and Litchman (2013), narrative designs explain the lives of

individuals through stories which take the form of biographies or autobiographies. This entails first person retellings to acquire deep understanding of individual experiences and events (Saunders et al, 2012). The narrative design was inappropriate because this study aimed to accumulate principals' and teachers' beliefs of the impact of the implemented PLCs framework on professional growth and development in three elementary contexts.

Case study research is another qualitative design constantly defined as "a systematic and methodological way of collecting data about a specific experience or entity, be it a person, group, institution, programme, class, or group" (McMillan, 2004, p.27). It is a flexible research design suited for broad, integrated, and detailed analysis of a critical issue, programme, or system in context (Cresswell, 2014; Yin, 2014). Case study research is effective when the aim is to explain a specific situation and attain deep insight of the phenomenon (Yin, 2014). Case study design entails usage of numerous data collection techniques within a fixed time frame. Focus groups, individual interviews, observations and analysis of documents and artefacts are commonly utilized in this design to verify and triangulate the findings (Harrison et al., 2017). Case study research is also investigative and descriptive and answers "how" and "why" questions to acquire varied viewpoints of proficient and knowledgeable participants' understandings of issues understudy in authentic settings (Stake, 1995; Yin, 2014). The aim of this investigation was to investigate elementary principals and teachers' beliefs on the impact of the PLCs framework on teacher professional growth and development; thus, case study design was considered the most effective qualitative design for attaining data to answer the research questions.

3.2.3 Justification for Case Study Design

Case study design comprises authentic exploration of a case or cases where several forms of data are examined to realize a deep understanding of the issue understudy within a setting or context (Cresswell, 2014). Many critical considerations were taken in the selection of this case study research design. The proposed research questions, sampling procedures, and data collection and analysis techniques, were in alignment with an exploratory qualitative case study research approach.

A multi-site case study design was pertinent for this investigation as it is grounded in the principles of exploring, understanding, and reporting (Saunders et al., 2012) and will portray the influence of PLCs framework on the professional development of teachers in three elementary contexts from participants' points of view. Yin (2014) explained that case study design is also suitable when either descriptive or explanatory questions such as "what happened" "how" and "why" questions connected with current issues or developments over which researchers have limited or no authority are presented. The exploratory case study design was selected as the most pertinent technique in answering the questions where the purpose of the study was to attain new insights, ask questions and examine the phenomena in a different context (Yin, 2014). In this exploratory case study, questions were formulated to elicit principals' and teachers' beliefs of the PLCs strategy, the implementation processes, benefits, challenges, and impact on teacher professional development in a developing Eastern Caribbean Island of Saint Lucia. An exploratory case study methodology was pertinent to this study as this investigation explore these "how" questions:

1. How do principals and teachers at the three elementary schools view PLCs?
2. How are PLCs created and implemented at the three elementary schools?

3. How do PLCs impact the professional development of in-service teachers at the three elementary schools in one education district of Saint Lucia?

Further, the utilization of this design sustains the principles of authentic organizational processes, actions, and programs (Yin, 2014) which are all facets of this study. According to Saunders et al. (2012), the exploratory case study design provides a detailed understanding of the research situation and procedures. Therefore, it is appropriate for exploration of the implementation of institutional frameworks to examine systems, programme structures, benefits, and challenges, to produce understandings (Ponelis, 2015) of the PLCs model on teacher professional development. This study utilized an exploratory case study design with the objective to attain information and analyze the lived experiences of people and glean explanations from their experiences (Seidman, 2013). Furthermore, exploratory case studies entail participants providing comprehensive commentary about respective experiences and disclosing actual, authentic, real-life viewpoints which may not be generalizable (Gay et al., 2009; Yin, 2014).

An exploratory case study design is also suitable for various purposes to advance the knowledge of individuals, teams, and institutions (Yin, 2014). The rationale for an exploratory case study design stems from the need to comprehend intricate and collective phenomena (Yin, 2014). Case study design also examines current social issues deeply and in authentic contexts. According to Yin (2014), case study sheds light on a single decision or sets of decisions centered on why some situations have happened or how certain processes were implemented (Yin, 2014). Furthermore, comprehension of participants, interconnections, points of view, and actions realized from specific processes are perceived as the main aim of the case study investigator (Seidman, 2013). The in-depth interpretation of case study research entails attaining knowledge and making meaning. This act of meaning making is the way in which participants comprehend their

circumstances by focusing on their beliefs, situating their beliefs, and analyzing their experiences through different degrees of insight and description (Woodside, 2010).

Data gathering in exploratory case studies is crucial because the comprehensiveness and in-depth nature of data collection procedures unravels information about the issue understudy (Njie & Asimiran, 2014). The resilient essence of an exploratory case study design also allows for different data collection and analysis techniques to carry out a research inquiry (Ponelis, 2015). Numerous data sources enhance confidence in the accuracy of the study findings (Yin, 2014). Accordingly, exploratory case study designs usually employ three data collection techniques of focus group interviews, individual interviews, document analysis, and several analytical procedures to answer the research questions (Yin, 2014). The utilization of multiple data collection techniques will promote the production of broad and more substantive understandings and accomplish richer findings (Saunders et al., 2012). Well-developed case studies utilize several types of evidence to attain coherent and logical inquiry. Additionally, it can create extensive and crucial data by conversing with well- informed participants about the phenomenon and studying their actions, documentation, and artefacts in their authentic contexts (Cresswell, 2014). Further, this exploratory case study incorporates the beliefs of participants, emulates integrity in data collection via focus groups, individual interviews, document analysis, and in the conversion and comprehensive analysis of data. This will permit unpredictable outcomes and provide relevant attention at distinct stages of the research process (McMillan, 2004).

The exploratory case study design also functions as a powerful triangulation mechanism because it can assure credibility, versatility, and relevancy (Yin, 2014). Triangulation ensures accurate information and analysis have been attained in the study (Stake, 2010). Triangulation of methods facilitates the ethical responsibility to corroborate the validity of the research process

(Yin, 2014). In this exploratory case study, triangulation will be utilized as a validation device to contrast data acquired from participant interviews and document analysis. Focus groups and individual participants' interviews are the main data sets for this inquiry, while document analysis serves as the secondary data set. These data sets enable the creation of comparable and contrasting interpretations and assessment of diverse viewpoints to cultivate an extensive representation of the phenomenon (Crowe et al., 2011), concerning the beliefs of three principals and twenty-five teachers at three elementary schools in St. Lucia. Overall, the characteristics of qualitative exploratory case study design allow for the generation of comprehensive interpretations of the impact of PLCs on teacher professional development from the vantage of participants, heighten the significance of the understandings, and bolster the combination and connection of conclusions.

An exploratory case study design was appropriate for the research questions. According to Yin (2014), when a case study is initiated utilizing a comprehensive method which encompasses a solid qualitative design, data collection and analysis approaches. The researcher used the case study technique recommended by Yin (2014) which comprised three major phases:

- Preparation of protocols for participant recruitment and data collection
- Data collection using procedures to maintain reliability and validity.
- Analysis and evaluation of data

These phases are evident throughout the exploratory case study, as the researcher followed completed several critical steps to ensure high standards were maintained throughout the investigation to produce a scholarly report.

Research utilizing a qualitative design is often aimed at the exploration, categorization, and development phases of knowledge generation; and it is expected that the findings of this research

may lead to further research (Yin, 2014). Due to the small number of sites utilized in this investigation, this exploratory case study cannot be used to draw conclusions about all St. Lucian elementary schools implementing PLCs. However, the varied data, and beliefs from teachers and principals as well as protocols established to maintain trustworthiness of data would support some specification. Hence, Stake (1995) maintains:

> Readers take from case studies a sense of the case as exemplary, with general lessons to teach. They believe themselves to be learning not just about particular people but about people who are like them, not just about particular situations but about a class of situations (p.169).

As such this exploratory case study offered insight into teachers and principals' beliefs on PLCs impact on the teacher professional development within three St. Lucian elementary schools. This exploratory case study offered a unique and fundamental contribution to the field of utilizing PLCs as a job embedded strategy to impact teacher professional development. The study processes facilitated the emergence of issues and themes from the analysis of rich data. This qualitative exploratory case study provided a unique lens into teachers and principals realities of the implementation of PLCs as a job embedded professional development framework in three St. Lucian elementary schools, with careful attention to transparency, breath, and rigour (Stake, 1995).

3.3 Population and Sample

3.3.1 Population

The population of this case study comprises all teachers and principals of three K-6 elementary schools in the Eastern Educational District of Saint Lucia which had active PLCs. The Eastern Educational District E comprise eight public elementary schools and one private elementary school. There are approximately 1800 students at the nine elementary schools. During

the period of 2018- 2020, three of the nine elementary schools piloted PLCs and engaged in several training exercises geared at tooling and re tooling the teachers. Schools within the Eastern Educational District E are led by a school principal and assigned teaching staff. Table 3.1 presents the schools elementary structure, student enrollment, as well as the number of teachers and principals assigned to the three elementary schools.

Table 3.1

Schools in Eastern Educational District Which Piloted PLCs in 2018-2020

School	Type	Student Enrollment	Total Teachers Per School	Principal
School 1	Combined	392	24	1
School 2	Primary	224	15	1
School 3	Combined	214	15	1
Total		830	54	3

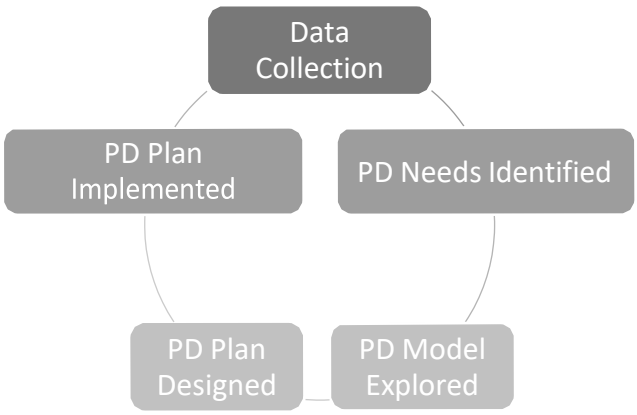
Note. Adapted from St. Lucia Education Statistical Digest 2020. Copyright Corporate Planning Unit, Department of Education, Innovation and Gender Affairs (2020).

As illustrated in Table 3.1 the three elementary schools' enrollment comprise 830 students, 54 teachers, and three principals. School One is a Combined elementary school from Grades K to 6 has 392 students and 24 teachers. School Two is a Primary School with Grades 3 to 6 and comprise 224 students and 15 teachers. School Three is a Combined Elementary School with Grades K to 6, has 214 students and 15 teachers. Each school is managed by one principal.

The three elementary schools in one Educational District in Saint Lucia established the PLCs in 2018 under the OECS ELP pilot phase of the project to enhance teacher quality and student learning outcomes. PLCs at the three sites are currently organized at a grade level or subject based level. School One has grade level PLCs, while Schools Two and Three have subject level PLCs in the core disciplines of Mathematics, Science, Language Arts, Science and Social Studies. PLCs sessions occur once weekly and entail the application of the OECS PD model implementation cycle outlined in Figure 3.2. The OECS PD model requires principals and teachers to ensure PLCs processes utilize student and teacher data from school data sources, to identify required competencies through self-reflection and professional discourse with peers. This information should then be utilized to create PD action plans in alignment with school contextual needs and school vision and mission. School PD plans should be flexible, allowing for changes as situations arise.

Figure 3.2

OECS PD Implementation Model Cycle



Note. Taken from OECS PD Model Implementation Guide 2019, p. 13. Copyright OECS, EDMU, 2019

The settings for this study are three elementary schools with established PLCs for the past two years. The three targeted elementary schools in this Eastern Educational District implemented the PLCs framework in 2018 under the pilot phase of the Organization of Eastern Caribbean States (OECS) Early Learners Project (ELP) in conjunction with the Ministry of Education in Saint Lucia. The three sites selected for the study are School One, School Two and School Three located in Eastern Educational District of Saint Lucia. Thus, Table 3.2 presents the three sites population per gender. There are three female principals and 54 teachers. School One population of 24 teachers comprised five males and nineteen females. School Two consisted of 15 teachers with three males and 12 females. School Three comprised fifteen teachers with 2 males and thirteen females.

Table 3.2

Teacher Population for Three Elementary Schools in Eastern Educational District

School Pseudonym	No. of Teachers	Principals (Female)	Males	Females
School I	24	1	5	19
School II	15	1	3	12
School III	15	1	2	13
Total	54	3	10	44

3.3.2 Sampling

A purposeful sampling strategy was used to recruit principals and elementary teachers within the Eastern Educational District. According to Suri (2011), purposeful sampling necessitates access to significant information in the field which could assist in the identification of information rich sources. Additionally, Patton (2002), advocated the precept of purposeful sampling was selection of information -rich individuals' who can clarify the research questions.

Purposeful sampling allowed study investigators to pick suitable participants who can aid the researcher in exploring and understanding the issue and research questions (Cresswell, 2014; Yin, 2014). Additionally, purposive sampling necessitates the researcher to employ understanding expertise to intentionally pick out "individuals or groups that have the required characteristics, are proficient, and well-informed about the phenomenon of interest" (Ilker et al., 2016 p. 2). It is also an efficient and fitting procedure to select a moderate sample which is representative of the population to yield reliable and essential details for a case study design (Battaglia, 2011; Cresswell, 2014).

3.3.2.1 Criteria for Selection of Sample

The selection criteria were principals and teachers who had participated in PLCs for a specified duration of 2018 to 2020. The eligible participants should have at least one year of experience in a school PLCs, and participated with fellow teachers, and school leaders to be able to supply information on their experiences and beliefs about PLCs. Exclusionary criteria would be teachers and principals who did not participate in school PLCs or had inadequate participation would not be considered ineligible. Specifically, purposeful sampling identified the principals and teachers who are part of the established PLCs for at least one to two years during the period of 2018-2020 at the three sites understudy**.**

This assured that participants have sufficient experience in a PLCs at the sites understudy to elucidate PLCs implementation processes, and their beliefs on the impact of PLCs on teacher professional development. The form of purposive sampling employed for the semi structured individual, focus group interviews and document analysis is homogenous sampling. According to Cresswell (2014), homogenous sampling is the process of intentionally choosing a location or

moderate number of participants to become part of a sample based on their possession of certain qualities that are fundamental to the research investigation. The in-depth semi structured focus groups and individual interviews were employed to sample participants who had similar experiences with the phenomena under study. Further, the number of participants selected may be also viewed as being adequate on two notions:

First, the extent to which they will represent the range of potential participants; and second, based on the saturation principle of diminishing returns- that the researcher continues to hear similar thoughts and perspectives from most or all participants and additional participants are not required for more data on the topic or issue (Gay et al., 2009 p.136-137).

3.3.3 Participants

Table 3.3 presents the breakdown of teacher assignments at three schools based on regular elementary class teachers as well as specialist teachers. The three schools comprise regular elementary school teachers and specialist teachers. School One has 18 regular teachers and 2 Physical Education specialists and one specialist in Special Education, French, Music, and Information Technology. Schools 2 and 3 each has 10 regular teachers and one specialist in the five areas of Physical Education, Special Education, French, Music, and Information Technology. Specialist teachers did not meet the criteria for this investigation as they were not involved in the PLCs.

Table 3.3

Teacher Assignment at Three Elementary Schools in 2018-2020

School	Total Teachers	Regular Teachers Per School	Specialist Teacher
School 1 Combined	24	18	6
School 2 Primary	15	10	5
School 3 Combined	15	10	5
Total	54	38	16

Note. Adapted from St. Lucia Education Statistical Digest 2020. Copyright Corporate Planning Unit, Department of Education, Innovation and Gender Affairs (2020).

Table 3.4 presents the number of teachers and principals eligible for participation in this study. As illustrated in Table 3.4, thirty-four teachers from the three schools and the 3 principals met the criteria of being active members of PLCs within the time frame of 2018-2020.

Table 3.4

Eligible Participants from Three Elementary Schools in Eastern Educational District

School	Number met Requirements	Principal Participants	Teacher Participants
School I	14	1	10
School II	10	1	9
School III	10	1	6
Total	34	3	25

Note. Adapted from St. Lucia Education Statistical Digest 2020. Copyright Corporate Planning Unit, Department of Education, Innovation and Gender Affairs (2020).

20 of the 54 teachers were excluded because they were not members of school PLCs and served as subject specialist teachers in the disciplines of Music, Physical Education, Visual Arts, Special Education, Information Technology, and French. Others excluded were new teachers who had recently joined these schools and were not active members within the required time frame. Study participants were selected based on criteria that they were active members of PLCs for a period of one to two years (2018-2020) in the identified schools and subgroups within the school. The principals of the three schools consented to participate in individual interviews while teachers consented to participate in focus groups sessions. Twenty-five of the thirty-four teacher participants who were members of school PLCs within the period of 2018 to 2020 and met the study requirements, volunteered, and consented to partake in the study which represented seventy four percent of the eligible pool. The 25 volunteers were selected to participate in the focus group sessions.

The twenty- eight (28) information-rich participants comprised 25 teachers and three (3) principals from the eligible pool of willing participants. The three principals and teacher participants are active participants in PLCs activities. The sample comprised 10 teachers at School One, nine (9) at School Two and six (6) at School Three. The researcher selected a diverse sample from the supply of eligible participants who were willing to participate according to gender, grade level, qualifications, and years of experience.

All participants clearly demonstrated the traits of functioning members of a PLCs. The participants chosen for this study have been functioning PLCs members for at least one year. The criteria utilized for selection of participants included teaching experience and assigned teaching grade levels. The levels of teaching experience ranged from three (3) years to 35 years. A wide range of teaching service experiences within the three educational institutions facilitated multiple

views on the implementation processes of PLCs framework on teaching and learning in the three K-6 schools. It also comprised principals and teachers' beliefs on the influence of PLCs on their professional growth and development.

3.4. Instrumentation

Bogdan and Biklen (2007) and Gay et al. (2009) advocate that case studies necessitate several data collection methods which depend largely on human instrumentation and enable extensive probing to acquire deep understanding into the phenomena under study. Typically, case studies employ data collection methods of interviews, observation, and document assessment (McMillan, 2004). The utilization of various data gathering tools enable triangulation, which Gay et al. (2009) advocate aid in the coding of data and yield multiple views on events, thus creating copious explanations of human actions. Consequently, in this study data was collected through individual interviews, focus groups, and assessment of PLCs documents. Focus groups and individual interviews were used to probe and explore participants' beliefs of the impact of PLCs processes and implementation on teacher development. Document analysis was also used to analyze PLCs implementation processes and activities.

3.4.1 Justification for Use of Data Collection Tools

Interviews

Interviews are the "central method data collection" for qualitative research studies (Savin- Baden & Major, 2014 p. 357). Seidman (2013) asserts that interviews should be the main data collection method in qualitative educational investigations when the aim is to attain comprehensive and deep insight of people's experiences of a phenomenon. Furthermore, various purposes have been justified for the use of interviews in qualitative studies. Merriam (2009)

advocates interviewing is critical in research investigations when it is not possible to observe practices, perceptions, impressions, or how people understand their surrounding world. According to Seidman (2013) and Stake (2010), interviews are effective data collection tools which can attain specific information about experiences of individuals in a phenomenon. Additionally, interviews are promoted as efficacious data collection tools because one can attain information about things which were not directly seen or collected statistically. Furthermore, Lujan and Day (2010), state that interviews afford participants opportunities to share viewpoints, and accommodate elaboration because interviewers can probe for deeper insight on experiences during the process. Hence, it is imperative to conduct interviews to gain insight into past events which cannot be reproduced. Thus, in depth semi-structured focus groups and individual interviews which requested contributions of beliefs, facts, and viewpoints pertinent to specific developments (Yin, 2014) were used as the main technique for gaining participants perspectives on PLCs implementation processes and impact on teacher professional development. Additionally, semi structured interview processes were employed for both focus groups and individual interviews to stay fixated on the investigation, and because they were not constrictive. According to Savin- Baden & Major (2013), semi structured interviews are flexible for researchers to deviate and probe participants on experiences that emerge during the process. Furthermore, the semi structured interview protocols were aligned to the study context and aim of interviews which elicited responses from participants that provided answers to issue understudy (Savin-Baden & Major, 2013).

Focus Groups

Semi-structured focus groups were employed to elicit responses. According to Kitzinger (1995, 1994), a focus group is a coordinated in-depth group interview method which

encompasses semi- structured open -ended questions and prompts, which depends largely on the spoken exchange between research participants for obtaining information on a topic or issue understudy. Furthermore, Gibbs (1997) asserts research participants must possess certain experiences relevant to the issue or area under study, and a semi structured interview with predetermined questions is used to investigate the lived experiences of participants in relation to an inquiry's research questions. Thus, the focus group must include semi structured and open-ended questions and prompts to ensure participation between the participants and researcher. It is organized, adaptable, consistent and occurs in a non- threatening atmosphere (Doody & Noonan, 2013). Focus groups are beneficial in generating comprehensive understandings and assessments of events, projects, and products from a purposive group of participants instead of individual interviews (Mc Millan & Schumacher, 2010). Gibbs (1997) also postulates that focus groups or in-depth interviews may serve as an individual technique, produce openings for further research, complement different data sources, and facilitate triangulation and ascertain the validity of findings. Furthermore, Kitzinger (1994; 1995) and Gibbs (1997) claim that focus groups are prompt and useful data collection mechanisms to attain data on participants beliefs, perspectives, suggestions, goals, and diverse understandings on the phenomena being investigated in a group setting. It generates occasions for researchers to hold discourse with comparable teams of participants to explore notable topics, varied viewpoints, and comprehension of their experiences to facilitate identification of patterns during data analysis (Saunders et al., 2012). The social ethos created by focus groups invigorate participants to elaborate on the viewpoints of others which creates extensive data in a systematic fashion not encapsulated in one- on -one interviews (McMillan & Schumacher, 2010). These recommendations propelled the researcher to use focus groups as one of the main data collection techniques in this case study. The use of focus groups

was fitting for teacher participants as it created a medium which facilitated participants to share their beliefs on PLCs processes as it related to professional development in a focused setting.

Document Analysis

Bowen (2009) and Dalglish et al. (2020) advocate the use of documents in case studies to corroborate findings of other data sources. Document analysis is viewed as a "cost effective, readily available, efficacious, unobtrusive, stable, and wide coverage" data gathering method (Bowen, 2009, p. 31). According to Bowen (2009), documents provide a context for ongoing operations of research participants, reveal background details, and assist researchers in comprehending the histories or origins of a phenomenon understudy. Furthermore, documents are a medium to track changes and development of a phenomenon (Bowen, 2009). Additionally, documents are affected by the research process or the researcher's attendance. Moreover, documents provide wide coverage of events, settings over different time frames and is an effective data gathering tool when it may not be possible to gather new data, or observe the events, or when participants may not remember details (Bowen, 2009). Overall, documents are cost effective as they do not have to be generated just examined for contents and quality (Bowen, 2009).

Merriam (2009) advocates documents analysis can act as a supplementary data gathering source in qualitative investigations. Bowen (2009) describes document analysis as an effective process for examining or analyzing reviewing printed and electronic documentation (p. 27). Furthermore, Yin (2014) and Stake (2010) advocate that in qualitative case studies, document analysis can provide comprehension explanations of a phenomenon, activity, institution, or intervention. Dalglish at al. (2022) also asserted that efficient analysis of documentation produces richer context and expands the efficacy of other data gathering methods such as

interviews and observations. Furthermore, Merriam (2009) pinpoints that document analysis can reveal meaning, advance knowledge, and provide perspectives pertinent to the research problem understudy.

Hence, this study utilized document analysis in combination with semi structured focus groups and individual interviews. A range of PLCs associated documentation from the three elementary schools were analyzed. This included in- house documents from the three school sites associated with PLCs processes and implementation were also collected and assessed. These documents were accumulated and stored by the organization throughout the academic period of 2018 to 2020. Gathering and examining these documents in the three school PLCs processes augmented the data accumulated through focus groups and interviews. The site's in- house documentation included but was not restricted to organizational meeting schedules, PLCs handouts, PLCs workshop slide presentations; PLCs products, PLCs Schedules; and Lesson plans. The in-house documentation was analyzed with the Document Analysis Protocol (Appendix C).

3.4.2 Development of Data Collection Instruments

Focus Group and Interview Protocols

The interview and focus group protocols found in Appendices A and B were designed by the researcher after perusal of interview and focus group protocols used in previous research, and review of literature on PLCs. The questions for teacher participant focus group and principals' individual interview protocols were generated and inspired with the ideas of interview and focus protocol schedules used in Morrow's (2010) PLCs school -based research investigations carried out on teacher perception of PLCs impact on teacher professional development. Morrow (2010)

qualitative case study investigated teachers' perceptions of PLCs as an ongoing strategy for effective professional development at one elementary school which had functional PLCs for over five years. Morrow's (2010) data was collected through focus groups, individual interviews, and participant observation. Data analysis revealed the five themes of collaborative support, ongoing learning, meaningful learning, enhanced teacher professionalism, and change agents which operated as the frame for discussion. The findings revealed teachers' participants perceived PLCs as a framework which facilitated ongoing and sustainable teacher professional development to advance student learning. PLCs motivates teachers to collaboratively utilize their competencies, skills, and knowledge to enhance student learning. The researcher received permission from Morrow (2010) to utilize the focus group and interview protocols and modify them to suit the needs of this exploratory case study. The request for permission from the researcher and email of approval from Morrow (2010) can be found in Appendix X. Some ideas from the protocols were utilized in the development of questions for focus group and interview protocols which are aligned to the goals and research question of this exploratory case study.

Additionally, the interview and focus group protocols were developed using the study's theoretical tenets of social constructivist theory (Vygotsky, 1978), and communities of practice (Wenger, 1998), as well as literature reviews on professional learning communities (Stoll et al., 2006; Olsson, 2019) on PLCs and the work of reputable PLCs authors (Dufour & Eaker, 1998; Hord, 2009; Dufour, 2014) for potential questions to include in the focus group and interview schedules. The theoretical framework, literature reviews of Stoll (2006) and Olsson (2019) and work of these reputable authors (Dufour & Eaker, 1998; Hord, 2009; Dufour, 2014) provided a comprehensive literature and insight on PLCs based on global research which demonstrated the benefits of PLCs, core PLCs characteristics, enabling conditions, challenges, ways PLCs can be

sustained, as well as important insights for future research, and recommendations for implementation of PLCs in primary and secondary schools.

Questions were constructed based on the characteristics, enabling conditions for PLCs that make up an effective professional learning, and the impact of PLCs community on teacher professional development as discussed in the literature review. The teacher focus group and principals' interview schedule were both aligned to the research questions. The questions were focused on ensuring the researcher was able to capture an accurate and complete understanding of the teachers and principals' beliefs about the PLCs implementation processes and its impact on teacher professional development. Questions were created to allow teachers and principals to report their experiences and understanding of their professional learning community processes and impact on teacher professional development and answer the three research questions:

1. How do principals and teachers at the three elementary schools view PLCs?
2. How are PLCs created and implemented at the three elementary schools?
3. How do PLCs impact the professional development of teachers at three elementary school in one education district of Saint Lucia?

The focus group and interview protocols were semi-structured and flexible which included varying degrees of questions which allowed the researcher to uncover answers to the research questions (Merriam, 2009). The use of semi structured questions provided the capacity to respond to the unfolding event, and any emerging interpretations of participants (Bogdan & Biklen, 2007) on the PLCs implementation processes, and impact on teacher professional development. The interview and focus group protocols included demographic questions to solicit information about participants' age, work experience, highest qualifications held, assigned class grades and their explanations of their beliefs on the PLCs framework, PLCs implementation processes and its impact on teacher professional development growth.

Documents Analysis Protocol

The researcher utilized the Merriam (1988) document analysis protocol found in Appendix C was used to assess the PLCs related documents presented from the three schools. The eleven questions in the Merriam (1998) document analysis protocol assisted in the examination of the documents for the qualities of "authenticity, credibility, representativeness, and meaning" (Flick, 2018 cited in Morgan, 2022 p. 69).

- Authenticity: This means determining the genuineness of the documents. The document must be analyzed for consistency in typography, handwriting, signature, contents, style of language, errors, determining if it is an original or source, confirmation of document author, date, and publication; and any other factors which may comprise its authenticity.
- Credibility: This means analyzing the document for errors, falsifications, biasness, and misrepresentations.
- Representativeness: This entails examining documents to determine if they illustrate the required characteristics or are typical examples (Morgan, 2022).
- Meaning: This entails analyzing the significance of the document's contents to determine whether the information is clearly presented and understandable. The document must be analyzed based on its value, purpose, and the context in which it was created.

In- house documents from the three school sites associated with PLCs processes and implementation which included termly meeting schedules, PLC handouts, PLCs workshop slides; PLCs products, PLCs guiding questions and action plans, and PLCs planning artefacts were collected and assessed using the Merriam (1998) data analysis protocol.

3.4.3 Establishing Validity and Reliability of Data Collection Tools

To ascertain the content validity of the focus groups and individual principal interview protocols, several steps were taken. First, the literature was previewed to ensure all items covered the content of related research questions as well as the focus of the investigation was firmly rooted in the study's theoretical framework as well as PLC research literature review. Following this, a District PLCs Coordinator reviewed the instruments for clarity of terms, choice of words used in phrasing questions and levels of ambiguity. The District PLCs Coordinator indicated that some questions on the focus group protocol were repetitive and would produce similar answers. The recommendation was to remove repetitive questions. The researcher established clarity of questions or hurdles before the interview session with study participants.

The reliability of the focus groups protocol was established by conducting a pilot test or practice session (Yin, 2014), with two teachers of another educational district. The teachers were privy to questions and the researcher realized some questions were repetitive and elicited similar responses. Repetitive questions were omitted. The researcher established clarity of questions or hurdles before the interview sessions with study participants.

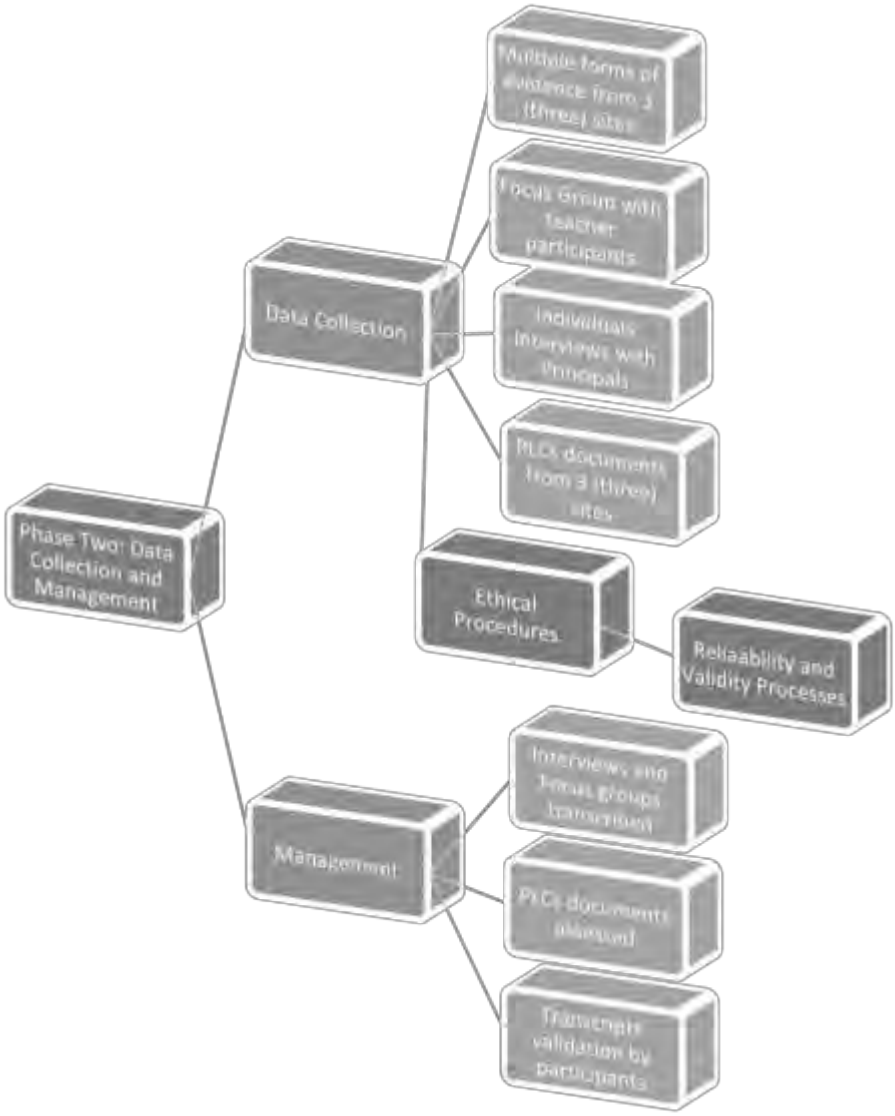
The reliability of the principal individual protocol was established by conducting a pilot test or practice session (Yin, 2014), with an elementary school principal of another school District. The principal was privy to questions and the researcher realized some questions needed to be rephrased for better understanding and quick and relevant responses. An examination of responses by the researcher indicated most questions produced reliable responses.

3.5 Phase Two

Figure 3.3 depicts Phase Two which presents data collection and management procedures, ethical procedures, and processes utilized to maintain reliability and validity.

Figure 3.3

Phase Two: Data Collection and Management Procedures



3.5.1 Data Collection Procedures

Data collection commenced once UREC permission was granted from UNICAF University on November 30, 2020. The researcher obtained site authorization from the Department of Education and Educational District Officer X (See Appendices T and U). The District Education Officer worked with the researcher to identify three elementary school sites

with established PLCs within the period of 2018 to 2020. The principals of the three schools were contacted and consented to the sites to participate in the case study. The researcher scheduled an online meeting with each school administrator and teachers to explain the purpose of the study, the requirements for participation and recruitment of interested participants. Once participants were identified, the researcher solicited the involvement of the active PLC teachers at each site which met the study requirements to volunteer to become part of the study. Following the selection of the research sample, email invitations and consent forms were sent to participants to return in hard copies or via email. Out of the thirty-four participants selected, twenty-eight (28) or 76% consented to be part of the study. To ensure the credibility of this case study, the researcher used the sample of twenty-eight (28) participants, which included 25 primary teachers and three school principals from the three elementary sites that implemented the PLCs framework in 2018- 2020.

Interviews and focus groups were scheduled within two weeks to ensure interviews were conducted at convenient periods. Participants were contacted via phone and email and given the options of times to schedule interviews after school hours. All participants agreed to focus groups and interviews via ZOOM platform due to heightened social distancing protocols. A schedule was provided, and participants selected convenient time frames. These phone conversations enabled rapport with interviewees. To maintain integrity, the purpose of each focus group and individual interview was explained, and the choice to withdraw from the study within the 4 to 6 weeks of data collection. This process enabled trust and a non-threatening atmosphere to gather data more precisely (Yin, 2014).

Participants from each school site agreed to participate in small online focus groups via the ZOOM platform. Participant anonymity was protected, and pseudonyms assigned to each

school and individual rather than using actual names. Focus groups were recorded while notes were taken. Six focus group sessions were held. Two focus group sessions were conducted for each site using the same semi-structured interview protocol (Appendix A). As recommended by Gay et al. (2009), focus groups which are too large may be unmanageable. Hence, small focus groups were utilized to ensure participants divulge varied beliefs, formulated a divergent group, and to reach data saturation (Fusch & Ness, 2015). Thus, the researcher adhered to these guidelines as focus groups were carried out via online medium using the zoom platform for a duration of forty minutes to an hour. Focus groups were no more than five participants in each instance to ensure adequate internet connectivity for high quality video and audio quality and recording; and to ensure the researcher could transcribe salient beliefs from the varied participants. Interviews were recorded to facilitate ease in coding and transcribing verbatim. All focus group sessions were transcribed verbatim and emailed to participants for revision and verification.

Individual interviews with principal participants were also conducted via ZOOM online platform at their convenience. Each principal was interviewed for a duration of approximately forty to sixty minutes. Each interview was digitally recorded to facilitate ease in coding and transcribing verbatim. All individual interviews were transcribed verbatim and emailed to participants for revision and verification.

Further, to sustain trustworthiness and veracity in this research investigation, Cresswell (2014) recommendation of semi-structured interview and focus group protocols were utilized. The semi-structured protocols were aligned to the research questions, theoretical framework, and relevant literature. Thus, all participants responded to the same questions during the focus groups and individual interviews to ascertain data saturation (Fusch & Ness, 2015).

Initially, participants responded to open-ended questions, which were successively accompanied by probing questions. This method of questioning ensured the researcher sustained focus on participants who explained their beliefs, perspectives, and feelings pertinent to the phenomena being investigated (Patton, 2002; Persaud et al., 2019). Incisive questions were utilized to urge study participants to share elaborate insights about their PLCs events. Moreover, Mc Millan and Schumacher (2010), recommend that the ideal duration for focus groups and interviews is within forty to ninety minutes as it facilitates participants the opportunity to recreate, contextualize and reflect on situations or events. Recommendations were adhered to and focus groups and individual interviews were held for the duration of approximately forty- five minutes to an hour.

PLCs documentation was gathered from each site by the principal and designated participants. Table 3.5 presents gathered documentation from the three sites. In- house documents from the three school sites associated with PLCs processes and implementation which included termly meeting schedules, PLC handouts, PLCs workshop slides; PLCs products, PLCs guiding questions and action plans, and PLCs planning artefacts were collected and assessed using the Merriam (1998) data analysis protocol (See Appendix C). These school PLCs documents were gathered to augment the data accumulated through interviews. These documents can be found in the appendices.

Table 3.5

PLCs Documents from Three Elementary Schools

School One	School Two	School Three
Sample Grade Level Units	Sample Subject Level Units	Parental Supervision Letter
Grade PLCs Weekly Schedules	PLCs Weekly Schedule	PLCs Termly Schedule
PLCs Session Artefacts	PLCs Session Artefacts	PLCs Session Artefacts
PLCs Guiding Questions	PLCs Improvement Framework	
	Resources for PLCs Facilitation	
	WhatsApp Grade Level Planning Sample	

Finally, digitally recorded material from focus groups, individual interviews and documents obtained from participants throughout the study will be stored securely throughout the data analysis process. To ascertain precise representation of collected data, participants were emailed interview transcripts to revise and confirm accurate representation of interview findings. Finally, the accumulated data will be held for five years, after which it will be destroyed. The information was safeguarded in a latched cabinet and stored on the researcher's storage drive. The focus groups, individual interviews, and document analysis data did not comprise the names of participants and institutions and the collected information is anonymous.

3.6 Ethical Assurances

UNICAF University UREC committee approved the project for this study on November 30, 2020. This case study involved human participants' which obligated the researcher to employ several reflexive ethical measures to ensure trustworthiness throughout the investigation (Yin, 2014). A range of ethical processes were reflexively employed in this study for the safety of all participants. The educational department, school sites and participants were given detailed descriptions of the research aims, techniques, data gathering processes, time frame, viable threats, advantages, measures to assure protection of participants privacy and anonymity; contact information for queries, and the ramifications of involvement in the investigation (Saunders et al, 2012; The British Psychological Society: BPS, 2010). These explanations facilitated voluntary participation, and free withdrawal from the study (American Psychological Association: APA Code of Ethics, 2002; BPS, 2010). Participants completed and affixed signatures on consent forms before interviews. Great care was also taken to avoid injury and maintain the well-being of participants (APA Ethics Code, 2002), by acknowledging human rights; safeguarding the privacy and obscurity of participants; using suitable data gathering techniques; and guarding accumulated data; (BPS, 2010; Saunders et al, 2012). Participants and organizational identities were protected by assigning fictitious names and degrees of generalities for data collection, analysis, and report writing (APA, Code of Ethics, 2002; Saunders et al, 2012). Focus group and individual interviews were conducted using semi structured protocols to ensure all participants were asked the same questions. Additionally, data collection via zoom sessions were at reasonable, unimposing, appropriate, and convenient times. Additional precautions were taken by providing only participants with zoom links for the focus and individual interviews.

The researcher also embraced five credible research recommendations of Yin (2014) " taking responsibility to scholarship by not falsifying or plagiarizing information, exercising honesty; not practicing deception, and taking sole responsibility for one's work," Hence, the researcher followed ethical procedures to accurately collect, document, and examine data; to depict accurate presentation of conclusions in an genuine account which sustains the anonymity of all participants (Saunders et al, 2012). Digitally recorded material from focus groups, individual interviews and documents obtained from participants throughout the study were stored securely throughout the data analysis process. To ascertain a precise representation of data collected, participants were emailed transcripts to revise and verify accurate representation of interviews. Finally, the accumulated data will be secured for five years, after which it will be destroyed. These details will be safeguarded in a latched cabinet and stored on the researcher's storage drive. The focus groups, individual interviews, and document analysis data did not comprise the names of participants and institutions and the collected information is anonymous.

3.6.1 Role of Researcher

The responsibility of the researcher in a qualitative investigation is to develop trustworthy and considerate connections with participants (Cresswell, 2014). The researcher focused on recognizing participants' beliefs and adopted objective and competent procedures to bolster trusting relations. The concepts of veracity, transmissibility, reliability, and confirmability advocated by Lincoln and Guba (1995) were adopted in the design and implementation of this qualitative investigation to ensure a robust, unbiased, and precise investigation.

The veracity of the procedures used in a research investigation is determined by the strategies, skills, expertise, and cogency in the field (Persaud et al., 2019; Merriam, 2009). To

ascertain quality and accuracy of evidence and data collected, pilot testing, triangulation and member checking was utilized. Acknowledged methods used in previous qualitative investigations were assessed. Data collection tools used in previous studies and the work of other reputable PLCs authors and researchers were perused for possible questions to develop the interview protocols. Further, three sources of data were gathered to provide opportunities for triangulation of data. The three sources of data augmented the assurance of the findings during the triangulation process because it was not limited to one source of information.

Transmissibility was enabled through comprehensive description of data collection procedures provided adequate background for implementation of a similar study. Focus groups and individual interviews with participants supplied teachers and principal's beliefs about PLCs implementation processes, and impact on teacher development. PLCs documentation was available from the three school sites to illustrate implementation processes. Triangulation of these sources validated the findings and confirmed the practicality for replicating or implementing a similar study in different settings.

Dependability or reliability is aligned to understanding the nature of data collection at three distinct school sites. The researcher focused on the beliefs and experiences of each participant. Member checking was also employed to confirm precise depiction of participants viewpoints of PLCS processes, and impact on teacher development.

Confirmability ensures the investigation's objectivity is captured. This was facilitated through comprehensive description of data gathering procedures for individual interviews and focus groups and in- house documents from the three sites to answer research questions and validate conclusions. Additionally, perusal of one existing focus group and interview protocol, and

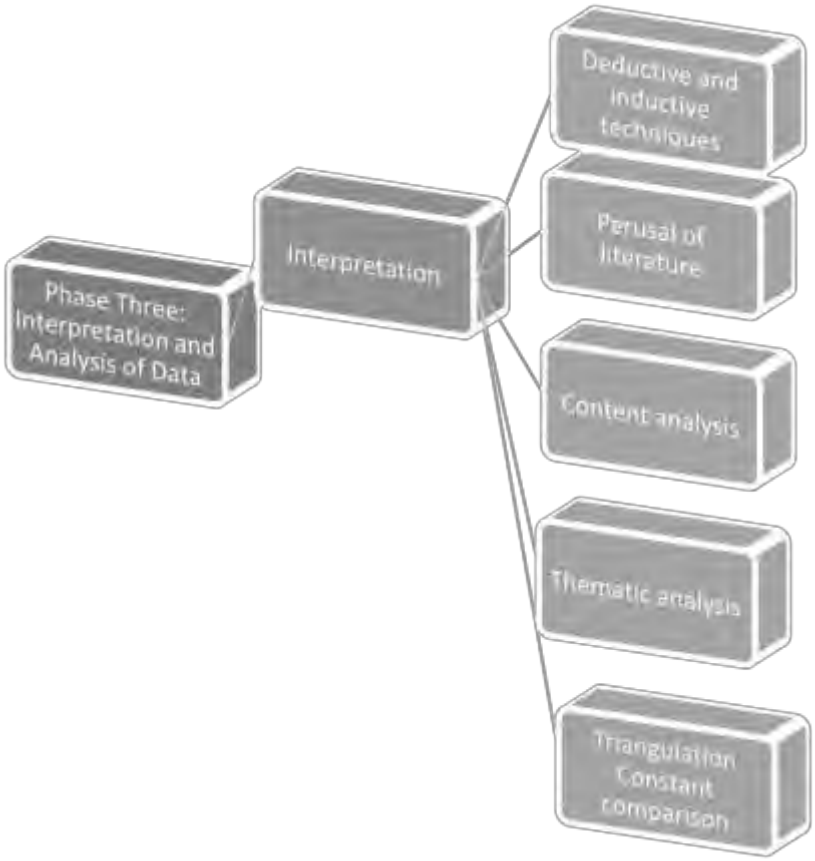
literature on the phenomenon understudy were instrumental in the adaptation and development of dependable data collection instruments.

Phase Three 3.7

Figure 3.4 depicts Phase three which entails the data analysis and interpretation processes.

Figure 3.4

Phase Three: Data Analysis and Interpretation Processes



3.7 Data Analyses

In this qualitative study, the researcher explored three research questions which solicited participants to explicate their beliefs of PLCs framework implementation processes and its influences on teacher professional growth.

The first question: How do principals and teachers at the three elementary schools view PLCs? This question was answered by focus groups and individual interviews. Research question two stated, how are PLCs created and implemented at the three elementary schools? This question was answered with focus groups, individual interviews, and document analysis. The third question was how do PLCs impact the professional development of in-service teachers at the three elementary schools in one education district of Saint Lucia? This question was answered by using focus groups, individual interviews, and in-house documentation analysis.

An amalgamated strategy which combines deductive and inductive thematic analysis (Braun & Clark, 2006) was employed for the analysis of raw data from focus group and individual interview transcripts and document assessment synopses. This approach consists of "a data driven inductive approach of Boyatzis (1998 cited in Fereday & Muir- Cochrane, 2006 p.4)", and the use of a deductive code template analysis outlined by King (2012 cited in Saunders et. al, 2012). This blended strategy supplemented the research questions and consisted of deductive coding procedures which utilized concepts obtained from the theoretical framework, relevant literature, and the inductive coding of themes which emanated from the data. Analysis involved exhaustive reading of the data to search for themes and patterns. The theme and patterns which arise out of the raw data from interviews will serve as a "form of pattern recognition that will become categories for analysis" (Fereday & Muir Cochrane, 2006 p.4). The template analysis outlined by King (2012 cited in Saunders et. al, 2012) was used to arrange

main patterns, topics or themes and synthesize data for further assessment. The template analysis was organized in a word document according to the research questions and the theoretical framework of the study (Sanders et. al, 2012). According to Saunders et al. (2012), it operated as a methodical mechanism to establish a primary conceptual framework that was consistently revisited, completed, and used as a medium to depict main themes, and interrelationships within the data.

The template was utilized as a systematic mechanism in a series of steps (Braun & Clark, 2006; Saunders et. al, 2012). Initially categories were created and assigned to data units. Next, data was coded and analyzed to examine themes, patterns, and interrelationships. Then the template depicted codes and categorizations to be displayed vertically to facilitate a logical process of showcasing the connections between codes outlined, and the various levels of codes. As data accumulation and assessment of interview transcripts and document analysis synopses advanced, the template was continuously reviewed (Saunders et. al, 2012). Accordingly, additional codes were confirmed, and their ramifications examined in connection to prior codes (Braun & Clark, 2006). The template facilitated the selection of main themes to examine and outline emanating matters that sprang out of data collection and analysis that the researcher may not have foreseen at the commencement of the investigation (Saunders et. al, 2012). The ongoing re-examination procedure assured themes were connected to coded extracts at different levels, was dependable, linked to the research questions, and themes did not overlie (Braun & Clark, 2006). The finalized template analysis facilitated the generation of a scholarly account which consisted of rich explanations of main themes, relevant data excerpts directly aligned to the analysis of research questions, and pertinent literature to complement the analysis and study conclusions (Braun & Clark, 2006).

Data triangulation was employed to promote more comprehensive conclusions. Data was triangulated to strengthen the credibility of this qualitative investigation and to prepare a report of the beliefs of participants (Yin, 2014). Data triangulation comprised the use of focus groups, individual interviews data and assessment of documentation from three distinct sites to provide insight into beliefs across all three sources of data. The task of triangulation compared the various data sources or groups to outline possible similarities and differences among the various concepts and understandings in recurring themes or patterns (McMillan & Schumacher, 2010). The procedures of data coding along with triangulation were fundamental in the analysis to answer the research questions which focused on participants' beliefs of PLCs processes and influences on teacher development.

3.8 Summary

This chapter provides an overview of the research methodology for this qualitative case study designed to determine twenty- eight educators' beliefs on the impact of PLCs implementation process on teacher growth and development at three elementary schools in one educational district. The chapter presented a comprehensive description of the case study design, population and sample, data collection procedures, ethical assurances and the techniques employed to bolster the credibility of this investigation. Proposed data analysis procedures were also discussed.

CHAPTER 4: FINDINGS

4.1 Introduction

The purpose of this case study was to examine teachers' and principals' beliefs on the impact of PLCs on their professional growth and development in three elementary schools in one educational district in Saint Lucia. The study population consisted of 25 elementary school teachers and 3 school principals. Three research questions guided the research process and findings of this inquiry. The first question focused on how teachers and principals viewed the PLCs framework. The second question addressed the design and implementation processes of the PLCs framework at three schools' understudy. The third question required educators to explain how PLCs impacted their professional growth and development. To thoroughly investigate the three questions, three data sources comprising semi-structured focus groups and individual interviews and school documentation were utilized. The school documentation consisted of PLCs guide documents, PLCs schedules and timetables, weekly instructional plans, and PLCs session artefacts.

This chapter begins with an overview of the purpose of the research investigation and its overall context. Next, trustworthiness of the data segment is presented. Then, a description of the processes undertaken to ensure reliability and validity of the data. Further, demographic descriptions of participants, and emergent theme frames aligned to the three research questions are presented. The results from the analysis of data are presented to correspond with the three research questions. Throughout the presentation of results, specific examples, and excerpts of the individual and focus group interview data and school documentation are presented to exemplify the findings which are representative of the research questions outlined in the study. Finally, the summary of the findings of the chapter is presented.

4.2 Trustworthiness of Data

Several strategies were employed in the data collection and data analysis processes of this qualitative investigation to strengthen trustworthiness. A description of data collection and analysis procedures was provided. Next, the researcher employed Braun and Clark's (2006) recommendations and implemented a deductive and inductive thematic approach and utilized a template outlined by King (2012, cited in Saunders et al., 2012). The data was organized according to the research questions and theoretical concepts of the study. The researcher also referred to the four conventional concepts proposed by explication of Lincoln and Guba's (1985, cited in Shenton, 2004) trustworthiness concepts of credibility, transferability, dependability, and confirmability which can precisely demonstrate qualitative investigations.

First, the research was carried out by the researcher and results of the investigation elicited from dependable participants involved the school PLCs and school PLCs related documents. Scheduled interviews were carried out after UREC permission was granted on November 30, 2020. The interviews began on 9th December 2020 and concluded on 19th January 2021. Six semi structured focus groups sessions, two at each school site and three individual interviews, one with each school principal were held at convenient times using the ZOOM platform due to COVID 19 restrictions. Interviewees were afforded the opportunity to skip questions or withdraw at any point during the study. Interviews included twenty to twenty-four questions and varied in length from 40 minutes to one hour and ten minutes. The transcribed data from interviews and focus groups included 71 pages. The three schools provided a range of PLCs related documents including PLCs schedules, PLCs presentation handouts and slides, PLCs guiding questions and template, and sample grade weekly plans added to the study trustworthiness. A document review protocol by Merriam (1998, p.122), found in Appendix C was utilized to analyze school documents in this

research inquiry. The protocol gave credibility to documents analyzed. These three data sources provided extensive information to answer the three research questions.

The researcher used Braun and Clark's (2006) recommendation of a blended approach which combined deductive and inductive thematic analysis to analyze focus group and individual interview transcripts and document assessment synopsis. This strategy supplemented the research questions and included deductive categorizing actions which used concepts from the theoretical framework and literature, and inductive coding of themes from the raw data. This process consisted of several phases.

The researcher utilized a coding system which took into consideration all aspects of the raw data gathered through focus groups, individual interviews, and PLCs documentation. The aim was to identify significant words, sentences, phrases, sections, or paragraphs while coding to select data which is aligned to the three guiding research questions. This coding process was based on the understanding codes would provide the base for formulating categories to generate themes. Hence the researcher commenced coding with the objective of exhaustive perusal of data to find themes which accentuate significant aspects data pertinent to research questions and representative of meaningful patterns, participant responses and meaning embedded within the data (Braun & Clarke, 2006).

During the initial phase of coding, all data sources were perused in their entirety to attain a holistic understanding. Then, manual processes of exhaustive line by line reading of focus group and interview data sources to search for themes and patterns and connections to school documentation. Potential linkages between various categories were outlined and viable categories were placed under various classifications. A template was then created as outlined by King (2012, cited in Saunders et al., 2012) and the data was organized according to the research questions in a

word document. This template was aligned with each research question to identify main patterns, topics, or themes in the data. This template was a systematic mechanism to categorize the data, analyze and examine themes, patterns, and interrelationships. Each focus group and individual interview protocol had a unique focus; hence the researcher was able to peruse swiftly through the data to develop codes, identify similarities and differences while carrying out data comparison, and accentuating repetitious words and important phrases reflective of participants responses. Furthermore, initial codes, patterns and categorizations guided by the research questions were displayed in tables to note connections among data as illustrated in Figure 4.1 and Appendix V.

Figure 4.1

Initial Codes Generated from The Data

Working collaboratively
Guided Planning forum
Different PLCs groupings
Reflection on practice
Data use
Sharing practices
Learning from others
Inadequate time
Unclear PLCs structures
Human resources lacking
Scheduled sessions
Supportive principal
Training by principals
Enhanced knowledge
Enhanced pedagogy
Trust
Confidence
Collaboration

Secondly, the researcher used initial codes outlined in Appendix V to develop focused codes by forming categories displayed using a table. This table led to documentation of themes which were existent throughout coded data through thematic analysis. The researcher recognized codes which emerged from the theoretical framework and literature review and codes which were divulged from the data itself (Marshall & Roseman, 2016). As the data accumulated and assessment of focus group and individual interview transcripts as well as document analysis advanced, the template was continuously reviewed. This template facilitated the selection of main themes to assess all issues which arose from data analysis. Identified themes served as categories for analysis. Themes or trends found within the data were sorted according to the research questions as outlined in Appendix W.

Several strategies were also employed for meaning making. Constant comparison analysis was utilized recursively to outline commonalities and differences within data sources and form interpretations. Broad themes were examined for significant patterns, redundancy and overlapping until saturation was attained. The theoretical framework and literature review was also continuously consulted during the analysis process to align research regarding the topics and themes recognized in the data. This ongoing perusal and analysis of data ensured broad themes were connected, dependable and linked to the research questions. Close reading of PLCs documents also led to alignment of documents representative of identified themes. Categorized information was then triangulated across the three data sources (individual interviews, focus groups, and PLCs documentation) to corroborate themes. The finalized template enabled creation of an account which explicated major themes, and pertinent data excerpts explicitly aligned to analyze the research questions and literature to complement the findings.

The research questions and the patterns documented throughout the systematic coding of focus group and individual interview data and document analysis were utilized to formulate a categorical frame which was sorted and recognized by the following themes according to research questions as displayed in Table 4.1. and Appendix W.

Table 4.1

Themes Generated According to Research Questions

Themes Generated According to Research Questions
Research Question1
▪ Collaborative Planning Teams
▪ Data Driven instructional decision strategies.
▪ Common planning instructional practices
▪ Continuous learning
Research Question Two
▪ Range of PLCs arrangements
▪ Data-Driven Decision making based on common goals.
▪ Shared Practices Framework
▪ School based implementation challenges
Research Question Three
▪ Enhanced instructional repertoire.
▪ Reduced isolation
▪ Collaboration and collegiality

4.1.1 Credibility

Credibility is a concept utilized in qualitative research to signify the issue understudy is precisely recognized and explained in the study (Gay et al., 2009). The credibility of the strategies employed in a research investigation depends on the techniques, expertise, proficiency, and robustness used in the field (Patton, 2002). The strategies utilized to ensure credibility are prolonged engagement, triangulation, member checking, and the use of an audit trail.

4.1.2 Prolonged engagement

Several distinct questions were posed during focus group and individual interviews on topics related to participants' beliefs on PLCs framework, implementation processes, and impact on teacher professional development. The focus groups and interviews ensured participants shared their beliefs and experiences of PLCs participation. Through focus groups and interviews, participants elaborated on their experiences through reflections, and rich descriptions of situations which occurred in PLCs participation. Participants were encouraged to support their statements with examples, and the interviewer asked follow-up questions. The researcher studied the raw focus group and interview data to identify common themes and formed categories based on data gathered and used school documentation to corroborate. Data collection for this study was conducted over a six-week period. Prior knowledge on PLCs was also acquired through review of the literature for this investigation. The researcher reviewed the data collection tools used in former PLCs research investigations (Morrow, 2010), and the work of credit-worthy PLCs researchers and authors (DuFour, 2004; Hord, 2004; 2009; Stoll et al., 2006; Olsson, 2019) were examined for potential questions to utilize in the focus group and individual interview protocols. Overall, the technique of prolonged engagement and saturation assisted in the research credibility of this

investigation. Focus groups and interviews were not restricted by any time frame, hence participants had adequate time to share their experiences and beliefs. Moreover, the aim of saturation is when the interviewer hears repeated information and there was no new or emerging information.

4.1.3 Triangulation

Triangulation was utilized to consolidate this case study. Noble and Smith (2015) affirmed that data triangulation corroborates more extensive results in qualitative research. Triangulation facilitated data integrity where multiple viewpoints from a range of sources provide a complete representation of the phenomena understudy (Houghton et al., 2013). Hence, three forms of data were collected to facilitate data triangulation. The main data sources utilized in this investigation were in-depth focus group and individual interviews and school documents. Focus groups and interviews provided an abundance of unique and wide range of understandings and experiences which could be confirmed against others from a range of people at three different PLCs schools. Further, documentation from participating schools was appraised to corroborate the details gathered in focus groups and interviews. The participation of teachers from the three elementary schools decreased focus on pertinent beliefs and factors. The three forms of data gathered at the three schools in one educational district were used in concert and increased the credence of the findings during the triangulation process because it comprised several data sets (Stake, 2010). Additionally, comparable results obtained from the three schools strengthened credibility of the inquiry. Further, the sampling of a range of participants from three different elementary school settings provided varied and reliable beliefs on the impact of the implementation of PLCs strategy on teacher professional growth and development.

4.1.4 Review of transcripts by participants

Member checking was utilized as another validation strategy (Stake, 2010), where participants were asked to revise the transcripts to verify accuracy of details (Noble & Smith, 2015; Hall et al., 2016). Furthermore, Lincoln and Guba (1985, cited in Shenton, 2004) affirmed that member checks are necessary to enhance the trustworthiness of a research inquiry. This involves participants reviewing the interview transcripts, data analysis, and conclusions to determine precision and reliability of the account (Cresswell, 2014). Member checking occurred in this investigation to ensure data accuracy. Focus group and interview transcripts were distributed to participants via email to review and amend errors, proffer supplementary information, and explicate their responses. Member checking afforded participants the opportunity to disclose their beliefs on the way data was interpreted to assure the data was a representation of their truthful experiences and beliefs and ensured no details were left out in these interpretive processes (Stringer, 2014; Hall et al., 2016)

4.1.5 Transferability

Transferability is realized when a reader of a study outlines and connects with the components of a study. Qualitative researchers assert that all aspects of an investigation are contextual and do not require generalization of findings (Gay et al., 2009). The rich focus group and interview data enables the reader to connect with the experiences of participants. These rich descriptions of participants stories and experiences can facilitate transferability when the reader is able to make connections with the context and experiences (Gay et al., 2009). Transferability is also associated with the sufficiency of the sample and saturation. Generally, qualitative studies utilize smaller samples and provide extensive and deep insights on a phenomenon (Litchman, 2013). Moreover,

transferability entails documenting the research processes in a precise and detailed manner (Lincoln & Guba, 1985 cited in Shenton, 2004), to provide other researchers who may contemplate duplicating or carrying out comparable research adequate details and extensive explanation of the research procedures. Hence, adequate details on the number of schools, participants, data collection techniques, limitations and duration of data gathering were presented. Thorough explanation of data collection methods consisted of focus groups with teachers and individual interviews with principals to attain accurate beliefs on the implementation of the PLCS framework at three elementary schools. PLCs documentation available within the three elementary schools understudy was perused to corroborate on how schools implemented PLCs framework.

Triangulation of the three data sources validated and explained the research questions and bolstered the adequacy of this study for different contexts. Further, pertinent purposive sampling was crucial to ascertain participants were representative of the population of the schools' understudy (Patton, 2003). This entailed the recruitment of authentic participants with PLCs' experiences and beliefs until thematic saturation. Demographic information was also presented to illustrate the characteristics of participants at the three elementary schools and to ensure it can be transferred to other research settings (Krefting, 1991, cited in Johnson & Saltanat, 2016). Thus, school triangulation was also achieved by the engagement of participants from the three elementary schools to reduce the impact on the study of factors aligned to one school. According to Shenton (2004) and Korstjens, and Moser (2018), when comparable findings emanate at distinct schools, these results will have higher credibility for readers. Furthermore, Dervin (1983, cited in Shenton, 2004) affirmed a study with a diverse sample of participants from varied institutions will provide a myriad of viewpoints and valid, realistic understandings on the phenomenon under study.

Moreover, prior PLCs studies were examined to determine the extent to which the researcher's findings are consistent with previous studies. The ability of the researcher to link the study findings to a branch of knowledge is an essential criterion for assessing qualitative investigations. Hence, prior studies carried out in comparable institutions with similar research problems are substantial sources.

4.1.6 Dependability

Dependability is the third concept for comprehending the evolving circumstances of data gathering at the three elementary schools. The dependability of a research investigation targets the strength and solidity of the data gathered (Gay et al., 2009). Dependability entails consistent data gathering devoid of unwarranted modifications to ascertain replication of the research process. This means being able to track and clearly explain the research investigation from the onset of the inquiry, research design and methods, data sources, data collection, and other judgments made in the field to the presentation of the findings. The rationale for sustaining record of research processes for data collection is to ensure readers can track the evidence from the onset until completion of the study (Yin, 2014). The sustenance of succinct and comprehensible authentication accentuates the decision paths taken throughout the investigation which ensures transparency of the processes undertaken (Noble & Smith, 2015). Thus, several techniques as outlined were used to ensure a transparent data collection journey occurred.

- First, to ascertain dependability, the researcher reviewed and referenced empirical research (Bolam et al, 2005; Newmann & Whelage, 1995; Stoll et al., 2006; Olsson, 2019) which focused on the implementation of PLCs in different school settings.

- Furthermore, a case study repository was developed to organize and maintain track of data collected for case studies (Yin, 2014). Qualitative case studies realize extensive data. Hence, a repository with electronic and hard copies of files with interview and focus group transcripts and PLCs documentation were managed, and the major aim was to protect the gathered data in a recoverable way (Yin, 2014). For this case study, audio recordings, transcriptions and PLCs documentation were stored electronically on a thumb drive and google drive. Ongoing data analysis processes which illustrate coding and identification of themes were also stored electronically. The development and management of a case study repository enhances the reliability of qualitative case study investigations (Yin, 2014).
- Additionally, the adequacy and dependability of the research plan was also analyzed through a form of field testing referred to as pilot testing (Gay et al., 2009). Pilot testing was employed as a technique to determine the appropriateness of semi- structured interview schedules. Several researchers confirm that pilot testing is a modest try out of the study plan, which entails examination of the plan, recruitment techniques, sample accessibility, and the sufficiency of data collect tools (Doody & Doody, 2015; Yin, 2014). Pilot testing is a crucial process which ensures possible hurdles can be averted before the actual study is initiated (Doody & Doody, 2015; Yin, 2014). Hence the adequacy of semi structured focus group and interview schedules was analyzed for question clarity, construction and sufficiency and alignment to the research questions. Three individuals at another elementary school, one principal and two teachers, and one expert who were actively involved in PLCs but not part of this study provided feedback on the

interview and focus group protocols questions via telephone and email. These four individuals supplied information on the suitability of questions to answer research questions. There was consensus that questions were generally clear, logically organized, would solicit required information, and the number of questions were reasonable for an hour interview. Furthermore, in cases where questions were repetitive or elicited similar information, it was recommended these repetitive or similar be questions removed.

- Moreover, the researcher provided comprehensive explanations of the research design and processes, data collection techniques and results which were scrutinized for weaknesses.
-

4.1.7 Confirmability

Conformability pertains to the objectiveness of the investigation. According to Gay et al. (2009), conformability is the capacity to peruse data objectively and neutrally. Several mechanisms were instituted to ensure the findings are the experiences and beliefs of participants, rather than the viewpoints of the researcher. Documentation from the three elementary schools and information from participant focus groups and interviews were used to support interpretations. Triangulation of the three data sources from three different elementary schools were utilized to lessen data bias. Further, an audit trail was instituted to document the systematic and conceptual actions of the inquiry, and as a mechanism to validate the data and trace the research processes described (Cohen & Crabtree, 2006). Moreover, data was safeguarded and secured by password on the researcher's storage device. Secured data consisted of interview recordings, interview transcripts, organizational documentation on PLCs, data results, and document analysis. Adequate

evidence corroborated the themes and supported the study findings. Adequate evidence was attained from rich data gathered from semi-structed individual and focus group interviews, and document analysis. Furthermore, the study established the coherence and fidelity of the data collection through comprehensive and deep authentication of the research process. These actions were critical because research processes and results can be audited when other researchers can track the decision processes, data, and results to make comparisons (Sandelowski, 1986 cited in Nowell et al., 2017; Korstjens & Moser, 2018).

4.2. Reliability and validity of data

4.2.1. Reliability

Reliability is attributed to the quality and cohesiveness of data collected in the study. According to Silverman (2009, cited in Leung, 2015), this should consist of consistent comparison of data, rigorous analysis and verification of data sources, and extensive data utilization inclusive of tables. Examining the reliability of the research findings necessitates researchers to draw conclusions about the integrity and adequacy of the methodology and completeness of the findings (Noble & Smith, 2015). Qualitative research has been considered as a research method with inadequate scientific precision and weak clarity in the analytical processes because of the reliance on personal viewpoints and researcher bias (Noble & Smith). Hence, the researcher followed Noble and Smith (2015) recommendations and utilized a range of methodological techniques which assured the trustworthiness and reliability of the study. Thus, this study utilized a precise, multiple source data gathering process which consisted of individual interviews, focus groups and school documentation. Data excerpts aligned to research questions were presented and school documentation included in the appendices for verification. Thus, other researchers can easily track

the course of this clearly outlined and documented data collection process. Furthermore, Yin (2014) recommended the use of thorough protocols with each focus group and individual participant which ensures opportunities to respond to the same questions. To ascertain reliability of data gathering tools, the focus group protocol was pilot tested with two teachers and the individual interview protocol with one principal of another school in the educational district not included in the sample. Examination of responses to questions on both interview instruments appeared to elicit appropriate and reliable responses. Then, the same focus group and individual protocols were used with participants to ascertain comparable data was gathered. Further, a document analysis protocol developed by Merriam (1998) was utilized to ensure authenticity of school documentation (Appendix C). Additionally, school documentation supplied by participants consisting of PLCs schedules, guiding questions and action plans, unit and lesson plans, PLCs presentations and artefacts were utilized to corroborate interview data and formulate conclusions which answered questions with precise details. Moreover, Yin (2014) and Patton (2002) affirmed that data triangulation is a fundamental aspect of the research process utilized to regulate bias. Hence, the three data sources were triangulated to determine the results. Likewise, interviews and focus groups from the three elementary schools supplied a variety of beliefs, experiences, and understandings from the lens of teachers and principals. Therefore, comprehensive data gathered through a well-defined report augmented the reliability of the findings (Yin, 2014) of this qualitative study.

4.2.2. Validity

Leung (2015) affirmed validity in qualitative investigations indicates suitable data collection tools, procedures, and data. Additionally, research questions must be aligned to the

research design, sampling methods, and data analysis to present valid results and interpretations from participants in the study context (Leung, 2015). Validity in a qualitative investigation indicates how the findings of the study can be transferred from sample to the population and the precision of instrumentation in carrying out the study. Validity processes also entail gathering of various forms of data, triangulation, review of data analysis by experts, expert review of developed instruments and pilot testing of instrumentation (Noble & Smith, 2015).

To ascertain the content validity of questions on the focus group and individual protocols, several steps were taken. First, the PLCs literature and existing instruments were previewed to ensure all items on the instruments covered the content of the related research questions. Next, focus group and individual interview protocols were reviewed by PLCs experts and questions appraised in terms of clarity, choice of words, phrasing, and levels of ambiguity to ensure participants would comprehend what was being asked. Then, the focus group protocol was pilot tested with two teachers and the individual interview protocol with one principal of another school in the educational district not included in the sample. Examination of responses to questions on both interview instruments appeared to elicit appropriate and reliable responses.

Validity is also established when the findings of the research inquiry are corroborated with evidence (Yin, 2014). Hence, the researcher clearly outlined the sample to ascertain contrast with other samples. Correspondingly, validity of qualitative research consists of several data sources. This study included three data sources of focus groups and individual interviews from 28 participants and school documentation to provide a combination of varied data. Qualitative research is also validated based on trustworthiness of results from the viewpoint of participants (Noble & Smith, 2015). Therefore, participants perused transcripts to ascertain accurate

representation of participants' beliefs. Moreover, the data analysis was reviewed by an expert to ensure details presented corresponded with research questions.

4.3. Results of Findings

This section presents demographic information and findings organized by research questions to explain the phenomenon understudy. The researcher utilized data from focus group and individual interview and school documentation to present findings aligned to answer the three research questions.

4.3.1 Demography of the respondents

Questions 1, 2, 3 and 4 in the focus group protocol were used to collect demographic information on the focus group participants while Questions 1, 2 and 3 of the individual interview protocols were for principal participants. Demographic results for Schools 1, 2 and 3 were presented in Tables 4.1 to 4.3 according to participants' gender, grade assigned or position, number of years of experience in teaching and highest academic qualification.

School One, I was assigned the pseudonym Albert Elementary. All participants at School One were currently and actively part of PLCs for two years. Focus group and individual interview responses revealed the number of years of teaching experience at School One, Albert Elementary ranged from eight to thirty-four years. Teachers and the principal at School One were in the age range of thirty-five years to fifty-two years. Participants taught grades K, 1, 2, 3, 4 and 6 and possessed academic qualifications consisting of Certificate in Primary Education, Associate Degree in Primary Education (ADE), Bachelor of Education Degree and Master of Education degree. Demographic details for School ONE are outlined in Table 4.2. The School One principal

and teachers were assigned code SC1which represents school one as well T which represents teacher, and P which represent principal, as well as assigned numbers illustrated in Table 4.2.

Table 4.2:

Demographic Information for School One: Albert Elementary

Participants	Age	Gender	Grade	Years of Experience	Position	Highest Qualification
SC1_T1	36	F	K	11	Teacher	Certificate Primary Ed
SC1_T2	37	F	1	12	Teacher	M Ed
SC1_T3	35	F	6	8	Teacher	Certificate Primary Ed
SC1_T4	49	F	3	29	Teacher	Certificate Primary Ed
SC1_T5	36	F	2	15	Teacher	B Ed
SC1_T6	46	F	4	24	Teacher	B Ed
SC1-T7	40	F	1	13	Teacher	Certificate Primary Ed
SC1_T8	52	F	K	33	Teacher	B Ed
SC9_T9	46	F	6	18	Teacher	M Ed
SC1_T10	49	F	6	17	Teacher	Certificate Primary Ed
SC1_P	40	F	-	3	Principal	M Ed

School Two was assigned the pseudonym Bromfield Elementary. All participants at School Two were currently and actively part of PLCs for a minimum of one year. Focus group and individual interview responses revealed the number of years of teaching experience ranged from two to thirty-two years. Teachers and the principal at School Two were in the age range of twenty-seven years to fifty years old. Participants taught grades 3, 4, 5, and 6 and possessed academic

qualifications from Certificate in Primary Education, associate degree in Primary Education, Bachelor of Education Degree and Master of Education degree. Demographic details for School Two, Bromfield Elementary are outlined in Table 4.3. School Two principal and teachers were assigned code SC2 which represents School Two as well T which represents teacher, and P which represents principal, as well as assigned numbers illustrated in Table 4.3

Table 4.3:

School Two: Bromfield Elementary Demographic Information

Participants	Age	Gender	Grade	Years of Experience	Position	Highest Qualification
SC2_T1	28	F	4	5	Teacher	ADE Primary Ed
SC2_T2	50	F	5, 6	32	Teacher	B Ed
SC2_T3	31	F	4	3	Teacher	ADE Primary Ed
SC2_T4	30	F	4	5	Teacher	ADE Primary Ed
SC2_T5	27	M	4	2	Teacher	ADE Mech Engineering
SC2_T6	46	F	4	20	Teacher	B Ed
SC2_T7	49	F	5	31	Teacher	Certificate Primary Ed
SC2_T8	33	F	5	1	Teacher	B Ed
SC2_T9	26	M	3	5	Teacher	ADE
SC2_P	37	F	-	3	Principal	M Ed

School Three was assigned the pseudonym Cameron Elementary. All participants were currently and actively part of PLCs for a minimum of one year. Focus group and individual interview responses revealed the number of years of teaching experience at School Three,

Cameron Elementary age ranged from two to thirty-two years old. Teachers and the principal at School Three were in the age range of thirty-five years to fifty-one years. Participants taught grades K, 1, 2, 3, 4, 5, and 6 and possessed academic qualifications consisting of the Associate Degree in Primary Education, Diploma in Teacher Education and Bachelor of Education degree. Demographic details for School Three are outlined in Table 4.4. School Three principal and teachers are assigned code SC3 which represents School Three as well T which represents teacher, and P which represents principal, as well as assigned numbers illustrated in Table 4.4.

Table 4.4:

School Three Cameron Elementary Demographic Information

Participants	Age	Gender	Grade	Years of Experience	Position	Highest Qualification
SC3_T1	39	F	3, 4	10	Math teacher	B Ed
SC3_T2	37	F	K	9	Class Teacher	B Ed
SC3_T3	40	F	5,6	21	Literacy Teacher	B Ed
SC3_T4	35	F	3, 5	8	Science Teacher	Ass. Degree P Ed
SC3_T5	51	F	1, 2, 6	34	Literacy Teacher	Diploma P Ed
SC3_T6	37	F	3, 4	18	Literacy Teacher	B Ed
SC3_ P	50	F	-	9	Principal	B Ed

4.3.2. Research Question One: How do teachers and principals at the three elementary schools view PLCs?

The first research question focused on teachers and principals' beliefs of the PLCs framework implemented in the three elementary schools located in one educational district. Data

collected for this question were obtained from teacher focus group questions 6, 10 11, 21, 23 (Appendix A) and principal individual interview questions 4, 5, 7 and 8 (Appendix B) which examined teachers' and principals'' descriptions of PLCs, beliefs on the PLCs framework functions in their schools, and effects on teacher professional development. Participant's interpretations which emerged from the focus group and individual interview data and school PLCs artefacts were organized according to Schools One, Two and Three in the context of four themes: collaborative planning team, data driven decisions focused on enhancing student success, common instructional practices, and continuous learning.

Theme 1: Collaborative Planning Team

A central theme that emerged from the focus group and individual interview transcripts were the descriptions of PLCs as collaborative planning teams. This theme emerged because PLCs were frequently described by study participants as a space for collaborative planning. This included grade level, and subject specialization school teams which engaged in collective reflection on instructional outcomes, sharing of ideas, best practices and experiences which can be used to improve instructional practices to enhance student achievement. Excerpts of evidence describing PLCs as collaborative planning teams from Schools One, Two and Three focus group participants and principals are outlined below.

School One participants consisted of nine teachers and the school principal. Focus groups with teachers was held on December 9, 2020, and the individual interview with the principal on January 4, 2020. Three teachers and the principal provided descriptions of PLCs as collaborative planning teams.

School One Teacher Eight, a Grade K teacher for thirty-three years described the PLCs framework as:

> *"PLCs framework is a good one. Teachers can come together and plan for their classes as a grade. And thrash out ideas and share best practices."*

School One Teacher Six, a schoolteacher for twenty-four years and a Grade Four teacher also commented that:

> *"PLCs are an opportunity to collaborate to put our best foot forward. Because teachers do not know everything, you get ideas from colleagues, collate these ideas, and use them in class. PLCs are a good venture, cooperating with colleagues at a grade level … gives you a wider range of knowledge of practices which can be incorporated into your lessons to make it meaningful."*

School One Teacher Seven, a Grade One teacher for thirteen years also indicated:

> *'We shared best practices; methods or activities which worked would be shared with the group or grade. Share other ideas. Collectively make adjustments or modify activities to suit the needs of students."*

On the same issue the principal for Schools One Principal, who has served in this post for three years, made this statement.

> *"Generally during the PLCs, the teachers share their experiences about different things. In terms of learning objectives, student behaviour, student response, teacher challenges. It is kind of a reflection time. PLCs are driven by teacher reflections on practice; entails collaborative planning on a grade level."*

School Two participants consisted of nine teachers and the school principal. Focus groups with teachers was held on December 28, 2020, and the individual interview with the principal on January 20, 2020. Two teachers and the principal expressed their beliefs on PLCs as collaborative planning teams.

School Two Teacher Four, a Grade Three teacher for five years described PLCs as

> *"Since PLCS focused on student learning there was great collaboration, interactions. Teachers shared their experiences. They also shared their strategies, what worked for them and what did not*."

School Two Teacher Seven, a Grade Four teacher for thirty years indicated that PLCs added:

> *"It is meaningful because sometimes you learn from the other teachers and it's a time for us to reflect on best practices."*

On the same issue, School Two Principal, who had held the post for two years made the following statement on the purpose of the PLCs framework:

> *"With PLCs, there are some things the teachers do not understand, they share and discuss issues with colleagues. Even the suggestions, the strategies that are being shared in terms of best practices for teaching concepts, and even best practices in classroom management."*

School Three participants consisted of six teachers and the school principal. Focus groups with teachers was held on December 16, 2020, and the individual interview with the principal on January 5, 2020. Two teachers made statements on PLCs as collaborative planning teams.

School Three Teacher Five, a teacher for thirty-four years, Language Arts specialist for Grades 1, 2, and 6 provided this functional description of the PLCs framework:

> *"Purpose of PLCs is to plan and discuss difficulties, to suggest ideas, and to support each other. PLCs help you realize or recognize sometimes you are not the only one. PLCs provided insight into other peers' experiences, differences, and similar pedagogical issues."*

School Three Teacher Six, a teacher of eighteen years, and Language Arts specialist for Grade 3 and 4 Language Arts described PLCs as a collaborative arrangement.

> *"PLCs are where teachers come together to bring ideas that they can use to assist their students."*

Theme 2: Data driven instructional decisions geared towards enhancing student outcomes.

The second theme associated with research question one is data driven decision making geared towards improving student outcomes. This theme emerged because many participants consistently articulated student and teacher data was a driving factor in PLCs to make instructional decisions to enhance student learning. Focus group and individual interview participants' responses affirmed that a major function of PLCs was data driven instructional decisions aimed at advancing student attainment. These decision-making processes consisted of examination of student data and critical examination of pedagogical methods to modify teaching practices and design instruction to meet student needs. Excerpts of evidence which indicate a major function of PLCs was data driven instructional decisions aimed at advancing student attainment PLCs from Schools One, Two and Three participants are outlined below.

Three teachers and the school principal from School One made the following statement on PLCs serving as a mechanism for decision making processes geared towards enhancing student outcomes.

School One Teacher Ten has seventeen years' experience and is a Grade 6 teacher indicated that PLCs decision making entailed:

> *"Discussing how we could improve the learning situation for slower students. Thrashing out ideas, how we can group students/ or break up for literacy, numeracy and regroup for Science".*

School One Teacher One, a Grade K teacher with eleven years' experience commented that:

"Sometimes we shared best practices; methods or activities which worked would be shared with the group or grade. collectively, make adjustments or modify activities to suit the needs of students".

School One Teacher Two has taught for twelve years and is a Grade One teacher, providing further insight into grade level decision making in PLCs.

"It is a session where we meet and plan. We sit and discuss what we are going to do for the week. We thrash out ideas. Whatever works well we share it. Our best practices. What may work for slow children? What may work for more advanced students? When we get our activities or what activities can work for whatever topics we are doing. Based on what we plan for the week we come up with instructional activities.

School One Principal comments also affirmed that PLCs decision making were based on data from assessment of teacher pedagogical methods and student outcomes.

"PLCs are data driven, based on reflections and needs of students/ teachers."
"Having people open up about what is going on in the classes and not just sharing a worksheet. Also, you have to bear in mind that data informs the PLCs.
For example, at the end of Grade K, I go through scripts, do error analysis; and noted, not one girl could spell the word "girl". Data driven analysis/ reflection and PLCs are forcing teachers to improve and grow."

Statements from three teachers and the principal for School Two outlined PLCs as a mechanism for decision making processes geared towards enhancing student outcomes.

School Two Teacher One, a Grade Four teacher for five years indicated that PLCs decision involved the following processes:

"We would discuss progress, how well students understood concepts. We would share strategies that worked. So, you would find sometimes we would adopt the same strategies across all grades. So, when they would continue using this strategy as they move up the grades."
"When you reflect with your colleagues, you really get to dig into your lesson. You really get to understand what the children do not understand. Sometimes

> *through discussion, you realize your students do not understand. What can I do to help my students, reflect and be deliberate with planning?"*

School Two Teacher Three, a Grade four teacher who had taught for eleven years, shared this comment about PLCs as a framework.

> *"They create an avenue for teachers to further reflect on their practices and make adjustments where necessary as it relates to student learning."*

School Two Principal also provided insight into the levels of decision-making which occur within the context of PLCs.

> *I think collaboration, sharing, and analyzing because if you have data, it gives you some time to go through what you have done so you can literally inform instruction for the next week. It helps teachers be reflective on a structured level. It can help connect. Whatever is happening at Grade 3 level/Grade 4 level. When you have those collaborative moments, you can literally put the plugs together and the links together to ensure there is continuity from one to the next. Whatever is being done at the upper grades is done at lower grades.*

Three teachers and the principal of School Three shared added their beliefs on PLCs serving as medium for instructional decision-making to enhance student outcomes.

School Three Teacher Five, a Language Arts Specialist Teacher for upper and lower school grades also commented PLCs facilitated collective data driven decision making to meet the needs of learners.

> *"Basically, it was to plan to see what pedagogical issues there are and to find ways staff members can help their peers or each other to reach the students."*
> *"Student data, weekly exams, and classwork are used as sources to plan PLCs at the beginning of each term. However, during the term there is not adequate time for deep analysis of data to spur further PLCs."*

School Three Teacher Six has eighteen years' experience; a Grades 3 and 4 Language Arts teacher described data -based decision-making processes in PLCs as:

> *"It is a whole school approach where teachers come together to look at a particular area such as Language Arts, vocabulary building. We looked at strategies that could be used to develop students' vocabulary because it was a sore point in our school."*

School Three Teacher Three, a Grade 5 and 6 Language Arts teacher with twenty-one years teaching experience also commented on the data driven decision making processes which occurred in PLCs to address student needs.

> *"If we have a weakness in a certain area, it would be organized to address weakness in the areas. Math, Science and L. Arts teachers meet separately to talk fortnightly to discuss pedagogical strengths, weaknesses, difficulties in reaching students."*

School Three Principal, who has held this post for nine years also provided an example of collective data decision making which occurs in her PLCs sessions.

> *"We even went as far as going through random scripts or classwork of classes after instruction to identify areas of weakness and monitor growth. I work collectively with teachers to identify issues using data from scripts*."

Theme 3: Common instructional planning practices

A third theme associated with research question one is common instructional planning described as another core function of PLCs framework by participants. This theme emerged because school participants frequently described PLCs as a forum for weekly common planning at grade and subject levels. Interview and focus group responses and school artefacts in the form of grade instructional weekly plans provided by Schools 1 and 2 (Appendix D and E) showed

common instructional grade level planning is a major aspect of PLCs at the three schools. This entailed individual grades collaboratively creating weekly instructional plans for the core subject areas of Language Arts, Mathematics, Science, Health and Family Life, and Social Studies. Various participant comments from Schools One, Two and Three and artefacts in the form of weekly instructional plans from the three schools (Appendices D and E) indicated common instructional planning is a major function of PLCs.

School One Teacher Ten, a Grade 6 teacher described PLCs instructional planning sessions as a forum to:

> *"Meet to plan, discuss what are the best activities, ideas for assigned students. Exchanging ideas in terms of webpages and or activities which can be used to facilitate learning. PLCs were done at a grade level."*

School One Principal described the common instructional practices of PLCs sessions:

> *"So, this is essentially what happens during PLCs. They look at objectives, the goals, and the planning aspect of it. What is to be done/ how to go about it? What are the challenges? Both teacher and student wise challenges."*
> *"PLCs are usually held at Bi grade or grade level. This means two grades hold PLCs together. Some grades meet individually. Like Grade K. grades 3 and 4 and 5 and 6 plan together."*

School Two Teacher Five, a Music specialist and Grade 4 teacher described the common planning procedures of PLCs at his school.

> *"When Covid19 arose and specialized teaching stopped, I was assigned to a Grade 4 group of students. We met and planned as a group. Every teacher did their bit. Some planned Science, Language Arts, and other core subjects. We looked at subjects together and we discussed what topics we should focus on and then we went on individually to plan lessons and then passed it to others for discussion so everyone could see. And so, everyone could give their input. We then agreed that this is the approach which would be taken to teach concepts."*

School Two Teacher Three, a Science Specialist and Grade 4 teacher also confirmed that common instructional planning is an aspect of PLCs.

> *"When I specialized in science, the way the upper grades science teacher and I worked. We did the same topics. For example, whatever topic I did in Grades 3 and 4, he would do the same in Grades 5 and 6. If I was doing Weather in Grades 3 and 4, the upper Grades 5 and 6 would also do weather. So, we stuck to the same topic because it's a spiral curriculum. So, we were always on par/ same page. We made sure the entire school focused on one topic at all grade levels."*

School Two Teacher One, a Mathematics Specialist and Grade Four Teacher, also affirmed that common instructional planning was a core element of PLCs sessions:

> *"When we did plan, we did it according to subject areas, and I taught mathematics. When we met, we would discuss progress, how well students understood concepts. We would share strategies that worked. So, you would find sometimes we would adopt the same strategies across all grades. If everybody was using the same strategy, then the students do not always have to learn something new. For example, if a table was used as a strategy to assist with teaching the concept of place value. It would then be used to teach place value in all grades. So, when they would continue using this strategy as they move up the grades. I think for Science we did the strengths and weaknesses of students as well."*

School Three Teacher Three, a Language Arts teacher for Grades 5 and 6 also described the common planning which occur in subject specialization PLCs teams as:

> *"Math, Science and Language Arts teachers meet separately to talk fortnightly to discuss pedagogical strengths, weaknesses, and difficulties in reaching students."*

School Three Teacher One, a Mathematics teacher assigned to Grades 3 and 4 commented on the grade level planning processes:

> *"There was a lot of discussion on how to frame objectives, how to order objectives, and how to present various activities to ensure students would learn."*

Theme 4: Continuous learning

Another theme associated with research question one is continuous learning. This theme emerged because participants from the three schools consistently articulated PLCs were space for sharing ideas, knowledge, and pedagogical practices with colleagues which facilitated ongoing learning. Several participants described the PLCs framework as a mechanism for constant engagement with colleagues to seek ideas and strategies for continuous improvement of pedagogical practices, knowledge, and skills to enhance student learning. The focus groups and individual participant interviews responses for Schools One, Two and Three included supporting evidence that PLCs generate opportunities for ongoing learning.

Two teachers from School One added their beliefs on PLCs serving as a mechanism for continuous learning.

School One Teacher Six, a Grade Four teacher shared continuous learning experiences acquired through PLCs participation.

> *"You gain a range of strategies that you can match with the learning needs and styles of students. You have a repertoire or range of activities you can use individually or in groups to meet their needs."*
> *"PLCs is a very good venture which encompasses teacher- teacher effort and we can manipulate different ideas, variables, resources to best meet the learning needs of students in the classroom."*

School One Teacher Ten, a Grade Six teacher outlined the myriad of opportunities for continuous learning enabled through PLCs sessions.

> *"There are opportunities for growth to learn new things, new ideas and better your instruction. Because it is through sharing that you learn you were doing something one way. But another colleague shares other methods/strategies with*

> *you, and you realize there are other ways to do things. So, the idea of meeting and sharing and having these PLCs is an opportunity for growth; it's an opportunity for learning to gain success."*

School Two participants also added their beliefs on PLCs serving as a conduit for continuous learning. School Two Teacher Five, a Grade four teacher, a novice teacher with two years' experience shared how ongoing engagement in PLCs fostered continuous learning:

> *"Being around other teachers, hearing them, getting advice, being able to go to their classes and listen to their contributions, listening to the strategies they use helped me quite a bit. Without these PLCs planning sessions, I would be a bit lost*."

School Two Teacher Five, a Grade Five and Six Language Arts teacher is a thirty-two-year veteran stated that through PLCs:

"*But it was really a learning experience for all of us. Especially, when it came to sharing ideas. So, I am not the best teacher, but I found myself sharing a lot of things that worked in my class (success stories/ best practices). The other teachers in my group were always open to trying them out and especially if I was not specializing in a particular subject, for example mathematics. There were times when I tried a strategy when I taught math in the morning. I would tell or share with other math teachers, and they would indicate willingness to try it. The others would also share Language Arts strategies or activities which had worked well. PLCs really helped because we learnt from each other."*

School Two Teacher One, a Grade Four Teacher who has five years' experience also outlined how PLCs sessions enabled opportunities for continuous learning:

> *"I definitely learnt new strategies and ways to help children understand concepts because as a teacher you never stop learning and so when you meet your colleagues you get to benefit from their different perspectives; you also benefit from their experiences and so on."*

School Two Principal also added her beliefs on PLCs as a frame for continuous learning.

> *"PLCs allow them to grow and become proficient in the execution of the way they teach; they are more confident. Because with the planning they are looking at matching the content performance standards, then moving to the curriculum to look for units and meshing everything together. I am also certain they will be more empowered to do it on their own. Planning will be more substantial for them."*

Two participants from School Three also added their voice to the issue.

School Three Teacher Six, a Grade 3 and 4 Language Arts teacher described examples of continuous learning opportunities in her school:

> *"We came together, handouts were shared with a variety of strategies which could be used to assist. We spoke about it, discussed it so that everyone would understand how to use it. From there it was implemented."*

School Three Principal also provided other ways PLCs facilitated continuous learning in her school:

> *"Shared ideas and best practices with peers. Always seeking ways to improve instructional capacity or abilities to improve student performance*."

4.3.3 Research Question Two: How are PLCs created and implemented at the three elementary schools?

The second research question focused on how PLCs are created and implemented at the three elementary schools. This question focused on the established PLCs structure and implementation processes at the three schools. Focus group questions 7, 8, 9, 16, 17, 18, and 22 (Appendix A) and individual groups interview questions 6, 9, 10, 11, 13, 14, 21 and 22 (Appendix B) provided support for research question two. These questions focused on PLCs design, structural and functional mechanisms, role of teachers' and principals, supportive structures, and implementation hurdles. For clarity, the PLCs documents from Schools One, Two and Three which

consisted of schedules, timetables, PLCs action plan and School PLCs planning questions; and unit plans by school involved in this qualitative investigation were examined as the third data source for this question. The researcher identified five themes from the data related to this question. These included a variety of PLCs arrangements, data driven decision- making based on common goals, shared practices frameworks, supportive structural processes, and school related challenges.

Theme 1: Range of PLCs team arrangements

This theme emerged from participant consistent descriptions of PLCs structural arrangements at different levels including whole school, grade, and or subject specialization level. Consistent interview and focus group responses indicated Schools One, Two and Three have implemented a range of PLCs teams' structures which consisted of Grade level PLCs, Subject Specialization PLCs, Whole School PLCs, and Across School Subject Specialization PLCs using face to face forums or virtual settings. These arrangements are based on staff assignments at the three schools. Supporting data from the individual interview and focus group data described the range of PLCs arrangements at the three schools.

School Three, one participant added her beliefs on the established PLCs team arrangements.

School One Teacher Ten, a Grade Six teacher, commented on PLCs arrangements which included grade level school based and across school- based PLCs.

> *"Normally, the PLCs in our school are organized per grade but I always go to the other teachers in the lower grades to find out. I also liaise with other teachers from other schools to share ideas if I am experiencing challenges with teaching concepts. Or to find other instructional ideas; what is working for them or how did they teach a concept?"*
> *"Sometimes I do not limit the PLCs to my grade or school. There was a year I worked with another grade 6 teacher in another district 5 school. We would meet to plan, share ideas. I even remembered that in teaching a particular topic she came across with her students to my classroom because we had a resource person. This helped a lot because she was not just at my school. Some of the challenges faced at my school / grade were not unique. And the approach at your school may*

> *be different to the other school. When you collaborate, you learn and see things differently or from different perspectives."*

School One Teacher Two, a Grade One teacher also indicated grade level PLCs were a predominant arrangement.

> *"The timetable was structured in such a way that every grade had a specific slot. Again, it depends on the grade in the morning or afternoon slot. It was held during school hours. Specialist teachers would have taken on the classes and regular teachers would be planning during that time. Each grade had a day for PLCs while specialist teachers took up the classes."*

School One Principal also confirmed PLCs were held at grade level, whole school, face to face and via virtual mediums.

> *"PLCs are usually held at Bi grade level. This means two grades hold PLCs together. Some grades meet individually. Like Grade K. grades 3 and 4 and 5 and 6 plan together*."
> *"The principal carries out whole school PLCs sessions virtually because of COVID19 lockdown."*
> *"PLCs sessions have continued virtually using different forums. Some grades, with dinosaurs they do not run into that. They will come in (face to face) to hold PLCs sessions. So different grade levels do different things. You allow teachers or grades to run with what they are comfortable with. Some grades do it via WhatsApp video calls. So, social media is also used."*

School One PLC Schedules in Appendix F illustrate days PLCs sessions are held by different grades.

One teacher and principal of School Two shared these beliefs on the PLCs team arrangements.

School Two Teacher Six, a Language Arts specialist and Grade 4 teacher also commented on grade level PLCs arrangements which would take the form of subject specialization or whole grade format.

> *"Teachers would find a designated area and more or less plan at a Grade level. If we had 3 or 4 teachers in the grade, most times we would meet especially, if we were doing specialization."*
> *"Also, there was a time where we would meet as committees/ per specialization PLCs. Like math, Language Arts etcetera, so we would know what each grade would do for math since we specialize for each subject area."*
> *"So, we had PLCs in two different ways where we would meet at Grade level and where we meet on a subject specialization level. But it would be done interchangeably. But it would be done on a grade level where we would meet a grade, for example all Grade 4 teachers plan."*

School Two Principal also indicated that PLCs occurred at the grade level, subject specialization, and whole school level.

> *"When they started in 2019. They had a lot more autonomy in what they did and how it was structured. When we started in the academic year 20/21. It was a bit more structured from my end. Although we had a whole day, we were able to structure it in a way that the professional learning that occurred with me took part of the day (whole school PLCs conducted by principal) and then they moved into their little circles. Moved from whole group PLCs to smaller grade/ subject PLCs, where they continued on their own. So, PLCs include a mixture of both whole and small group PLCs."*
> *"For the last school year before COVID19 interruption, the teachers used to meet on a grade level. It was different last year because this year everyone has been assigned a class. School operated on specialized teaching."*
> *"Now PLCs are at a grade level but before PLCs were more subject specific. So, all literacy or Language Arts teachers would meet for Grades 3, 4, 5 and 6. Because there was one person teaching Language Arts, Science, Social. Studies and Mathematics at Grade 3, 4, 5 and 6 respectively."*
> *"I also encouraged them to do kind of more whole group PLCs so that it would be more inclusive to see what the others are doing and give input."*

Three teachers shared these insights on established PLCs arrangements at School Three. School Three participant Teacher Three, the Language Arts teacher for Grades 5 and 6 confirmed the school engaged in subject specialization PLCs:

> *"Maths, Science and Language Arts teachers meet separately to talk fortnightly to discuss pedagogical strengths, weaknesses, difficulties in reaching students. Concerns about students Also have specialization WhatsApp groups in which we*

share any concerns about students. Speak virtually, hold meetings via WhatsApp. Do a lot of virtual meetings in Upper grades 5 to 6."
"First PLCs was the whole school based on the use of standards in planning for instruction. It was sent out by the Curriculum Officer for Science. The Second PLCs session was on the TIE writing strategy with the Language Arts specialization PLCs team. This was facilitated by a Language Arts teacher at the school. This PLCs was held with L. Arts specialization teachers."

While School Three Teacher One, the Grade 3 and 4 Mathematics teacher indicated that the school held whole school PLCs, and Subject Specialization PLCs arrangements with other schools in the educational district.

"I agree PLCs are organized based on the needs of the school. Scheduled fortnightly. Scheduled every 3 or 4 Thursday of the month. Some were held whole school because it was an issue that every teacher had to learn and adopt."
"In Grades 5 and 6 mathematics teachers had PLCs sessions with other district schools, in preparation for online teaching/ instruction with the mathematics support Officer in the Educational District."

Further, School Three Teacher Five, the Language Arts teacher for Grades 1, 2 and 6 confirmed that PLCs were framed at a Subject Specialization at the upper and lower school level, as well as whole school format.

"The math teachers do have specialized subject PLCs sessions especially in the upper grades."

"The lower grades it's generally done as a whole school, because K-2 teachers teach all subjects."

"For the whole staff it was scheduled monthly.
For smaller specialization groups or at a divisional level lower and upper school they would be held on Friday or Thursday. This was held weekly and or fortnightly."

Theme 2: Data driven instructional decision making based on common goals.

The theme data instructional decision making based on common goals emerged because participants consistently articulated PLCs processes were steered by three schools' common practices of analyzing student data and teacher instructional practices to make informed decisions to design appropriate instruction to improve student learning. The theme instructional decision making based on common goals explicated PLCs enabled systematic assessment of data and evidence, regular reflection on pedagogical practice; and focused, ongoing instructional decision making to improve instruction and enhance student learning. Participant responses indicated that decision making for PLCs sessions comprised analysis of student and teacher data. This entailed examination of students' strengths and weaknesses, as well as critical reflection and analysis of instructional practices. This data driven processes fostered PLCs sessions where teachers were collectively using research best practices or successful practices; common curriculum mapping, unit planning and lesson planning at a grade or subject level; monitoring progress at grade and or subject level; finding strategies to improve pedagogy; and using improvement plans or guiding questions to assess and align teaching methods. Excerpts of data from individual and focus group interviews and PLCs documentation in the form of unit or subject plans for Schools 1, 2 and 3 are used to support the depicted theme.

School One participants shared beliefs connected to instructional decision making based on common goals.

School One Principal outlined data decision making processes teachers engage in PLCs:

> *"Generally during the PLCs, the teachers share their experiences about different things. In terms of learning objectives, student behaviour, student response, teacher challenges. It is kind of a reflection time. So, this is essentially what happens during PLCs. They look at objectives, the goals, and the planning aspect of it. What is to be done/ how to go about it? What are the challenges? Both teacher and student wise challenges."*

School One Teacher Two, a Grade One teacher further elaborated on this:

> *"It is a session where we meet and plan. We sit and discuss what we are going to do for the week. We thrash out ideas. Whatever works well we share it. Our best practices. What may work for slow children? What may be working for more advanced students? When we get our activities or what activities can work for whatever topics we are doing. Based on what we plan for the week*
> *we come up with instructional activities."*
> *"Outline topics, objectives, and activities for the four core subject areas to plan for instruction in the week ahead. In Grade 3, we looked at creating unit plans to connect to other subject areas. So, this was more meaningful. What the children are supposed to know before and after. So, we looked at prerequisites. Also looked at the scope of the sequence."*

Two School Two participants added insight on PLCs common decision-making processes.

School Two Teacher One, a Grade 4 teacher also commented on data-based decision-making processes in the Mathematics Specialization PLCs:

> *"When we did plan, we did it according to subject areas, and I taught mathematics. When we met, we would discuss progress, how well students understood concepts. We would share strategies that worked. So, you would find sometimes we would adopt the same strategies across all grades. If everybody was using the same strategy, then the students do not always have to learn something new."*
> *"For example, if a table was used as a strategy to assist with teaching the concept of place value. It would then be used to teach place value in all grades. So, they would continue using this strategy as they move up the grades. I think for Science, we did the strengths and weaknesses of students as well."*

School Two Teacher Five, a Grade 4 teacher described data-based decision making at grade level PLCs as:

> *"When Covid19 arose and specialized teaching stopped, I was assigned to a Grade 4 group of students. We met and planned as a group. Every teacher did their bit. Some planned Science, Language Arts, and other core subjects. We looked at subjects together and we discussed what topics we should focus on and then we went on individually to plan lessons and then passed it to others for discussion so everyone could see. And so, everyone could give their input. We then agreed that this is the approach which would be taken to teach concepts."*

One teacher and principal of School Three also commented on PLCs common decision- making processes.

School Three Teacher Three, a Language Arts teacher assigned to Grades 5 and 6 explicated decision-making in Subject based PLCs as follows:

> *"Maths, Science and Language Arts teachers meet separately to talk fortnightly to discuss pedagogical strengths, weaknesses, difficulties in reaching students. Also have specialization WhatsApp groups in which we share any concerns about students. Note similar issues with students, suggestions for catering to students' needs. Suggestions about what we can do and don't do. We look back at whether objectives were met. What objectives need to be repeated/concepts need to be taught. What are student's strengths and weaknesses?"*

School Three Principal also provided an example of collective data decision making processes.

> *"We even went as far as going through random scripts or classwork of classes after instruction to identify areas of weakness and monitor growth after we met."*
> *"Work collectively with teachers to identify issues using data from scripts. Enable discourse on instructional practices. Encourage an environment of sharing and seeking various perspectives; monitoring PLCs implementation*."

Theme Three: Shared Practices Framework

The theme emerged from participants' consistent descriptions of a range of PLCs sharing arrangements and collaborative practices at the three settings. This theme focused on sharing practice arrangements which existed at the three schools. Participants confirmed the sharing practices framework consisted of sharing of research best practices, demonstration, ongoing collective and reflective discourse, co and team teaching, teacher PLCs facilitation, sharing resources and open-door policy. School 1, 2, and 3 excerpts from individual and focus group interviews and PLCs artefacts session presentation and handouts supported this theme.

Three teachers and the principal of School One commented on the sharing of frameworks within the contexts of PLCs.

School One Teacher Two, a Grade One teacher, commented on the outlined sharing opportunities among peers.

> *"Sometimes we shared best practices; methods or activities which worked would be shared with the group or grade. Share other ideas. Collectively make adjustments or modify activities to suit the needs of students."*

> *It worked better for me because many times when my colleague in Grade 3 was teaching a concept; even if I taught this concept in a previous grade. I would say I never looked at teaching the concept in that way or light. Also, when she was teaching, I was able to add my perspective. when I was teaching, she was able to add; so, the collaboration and team teaching worked well for the Grade 3 and the students benefited as well."*

See Appendices J and K which are PLCs artefacts utilized to share two strategies with the teaching staff.

School One Teacher Ten, a Grade Six teacher, also described several sharing opportunities among colleagues.

> *"Discuss how we could improve the learning situation for slower students. Thrash out ideas, how we can group students/ or break up for literacy, numeracy and regroup for science. Exchange ideas in terms of websites and or activities which can be used to facilitate learning."*

> *"Working as a team and as a group. We learn how to share ideas, and to work together. It was not just about my class and my students. But rather how everything we do can benefit all students. So, we learnt how to (I may disagree with your ideas but do so respectfully. I may agree with you entirely, but these are my suggestions for another way of doing it)."*

School One Teacher Four, a Grade Four veteran teacher of twenty-nine years added her insight on sharing of practices.:

> *"It worked better for me because many times when my colleague in Grade 3 was teaching a concept; even if I taught this concept in a previous grade. I would say I never looked at teaching the concept in that way or light. Also, when she was teaching, I was able to add my perspective. when I was teaching, she was able to add; so, the collaboration and team teaching worked well for the Grade 3 and the students benefited as well."*

School One Principal, also commented on sharing practices at grade level PLCs:

> *"Collaboration for instruction. We now recognize we submit one scheme of work for each grade. However, all grade level teachers must submit a reflection."*
> *"Generally during the PLCs, the teachers share their experiences about different things. In terms of learning objectives, student behaviour, student response, teacher challenge."*
> *"PLCS are driven by teacher reflections on practice; entails collaborative planning on a grade level."*

See Appendix D which provides samples of the instructional schemes of work which are developed through PLCs sessions.

Four teachers and the principal of School Two also added their beliefs on established PLCs sharing frameworks.

School Two Principal outlined regular sharing frameworks at PLCs sessions at her school.

> *"For PLCS, teachers have an allotted time, and they know this is the time for PLCs. We have our School WhatsApp group where we share ideas using this medium. For the Grade 3s they would have their own WhatsApp group, apart from the school group where they would be communicating."*

> *"There are some things the teachers do not understand, and they share and discuss issues with colleagues. Even the suggestions, the strategies that are being shared in terms of best practices for teaching concepts and best practices in classroom management."*

> *"They interface with everything/every subject area. So, if the person is not strong in a subject area. They gain confidence, acquire information, skills, strategies when peers/ specialists share. It's better than trying to understand and implement or teach concepts on their own."*

A sample of School Two Grade 3 WhatsApp group planning can be found in Appendix Q.

School Two Teacher Three, a Grade Four teacher, added comments on PLCs regular sharing and planning experiences.

> *"PLCs are determined based on the need for teachers to discuss experiences and share ideas to improve their skills and in turn boost student outcomes."*
> *"Sharing handouts and content material and content material, saying how a topic could be approached in a better way, allowing teachers to plan for the area which they are strongest in even if we do not specialize."*

See Appendix E for samples of collaboratively developed Grade 4 instructional plans.

School Two Teacher Eight, a science specialist has been a teacher for three years and is currently a Grade Four teacher, highlighted demonstration sessions:

> *"What I noticed about PLCs at the school when we planned as a grade it actually brought us together. Across Grade 4 and I expect all grades it brought us closer together, the relationships grew stronger, and we were able to read each other and understand each other. Even to the point sometimes when we are planning our lessons together."*

> *"Before we go into the classroom, we would actually do our labs. Like if we are doing an experiment, we would actually be there like we are in the classroom. The teacher takes the lead and other teachers would serve as other students watching. It was fun, interesting."*

School Two Teacher Two, a Grade 5 and 6 Language Arts teacher also highlighted sharing opportunities among grades when she commented:

> *"I must add even when we had the PLCs, there were times [we had two grades in the staffroom and as one grade planned; then we would throw questions at another grade or some ideas or suggestions from them. So, it's like we would not just stick/ keep to your own grade}. So, I would ask the Grade 5, did you even get a chance to do expository writing etc. So, it is like we have two grades at separate tables, but*

> *we would liaise to keep in contact with the other grade. That was being done regularly*."

School Two Teacher One, another Grade 4 teacher, also indicated that colleagues provided support for PLCs.

> *You get that support if you are weak in a subject area. With collaboration you get that support from your colleagues. So, if you are not very good at planning for science you get that assistance from your colleagues. Get ideas from them and so your confidence as a teacher improves because of collaboration.*

Two teachers and the principal of School Three provided insight on shared practices frameworks for PLCs.

School Three Teacher Six, a Grade 3 and 4 Language Arts teacher commented on scaffolding and guidance provided by peers:

> *"Sometimes different teachers will come together if they have little understanding or are not really sure what exactly they have to do or how to teach a concept. They would collaborate with their colleagues and provide guidance. This helps in collaborating with peers, sharing best practices, and learning new perspectives. Peers learn to respect each other and see each other's worth."*

School Three Teacher Five, a Language Arts teacher assigned to Grades 1, 2, and 6 highlighted several sharing frames including co-teaching, scaffolding and support offered by peers.

> *"Encouraged more regular meetings, a teacher she would say peer teaching or co-teaching. Since a teacher may have difficulties teaching a concept, may invite or ask another teacher or colleague. Sometimes other staff members would be invited to share their best practices. Colleagues may actually teach concepts or demonstrate concepts to peers."*
> *"There is more reaching out, more appreciation of each other's colleagues' ability as well as openness and confidence to go to someone else for professional assistance. Rather than staying or keeping to the classroom corner. Rather than staying in the classroom and struggling with the teaching of a concept. There is more openness to go to someone else. Even if not on a one-to-one level but at a group level. You can say: "This is my struggle; this is where I have problems and Ok, I tried this and that and somehow the children are just not getting it. As some people would put, they are just not getting it if I reach them."*

School Three Principal also commented on sharing strategies with colleagues within the PLCs context.

> *"There is more reaching out, more appreciation of each other's colleagues' ability as well as openness and confidence to go to someone else for professional assistance. Rather than staying or keeping to the classroom corner. Rather than staying in the classroom and struggling with the teaching of a concept. There is more openness to go to someone else. Even if not on a one-on- one level but at a group level. You can say: "This is my struggle; this is where I have problems and ok, I tried this and that and somehow the children are just not getting it. As some people will put, they are just not getting it if I reach them."*

> *"Enabled discourse on instructional practices. Encourage an environment of sharing and seeking various perspectives. For a while we were doing best practices. The last PLC was done by Mrs. Annetta James (literacy teacher). This PLC centered around Mrs. James undergraduate research thesis project. Because we realized there was a need to improve writing instruction. So, we started off from there (writing a unit of work)'. I got a resource person to come in, Mrs. James helped with it because she had completed units of work in her undergraduate studies. And we focused on the TIE Strategy so that teachers would demonstrate what they think the strategy entailed. Teachers were required to do reading on the strategy and come back."*

A copy of PLCs Artefact for this PLCs session on the TIE Strategy can be found in Appendix (G).

Theme Four: Supportive Structures and Processes

This theme emerged from participants' consistent descriptions of supportive processes and structures developed for PLCs at the three schools. This theme outlined the supportive structures and processes which facilitated the implementation of PLCs at the three schools. Participants affirmed a range of supportive structures and processes which included the use of guiding questions or improvement plans; scheduled sessions; and supportive and shared leadership. Excerpts of data from individual interviews and focus groups for the three schools and PLCs documentation in the form of grade timetables for Schools One, and Two; and a term schedule of

activities for School Three; guiding questions for School One, and improvement plan template for School Two are used to support the outlined theme. Participants from Schools One, Two and Three indicated PLCs were scheduled sessions.

- **Professional Learning Communities (PLCs) Schedule**

In School One two participants affirmed PLCs were scheduled.

School One Teacher Two, a Grade One teacher commented that:

> *"The timetable was structured in such a way that every grade had a specific slot. Specialist teachers would have taken on the classes and regular teachers would be planning during that time. Each grade had a day while specialist teachers took up the classes."*

School One Principal outlined how PLCs were scheduled weekly in her school:

> *"Had to bear in mind, the children at School A had many subjects in a day and my observations were all these subjects. All these subjects or points meant many transitions. So as a mother this made me realize that when children have too many transitions within a period; it is not best. It is better to increase engagement time by minimizing transitions. So, I saw PLCs as an opportunity to do that. Instead of having 40-minute periods as teachers were used to blocks. So, now we have learning blocks which include less subjects; less transitions."*
> *"So, I freed one block a day per double grade (for two grades). For example, on Tuesday would be Grades 3 and 4. All Grade 3 and 4 students would be engaged in the specialist subjects of (P.E/ Music/IT/ French). So, for instance, if these grades had PLCs during that block; then the other Grades had French or Music."*
> *"So, during that block I timetabled PLCs and so it worked beautifully. So, specialist teachers worked from 1-3 pm and 9-12 pm. This would be PLCs time, when students of two grades were engaged in specialist subjects.*

Further evidence of time scheduled for grade level PLCs at School One are found in Appendix J

In School Two, two participants also indicated that PLCs were scheduled weekly and biweekly.

School Two Teacher Six, a Grade 4 teacher commented on the PLCs schedule:

> *"Basically, we were told it was an opportunity more so for planning. Whereas a group/grade level we would plan? At that same point in 2018, the teacher was doing specialized teaching. At that point all language arts, mathematics, science, and social studies teachers would meet. And it was scheduled biweekly on Friday, the last hour of the day 2-3pm."*

School Two Teacher Seven, a Grade five teacher stated that:

> *"PLCs are scheduled weekly on a Friday. During COVID established protocols; Fridays were assigned for planning because students were at home; there was a bit more leverage. PLCS are scheduled at an assigned time."*

Further evidence of School Two timetable which included a scheduled time for all Grade level PLCs can be found in Appendix G.

In School Three, two participants shared these thoughts on PLCs schedule.

School Three Teacher Five, a Language Arts Specialist assigned to Grades 1, 2 and 6 described the schedule for PLCs sessions for the whole school as well as at grade level.

> *"The math teachers do have specialized PLCs sessions especially in the upper grades. The lower grades are generally done as a whole because K-2 teachers teach all subjects. For the whole staff it was scheduled monthly. For smaller specialization groups or at a divisional level lower and upper school, they would be held on Friday or Thursday. This was held weekly and or fortnightly."*

School Three Principal provided this description of the PLCs schedule in her school:

> *"We had a fortnightly schedule. So, we had literacy and numeracy PLCs. There was a heavy focus on literacy and my staff was tasking me for that."*
> *"Sessions were planned once monthly or fortnightly mid-morning to midday. What we did as a staff decided not to dismiss our children on the Thursday PLCs was held. We sent letters home asking for parent volunteers. Parents would come to assist or volunteer. We would try to meet between 10:30 and 12pm. So, classes had teams of volunteers who would participate so teachers provided seatwork and review exercises so that parents could supervise so that students would not have*

> *to leave school or disrupt the normal school day. That's how it was managed at School C."*

[See School Three Artefacts for parental supervision (Appendix H) and Term Schedule which include monthly PLCs in Appendices I]

- **Shared Leadership**

Shared leadership was another support mechanism at the three schools. At School One, four participants responded and illustrated the supportive leadership.

School One Teacher Two, a Grade One teacher indicated:

> *"We have a problem and when we meet you know we get opportunities to share. The principal opens the floor, and she always gives us the opportunity to share what we are experiencing; do we think we can solve it. Yes, she has an input but it's more- or- less all of us thrashing out ideas, deciding on what is the best way forward."*

School One Teacher Two, also a Grade One teacher outlined this shared leadership with examples:

> *"If the principal saw a need or recognized a need; then a session would be organized. For example, the PLCs with the literacy coordinator in Grade 1 is an example. If the principal saw there was a critical need, then for a grade or school PLCs would be organized to meet that need. But generally, PLCs were left up to each grade and teachers to decide."*

School One Teacher Four, a Grade Three teacher affirmed shared and supportive leadership determined the PLCs focus.

> *"Sometimes if there is an issue, she wants us to discuss it on a grade level. She would ask us when we meet to discuss that particular issue and report back to her. So, she sometimes gives a directive as to what she wants to be addressed or implemented. Sometimes there are issues and so she would say grade K when you meet could you just discuss and report back to her. So, it is a mixture of both teachers and principal."*

School One Principal also provided insight on shared leadership opportunities.

> *"Generally, I play a mentoring role. For instance, I try to attend as many PLCs as possible across grades throughout the academic year. Throughout the*

> *academic year, like throughout the term, I make it my business to join one session per grade."*
>
> *"Some teachers are actually facilitators of PLCs. As the leader, I try to identify every teacher's strength. So, I try to identify the strengths and give them public opportunities to display that strength In PLCs".*

Three School Two participants shared these thoughts on shared leadership.

School Two Teacher Eight also made this statement on shared leadership in PLCs:

> *"The principal listens and provides us with support where necessary. Resources needed are sometimes provided."*

School Two Teacher Two, a Grades 5 and 6 Language Arts teacher confirmed that the" entire *staff with principal determine what occurs in PLCs".*

School Two Teacher One, a Grade 4 teacher also commented that:

> *"Most teachers have the liberty to decide what happens in PLCs. Principal attends; stops by to monitor and ensure PLCS are actually happening. But it is not like she has an input. She just ensures PLCs designated time is utilized to do what is assigned."*

At School Three, two participants added their beliefs on shared leadership.

School Three Principal also affirmed that shared leadership was an aspect of PLCs' design and implementation.

> *"What happened in PLCs was a collaborative decision of the literacy team. Whatever we realized was our weakness, if we needed any assistance with an issue, then that would be the focus of PLCs."*
> *"I allocate time to ensure teachers can have collaborative discourse. Ensure all teachers participate. Encourage staff to share ideas and host PLCs sessions."*

School Three Teacher Five, Grades 1, 2, and 6 Language Arts teacher also highlighted shared leadership elements of PLCs framework.

> *"As a whole school, it is the principal who usually decides sometimes what happens in PLCs. Sometimes the principal would call staff meetings to seek teachers' suggestions/input. And based on the topics/ issues or areas identified a decision would be made. If most persons have identified an issue, this would be a topic or focus of the PLCs. Or staff may be asked to select a topic which is most pressing to look into. Or sometimes, it depends on the group."*
> *"For smaller groups, teachers decide to focus on divisional and specialization PLCs. As a whole school, the principal along with teachers would decide what is the most pressing issue/ areas/ topics for professional development activities. Or sometimes the principal presents an area all teachers require professional training."*

- **Instructions to Guide PLCs Sessions**

Schools One and Two principals' comments indicated that guides were created to direct PLCs sessions.

Another supportive structure was the guiding questions used by School One for weekly reflection on practice and planning.

School One Principal explained:

> *In terms of the role of reflection, the role of viewing themselves as reflective practitioners, because I did give teachers some guiding questions. These questions served as a guide for reflection. And if I am not there, they may forget the questions. But when I come into PLCs sessions, I may ask two of the five questions. The five questions were something to this extent:*
>
> 1. *What were the goals?*
> 2. *What do I need to accomplish them?*
> 3. *What are the barriers or challenges?*
> 4. *How will I overcome them?*
> 5. *What will I do differently?*

PLCs guiding questions for School One can be found in Appendix N

School Two Principal also indicated the use of a class development action plan to serve as a guide for PLCs planning sessions.

> *"So, because I designed a class development plan. This is something that teachers will use in their PLCs every 2 weeks. Because we were focusing on formative assessment, every 2 weeks to monitor what had transpired and to decide what*

> *happens in the next two weeks in terms of what students can and cannot do. So, the plan was designed for them to use".*

The School Two class development action plan can be found in Appendix O.

Theme Five: School related PLCs implementation challenges

This theme emerged from participants' consistent descriptions of challenges which impact PLCs implementation processes. This theme outlined prevalent factors which hamper the implementation processes of PLCs at the three schools. Interview and focus group responses indicated several challenges which hinder PLCs implementation processes included weak PLCs structural processes; school related issues such as teacher absenteeism and other school activities taking precedence over PLCs, time constraints; and inadequate human resources. Excerpts of data from individual interviews and focus groups which explicated these school related implementation challenges are presented.

- **Time Constraints**

Time constraints were highlighted as the major challenge by Schools One, Two and Three. School One Teacher One, a Grade K teacher indicated that:

> *"For me it has never really worked out the way it is supposed to be. Because it's supposed to have adequate time (time is a major hindering factor) For example for something like this to really work. You need to have a block of Time. At least one hour to one and a half hours."*
> *"Never enough time to address instructional issues."*
> *"Timetabling had to allow us to get that hour was a challenge. You find that sometimes that block of time is always interrupted because somebody's class does not have a teacher or the teacher who is supposed to supervise the class at that time is absent. As a result, that teacher would be unable to attend PLCs session. So, there was always some kind of interruption. And there was never enough time or a block of interrupted time."*

School One Teacher Five, a Grade Two teacher commented that:

> *"As it stands, time constraints, given that classes are unsupervised, we do not get to put in the required time for planning."*

School Two Principal also indicated time constraint was a major issue affecting PLCs implementation processes.

> *"Time was another challenge. PLCs Within the one hour in the regular 9 to 3pm day was inadequate. Even with an entire day assigned due to COVID protocols, it was very difficult to juggle how 9-3pm can be used effectively. Because I have Grades 3, 4, 5 and 6. So at least they have two hours, and you have to consider the time for break and lunch. More time is required. It is a process which cannot be rushed. Wish more time was allotted*."

School Two Teacher Two, the Language Arts teacher assigned to Grades 5 and 6 commented that time constraints were a major hurdle in PLCs implementation in her school.

> *"During Covid, the Fridays were assigned for planning. In essence PLCs. That's one of the challenges faced in this new school year. Fridays were assigned for planning as this is one of the issues faced. A lot of time/ half of the day was spent on school affairs and not sufficient time was given to proper planning. By the time group planning was given it was almost time to go home."*
> *"A lot of time/ half of the day was spent on school affairs and not sufficient time was given to proper planning. By the time group planning was given it was almost time to go home."*

School Three Teacher Five, a Language Arts teacher assigned to Grades 1, 2, and 6 also affirmed time constraint was a hindering PLCs factor:

> *"Time is a challenge. It is easier to carry out weekly or fortnightly in divisional or specialized PLCs. On the other hand, the whole school PLC is a challenge. We try to meet within the school hours, but it is difficult. There is also an issue with manning classes. If after school, teachers do not want to stay or have other commitments*."

- **Weak Structural Mechanisms**

Weak PLCs' Structural processes were also a hurdle to PLCs' implementation which were outlined by participants at Schools 1, 2 and 3.

School One Teacher Ten, a Grade Six teacher, commented on the weak PLCs structures.

> *"So, I believe the idea of PLCs is a good one, but maybe at our school it is not probably what it should be. And probably we need to work in that regard."*
> *"PLCs lack adequate structure in terms of goals, measuring goals and outcomes, monitoring*."
> *"There is need to change the structure of PLCs for these reasons:*
> - *Ensure there is a clear rationale for PLCs.*
> - *Monitoring system to ensure that time is not wasted.*
> - *Are strategies learnt implemented?*
> - *As teachers do, do they take time to reflect daily/ weekly/ monthly?*
> - *Were successes achieved with students/ were you able to make strides with students?*
> - *Do we as teachers use ideas to change practices?*
> - *What system is in place to measure success or to determine if PLCs are effective?*
>
> *Make it a whole school approach. This is because in correcting scripts for Expressive writing, I realized that students in other grades experience similar problems as grade 6 students. Many problems do not start from Grade 6. Correcting scripts for lower grades opened eyes to some of the challenges and problems students experience in lower grades and moved up to Grade 6 with them. A whole school approach would be more effective. It would identify problems across grades/ and to identify the root of problems/ or where they stem from. Whole School PLCs could be the answer. Overall, in general PLCs in our school could be improved using a whole school approach; and maybe it is not where it should be."*

School One Teacher Two, a Grade One teacher also commented on unclear PLCs structural processes:

> *"So, it really goes back to whether teachers had a clear understanding of what PLCs are all about. And I think that is where the problem lies. Because, I don't think they have a clear understanding. It depends on the grade; like I said when we were in grades 3 and 4, we had somebody supervising us. We learnt what PLCs were. But generally, we are not effective in carrying out PLCs, we are just scheming*."

School Two Teacher Six, a Grade Four teacher also added her comments on the weak PLCs structural processes.

> *"Lack of appropriate structure. At the beginning PLCs were quite confusing. We were not too clear as to what PLCs were. Although when we began, we had a strategic plan of our goals but were never aligned to PLCs. PLCs were mainly planning and reflecting. PLCs should be reformed to ensure it meets the goals. Needs an appropriate structure. It does not have adequate structure. It is restricted to planning and other areas not addressed in PLCs."*

School Two Teacher Two also highlighted the lack of a PLCs monitoring system.

"There should also be a structure or mechanism to monitor PLCs."

School Two Principal also highlighted weak PLCs structures did not factor in student supervision and monitoring:

> *"Structuring PLCs/ Monitoring/ attendance of principal at PLCs in 2019. It was rough in 2019. It was the first year; it was bombarded because teachers were all out at the same time attending PLCs. So, if PLCs were structured from 2-3pm it meant all teachers were at PLCs sessions and that students were unsupervised in classes. At this time, the principal had to do monitoring of classes for teachers; to ensure student behaviour, safety, and management. Hence, I was unable to sit in and plan with teachers during PLCs."*

School Two Teacher Four also indicated there was no structure for student supervision.

> "*It was scheduled for an hour; but we left sessions after 3 pm because we never came on time. Sometimes you have to settle your class/ you are in the middle of a lesson; so, you must complete what you are doing to go. We had to ensure students were left with work to occupy them."*

School Two Teacher Eight also commented on the lack of student supervision mechanisms during PLCs.

"Inadequate supervision of students during the period of time teachers engage in PLCs sessions."

School Three Teacher Three, a Language Arts teacher assigned to Grades 5 and 6 also indicated ad hoc or unclear PLCs structures.

> *"I think that we are ignorant of the structural principles which should guide PLCs. Because from what I see we are running it as a meeting or workshop. We need information on how to develop a structure to suit our school."*
> *"We do not have a good PLCs structure. Goals of PLCs are not clearly articulated. The time frame which is scheduled is not realistic. For example, the whole school Standards PLCs should be a series of PLCs and not a one-shot session. The first PLCs session on standards was informative. There should have been sessions to explore and learn how to actually use these standards in planning and teaching (a practical component was required)."*
>
> *"PLCs should go in depth. Rather than running all over the place. There needs to be strategic planning of areas of need for each term. The focus of issues or problems*

which need to be addressed for PLCs for each of the subject areas. It does not matter if there are 10 PLCs, but all would focus on addressing the issue X and getting things clearer so that teaching and learning can become more effective. And the results would be realized with the students' performance and final products."

School Three Teacher Three, also commented on the lack of monitoring structures and inadequate structures for collective analysis of issues.

"Well, the principal was supposed to carry out monitoring of the strategy implementation and then we would have follow-up conversations relating to it. The only person, I am aware, who tried the strategy introduced in the writing strategy PLCs was the principal. I do know if anyone else reported or discussed the implementation of the strategy."

"*There is a need to adequately scrutinize student data for teaching and learning needs. Individually teachers may identify errors, issues and areas of weakness; but as a whole school there is need for collaborative scrutiny of issues to note causes and collective intervention."*

School Three Teacher Five also commented on the weak PLCs structures.

"*Structure is needed for better focus and initiative. Monitoring element is required to determine if PLCs are happening and implementation of ideas happening. Sharing feedback on wins and failures. Monitoring is inadequate- Yes sometimes management is invited to smaller PLCs sessions; and may not be able to attend because several PLCs sessions (upper and lower school) are running concurrently."*

School Three Teacher One, a Mathematics teacher assigned to Grades 3 and 4 further outlined ad hoc nature of PLCs in her school.

"For me, it would be scheduled. If we could plan ahead. If we are to have 3 to 5 PLCs this term. Then we need to know that 1st PLCs would cover this. The 2nd PLCs would cover this, so we as teachers can prepare. Also, it could be based on our own needs. We have been there for a while, so we can see some of our own issues. We should not be planning based on what we see come up, so we need a PLCs. If something comes up and we need to accommodate that's fine; but if we already have a structure and we know the upcoming agenda, it will be better."

School Three Teacher Two, a Grade K teacher, also commented on the PLCs structure.

> "*In order to grasp and use PLCs effectively we need to plan it properly. The principal said we need to know some of the areas our students are weak or struggling. So, if we can pinpoint it and have a series and not one PLCs on a topic you might find it more effective. So, if we probably plan 3 PLCs based on a topic, I believe it would be more effective. So, the planning and structure of it."*

School Three Principal added the heavy focus on Language Arts PLCs was a hindrance:

> *"We had a fortnightly schedule. So, we had literacy and numeracy PLCs. There was a heavy focus on literacy and my staff was tasking me for that."*

School Three Teacher Four, a science specialist teacher assigned to Grades 3 and 5 confirmed a heavy focus on Language Arts was a hindrance for teachers not specializing in the subject area.

> *"No. The focus of PLCs at School C is mainly Language Arts. Many other subjects are taking a back seat. So, we should plan in a sense that every PLCs or different PLCs should focus on different subjects. So that we don't put all our eggs in one basket and change the perception that if you don't excel in one subject that you are dumb or failing. Emphasis needs to be placed on other subjects rather than just L. Arts. There should be a balance of PLCs so all subject areas should be addressed."*

School Three Teacher Three, a Language Arts teacher assigned to Grades 5 and 6 also affirmed restricted Language Arts PLCs was a major hurdle.

> *"Major change would be to have multiple PLCs at the same time. Since we practice specialization at my school it's an act of wasting time to have the Science teacher sit through a language Arts PLCs. She is not going to be interested because it is not her area of specialization. It is not going to be of maximum use for her. I would like to see PLCs run at the same time for different groupings or specializations of teachers. Language. Arts PLCs to cover the needs of a language area/ Maths/ Science/ S.S all happening concurrently / same time."*

School Three PLCs Artefact on Language Arts can be found in Appendix L.

- **School Related Issues**

Several participants indicated school related issues like teacher absenteeism, national, school and district activities taking precedence over PLCs sessions were also hindrances for Schools One and Three.

School One Teacher Eight, a Grade K teacher also added her beliefs on school related issues.

> "*It should be designed so teachers have sufficient, uninterrupted time. Uninterrupted time is important. PLCs should be scheduled at the end of the day or the last period of the day where students can be sent home earlier, or a block of time can be designated to PLCs. For example, if it's one hour, you go from 2 to 3 pm, so that you will not be interrupted by students returning because specialist teachers are absent. Or children can be delegated to another subject or activity where they are supervised by another teacher for the last block in the afternoon so there will be no interruptions/ or sent home from 2 pm. This would realize the achievement of more. Because sometimes discussions on critical issues or new strategies are interrupted by school issues such as student misbehaviour."*

School One Teacher One, Grade K teacher Leslie commented:

> *"For me, every time we had to plan; there was always an issue. Teacher absenteeism or the specialist teacher cannot take the class, or we could not get (all) three teachers in the grade to plan. Either 2 teachers in the grade would plan during the scheduled PLCs session or we would never plan. When all grade teachers planned it, it was more meaningful."*

School One Teacher Two, a Grade One teacher supported Leslie's comment:

> *"I agree with similar experiences with Teacher Jan. Sometimes we just begin planning and students return because the assigned teacher had an emergency or cannot attend to students because of reassignment / or overseeing of an absent teacher's students. This is problematic."*

School One Teacher Seven, another Grade One teacher affirmed:

> *"Other school- based activities like sporting activities may affect planning or PLCs sessions. These school activities took precedence over PLCs sometimes."*

School Three Teacher Five, a Language Arts teacher also shared:

> *"School based or district-based activity prevents PLCs from occurring/ Simple human error forgetting something came up... clashes with administrative or district activities."*

- **Human Resource Constraints**

Participants of Schools One, Two and Three outlined lack of human resource personnel was also a hindrance for PLCs implementation.

School One Teacher Ten, a Grade Six teacher also commented on lack of resource personnel as a challenge.

> *"I also believe during our sessions we should also have resource personnel to present their ideas, all in an effort to have a wider cadre of ideas which can be utilized in our best practices. I think the Grade level approach just constrains us to the ideas of a few."*

School One Teacher Nine, a Grade Six teacher, also commented on the human resource constraints.

> "*I also believe during our sessions we should also have resource personnel to present their ideas all to have a wider cadre of ideas which can be utilized in our best practices. I think the Grade level approach just constrains us to the ideas of a few."*

School Two Teacher Eight, a Grade 5 teacher further indicated lack of expert personnel to assist with further training was also a hindrance in PLCs implementation.

> "*I think it would be beneficial for staff to get further training in the use of standards. Training received was insufficient. So, it is one of the areas to explore to improve PLCs. Use experts to assist in the areas of challenge."*

School Two Teacher Seven, also indicated inadequate human resources is another hurdle.

> *"There is a lack of human resource personnel, this is required for more training on what we really have to do."*

School Two Teacher Two also added this belief on lack of resource personnel.

> "We *need guidance from specialists. Innovative ideas are needed. Input from all these specialists to add/ improve. Always doing PLCs on our own. Specialists once a month or term would enhance PLCs. Does not only have to be teachers doing PLCs sessions."*

School Three Teacher One, a Mathematics teacher assigned to Grades 3 and 4 indicated lack of resource personnel was also a challenge in her school:

"Unavailability of resource personnel is another challenge. Sometimes when we were trying to get resource personnel for our second Standards session, CAMDU was booked."

4.3.4 Research Question Three: How do PLCs impact the professional development of teachers at three elementary schools?

The third research question focused on how PLCs impact the professional development of teachers in three elementary schools in one educational district. This question provided the researcher with participants' beliefs on the influence of PLCs on teacher professional development. Focus group interview questions 10, 12, 13, 14, 15, 19, 20 (Appendix A) and individual interview questions 12, 15, 16, 17, 18, 19, and 20 (Appendix B) were aligned to research question three. Two themes which supplied evidence of teacher professional development and growth are enhanced knowledge and instructional practices, and collaboration and collegiality. Excerpts of data from individual interviews and focus groups for the three schools and PLCs documentation for Schools One, Two and Three support the outlined themes below.

Theme 1: Ongoing enhancement of instructional practices and knowledge

This theme emerged from participants' consistent accounts of how PLCs function as a mechanism to continuously enhance teacher instructional practices and knowledge in the three school settings. This theme is associated with PLCs advancing professional growth by creating continuous avenues for improving pedagogical and knowledge capacity of teachers through systematic instructional decision making. Several focus group and interview responses confirmed multiple opportunities for participants to carry collaborative critical reflection on practices led to

assessment of pedagogical delivery, collectively find viable alternative solutions to address student needs, collectively engage in data focused planning, and constantly share research best practices, and resources. The continuous engagement in PLCs allowed teachers to constantly seek resources, and attempt novel strategies and knowledge recommended by peers. These PLCs continuous learning opportunities were mechanisms to advance teacher knowledge and pedagogical capacity to meet students' needs. Similar responses were prevalent for participants from Schools One, Two and Three and are outlined below.

At School One five participants indicated that PLCs advanced teacher knowledge and pedagogical practices.

School One Principal commented on enhancement of teacher knowledge and pedagogical practices through participation in PLCs.

> *"It makes teachers aware of what real work is. It forces them to view teaching through a more critical lens. As opposed to what they are always doing. They are never sure about what they are doing. Teachers feel insecure/ always questioning their capacity."*
> *"Drawing on strengths of teachers/ training is providing opportunities for growth for teachers."*
> *"Teachers make a more conscious effort to align the things they do. They pay attention to what the data says."*

School One Teacher Ten, a Grade Six teacher also indicated that PLCs engagement can advance the knowledge and instructional capacity of teachers.

> *"There are opportunities for growth to learn new things, new ideas and better your instruction. Because it is through sharing that you learn you were doing something one way. But another colleague shares other methods/strategies with you, and you realize there are other ways to do things. So, the idea of meeting and sharing and having these PLCs is an opportunity for growth; it's an opportunity for learning to gain success. The sitting and thrashing out of ideas worked. As said earlier, you teach a concept one way, and are thought of teaching another way. In sharing your teaching ideas/ practices or what you tried. You gain a deeper perspective in other ways of teaching concepts."*

School One Teacher Nine, another Grade 6 teacher with eighteen years' experience also made similar comments.

> *"I concur with my colleague on the aspect of idea sharing. It is also a time when many problems are identified. We thrash out possible solutions to these problems. So, it does help with my professional growth as a teacher."*

School One Teacher Eight, a Grade K teacher added to the issue.

> *"I could say there has been improvement in practice. For example, most times we would meet, plan and everyone would have their own activity and own ideas as to how to approach a certain topic, how to deal with a certain problem. Usually, during the PLCs we speak about it and thrash out ideas and say let's try this/that. We decide as a group, everybody is to take the same approach, then report and discuss how it worked for all teachers. Could say it has been a success in this regard."*

School One Teacher Two also commented:

> *"Teachers were able to improve. Like my colleagues learnt new practices. I learnt new practices. How to teach concepts more effectively or better ways or the right way to teach concepts. Maybe I was not teaching or doing it right. So, there was growth in terms of our pedagogical practices."*

At School Two six participants also shared their beliefs on PLCs' impact on professional growth. School Two Principal outlined how PLCs enabled growth in teacher knowledge and pedagogical capacity.

> *"PLCs changed the way the content is taught, the timeframe for topics has also changed. If something was being taught way down the line; it has been brought up. This shift came about because of PLCs. Even lesson planning- the unit planning for some grades."*

School Two Teacher Five, Grade 4 teacher lamented that PLCs created an avenue:

> *"To pick up a wealth of knowledge from more experienced teachers ahead of me. So, in terms of classroom management and instructional strategies I benefitted there."*

School Two Teacher Four, a Grade 4 teacher, indicated that enhanced pedagogical capacity was an outcome of PLCs engagement.

> *"There is continuous improvement. When you meet you discuss the learning needs of your students with colleagues. You arrive at best practices to better your teaching."*

School Two Teacher One, a Grade 4 teacher further supported earlier comments on improving knowledge:

> *"I loved PLCs because it forced me to engage in reflection and to plan to be more deliberate in my planning to meet the needs of my students. So, it really forced me to reflect with colleagues. When you reflect with your colleagues, you really get into your lesson. You really get to understand what the children do not understand. Sometimes through discussion you realize your students do not understand. What can I do to help my students, reflect and be deliberate with planning?"*

School Two Teacher Two, a Grade 5 and 6 Literacy specialist' teacher also commented on the how PLCs enhanced the pedagogical expertise of teachers.

> *"Especially in a subject where you are not grounded; you know the aim of class. In sharing information, you realize in teaching concepts you are not reaching students as you should. You get to see the teaching of concepts through another teachers' perspective and get a breakthrough."*

At School Three, two participants also added their beliefs on the matter.

School Three Principal also indicated that ongoing reflection on practices in PLCs had heightened teachers' pedagogical practices.

> *"Critical reflection on practices meant that teachers would always seek new ways or ideas from research and peers to improve their teaching performance so that students' learning was enhanced*."

School Three Teacher Six, a Language Arts teacher for Grades 3 and 4 indicated that PLCs had enhanced teacher pedagogical capacity to improve student outcomes.

> *"Students are better able to complete tasks. Students acquire strategies and skills to produce skills required. Teachers' pedagogical skills improve, and students learn or acquire skills and concepts better."*

Theme 2: Collaboration and collegiality

This theme emerged from consistent participant accounts of how PLCs served as a mechanism to establish a collaborative and collegial atmosphere to enhance teacher professional development. Several interview participants' responses indicated another notable outcome of the PLCs framework was the establishment of a collegial ethos which supported teacher professional growth. Responses from participants confirmed continuous teachers' engagement in PLCs created a supportive environment for constant collaborative discourse to discuss students' weaknesses, collective examination of instructional methods and solving instructional challenges, collective instructional design to meet students' needs, and drawing on the instructional expertise of peers. The ongoing collaboration and interaction enabled through PLCs also created avenues for nurturing respect and building trust among peers, and the establishment of amicable relations with colleagues. Similar responses were prevalent for participants of the three schools and excerpts are portrayed below.

Four school participants commented on PLCs development of a collaborative and collegial ethos. School One Principal made these comments on PLCs facilitation of collaboration.

> *"Collaboration for instruction. We now recognize we submit one scheme of work for each grade. However, all grade level teachers must submit a reflection*."

School One Teacher Five, a Grade two teacher indicated:

> *"Working as a team made it easier. Maybe you have an idea from one perspective and when your colleague brings it up another way then you realize that this way may be easier. It can work that way better. Having many ideas and different ways*

> *to teach concepts. It helped a lot. Maybe you are struggling with that topic and the perspectives shared by a colleague or colleagues will help."*

School One Teacher Two, a Grade One teacher expressed these beliefs on PLCs fostering a collegial and collaborative ethos.

> "*It worked better for me because many times when my colleague in Grade 3 was teaching a concept; even if I taught this concept in a previous grade. I would say I never looked at teaching the concept in that way or light. Also, when she was teaching, I was able to add my perspective. When I was teaching, she was able to add; so, the collaboration and team teaching worked well for the Grade 3 and the students benefited as well. Working as a team and as a group. We learn how to share ideas, and to work together. It was not just about my class and my students. But rather how everything we do can benefit all students. So, we learnt how to (I may disagree with your ideas but do so respectfully. I may agree with you entirely, but these are my suggestions for another way of doing it. So, it was not just in teaching students but developing teaching skills and practices."*

School One teacher Ten, a Grade Six teacher made similar comments on the matter.

> "*When we meet for PLCs; You are exposed to so much based on the knowledge of others. For example, during COVID lockdown, Teacher Kate who is technologically savvy in a PLCs session shared virtually so much about the use of technology and online platforms I was unaware of. There are opportunities for growth to learn new things, new ideas and better your instruction. Because it is through sharing that you learn you were doing something one way. But another colleague shares other methods/strategies with you; and you realize there are other ways to do things. So, the idea of meeting and sharing and having these PLCs is an opportunity for growth; it's an opportunity for learning to gain success."*

The PLCs presentation artefact used by Teacher Kate can be found in Appendix J.

At School Two five participants commented on PLCs development of a collaborative and collegial ethos.

School Two Principal affirmed that collaboration and collegiality was an outcome of PLCs.

> *"Because of PLCs where they get to share ideas, persons who are not strong in an area, they get suggestions from persons with expertise in subjects. Persons/Specialists with strengths in an area will present best practices to each other."*

> *"There are some things the teachers do not understand, and they share and discuss issues with colleagues. Even the suggestions, the strategies that are being shared in terms of best practices for teaching concepts; and best practices in classroom management."*

School Two Teacher Eight, a Grade Five teacher provided these beliefs on PLCs fostering collaboration and collegiality:

> *"Generally, it has improved teacher relations. All of us are in different grades, and I think PLCs have brought us closer during planning; improved confidence; improved relations. Since we share activities for teaching concepts; I think we would use suggestions/ideas from peers."*

School Two Teacher Three, a Grade Four teacher added this belief.

> *"It has increased our knowledge about content, instructional skills and even classroom management. This has resulted in an overall increase in student performance and their attitude towards school."*

School Two Teacher Nine, a Grade Five teacher with five years' experience also added:

> "*Generally, it has improved teacher relations. All of us are in different grades, and I think PLCs have brought us closer during planning; improved confidence; improved relations. Since we share activities for teaching concepts; I think we would use suggestions/ideas from peers."*

School Two Teacher Six, Gertrude a Grade Four teacher also commented:

> "*Brings you closer to your colleagues. And of course, when that happens it tends to make the teaching learning environment friendlier and more beneficial for students and teachers. And of course, the fact that you are learning from and with each other it benefits you as individuals professionally."*

The School Three principal and one teacher also added their beliefs on the issue.

School Three Principal commented that PLCs fostered a:

> *"Collaborative ethos, teachers reflected on their practices more critically; teacher confidence grew; research culture- readings for new instructional perspectives, strategies and ideas."*

> *"Yes, it started to build trust. Staff were no longer afraid to reach out, and let their colleagues know they were grappling with an issue. Shared ideas and best practices with peers. Always seeking ways to improve instructional capacity or abilities to improve student performance."*

School Three Teacher Five a literacy specialization teacher for Grades 1, 2, and 6 commented that PLCs enabled:

> *"Relationship building-trust, appreciation, confidence in colleagues' abilities, open door policy, sharing of perspectives."*

4.4 Evaluation of Findings

The purpose of this qualitative exploratory case study was to gain insight into teachers and principals' beliefs on the impact of PLCs on teacher professional development. The amalgamation of Vygotsky's (1978) social constructivism and Wenger's (1998) theories on community-based learning within organizations served as the theoretical framework for examining teacher professional growth within the context of PLCs. Each of these theories were utilized due to their relevance, linkage and alignment to professional development and PLCs. Collaborative learning is the core feature of COPs and social constructivism. (Vangrieken et al., 2017). Wenger (1998) COPs and Vygotsky's social constructivism theories are the basis for the PLCs framework functioning as a collaborative platform for enhancing teacher professional development and learning through regular connections and reflection on practice. The theories unpack PLCs as an effective strategy for enhancing teacher identity and professional development by fostering collective relations in schools, ensuring continuous renewal of beliefs, practices, and knowledge, leading to ongoing improvement of teachers cognitive, social, emotional capacity to enhance student achievement (Kin et al., 2019).

This study was aligned to Wenger's (1998) communities of practice and Vygotsky's (1978) social constructivism because they both illustrate where learning occurs when teachers interact in meaningful collaborative ways with the others in small communities within the school context. Vygotsky's (1978) social constructivist theory and Wenger's (1998) communities of practice are connected because they promote professional development within the context of PLCs based on the notions:

- Educators work in teams at a grade, discipline, or whole school level to collaboratively resolve common instructional issues to improve pedagogical knowledge and practices to advance student learning.
- Both theories recognize and embrace team members' distinct background experiences, knowledge, skills, and proficiencies.
- Learning is situated in the zone of proximal development which emerges from collaboration with more knowledgeable peers, facilitators, and outside experts.
- Both theories explain the importance of reciprocal actions between team members to foster collective learning.
- Regular sessions entail ongoing dialogue and critical reflection of practices which realizes collective reconstruction of knowledge and practice, beliefs, and assumptions.
- The professional development outcomes from the amalgamated theories are ongoing collective activity which fosters collaboration and collegial relations, holistic professional development in the form of cognitive, emotional, and social renewal, and ongoing advancement of teacher professional capacity.

Research Question One: How do teachers and principals at the three elementary schools view PLCs?

The purpose of research question one was gain insight into teachers and principals' understandings and conceptualization of the PLCs, as well as their descriptions of the functions of the PLCs framework in three elementary schools in Saint Lucia. Participants' interpretations were organized into Schools 1, 2 and 3 in the context of four themes These themes were collaborative planning teams, data driven decision making focused on enhancing student success, common instructional practices, and continuous learning.

The first theme associated with research question one, collaborative planning teams emerged from consistent comments of Schools 1, 2, and 3 participants. Participants described PLCs as collaborative planning teams which comprised teams at the grade level, and whole group school teams which engaged in collective reflection on instructional outcomes, sharing of ideas, best practices and experiences which can be used to improve instructional practices to enhance student achievement. Schools 1 and 3 participants also specifically described PLCs as collaborative content or subject specialization teams. Participants recognized PLCs as collaborative planning teams where there is continuous reflection on student performance and teacher instructional practices and sharing practices and experiences to enhance instructional techniques to increase student performance. The amalgamation of Wenger's (1998) COPs and Vygotsky's social constructivism theories are useful for examining participants' understandings of PLCs as collective planning teams because they jointly emphasize that PLCs foster the development of a social ethos to examine student learning and instructional practices as a medium for social discussion, resolution of issues and advancement of teacher expertise to increase student learning. Furthermore, researchers like Stoll et al., (2006) and Marzano et al. (2016); also

confirmed participant descriptions of PLCs as collaborative planning teams in their definitions of PLCs "a group of people sharing and critically interrogating practice in an ongoing, reflective, collaborative, inclusive, learning-oriented, growth-promoting way, operating as a collective enterprise" (p.223). These understandings of PLCs outline processes and practices used by committed collaborative instructional teams of educators to eradicate teaching and learning obstacles, and advance student achievement (Marzano et al., 2016).

The second theme which is associated with research question one is data driven instructional decision making. This theme was generated because of consistent responses from participants that PLCs are centered around examination of teacher and student data making geared towards making pertinent instructional decisions aimed at enhancing student outcomes. School 1, 2, and 3 participants affirmed that PLCs entail data driven instructional decisions aimed at improving student performance. Participants indicated decision making consisted of examination of student data and critical examination of pedagogical methods to modify teaching practices and design instruction to meet student needs. Participants' beliefs clearly articulate PLCs are steered by information emerging from scrutiny of student data and teachers' instructional performance. Participants insights on this core function of PLCs can be examined through the combined theoretical framework of Wenger's (1998) COPs and Vygotsky (1978) social constructivism theories as learning within PLCs requires participation and engagement from colleagues to collectively examine issues and determine resolutions leading to negotiated action plans for enhancing s organizational learning and performance. Participant beliefs are also in keeping McLaughlin and Talbert (2006) and Vesico et al. (2008) explanations of PLCs as an institutional system in which teachers work collectively to critically review their practices, analyze data to find

connections between pedagogical approaches and student achievement; and utilize this evidence to design instruction which is responsive and pertinent to students learning needs.

The third theme associated with research question one is common instructional planning which is consistently described as a major function of PLCs framework by participants. Participant responses and site artefacts in the form of grade instructional weekly plans provided by Schools 1 and 2 (Appendices D and E) illustrated common instructional grade level planning as a major aspect of PLCs at the two schools. This entailed individual grades collaboratively creating weekly plans for the core subject areas of Language Arts, Mathematics, Science, Health and Family Life, and Social Studies. These understandings of PLCs by participants are aligned to Tan and Caleon (2016) classification of PLCs as teams of persons who are involved in continuous cooperative activities to pursue established targets; construct together, participate, and distribute information; and collaborate and examine personal practices.

The fourth theme associated with research question one is continuous learning. Participants consistent responses described the PLCs framework as a mechanism for constant engagement with colleagues to seek ideas and strategies for continuous improvement of pedagogical practices, knowledge, and skills to enhance student learning. Participant responses clearly articulate that PLCs serve as a medium for continuous learning. These responses are directly aligned to the professional development outcomes of the amalgamated theoretical framework of Wenger (1998) COPs and Vygotsky's (1998) social constructivism theories that ongoing teacher engagement in PLCs will foster ongoing renewal of teacher professional capacity. Participants comments are also in sync with the prevalent viewpoints of several researchers that PLCs create a systematic transparent learning culture for teachers and school administrators within the school environment that promotes professional identity through change in the way teachers' understand their

pedagogical practice and knowledge; and foster change in teachers' professional behaviours, and content capacity (Buffum et al., 2018; Hord, 1997; Stoll et al., 2006; McLaughlin & Talbert 2006; Tan & Caleon, 2016).

- **Research Question Two: How PLCs are created and implemented at the three elementary schools?**

The purpose of research question two was to attain insight into the established PLCs structural and functional implementation processes at the three schools. Focus group and individual interviews responses and PLCs documents from Schools 1, 2 and 3 which consisted of schedules, timetables, PLCs action plan and School PLCs planning questions; and unit plans by Schools 1, 2, and 3 provided clarity and support for research question two. PLCs arrangements, data driven decision-making based on common goals, shared practices frameworks, supportive structural processes, and school related challenges are the five generated themes which contextualized participants' interpretations of research question two.

The first theme for research question two, range of PLCs team arrangements emerged from consistent participant responses for Schools 1, 2 and 3 which indicated implementation of a range of PLCs teams which consisted of Grade level PLCs, Subject Specialization PLCs, Whole School PLCs, and Across School Subject Specialization PLCs using face to face forums or virtual settings. Participant were cognizant of the structural arrangements of PLCs arrangements in their schools at grade, subject and whole school level. This theme is consistent with participants descriptions and are also aligned with Murphy (2014) explanation of PLCs as collective mechanisms which allow educators in different grade levels, divisions, and content disciplines to work in groups with overlapping boundaries and membership (Murphy, 2014). Participant beliefs are also confirmed

by researchers that the myriad PLCs structures are conventionally organized by subject area or grade level (Richmond & Manokore, 2010; Carpenter 2014; Philpott & Oats, 2017; Schapp & Bruijn 2017) which are not restricted to one school (Smith et al., 2016); and also include team teaching, coaching and advising approaches, pedagogical groups and engagement in a range of school advancement processes including curriculum improvement, creation and implementation, parental involvement, members of the community and outside experts (Stoll et al., 2006; Ilomaki et al., 2017). Furthermore. participants provided the rationale for the PLCs structural arrangements at each school. Participants affirmed that PLCs arrangements are based on staff assignments at the three sites. School 1 implemented grade level and whole school PLCs team and across school grade level PLCs arrangements held via face- to-face forum and virtual mediums. While School 2, engaged in specialist teaching before COVID 19 protocols were established. During 2018-2019 teachers taught specialist subjects. As a result, separate core subject specialist PLCs teams (Language Arts, Mathematics, General Science, Health and Family Life, Social Studies) were partially implemented in 2018-2019. In 2020, due to the established COVID 19 protocols, every teacher was assigned a grade to teach, and thus Grade Level PLCs were held using virtual and face to face forums. PLCs are also held at a whole school level so all grades could communicate and benefit from the expertise of their colleagues. School 3 also engaged in content-based PLCs teams (Language Arts, Mathematics), whole school, grade level, and across school subject PLCs teams via face-to-face sessions and online mediums. School 3 participants consistently confirmed that grade level PLCs focused on the four content areas or individual subject specialization. Overall, participants' responses for Schools 1, 2, and 3 indicated Grade level PLCs were designed to address issues related to instruction and student needs; while whole school PLCs were designed to address school wide instructional targets, issues, and values.

Theme Two: Data driven instructional decision making based on common goals. *The second theme* aligned to research question two is data driven instructional decision making based on common goals of enhancing instruction to increase student learning. This theme emerged from frequent participant responses that PLCs processes of systematic assessment of student data and evidence, regular reflection on pedagogical practice; steered focused and ongoing instructional decision making to improve instruction and enhance student learning. Participants from the three schools also affirmed that data driven instructional decision making consisted of examination of students' strengths and weaknesses; sharing research best practices or successful practices; engagement in common curriculum mapping, unit planning and lesson planning at a grade or subject level; monitoring progress at grade and or subject level; finding strategies to improve pedagogy; and using improvement plans or guiding questions to assess and align teaching methods to address student needs. These consistent participants' beliefs are in accordance with research by Munoz and Braham (2016), Stoll et al. (2006) and Williams et al. (2008) that PLCs must enact persistent assessment of student data and evidence, principals and teachers critically examine pedagogical methods, to effect logical and continuous instructional decision making; to advance student attainment and school growth.

Theme Three: Shared Practices Structures. *This third theme* focused on sharing of practices structures which exist at the three schools. School participants confirmed shared practices structures consisted of demonstration of research best practices and strategies, ongoing collective sharing, planning and reflective discourse, co and team teaching, facilitation of grade level and whole school PLCs by teachers and principals, sharing resources and open-door policy. Participants in this study also outlined that regular planning entailed both face to face and online sessions which consisted of regular, collaborative discourse. Artefacts from Schools 1, 2, and 3

which also illustrated regular sharing and planning at a grade level can be found in grade level instructional plans in Appendices D and E and School 2 WhatsApp Grade 3 Group Planning Artefact in Appendix Q. Furthermore in this study, participants indicated regular sharing also consisted of demonstrations and explanations of new or research-based strategies and methods by teachers which were substantiated by PLCs presentation artefacts from School 1 in Appendices J and K, School Three in Appendix G; and the School 2 Principal in Appendix O. Participants consistent identification of a range of sharing frameworks correspond with research by Mc Laughlin and Talbert (2001) which recommends that the school settings must be refashioned through a variety frames and strategies to advance into collaboration. These may include informal and formal job-embedded connections and alliances (Murphy, 2014) which enable relation building, channels of interchanges, and linkages for teachers at the grade, divisional, content area, school wide, and across school levels. The range of existing shared frameworks at the three schools can also be examined through Vygotsky's (1978) social constructivism and Wenger (1998) COPs theories which position sharing frameworks in PLCS as complementary spaces set within a social community context where teachers share ideas, experiences, resources, and tools which motivate, encourage and support teachers to learn from their peers as well as coaches, mentors, and facilitators.

Theme Four: Supportive Structures and Processes. This *fourth theme* outlines the supportive structures and processes which facilitate the implementation of PLCs at the three schools. Participants from Schools 1, 2, and 3 affirmed school principals enabled supportive structures and processes which comprised use of guiding questions for School 1 (Appendix N) and a class development plan template for School 2 (Appendix O) to provide direction for PLCs sessions. Participants also articulated scheduled PLCs were and another supportive mechanism

and provided school artefacts which substantiated that PLCs were scheduled weekly for common and regular planning as shown in grade level weekly schedules for Schools 1 and 2 (Appendixes F and G), and a term schedule of activities for School 3 (Appendix I). Participants responses resonate with the literature that school leaders also ensure staffing protocols are established, outline expected outcomes, and operational protocols of PLCs (Murphy, 2014). This would comprise providing teachers with adequate scheduled time for PLCs sessions; and the scope and tools to spur their efforts (Bolam et al., 2005: Stoll et al., 2006).

Participant responses also outlined shared leadership structures as another support mechanism at the three schools, where principals undertook collaborative processes of encouraging teachers to facilitate PLCs sessions as indicated in presentation artefacts. Artefacts which corroborated shared leadership included teacher facilitation of PLCs at School 1 (Appendix J, K) and 3 (Appendix L), and whole school PLCs facilitation by School 2 principals (Appendix M). Additional support mechanisms were from School Principal 1 using research to design guiding questions to direct sessions (Appendix N), and School Principal 2 designing a PLCs improvement action plan to guide sessions (Appendix O). Common participant responses from Schools 1, 2, and 3 also indicated that school principals also took on roles of supplying resources and tools. monitoring, engaging in collective inquiry, assessing student learning, and data analysis to advance pedagogical methods and student attainment. Mentoring sessions for novice teachers by School Principal 3, found in (Appendix P) was also another supportive structure in School 3. Participants' constant responses clearly indicated that three school' principals played an instrumental role in developing and maintaining PLCs implementation through the establishment of supportive structures and processes. These responses are in alignment with the PLCs research that leaders are pivotal facilitators in establishing and maintaining PLCs (Zhang &Pang, 2016). Furthermore,

participants responses are in accordance with literature affirmations that school leaders must adopt a range of supportive and instructional strategies to ensure the viability and vibrancy of PLCs (Hassan et al., 2018: Olson, 2019), as well as seek school facilities resources and supplies for effective classroom productivity, and instructional assistance from internal and external experts to maintain the collective aims of PLCs (Fink, 2018; Olson 2019; Pirtle & Tobias, 2014). Overall, participant consistent responses in this study confirmed that school leader involvement in the PLCs entail a range of essential and supportive roles such as shared leadership, mentoring, assessment of student learning, data analysis, and collaborative inquiry (Lerlec et al., 2012; Wilson 2016).

Theme Five: PLCs school related implementation challenges. The fifth theme affiliated with research question two outlines prevalent school related factors that hamper the implementation processes of PLCs at the three schools. Participants from Schools 1, 2, and 3 outlined several challenges which hinder PLCs implementation processes in the guise of weak PLCs structural processes; lack of thorough understanding of the concept and processes of PLCs; school related issues such as teacher absenteeism and other school, district or national activities taking precedence over PLCs, time constraints; and inadequate human resources.

Common participant responses from the three schools indicated there was a lack of thorough understanding of the PLCs concept and its implementation processes. The common beliefs of study participants were PLCs lacked structure in terms of goals, outcomes, operational, and monitoring processes. Participants also indicated there were no clearly outlined goals and direction for PLCs termly meeting or monitoring system to determine whether the instructional strategies developed through PLCs were implemented and outcomes achieved. These participant responses confirm that one of the major problems hindering successful PLC implementation is a

lack of clarity about the concept and its essential influence on student achievement (Marzano et al., 2016). These responses are also in accordance with Dufour (2007) view that lack of clarity about PLCs framework occurs when school leaders and teachers proclaim PLCs have been implemented, while critical structures have not been established. Dufour (2007) also stressed that PLCs may not be viable due to confusion about their structural and operational elements. Further, DuFour and Reeves (2016) explained that many school principals and teachers may be engaged in collaborative decision making and inspiring work, but these activities lack focus and a shared vision and do not epitomize the characteristics of PLCs.

Schools 1 and 2 also highlighted there was no mechanism for student supervision during PLCs meetings which deterred teacher and principal attendance at PLCs. Further, School 3 had predominantly held content area PLCs for the disciplines of Language Arts and Mathematics, while Science and Social Studies teachers did not hold content area PLCs. Thus, some content area teachers at School 3 had not participated in grade level or content area PLCs and could not provide insight on the concept, operational processes, and impact of this framework on their professional growth. Participant responses clearly indicate that PLCs in these two school settings lacked a well-defined school vision to serve as the guidepost for implementation of the framework. Participant responses can be examined through Hord's (1997), recommendation that "staff are encouraged to utilize the vision as a guidepost in decision making about instruction, administrative processes and professional learning within the school" (p.19). Thus, participant responses clearly illustrated some School 3 participants who were specialist teachers in the disciplines of science and social studies were not part of the subject level PLCs initiative and were not cognizant of PLCs purposes, functions and how this framework can be utilized to enhance teacher capacity and student learning. Participant responses are in sync with research which asserts that the lack of a shared vision,

ambiguity of the PLCs purposes and implementation processes to enhance student learning are major hurdles to effectively implement PLCs (Hairon & Tan, 2017; Hord, 1997; Vescio et al., 2008).

Participants also articulated insufficient time as a major hindrance to effective and sustainable PLCs implementation. Participants started the hour assigned weekly to PLCs was inadequate for educators to collectively assemble and reflect on their practices and find new pedagogical methods to enhance professional capacity. These consistent responses are congruent with the literature that time constraints and school mandates are major obstacles for PLCs implementation and sustenance (Hairon, Goh & Lin., 2014; Hassan et al., 2018; Liberman & Miller, 2011; Vangreiken et al., 2017). because teachers are inundated with many pedagogical, learning, and other school operational responsibilities (Jiang, 2016). These common responses are in sync with researchers' assertions that teacher and principals' heavy workloads make it difficult for schools to allocate additional time for educators to work collectively in PLCs (Akinyemi & Rembe, 2017).

Participants of Schools 1, 2, and 3 also stated that while a specific time has been allocated for these PLCs meetings, some of them would opt to skip their attendance because school-wide issues such as teacher absenteeism and other district, national and school related processes such as sporting activities and preparation of students for national exams. Participants responses also outline national educational mandates and school related processes deter PLCs implementation. The common responses correspond to Lieberman and Miller (2011) explanations that school-based issues, national, and district instructional directives may take precedence over the aim of schools to establish PLCs to ameliorate teacher professional expertise and student performance. These instructional directives prompt schools to discount the PLCs agenda and sustain traditional

operational processes and instructional practices to fulfill systematic mandates. Hence, time constraints, school-wide issues and mandated institutional processes of schools are major, entwined hindrances for the establishment and sustenance of school PLCs.

Additionally, participants indicated internally and externally imposed barriers including lack of human resources which was a hurdle in the implementation of PLCs at the three schools. Participants from the three schools also stated schools lacked experts to address ongoing professional development needs. Further, Schools 1, 2, and 3 also had difficulty gaining access to external experts at the Curriculum and Development Unit of the Ministry of Education and other educational departments. Participants' comments are parallel to the views of Murphy (2014) and Belibas et al. (2016) that educational institutions may lack required human, financial, and structural resources which are major hurdles in the development of PLCs. Hence, the internal and external school community factor of inadequate human resources outlined by school participants hampered PLCs implementation and viability at the three schools.

- **Research Question Three: How PLCs impact the professional development of teachers in three elementary schools in one educational district?**

The purpose of research question three was to glean participants beliefs of PLCs impact the professional development of teachers in three elementary schools in one educational district. Participant responses to research question three generated two themes which comprised enhanced knowledge and instructional practices, as well as collaboration and collegiality.

Theme One: Enhanced Instructional Practices and Knowledge. *This first theme* aligned to research question three is associated with improved pedagogical and knowledge capacity of

teachers through systematic instructional decision making and engagement in PLCs. School 1, 2, and 3 participants confirmed critical reflection on practices led to assessment of pedagogical delivery, finding viable alternative solutions to address student needs, collective, deliberate, and systematic planning, and sharing of research best practices, and resources to advance teacher knowledge and pedagogical skills to meet students' needs. According to participants, PLCs was the platform to continuously and collaboratively work with their peers to enhance knowledge and pedagogical practices. Participants' beliefs clearly articulated that PLCs provide job-embedded development that is functional and pertinent to teachers' instructional knowledge and instructional needs. Participants beliefs are consistent with research by Barton and Stepanek (2012) and Dogan, Pringle and Mesa (2015), that the ongoing participation in PLCs provide a context for educators to hold collaborative discourse, assess their teaching practices, find solutions for student learning issues, plan together, and find suitable, innovative, alternative research based best practices to modify instruction practices to address student needs. Additionally, study participants responses are in sync with literature which affirms that PLCs promoted a collective institutional culture of teaching, learning and analysis of pedagogical practices with the aim to renew the mindset, and advance the professional capacity of teachers and instructional leaders for progressive learning of students (Buffum et al., 2018; Song & Choi, 2017; Piedrahita, 2018). Overall, participants indicated the PLCs framework was a mechanism for teachers to glean insight on their pedagogical capacity from their peers and acquire an ongoing range of novel instructional teaching and learning strategies to enhance student learning.

Theme Two: Collaboration and Collegiality. The second theme aligned to research question three is collaboration and collegiality. Similar participant responses for Schools 1, 2, and

3 confirmed continuous teachers' engagement in PLCs created a supportive environment for constant collaborative discourse to discuss students' weaknesses, collective examination of instructional methods and solving instructional challenges, collective instructional design to meet students' needs, and drawing on the instructional expertise of peers. These responses can be assessed through the lens of the amalgamated theoretical framework of Wenger (1998) COPs and Vygotsky's (1978) social constructivism theories which outline the major characteristics of PLCs are collaboration and collegiality. Professional collaboration focuses on developing social relations among members which Hord (1997) advocates is realized when teachers and instructional leaders work in tandem, share pedagogical practices, experiences, and content knowledge with the aim of attaining educational and institutional goals.

Common participants' responses also affirmed that PLCs provided teachers with a platform to connect with colleagues and enabled an authentic environment for professional discourse. Participants noted the collaborative environment fostered an avenue to deepen knowledge and experiences because of interchanges with peers. The ongoing collective engagement with other teachers also propelled teachers to seek and use novel ideas. Furthermore, participants' consistent responses accentuate that shared engagement in PLCs had created several opportunities for professional development because it stimulated collective peer support. Within the professional context of the three schools, shared leadership, co-teaching, team teaching, scaffolding, demonstration, and collaborative planning enabled access to collective and constructive insights about research based and successful instructional practices.

Common participant responses from Schools 1, 2 and 3 indicated another notable outcome of the PLCs framework was the establishment of a collegial ethos which supported teacher professional growth. Participants of Schools 1, 2, and 3 lamented that ongoing involvement in

PLCs had yielded an ethos of trust and respect because participants viewed peers as professionals with expertise. Further, participants stated frequent collaborative PLCs interaction also created avenues for nurturing and establishing amicable relations with colleagues. These responses can be examined from research findings of Flores et al. (2015) and Pang and Wang (2016), which articulate regular participation in PLCs develop collegiality as educators meet often to learn, create fresh insights, critically examine instructional issues, and develop connections required for the establishment of a functional community. Moreover, participants beliefs are also in accordance with the research by Jones et al. (2013) and Tam (2015) which advocate PLCs enable a collegial ethos of collective working relations, building respectful, and trusting amicable connections. Hence, according to study participants, PLCs is a sustainable framework which enables the development of collaborative and collegial school ethos which enhances teacher professional development.

4.5 Summary

The multi-site exploratory case study examined elementary teachers' and principals' beliefs on the impact of PLCs on their professional growth and development in three elementary schools in one educational district in Saint Lucia. The study data was collected from focus groups with twenty-five teachers and individual interviews with three principals. School documentation which consisted of PLCs guide documents, PLCs schedules and timetables, weekly instructional plans, and PLCs session artefacts were also used as a third source of data. Data was organized according to the research questions and theoretical concepts of the study.

A range of strategies aligned to the concepts of credibility, transferability, dependability, confirmability, validity, and reliability were utilized to bolster this investigation. The strategies

utilized to ensure credibility are prolonged engagement, triangulation, member checking, and the use of an audit trail. To ascertain transferability, the research processes were precisely and comprehensively documented. Dependability entailed researcher review, analysis, and reference of empirical investigations on the implementation of PLCs in different school settings. Additionally, mechanisms instituted to ensure confirmability of the findings consisted of verbatim beliefs of participants attained from teacher focus groups and principal interviews, as well as PLCs complementary documentation from the three organizations which supported interpretations. Moreover, triangulation of the three data sources from three different schools were utilized to lessen data bias.

Reliability and validity strategies were also employed to ascertain a credible investigation. This was determined through utilization of a precise, multiple source data gathering process which consisted of individual interviews, focus groups and school documentation from three school settings. Data gathered from 28 participants and school documentation provided a combination of varied data. Further, data excerpts aligned to research questions and school documentation were used for verification of outlined themes. Validity processes also consisted of triangulation of three data sources, expert assessment of instruments and data analysis, and pilot testing of instruments.

Next, the researcher employed Braun and Clark's (2006) recommendation of a blended approach which combines deductive and inductive thematic analysis was used to analyze focus group and individual interview transcripts and document assessment synopsis. This strategy supplemented the research questions and included deductive coding actions which use concepts from the theoretical framework and inductive coding of themes from the raw data. Exhaustive perusal and analysis of data resulted in connected and dependable themes across school settings which were linked to the research questions.

The first research question focused on teachers and principals' beliefs of the PLCs framework implemented in the three elementary schools located in one educational district. The researcher generated four themes answering this question which comprised collaborative planning teams, data driven decisions focused on enhancing student success, common instructional practices, and continuous learning. The second research question concentrated on how PLCs are created and implemented at the three elementary schools. This question focused on the established PLCs structure and implementation processes at the three schools. The researcher generated five themes responding to research question two which included a variety of PLCs arrangements, data driven decision- making based on common goals, shared practices frameworks, supportive structural processes, and school related challenges. Research question three focused on how PLCs impacted the professional development of teachers in three elementary schools in one educational district. This question provided the researcher with participants' beliefs on the influence of PLCs on teacher professional development. Two themes discerned relevant to this research question three included enhanced knowledge and instructional practices, and collaboration and collegiality.

Overall, the data collection and analysis processes, as well as strategies aligned to the concepts of credibility, transferability, dependability, confirmability; reliability and validity enabled the creation of an account which explicated major themes, and pertinent data excerpts explicitly aligned to analysis of the research questions and literature to complement the findings.

CHAPTER 5: IMPLCATIONS, RECOMMENDATIONS, AND CONCLUSIONS

5.0 Implications, Recommendations, and Conclusion

5.1. Introduction

Research on teacher development in Saint Lucia and other Eastern Caribbean Islands affirmed the traditional short term workshop professional development model utilized to enhance teacher quality was inadequate for the sustainable professional growth of elementary school teachers (Mark & Murphy, 2017; OECS& USAID ELP Executive Summary, 2016; OECS Report on Teacher Education, 2018; OECS/EDMU, 2019). Furthermore, Eastern Caribbean elementary teachers demanded immediate professional development intervention that would equip them with the tools and confidence to ensure good teaching theory is translated into best teaching practices (OECS & USAID ELP Report, 2016). Hence, the EDMU of the OECS Commission implemented an evidenced-based teacher centered professional development framework PLCs, based on the premise that Eastern Caribbean teachers possess great expertise and competencies which can promote the professional development movement in the OECS. This professional development model was designed for the elementary education sector and is in keeping with the OECS Education Sector Strategy (OESS) 2012-2028. One of the imperatives of OESS 2012-2028 is the need to improve teacher professional development with an outcome of improved teacher quality and pre-service training and professional development initiatives to be in place for all prospective and in-service teachers, relevant to each stage of their career" (OESS, 2012-2028 p.12). The professional development model is also aligned to CARICOM Human Resource Development 2030 Strategy which focuses on the promotion of inclusive and equitable quality education and life-long learning opportunities as the main outcome for teachers and students. Consequently, in 2018, the PLCs framework was piloted in Saint Lucia and other Eastern Caribbean Islands

elementary schools to improve teacher quality and ensure sustainable professional development (OECS Report on Teacher Education, 2018). Despite the growing research on teacher development and PLCs globally, there is limited research on the concept, development and practices of PLCs in Saint Lucia and other Eastern Caribbean Islands elementary schools. Thus, this qualitative investigation continued this line of inquiry and examined teachers and principals' beliefs on the impact of PLCs on professional development of teachers at three elementary schools in one educational district in Saint Lucia.

A qualitative multi-site case study design was used for exploration of the beliefs, implementation of process, benefits, and challenges, to produce understandings of the PLCs model on teacher professional development in the three elementary schools. This exploratory case study gained insight into twenty-five teachers and three principal's beliefs of the established professional learning communities, implementation processes of the established PLCs, and the impact of PLCs on the professional development of teachers. Accordingly, this multi-case study design facilitated the use of three data collection techniques which are focus group, individual interview, document analysis, and several analytical procedures to answer the research questions. Further, triangulation was utilized as a validation device to contrast data acquired from participant interviews and document analysis and ascertain the accuracy and relevancy of the investigation. Overall, the characteristics of this exploratory qualitative case study design facilitated the generation of comprehensive interpretations of the impact of PLCs on teacher professional development from the vantage of participants, heightened the significance of the understandings, and bolstered the combination and connection of conclusions.

A range of ethical processes were employed for the safety of all participants. The educational district officer, three school principals and teachers obtained extensive explanations

on the research aims, techniques, data gathering processes, time frame, viable threats, advantages, measures to assure protection of participant's privacy and anonymity, contact information for queries, and the risks of involvement in the inquiry. These explanations facilitated voluntary participation, and free withdrawal from the study. Participants completed and affixed signatures on consent forms before the interview. Great care was also taken to avoid injury and maintain the well-being of participants by acknowledging human rights; safeguarding the privacy and obscurity of participants; using suitable data gathering techniques; and guarding accumulated data. Participants and organizational identities were protected by assigning pseudonyms and degrees of generalities for data collection, analysis, and report writing. Semi-structured interview and focus group protocols were used to ensure all participants were asked the same questions. Additionally, data collection via zoom sessions were at reasonable, unimposing, appropriate, and convenient times. Further, precautions were taken by providing only participants with zoom links for the focus group and individual interviews.

Chapter Five provides a detailed summary of findings in relation to associated themes as they correspond with the three research questions. Next, findings as they pertain to current PLCs research and the theoretical framework are also addressed and implications for application, future practice, and research determined and explored. Moreover, recommendations and concluding remarks are presented.

5.2. Main Findings of the Study

5.2.1 Research Question One

RQI: How do teachers and principals at the three elementary schools view PLCs?

Research question one findings provides extensive understanding of teachers and principals' overall conceptualization of the PLCs, and descriptions and functions of the framework in the three elementary schools in Saint Lucia. Figure 5.1 presents the consistent findings for research question one from Schools One, Two and Three participants.

Figure 5.1

Research Question One Findings for Schools One, Two and Three

PLCs comprise collaborative teams at the grade, subject and school level.
PLCs are a space where there is consistent data driven instructional decision-making geared towards enhancing student learning.
A forum for common instructional planning at a grade and subject level.
PLCs serve as a mechanism for continuous learning.

Participants of the three schools consistently outlined collaborative teams, data driven instructional decision making geared towards enhancing student outcomes, common instructional planning, and ongoing learning as four major functions of PLCs in their schools. Participants commonly recognized PLCs as collaborative teams at the grade, subject and school level. with established common goals and values to purposefully address students' learning. Additionally, participants stated PLCs at the three schools also operated as a platform for data-based decision making which comprised ongoing assessment of students' performance, examination of instructional strategies and processes to develop supportive, responsive, and pertinent instructional adjustments to cater to students' learning. Further, common instructional planning was also

identified as another core function of PLCs framework which entailed individual grades collaboratively creating weekly plans for the core subject areas of Language, Arts, Mathematics, Science, Health and Family Life, and Social Studies. The regular and ongoing collective discourse about pedagogical practices and student attainment during PLCs sessions created an ethos of common approaches to instruction which encouraged educators to share practices and use efficient strategies at grade and school levels. Moreover, participants intimated PLCs framework operated as a mechanism for constant engagement with colleagues to seek ideas and strategies, for continuous learning and improvement of pedagogical practices, knowledge, and skills, and to enhance students' learning. Overall, the implemented PLCs frameworks at the three elementary schools comprised the three core functional processes of collaborative teams were data driven decision making geared towards enhancing students' outcomes, common instructional planning and ongoing learning which are the crucial characteristics required for the application and sustainability of PLCs in the school context.

5.2.2 Research Question Two

RQ2: How PLCs are created and implemented at the three elementary schools?

Research question two findings revealed the established PLCs structural and functional implementation processes at the three schools. The three schools comprised range of PLCs arrangements, data driven decision-making based on common goals, shared practices structures, supportive structural processes, and school related challenges as depicted in Table 5.1

Table 5.1

Major Findings of Research Question 2 for Schools One, Two and Three

Major Findings	Commonalities Across Three Schools	Differences Across Three Schools
Range of PLCs Arrangements	Grade Level PLCs focused on instruction in core subject areas. Whole School Level PLCs on school wide issues	SC1 PLCs at Grade Level Subject levels PLCs (SC2 &SC3) SC2 PLCs in Science, Math, Social. Studies, Language Arts SC3 PLCs in Language Arts and Math
Instruction Decision Making Based on Common Goals	**Schools instructional decision making processes:** Examined students strengths and weaknesses Reflected on teacher instruction Identified strategies to address instructional and student needs engaged in common curriculum mapping, unit planning, lesson	

	mapping at grade and subject level
Shared Practices Structures and Processes	
	sharing of research-based practices at grade and subject level teacher facilitation of PLCs.
	demonstrations of instructional strategies ongoing sessions for collective reflection and discourse
	Co and team teaching
	Sharing of resources by principals and teachers
	Open door policy to peers' classrooms for observation
	Principals part of collective Inquiry and discussions and data analysis
	Principals' facilitation Of Whole school PLCs

Supportive Structures and Processes		
PLCs Guideposts Developed	SC1 and SC2 Principals developed guideposts for PLCs sessions.	SC1 Principal provided guiding questions SC2 Principals developed a class improvement plan template
PLCs Scheduled	PLCs scheduled once weekly for SC1 and SC2	SC3 PLCs scheduled. once monthly
Shared Leadership Mechanisms	Principals encouraged teachers to facilitate PLCs sessions. Principals and teacher collaboratively facilitate PLCs.	
School Related Factors Which Hampered PLCs Implementation		
Lack of clarity on the Concept and Processes	SC1, SC2, SC3 PLCs lacked structure in terms of goals,	

	outcomes, operational and monitoring processes.	
	Inadequate structures for student supervision during PLCs SC1, SC2, and SC3 had implemented PLCs but participants were perplexed about functional and systematic processes of PLCs.	SC3 held predominantly Language Arts and Math PLCs Specialization Teachers of Social Studies and Science at SC3 could not provide insight on PLCs operations in these areas.
	Participants engaged in collective decision making but these pursuits lacked focus in terms of direction and purpose.	
Time Constraints	SC1 and SC2 weekly PLCs, and SC3 monthly scheduled session sessions deemed inadequate for teachers to collectively reflect, analyze data, and identify pertinent instructional methods.	
School Wide Issues	Teacher non-attendance at PLCs due to teacher absenteeism and other national, district related events such as sporting events, national exams which take precedence over PLCs.	

Inadequate Human Resources to Facilitate PLCs	Schools lacked experts internally and had difficulty in gaining access to external experts from ministry of education agencies to facilitate PLCs.

Theme one as depicted in Table 5.1 revealed the three school contexts were refashioned using a range of PLCs teams which consisted of Grade level PLCs, Subject Specialization PLCs, Whole School PLCs, and Across School Subject Specialization PLCs using face to face forums or virtual settings. Participants revealed that Grade level and Subject Level PLCs were designed to address issues related to instruction and students' needs; while the whole school PLCs addressed school wide instructional targets, issues, and values.

Participant responses confirmed the second theme is aligned to instructional decision making based on common goals processes. These findings depicted in Table 5.1 revealed a critical aspect of the implementation of the three sites PLCs framework was the utilization of a systematic decision- making processes which encompassed examination of pedagogical practices and students' data to make informed and continuous instructional design decisions to advance students' learning and school-based issues. Common processes at the three sites comprised sharing research best practices or successful practices; engagement in common curriculum mapping, unit planning and lesson planning at a grade or subject level; monitoring progress at grade and or subject level; finding strategies to improve pedagogy; and using improvement plans or guiding questions to assess and align teaching methods to address students' needs.

This third theme findings as depicted in Table 5.1 revealed that the PLCs framework enabled a risk free and safe ethos for critical dialogue, sharing practices and resources, mentoring,

as well as provision of guidance and assistance for teachers to access and gain insight into new instructional experiences from peers to advance student attainment and teachers individual and collective expertise. The range of sharing of practices structures which existed at the three schools consisted of facilitation by the teachers and principals, sharing of resources and materials for teaching of concepts, regular and collaborative grade and subject level planning, demonstrations by more knowledgeable peers of best practices, co-teaching, team teaching of concepts, as well as an open-door policy classroom visits and observation of more experienced peers. Principals also took on roles of sharing resources and mentoring and scaffolding sessions for teachers monitoring, engaging in collective inquiry, assessing students' learning, and data analysis to advance pedagogical methods and students' attainment.

The fourth theme as depicted in Table 5.1 outlined the supportive structures and processes which facilitated the implementation of PLCs at the three elementary schools. Participants affirmed educational leaders enabled supportive structures and processes which included the use of guiding questions (School One) and improvement plan template (School Two) to provide direction for PLCs sessions. PLCs were also scheduled weekly for common and regular planning in Schools 1 and 2, and once monthly for School 3. Principals also supported PLCs implementation by providing mentoring sessions for teachers, monitoring PLCs sessions, engaging in collective inquiry, and assessing students' learning and data to advance pedagogical methods and students' attainment. Shared leadership structures were another support mechanism at the three elementary sites where the principals undertook collaborative processes of encouraging teachers to facilitate PLCs sessions. Participants from the three schools also pinpointed principals who took on roles of supplying resources and tools. Based on the evidence, it can be concluded that the three elementary

school principals utilized a host of supportive strategies to implement and fulfil the collective goals of the established PLCs frameworks.

The fifth theme connected to research question two as depicted in Table 5.1 is prevalent school related factors which hampered the implementation processes of PLCs at the three elementary schools. The challenges were lack of thorough understanding of the concept and processes of PLCs; school related issues such as teacher absenteeism and other school, district or national activities taking precedence over PLCs, time constraints; and inadequate human resources. Participants from the three sites consistently claimed PLCs lacked structure in terms of goals, outcomes, operational, and monitoring processes. Findings revealed were weak or unclear goals and direction for PLCs termly meeting or monitoring system to determine whether the instructional strategies developed through PLCs were implemented and the outcomes achieved. Schools 1 and 2 participants also highlighted there was no mechanism for students' supervision during PLCs meetings which deterred teachers and principals' attendance at PLCs. Further, School 3 held predominantly content area PLCs for the disciplines of Language, Arts and Mathematics, while Science and Social Studies teachers did not hold these content area PLCs. Thus, some content area teachers at School 3 had not participated in grade level or content area PLCs and could not provide insight on the concept, operational processes, and impact of this framework on their professional growth. These findings clearly showed that a major obstacle to. School principals and teachers indicated PLCs have been implemented but some critical elements were not established thus, resulting in participants' perplexity about the functional and systematic processes of PLCs. The data signified that school principals and teachers engaged in collective decision making, but these pursuits lacked focus and vision which resulted in teachers' lack of thorough understanding of the PLCs concept, aims, and implementation processes.

Time constraints and school mandates presented in Table 5.1 were also identified as major obstacles for PLCs implementation and sustenance at the three elementary schools. Teachers and principals outlined insufficient time as a major hindrance of PLCs implementation. The time frame of one hour weekly for PLCs for Schools One and Two and once monthly for School Three were regarded as inadequate for teachers to collectively assemble and reflect on their practices and find new pedagogical methods to enhance professional capacity. Other hindering factors on the effectiveness of PLCs identified by Schools 1, 2, and 3 participants were teacher nonattendance of PLCs sessions due to school-wide issues such as teacher absenteeism and other district, national and school related processes such as sporting activities and preparation of students for national exams taking precedence over scheduled PLCs. Additionally, participants stated that the lack of experts to address ongoing professional development needs was another internal and external hurdle in PLCs implementation and viability. Overall, these findings exposed the PLCs frameworks at the three elementary schools encountered several obstacles because of the absence of a clearly articulated shared vision to guide PLCs decisions, routines, functional and implementation processes, and sustainability. Moreover, these findings unveiled obstacles of PLCs implementation were time constraints due to hectic school workload and teacher mandates, school related issues like teacher absenteeism, national and school district mandates taking precedence over PLCs, and the lack of internal and external expertise to drive training to address professional development needs required to build an effective PLC.

5.2.3 Research Question Three

RQ3: How PLCs impact the professional development of teachers in three elementary schools in one educational district?

The third research question findings articulate participants beliefs on the ways in which PLCs impacted teacher professional development at the three elementary schools. The major findings revealed that PLCs implementation at the three schools enhanced knowledge and instructional practices of teachers and collaboration and collegiality in the school community which is depicted in Table 5.2.

Table 5.2

Major Findings of Research Question Three for Three Schools

Major Findings	Commonalities Across Three Schools
Enhanced Knowledge And Instructional	Constant engagement in PLCs created a supportive ethos. for collaborative discourse on instructional issues to address students' learning needs. Collective examination of instructional methods Solving instructional issues conjointly Collective instructional design to address student learning. Drawing on the instructional expertise of peers
Collaboration and	Space to connect with colleagues. Established an authentic ethos for pedagogical discourse. Professional collaboration among teachers and principals', Professional development opportunities stimulated peer support. Sharing of pedagogical practices, experiences, and content to meet educational and institutional goals .
Collegiality	PLCs created an ethos of trust and respect for peers' professional capacity Frequent Collaboration in PLCs created spaces for

developing and establishing amicable relations with peers

The findings depicted in Table 5.2 revealed the first benefit of PLCs as a professional development mechanism identified by participants from the three sites is the PLCs framework served as a vehicle of continuous engagement which led to teachers' acquisition of a range of pedagogical strategies from peers which advanced pedagogical capacity to improve student outcomes. The systematic engagement in ongoing critical reflection and assessment of pedagogical delivery, finding viable alternative solutions to address student learning needs, collective, deliberate, and systematic planning, and sharing of research best practices, and resources advanced teacher knowledge and pedagogical skills to meet students' needs.

Another benefit of the PLC's framework as a professional development mechanism voiced by participants from the three sites depicted in Table 5.2 is collaboration and collegiality. Similar participant responses confirmed continuous teachers' engagement in PLCs team processes, shared practice structures, and shared leadership processes enabled professional collaborative processes and created a supportive environment for constant collaborative discourse and connections with colleagues. This collaborative environment stimulated peer support and fostered an avenue to deepen knowledge and experiences because of interchanges with peers. Consistent teachers and principals' responses from the three elementary schools also revealed the PLCs framework enabled the establishment of a collegial ethos which supported teacher professional growth. Participants acknowledged ongoing PLCs engagement had yielded an ethos of trust and respect because they regarded peers as professionals with expertise. Further, participants divulged frequent collaborative PLCs interaction created avenues for nurturing and establishing amicable relations

with colleagues. Overall, question three findings unveiled that PLCs framework promoted ongoing learning and advancement of professional expertise, collegial atmosphere of collaborative workplace relationships, and developed respectful, trusting, and harmonious alliances.

5.3 Discussion

This multi-site qualitative exploratory case gained insight into teachers and principals' beliefs on the impact of PLCs on teacher professional development. The main objectives of this study were to examine three principals and twenty-five teachers' beliefs of the PLCs framework, the implementation processes and structural conditions, and impact on teacher professional development. This study also addressed the gap of untapped research on the impact of PLCs on teacher professional development in elementary school contexts in the Eastern Caribbean. The amalgamation of Vygotsky's (1978) social constructivism and Wenger's (1998) theories on community-based learning within organizations served as the theoretical framework for examining teacher professional growth within the context of PLCs. The combined theoretical framework unpacks PLCs as an effective strategy for enhancing teacher identity and professional development by fostering collective relations in schools through regular connections and reflection on practice, ensuring continuous renewal of beliefs, practices, and knowledge; leading to ongoing improvement of teachers cognitive, social, emotional capacity to enhance student achievement (Kin et al., 2019). Hence, discourse on findings of this study is presented through the lens of the research questions, current research, and the theoretical framework.

Research question one gained insight into teachers and principals' conceptualization of the PLCs, as well as the core functions of the PLCs framework in three elementary schools in Saint Lucia. Participants identified school PLCs as collaborative teams which operate at grade level,

subject level, and whole school levels. Further, participants recognized PLCs as a platform which served three core functions. Participants' common responses identified a core function of the PLCs platform was it served as a space for consistent data driven instructional decision-making geared towards enhancing student learning. PLCs at the three schools were steered by information emerging from teacher engagement in continuous and critical examination of student learning issues and teacher instructional practices to enhance instructional techniques to increase student performance. Another core function identified from participants responses and PLCs schools' artefacts was PLCs entailed collective weekly common planning of instructional design of units and lesson plans at grade and subject levels at the three schools. The third core function gleaned from the three school participants consistent responses was the PLCs framework served as a mechanism for continuous learning because of the constant engagement with colleagues to seek ideas and strategies for continuous improvement of pedagogical practices, knowledge, and skills to enhance student learning. These three school participants 'consistent conceptualizations of the PLCs framework are aligned and congruent to previous and current literature (Hord, 1997; Stoll et al., 2006; Olsson, 2019) as well as the tenets of the amalgamated Wenger's (1998) COPs and Vygotsky's social constructivism theoretical framework which guided this study. which emphasizes that PLCs is a systematic transparent learning team-based mechanism which foster the development of a social ethos to examine student learning and instructional practices as a medium for social discussion, resolution of issues and advancement of teacher expertise to increase student learning. Participants identification of three core PLCs functional processes of common instructional planning, data driven instructional decision-making geared towards enhancing student learning, and continuous renewal of teacher expertise also resonate with current literature and literature reviews (Hord 1997; Olsson, 2019; Stoll et al., 2006; Shan, 2023) and the combined

tenets of the theoretical framework of Wenger's (1998) COPs and Vygotsky (1978) social constructivism theories as learning within PLCs requires participation and engagement from colleagues to collectively examine issues and determine resolutions leading to negotiated action plans to enhancing teacher professional capacity, organizational learning and student performance.

Research question two attained insight into the established PLCs structural and functional implementation processes at the three schools. Participants interpretations and supporting PLCs documentation generated the five themes of PLCs arrangements, data driven decision-making based on common goals, shared practices frameworks, supportive structural processes, and school related challenges for research question two. Consistent participants responses and PLCs artefacts indicated the implementation of a range of PLCs teams at grade, subject and whole school level using face to face forums or virtual settings. Participants described PLC teams as collective mechanisms which allow teachers in different grade levels, divisions, and content disciplines to work in groups. as well as whole school level PLCs teams via face-to-face sessions and online mediums. The common grade and subject level PLCs structures at three schools were designed to address issues related to instruction and student needs; while whole school PLCs were designed to address school wide instructional targets, issues, and values. These findings are congruent to current literature (Hord, 1997; Stoll et al., 2006; Nguyen et al., 2022) and the tenets of combined theoretical framework of Wenger's (1998) COPs and Vygotsky's (1978) social constructivism theories which classify PLCs as community-based teams of educators engaged in ongoing collaborative activities to examine and modify instructional practices to enhance student and organizational learning.

Common participant responses revealed that core PLCs processes of the three schools were data driven instructional decision making based on common goals of enhancing instruction to increase student learning. Participants affirmed that data driven instructional decision making within PLCs consisted of ongoing examination of students' strengths and weaknesses; sharing research best practices or successful practices; engagement in common curriculum mapping, unit planning and lesson planning at a grade or subject level; monitoring progress at grade and or subject level; finding strategies to improve pedagogy; and using improvement plans or guiding questions to assess and align teaching methods to address student needs. These consistent participants' beliefs of the established PLCs processes at three schools are in accordance with the literature (Hord, 1997; Stoll et al., 2006; Munoz & Braham, 2016; Olsson, 2019) and the tenets of Vygotsky's (1978) and Wenger's (1998) COPs amalgamated theoretical framework which emphasizes that PLCs must enact persistent processes which comprise assessment of student data and evidence, as well as principals and teachers critically examination of pedagogical methods, to effect logical and continuous instructional decision making; to advance student attainment and school growth.

Consistent school participants' responses and supporting PLCs artefacts confirmed varied collaborative shared practices structures at the three schools which consisted of demonstration of research best practices and strategies, ongoing sessions of collective sharing of strategies, common instructional planning, regular reflective discourse, co and team teaching, facilitation of grade level and whole school PLCs by teachers and principals, sharing resources, and opportunities to visit peers classrooms to observe teaching concepts. These regular sharing opportunities occurred via face to face and online sessions. Participants consistent identification of a range of formal and informal and grade subject level and school wide collaborative sharing frameworks revealed the

three school settings refashioned the school community using a variety frames and strategies to advance into collaboration. The existing shared frameworks at the three schools serve as a form of job embedded professional development to acquire innovative pedagogical practices are in agreement with the prior and current literature (Hord, 1997; Stoll et al., 2006; Mahimuang, 2018; Olsson, 2019) and the combined Vygotsky's with (1978) social constructivism and Wenger (1998) COPs theoretical framework which position PLCS as spaces with a range of enabling operational processes set within a social community context where teachers share ideas, experiences, resources, and tools which motivate, encourage and support teachers to learn from their peers as well as coaches, mentors, and facilitators to enhance their professional capacity to enhance student achievement.

The three schools' participants' responses and PLCs documentation affirmed supportive structures and processes facilitated the implementation of PLCs at the three schools. According to participants, school principals enabled supportive structures and processes which comprised scheduled one-hour weekly PLCs sessions and operational protocols and guidelines in the form of a class action plan. These findings resonate with the literature (Hord, 1997; Murphy, 2014; Bolam et al., 2005: Stoll et al., 2006), that school leaders must ensure staffing protocols are established, outline expected outcomes, and operational protocols of PLCs are scheduled; and the scope and tools provided to spur their efforts.

Participant responses and PLCs artefacts from the three schools also outlined another supportive mechanism at as shared leadership structures as where principals undertook collaborative processes of co-facilitation with teachers as well as encouraging teachers to facilitate different PLCs sessions based on their competencies. Additionally, school principals also took on the roles of supplying resources and tools. monitoring, engaging in collective inquiry, assessing

student learning, and data analysis to advance pedagogical methods and student attainment. Participants also confirmed principals sought requisite school resources, and supplies for effective classroom productivity, and instructional assistance from internal and external experts to maintain the collective aims of PLCs. Participants confirmed that school leaders' involvement in the PLCs entailed a range of essential and supportive roles such as shared leadership, mentoring, provision of physical and human resources, assessment of student learning, data analysis, and collaborative inquiry. These responses are in alignment with the PLCs research (Zhang &Pang, 2016; Hassan et al., 2018: Olson, 2019), that leaders are pivotal facilitators in establishing and maintaining PLCs by adopting varied supportive and instructional strategies to ensure the viability and vibrancy of Plc. These findings also emphasize the premises of the combined theoretical framework of Vygotsky (1978) social constructivism and Wenger (1998) COPs which necessitates drawing on pertinent community members, leaders and experts' distinct experiences, knowledge, skills, and proficiencies to foster collaboration and reciprocal actions and requisite conditions to advance the professional and collective learning of the members.

Prevalent school related factors which hampered the implementation processes of PLCs at the three schools were revealed in the guise of weak PLCs structural processes; lack of thorough understanding of the concept and processes of PLCs; school related issues such as teacher absenteeism and other school, district or national activities taking precedence over PLCs, time constraints; and inadequate human resources. Common participant responses indicated PLCs lacked adequate structures in terms of goals, outcomes, operational, and monitoring processes. Participants indicated there were no clearly outlined goals and direction for PLCs for weekly and termly meetings on how to implement PLCs. Furthermore, responses revealed PLCs lacked monitoring systems to determine whether the instructional strategies developed through PLCs

were implemented and outcomes achieved. These responses correspond to prior research (Dufour, 2007) that lack of clarity about PLCs framework occurs when school leaders and teachers proclaim PLCs have been implemented, while critical operational structures have not been established. These findings are also congruent to the literature (DuFour & Reeves, 2016) that many school principals and teachers may be engaged in collaborative decision making and inspiring work, but these activities lack focus and a shared vision and do not epitomize the characteristics of well-established PLCs.

Site participants also articulated insufficient time as a significant hindrance to effective and sustainable PLCs implementation. Participants stated the one hour assigned to PLCs was inadequate to collectively assemble and reflect on their practices and find new pedagogical methods to enhance professional capacity. Furthermore, common responses indicated that the wide range of principal's administrative and instructional roles as well as teacher instructional and functional responsibilities make it difficult to find more time for PLCs. These consistent responses are congruent with the literature (Hairon et al., 2014; Murphy, 2014; Akinyemi & Rembe, 2017; Chua et al., 2020), that schools' functional and organizational structures, as well as teacher and principals' heavy workloads make it difficult for schools to allocate additional time for teachers and principals to work collectively in PLCs. Participants also stated that while specific time frames have been allocated for these PLCs meetings, some of them would opt to skip their attendance because school-wide issues such as teacher absenteeism and other district, national and school related processes such as sporting activities and preparation of students for national exams. These findings outline national educational mandates and school related processes deter PLCs implementation. These common findings at the three scchools correspond to previous literature (Lieberman & Miller, 2011; Hairon et al., 2014; Vangrieken et al., 2017) that school-based issues,

national, and district instructional directives may prompt schools to discount the PLCs agenda and sustain traditional operational processes and instructional practices to fulfill systematic mandates.

Additionally, participants identified the internally, and externally imposed barrier of inadequate human resources was a hurdle in the implementation and viability of PLCs at the three schools. Participants stated schools lacked internal experts to address ongoing professional development needs. Further, schools also had difficulty gaining access to external experts at the Curriculum and Development Unit of the Ministry of Education and other educational departments. These findings are parallel to current literature (Murphy (2014; Belibas et al., 2016; Nguyen, 2022et al, 2022), that educational institutions may lack required human, financial, and structural resources which are major hurdles in the development of PLCs.

Research question three gleaned participants beliefs of two major outcomes of PLCs on teacher professional development which comprised enhanced knowledge and instructional practices, as well as collaboration and collegiality. Participants confirmed one major benefit associated with PLCs implementation was improved pedagogical and knowledge capacity of teachers through systematic instructional decision making and engagement in PLCs. Participants attributed this benefit to the PLCs processes of critical reflection on practices led to assessment of pedagogical delivery, finding viable alternative solutions to address student needs, collective, deliberate, and systematic planning, and sharing of research best practices, and resources to advance teacher knowledge and pedagogical skills to meet students' needs. Participants confirmed continuous teachers' engagement in PLCs created a supportive environment for constant collaborative discourse to discuss students' weaknesses, collective examination of instructional methods and solving instructional challenges, collective instructional design to meet students' needs, and drawing on the instructional expertise of peers. Accordingly, PLCs served as a platform

to continuously and collaboratively work with their peers to enhance knowledge and pedagogical practices. Participants' beliefs clearly articulated that PLCs provide job-embedded development that is functional and pertinent to advancing teachers' instructional knowledge and instructional needs. Participants beliefs are consistent, and in agreement with the findings of several investigations (Flores et al. 2015; Furquon et al.; 2018; Sari et al. 2018; Sutarish & Saud, 2019; Tahir & Musa 2020), which explored the implementation of PLCs in elementary settings, and their impact on teacher professional development which revealed ongoing reciprocal reflective discourse, and sharing of experiences and practices and strategies enhanced teachers instructional practices and quality of teaching.to provide pertinent instructional design to meet students learning needs The findings are also aligned to Vygotsky (1978) and Wenger (1998) combined theoretical framework which articulates that the major outcome of PLCs is the promotion of a collective institutional culture of teaching, learning for teachers to glean insight on their pedagogical capacity from their peers and acquire an ongoing range of novel instructional teaching and learning strategies to enhance student learning.

The second benefit of PLCs gleaned from participants responses was collaboration and collegiality. Professional collaboration within the context of school PLCs enhanced social relations among members. This was realized when teachers and instructional leaders worked in tandem, shared pedagogical practices, experiences, and content knowledge with the aim of attaining educational and institutional goals. Furthermore, consistent participant responses also affirmed that PLCs provided teachers with a platform to connect with colleagues and enabled an authentic environment for professional discourse to deepen knowledge and experiences because of interchanges with peers. Overall, participants' consistent responses accentuated that PLCs shared frameworks and supportive structures which comprised shared leadership, co-teaching, team

teaching, scaffolding, demonstration, and collaborative planning enabled access to collective and constructive insights about research based and successful instructional practices stimulated peer support and created several opportunities for professional development. These findings are congruent to the outcomes of Wenger (1998) COPs and Vygotsky's (1978) social constructivism theoretical constructs that PLCs foster collaboration and collegiality. Additionally participants beliefs also resonate with current research investigations (Flores et al. 2015; Furquon et al.; 2018; Sari et al. 2018; Sutarish & Saud, 2019; Tahir & Musa 2020) findings which utilized similar sharing frameworks and supportive structures implemented in PLCs which comprised mentoring, coteaching, demonstrations and ongoing sharing of strategies, knowledge, resources, and tools; school leaders enabling supportive and enabling conditions of scheduling PLCs, providing requisite physical and human resources, and enabling shared leadership which encouraged teacher facilitation of PLCs.

Common participant responses at three schools also revealed another notable benefit of the PLCs framework was the establishment of a collegial ethos which supported teacher professional growth. Participants lamented that ongoing involvement in PLCs had yielded an ethos of trust, openness, and respect because participants regarded peers as professionals with expertise which were willing to observe, listen, and share their expertise. Further, participants stated frequent collaborative PLCs interactions at ongoing sharing frameworks also created avenues for nurturing and establishing amicable relations with colleagues. These findings are in accordance with the findings of previous studies on the impact of PLCs on teacher professional development in elementary schools (Flores et al. 2015; Furquon et al.; 2018; Sari et al. 2018; Sutarish & Saud, 2019; Tahir & Musa 2020) as well as the combined theoretical constructs of Wenger (1998) and Vygotsky (1978) which affirm that PLCs processes enable a trusting, and open collegial ethos of

collective working relations, building respectful, and trusting amicable connections. Hence, these findings confirmed that PLCs are a sustainable framework which enables the development of collaborative and collegial school ethos which enhances teacher professional development.

Overall the findings of this multi-case study findings are in sync the theoretical framework of Vygotsky's (1978 social constructivism and Wenger's (1998) COPs and current literature which affirms the efficiency of PLCs to facilitate ongoing renewal of teacher expertise to advance student learning rest on the implementation of enabling and functional conditions consisting of effective supportive operational processes grounded in collective development of shared values, and goals; shared and supportive leadership; collective learning; shared practices and responsibilities; relational and physical mechanisms, facilitative and trusting relations, and external networks and alliances. Moreover, the study addressed the gap and attained information on the impact of PLCs implementation in three K-6 elementary schools from the lens of twenty-five teachers and three principals in one education district in the Eastern Caribbean Island of St. Lucia.

5.4 Implications

5.4.1 Theoretical Implications

This current study was supported by the combined Wenger (1998) theories of communities of practice and Vygotsky (1978) social constructivism theories. This theoretical framework was utilized to explore the teachers and principals' beliefs on implementation of the PLCs and its impacts teacher professional growth and development in three elementary schools in St. Lucia The findings of this current study elaborated the theoretical framework of Wenger (1998) theories of communities of practice and Vygotsky (1978) based on teachers and principals' consistent beliefs

of PLCs as a valuable vehicle for building collaborative teams who engaged in critical data-driven ,decisions and common planning which contribute to ongoing enhancement of teacher expertise, student attainment and school wide issues if implemented effectively. Vygotsky (1978) social constructivist theory and Wenger (1998) COPs theoretical tenets are also evident in this current study findings which illustrated a range of collaborative, supportive and organizational structures facilitated purposeful, collective experiences structured in a variety of sharing frameworks at a grade, subject, and whole school level which supported pedagogical growth, improved teacher relations and students' learning. The findings of the study also supported the outcomes of the theoretical framework of Vygotsky (1978) and Wenger's (1998) COPs which illustrated that PLCs provided many opportunities for professional growth through ongoing systematic instructional decision making, collaboration, and supportive structural arrangements led to heightened curriculum, pedagogical and knowledge capacity of teachers. These collective processes promoted a culture of collaboration and collegiality which further improved teacher confidence, promoted teacher relations and respect for peers. These findings clearly signify the overall outcomes of the combined theoretical framework that effective PLCs implementation promotes a supportive, sustainable educational culture which enhances collaborative and collegial interactions, as well as teacher professional expertise and efficacy.

5.4.2. Practical Implications

This study contributes to existing studies by providing findings on the impact of PLCs on teacher professional development from the vantage point of teachers and principal in three elementary schools in St. Lucia. The PLCs at the three schools were in the early stages of implementation. Hence, these findings can be scrutinized by policy makers, education officers,

the three schools involved in the study as well as other schools. These findings can serve as a guide for policy makers, education officers and principals for the establishment and improvement the operational and structural processes of PLCs, to ensure it is supportive and relevant to the needs of teachers and principals in specific school contexts. PLCs are based on social and collaborative theories which require teachers and principals to collectively create mutual values and goals focused on students' learning needs; to implement effective functional processes and structures to attain these goals The findings accentuated several functional and structural critical PLCs implementation conditions which comprised the significance of developing a shared community vision; instituting shared leadership to promote collective decision making; ongoing influence of critical examination of data and pedagogy for improving learning at the student, teacher, and organization levels; establishing collegial and collaborative relations and providing resources to implement and sustain the PLCs framework.

The common implementation challenges revealed at the three sites were lack of a clear shared vision and mission to advance functional processes with clear direction, inadequate time, systemic and school wide issues, and access to human expertise to facilitate PLCs. The identified challenges also confirmed that implementation of an effective PLCs framework is reliant on the collective engagement of principals and teachers developing a shared vision, and supportive organizational structures and processes to ensure the most critical element of this strategy is improving teacher expertise. This means that schools implementing PLCs frameworks must ensure principals and teachers jointly develop a shared vision which ensures teachers and principals are clear about PLCs operational processes, values, and goals. In this regard, school principals must provide focus and support on PLCs matters and ensure appropriate structures are established to realize enhanced student, pedagogical and organizational outcomes.

Insufficient time is also intertwined with the issues of heavy teachers and principals' workload, lack of internal and external facilitators, and other school operational duties. influence staff motivational levels to implement change initiatives. Given these challenges, the regular involvement of principals in PLCs structural and operation processes and managing and monitoring educational change initiatives is essential. Teachers and principals' heavy workloads need to be reviewed, so more attention can be paid to creating sustainable PLCs implementation processes for the school context. Although principals may not be able to attend all sessions, they can increase PLCs effectiveness by seeking more ways to support teachers in PLCs through shared and supportive leadership.

Based on these findings and systematic processes for effective PLCs establishment emanating from the literature, the three schools in this study and other schools hoping to implement PLCs may utilize this implementation model of best practices as a guide. Table 5.3 presents the implementation model as a set of processes and activities which should be considered and systematically established at the initial and implementation phases of PLCs to ensure the development of functional and sustainable PLCs in the elementary school setting. The PLCs model incorporates four essential elements: initiation strategies, enabling conditions for creation of PLCs groups and sessions, supportive structures, and mitigation of challenges. The initiation activities entail development of alliances to assist and enable buy-in of the PLCs initiative by internal and external community members. The PLCs group development activities ensures collective development of PLCs vision and mission as well as functional operational processes to ensure membership are clear about the requirements of the sessions. Next PLCs sessions would require members engagement in a range of instructional decision-making processes guided by student data and examination of instructional practices to guide the development of appropriate instructional

design to meet student needs. Leadership support is also pivotal to the viability of PLCs; hence a range of leadership supportive structures and roles are outlined. Additionally, the leadership team of the school should proactively work through the challenges and barriers which impede PLCs practices by seeking assistance from internal and external stakeholders like parents, wider business sector and other educational institutions and agencies. Lastly, the PLCs barriers are outlined as principals need to find creative ways to address heavy workloads, time, and resource constraints to maintain PLCs.

Table 5.3

Proposed Model of Best Practices for PLCs Establishment and Implementation in Saint Lucia

Descriptors of Activities
Initial Activities to Facilitate PLCs Establishment • Develop an alliance of active and influential teachers to assist before presenting PLCs initiative to whole school community. • Engagement of alliance to provide advice and influence school members to participate in PLCs. • Share information with school membership about the purpose and elements of PLCs to empower buy -in of the initiative and collective decision making. • Share the information with school stakeholders so that support can be solicited in the implementation of this initiative.
Creation of PLCs Groups Mechanisms • Create PLCs groups using a range of structural arrangements (grade, subject, whole school) which networks teachers working together for common goals. • PLCs members must collaboratively create a vision and mission statement aligned to organizational goals to steer the establishment and implementation processes of PLCs. • Structures must be collectively developed in terms of PLCs routines and protocols, goals, routines, tools, methods, resources, schedules, and standards for operations of PLCs to be clarified.
PLCs Sessions Processes may entail but should not restricted to: • Meetings should be scheduled at least once every two weeks. • Review student data and reflect on teacher instructional practices to determine issues for sessions. • Reflective discussions and collective inquiry on matters • Sessions should focus on issues related to instructional matters related to core subjects. • Common planning and sharing of ideas and research-based practices. • Demonstration • Distributed leadership (facilitation of sessions by individual teachers, teacher teams, external experts, principals)

PLCs Supportive Structures

- Sustainable leadership practices should include:
  - Principals are members of PLCs teams.
  - Support subject and grade level meetings with instructional time
  - Provide required physical, human, and financial resources.
  - Utilize a range of leadership roles: instructional, monitoring, learner, team member.
  - Minimize the PLCs challenges and barriers presented by school wide issues through collaboration with internal and external stakeholders.

PLCs Challenges

Minimize the barriers to PLCs implementation and viability.

- Heavy workloads of teachers and principals
- Time constraints
- Resource constraints (physical, human, financial)

5.4.3 Future Implications

PLCs were introduced in the Eastern Caribbean Islands in 2018, hence, this study was limited to three elementary schools which had established PLCs frameworks, although the educational district comprised seven schools. It would be significant to have all seven schools participate in a quantitative study which would focus on the status of PLCs implementation in the educational district. The researcher chose to study the three schools which had implemented PLCs within the period of 2018-2020 and to oversee a reasonable study, however a quantitative study would provide extensive understandings of teachers' beliefs on the impact of the PLCs framework on teacher professional development. Furthermore, a mixed methods approach can also be employed with the same schools or more schools within the educational district to ensure the triangulation of more data sources and acquisition of extensive data on teachers' beliefs of the

PLCs implementation and impact on teacher professional development in elementary school contexts.

An additional future implication would also be to seek the beliefs of elementary school principals participating in PLCs initiatives and to outline their needs. This future investigation would focus on what school principals require to become more effective and supportive leaders.

5.5 Recommendations

This multi-site exploratory case study focused on teachers and principals' beliefs of the PLCs framework on teacher professional development at Saint Lucian three elementary schools. The findings of this study are consistent with the previous studies and support the beliefs articulated by teachers and principals, all of which are tied to the constructs of the constructs of the combine theoretical framework of Vygotsky (1978) and Wenger (1998). This multi-site case study findings also revealed teachers and principals' participation in PLCs is a valuable professional development mechanism when teachers have a clear understanding of the aims of this framework. Therefore, it is incumbent for schools implementing the PLCs framework to invest time and establish mutual understandings; develop a joint vision, procedures, routines; and access physical and human resources required for enactment of this professional development initiative.

PLCs operate efficiently with supportive physical and relational structures which are the frames for collaborative learning, shared leadership, problem resolution and innovative work in PLCs. This multi-site case study results revealed there are substantial conditions which must be established in organizing and structuring PLCs so teachers and principals can embrace it as a meaningful and supportive mechanism for teachers' professional growth and development. The current study findings provided deeper insight into the core priorities and structures of effectively

implemented PLCs. These findings highlighted and confirmed that strong and supportive leadership is the key to effective implementation of PLCs. The current study findings identified the major PLCs challenge time constraints are connected to principals and teachers' heavy workload, lack of facilitators for training, school related issues and educational mandates. Hence, to achieve effective implementation, the daily schedules for teachers and principals need to be examined to ensure adequate priority is given to professional development through the PLCs framework to enhance instructional practices and students' learning. These connected challenges also indicate strong and shared leadership are key to effective PLCs implementation. Hence, school principals need to institute a range of supportive and instructional leadership strategies for monitoring, mentoring, collective inquiry, and regular attendance of PLCs sessions. Hence, the adoption of shared and supportive leadership strategies can play a significant role in advancing a collaborative and collegial culture which appreciates, respects, and enables teachers to develop instructional leadership practices and to enhance instruction and learning.

The potential value of this investigation is for teachers, principals, district education officers, and policy makers in the national educational sector to promote sustainable and constant professional growth for all teachers through the development of a range of frames, components and conditions which will enable and sustain implementation of PLCs to fit school contexts. A range of supportive conditions and frameworks emanating from study findings and consistently identified in the literature (Hord, 1997; Hassan et al., 2018; Murphy, 2014; Olsson, 2019; Reynolds, 2016; Sleegers et al., 2013; Sai & Siraj, 2015; Teague & Anfara Jr., 2012; Jafar et al., 2022; Nguyen et al., 2022) are recommended for effective and sustainable implementation of PLCs and to advance teacher professional development. The following should be taken into

consideration by policy makers, educational district leaders, principals, teachers and other pertinent education stakeholders in the establishment and implementation of PLCs:

1. Devote time to develop a mission, vision for PLCs, and initiative to ascertain all teachers embrace this professional development framework.
2. Devote time, access funding, physical resources, and internal and external experts to facilitate training in the PLCs.
3. Devote time to capacity building by exposing PLCs members to a range of competencies and skills such as listening and facilitation techniques, interpersonal and group dynamic skills, consultative and problem-solving techniques, decision making and analytical skills and to enhance community, and bolster collaboration and productivity.
4. Create organized structures and conditions such as well-defined routines, shared planning, scheduled time, as well as norms and aspirations for sustainable and effective PLCs.
5. Design adequate sessions for deliberate, consistent team collaborative discussions structured at grade, subject, leadership, whole school and across school levels. It should be available for all teachers to ensure enhancement of professional capacity and student learning.
6. School principals must adjust their hectic work schedules to be a regular part of the different PLCs team meetings. This will foster collective responsibility and send a powerful message to teachers that principals are committed to their professional development.

7. Establish shared practices frameworks which will ascertain teachers and principals to embrace and commit to the initiative by sharing research best practices, examine student data, and pedagogical practices, to design relevant and responsive instructions to meet the needs of students.
8. Establish supportive leadership and communication mechanisms which will create an ethos of trust among peers and principals, to ascertain all members are appreciated, respected, and empowered to work collaboratively.
9. Establish system wide support and ongoing training processes which would strengthen school leaders and ensure acquisition of necessary leadership competencies to drive teacher professional development and effective implementation of PLCs.

Finally, the study findings clearly revealed the effectiveness and sustainability of PLCs rest on systematic support for schools and educational leaders in developing conditions and structures to support teachers. A recurring finding in this study and the literature is PLCs facilitate the development of collaborative, supportive and collegial school culture, therefore principals must establish collegial and collaborative structures and capacity development structures recommended to develop sustainable and effective PLCs to enhance student and organizational learning.

5.5.1 Recommendations for Future Research

This qualitative case study extended previous research on teachers and principals' beliefs on the impact of PLCs framework on teacher professional development. The findings in this current study revealed several avenues for future research studies in the areas of systemic - wide PLCs implementation processes and the impact on teacher professional development.

The findings of this study revealed a range of connected hurdles including an unclear or absent shared vision, constrained leadership participation, inadequate time, limited human resources for facilitation of PLCs sessions, and difficulty to maneuver PLCs implementation processes within teachers and principals' heavy mandated workload. Although preceding research and the findings of this study have outlined the critical role of PLCs enabling conditions such as supportive leadership, shared frameworks, and formation of collaborative team arrangements, few studies examine the multiplex, intertwined nature of PLCs elements. A myriad of connected contextual factors determine successful implementation and sustainability of PLCs within educational institutions. Hence, another aspect for prospective research would be to examine PLCs processes from a system wide lens. This research would focus on various institutional changes which must be established so that PLCs enabling conditions such as shared vision; supportive, instructional, and transformative leadership strategies; utilization of data; and collaborative team arrangements are promoted and implemented. Thus, prospective questions for future research from a system wide vantage point may include: What factors impede PLCs implementation? How do schools develop a shared PLCs vision? What factors constrain the development of PLCs shared vision in schools? What factors hinder educational leaders' participation in PLCs implementation?

Previous studies and the findings of this study revealed that educational institutions which implement PLCs realized that heightened professional practices led to enhanced instructional practices and knowledge as well as collegiality and collective efficacy. Participants described PLCs functions and implementation processes which positively impacted teacher professional capacity. This current study data collection method entailed focus group, individual interview interviews, and PLCs documentation artefacts. A replication of this qualitative study in future research should also include observation of teachers in different PLCs team arrangements to

provide deeper insight into PLCs implementation processes, challenges, and impact on teacher professional development in elementary contexts in St. Lucia and Eastern Caribbean islands. Further, this replicated study can also examine teachers' beliefs on how PLCs participation impacts teacher reflection and how knowledge and strategies learnt during regular professional development sessions are applied in the teaching learning context.

School leaders have critical roles of building operational and structural conditions; and managing the natural tumult associated with educational innovation and change. The participants in this study also outlined the supportive role of the principal in the implementation of the PLCs framework. The study findings revealed the supportive roles of principals activated PLCs implementation processes. Hence, future studies should explore the role of the principal in the sustainable implementation of PLCs and its impact on teacher professional capacity. These findings could provide relevant, and deeper understanding for principals interested in implementing this professional development framework. Further, examining beliefs of PLCs principals' framework as a professional development mechanism could provide constructive awareness and understanding for aspirant principals to enact the PLCs framework.

The findings of this study also outlined different phases and functions of the implementation processes of PLCs and the impact on teacher professional capacity. Teachers and principals outlined operational and functional processes, shared practices frameworks, and challenges experienced during implementation. Currently, there is limited research which describes the processes and phases of PLCs implementation especially in elementary school contexts. Future research can replicate this study to other educational districts in Saint Lucia and Eastern Caribbean islands with varied demographics and population would realize significant findings. This would entail elementary schools which are smaller, larger, rural, urban,

denominational among other characteristics. Investigations of these diverse school characteristics could be valuable in ascertaining if these varied qualities influence the implementation and impact of the PLCs framework on teacher professional development. Additionally, an examination of schools' PLCs implementation processes in other educational districts would outline common and distinct findings across diverse elementary schools. Moreover, further research which outlines the implementation processes of PLCs in the different elementary settings would provide deeper insight and may help educational leaders avoid some of the factors which hamper effective and sustainable PLCs implementation.

5.6 Conclusion

The findings of this multi-site exploratory case study outlined how PLCs frameworks in three elementary schools are described, designed, implemented, hurdles, and the impact of engagement in PLCs on professional growth and development from the vantage of twenty-five teachers and three principals. These interpretations are consistent with the theoretical framework and previous research. Research question one findings revealed contextualized PLCs as collaborative teams which engaged in data driven decision making which is geared towards enhancing student outcome, common instructional planning, and ongoing learning. Research question two findings revealed PLCs at the sites engaged in the core functional processes of systematic data-based decision making for ongoing informed and continuous instructional design, to make informed and continuous instructional design decisions, enabled a risk free and safe ethos for sharing and learning, installation of supportive and operational structures and processes included shared leadership roles of mentoring, principal and teacher facilitation of sessions, and collective assessment of student learning and pedagogical practices. Moreover, common

implementation obstacles at the three sites consisted of the absence of a clearly articulated shared vision to guide PLCs decisions, routines, functional and sustainable implementation processes, and time constraints due to hectic school and teacher mandates. In addition, there were also school related issues like teacher absenteeism, national and school district mandates taking precedence over PLCs and the lack of internal and external expertise and training structures to address professional development needs required to build effective PLCs. Question three findings revealed the PLCs framework had two major benefits for teacher professional development First, PLCs served as a vehicle for continuous engagement which led to educators' acquisition of a range of pedagogical strategies from peers and this helped pedagogical capacity to improve students' learning. Hence, the PLCs framework enabled a platform of collective and strategic dialogue to improve curriculum and instructional design, teacher confidence, and teacher professional capacity. Further, PLCs also facilitated continuous sharing of experiences, created risk free communities of practice where educators shared their expertise, provided support to peers, and encouraged the use of novel and research based instructional strategies to improve student outcomes. Moreover, frequent collaborative PLCs interaction also created avenues for the nurturing and establishing amicable relations with colleagues.

This study contributes to the existing international studies by providing findings on the impact of PLCs for teacher professional development from the vantage point of teachers and principals in St. Lucia. The findings of this study can be used to establish and improve the operational and structural processes of a PLCs and to ensure it is supportive and relevant to the needs of teachers and principals in specific school contexts. Based on the results of this study, the establishment of a shared vision, investment of adequate time and access to human expertise are critical factors for effective implementation and sustainability of PLCs. This study is valuable for

policy makers, educational district leaders, teachers, and principals in elementary school contexts as it explicates the characteristics and conditions which facilitate sustainable and continuous professional growth for teachers through the implementation structures of the PLCs. Overall, the findings of this study illustrate PLCs is a worthwhile job-embedded professional development mechanism which requires adequate time, appropriate functional structures, collective development, and effort to be effectively established, to realize organizational learning and teacher professional growth.

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APPENDICES

Appendix A: Focus Group Interviews (Teachers) Protocol

Focus Group Interview Protocol: A case study about principals and teachers' beliefs on the impact of Professional Learning Communities on the professional development of teachers in three elementary schools in one educational district in Saint Lucia.

Time of Interview:

Date:

Place:

Interviewer: Nadia Maxwell

Number of participants in the Focus Group: _____

Introduction:

Dear Participants,

I would like to thank you for taking time from your busy schedule to attend this interview session today. Everything that is said in this session will be recorded unless you specifically request otherwise during our interview. As stated in the recruitment letter, I am conducting a case study for the partial fulfillment of my doctoral program at UNICAF University. The purpose of this study is to explore teachers' beliefs of the impact of professional learning communities (PLCs) on the professional development of teachers. Please remember that I will be audiotaping our conversation as well as taking notes during our discussion. The audio recording will be transcribed in its entirety for review by me and all participants. At the conclusion of this interview, I will use pseudonyms so that your anonymity and all participants will be protected.

Guidelines that will help our discussion go more smoothly are:

1. Only one person should speak at a time
2. Please avoid side conservations
3. Everyone needs to participate, and no one should dominate the conversation
4. The focus group should last no longer than one to one and a half hour. Many of you have cell phones, please avoid using cell phones during the interview session. If at all, please turn off your

cell phones. If you need to keep your cellphone on, please put it on vibrate and leave the room if you have to make a cell call.

Guiding Questions for Focus Group Discussion

Demographics

1. What is your age?
2. How many years have you held this post or worked at this organization?
3. What grade/ grades do you currently teach?
4. Do you teach all content areas and or a specialization?
5. What is your highest level of qualifications?
6. How would you describe a Professional Development Community at your school?
7. What does professional development in PLCs look like in your school?
8. How are these PLCs sessions designed?
9. What are some of the topics in the school PLCs?
10. Were the topics or focus of PLCs sessions beneficial to your growth as a professional?
11. What are your thoughts/beliefs about these professional development activities?
12. Have these experiences helped you grow professionally?
13. Has being part of a Professional Learning Community made a difference for you as a professional? If YES, how? If NO, why? Can you provide some examples? (Explain your answers)
14. Do you think you would have experienced the same opportunities without the organization/establishment of the Professional Learning Community at your school? If YES, why? If NO, why? (Explain your answers)
15. Talk about professional development at your school. Has the approach to professional development changed since the implementation of the Professional Learning Community/ Communities? If YES, please explain how? If NO, why?
16. Please describe ways in which teachers have a voice in the way PLCs protocols are followed?
17. What role does your school principal play in the PLC process within your school?
18. Could you talk about or share the opportunities for professional growth at your school?

    - Based on the response provided for example “collaborative relationships or collaborative planning” ask: How do staff members go about collaborating with each other?

19. Do you think that the implementation of PLCs in the last year has contributed to your school improvement? If YES, how? If NO, why?

20. How does participating in a PLCs impact classroom teaching?

21. What is the best thing about the PLCs process at your school?

22. Could you tell me about the challenges involved with the PLCs implementation at your school?

23. If you could change one thing about the PLCs at your school, what would it be?

Thank you for your time today!!!

Possible Probing Questions

1. Would you explain further?

2. Can you provide an example?

3. Please describe what you mean?

4. Can you clarify, I want to make sure I understand?

5. One thing I have heard several persons'/individuals mention is----------. I am curious as to what the rest of the group thinks about that?

6. Are there any other thoughts that have occurred to you?

Appendix B: Principals Interview Protocol (Individual interview)

Interview Protocol: A case study about principals and teachers' beliefs on the impact of professional learning communities on the professional development of teachers in three elementary schools in one educational district in St. Lucia.

Time of Interview:

Date:

Place:

Interviewer: Nadia Maxwell

Introduction:

Dear Participant

I want to thank you for taking time from your busy schedule to allow me to interview you today. Everything that is said today will be recorded unless you specifically request otherwise during our interview. As stated in the recruitment letter, I am conducting a case study for the partial fulfillment of my doctoral program at UNICAF University. The purpose of this study is to explore principals' beliefs of the impact of professional learning communities (PLCs) on the professional development of teachers. Please remember that I will be audiotaping our conversation as well as taking notes during our discussion. The audio recording will be transcribed in its entirety for review by me and you. At the conclusion of this interview, I will use a pseudonym so that your anonymity will be protected.

Questions:

1. What is your age?

2. How many years have you held this post at this organization??

3. What is your highest level of qualifications?

4. How well do you believe the PLCs model has been implemented at your school?

- Probe based on the response (full implementation or partial implementation)

5. How would you describe the PLCs at your school?
6. What is a working definition of PLCs at your school?
7. What role do you as the principal play in the PLCs process at your school?
8. What do you believe is the most crucial aspect of the PLCs process? Why?
9. Discuss your beliefs on how PLCs have had an impact on the instructional climate at your school?
10 What are some of the topics of the PLCs sessions?
11. How were these sessions determined/ designed?
12. Please describe ways in which teachers have a voice in the way PLC protocols are followed?
13. What are your expectations of teachers when they question their practices concerning the PLCs?
14. How do you create an environment of shared goals and values within your school?
15. How do you allocate time for teachers to collaborate and plan so that it does not interfere with their teaching time?
16. How has the use of time set aside for PLCs impacted teaching at your school?
17. How has the implementation of PLCs impacted professional collaboration at your school?
18. Describe how implementation of PLCs at your school impacted teacher leadership?
19. Have your teachers grown as professionals from their participation in PLCs?
20. What advantages have you realized from the implementation of PLCs at your school?
21. Tell me about the challenges involved with the implementation of the PLC process/ model at your school.
22. In what ways can the PLCs process be improved to enhance teacher growth?

Possible Probing Questions

1. Would you explain further?
2. Can you provide an example?
3. Please describe what you mean?
4. Can you clarify, I want to make sure I understand?
5. One thing I have heard several persons/ individuals mention is----------. I am curious as to what the rest of the group thinks about that?
6. Are there any other thoughts that have occurred to you?

Appendix C: Document Analysis Authenticity Protocol

Questions for determining authenticity

1. What is the history of the document?
2. How did I get it?
3. What guarantee is there that it pretends to be?
4. Is the document complete, as originally developed?
5. Has it been modified or edited?
6. If the document is authentic, under what circumstances and for what purposes was it developed?
7. Who was or is the author?
8. What was the author trying to accomplish? For whom was the document created? What were the developer's information sources? Does the document represent an eyewitness account, a secondhand account, reconstruction of an event long prior to the writing, an interpretation?
9. What was or is the developer's bias?
10. To what extent was the writer/ developer likely to want to tell the truth?
11. Do other documents which might produce additional information on the same event, project, programme, context? If so, are they available or accessible? Where are they held?

(Merriam 1988 p.122)

Appendix D- School One Sample Instructional Units

CLASS TEACHER'S SCHEME OF WORK for Grade 6

	FOR WEEK beginning Monday May, 03 2021 ***Students should be able to:***
Language Arts	Subject/verb Agreement- Use the correct form of the verb in speaking and writing Read Unit 9 of Can Do Text (A Precious Resource). Answer comprehension questions based on the passage. Write an expository passage explain three reasons why water is an important resource. Spell unfamiliar words from the given paragraphs. Spell words with the suffixes "ible" and "able." Identify synonyms and antonyms for the identified words.
Numeracy	Topic: Fractions (Adding and Subtracting Fractions) Add and subtract fractions where: ● The denominators are alike ● The denominators are unlike but related ● The denominators are unlike and unrelated Solve word problems involving addition and subtraction of fractions with like and unlike denominators.
Social Studies	Topic: "Renewable and non-Renewable Resources" Distinguish between renewable and non-renewable resources. Identify the renewable natural resources of the territories of the Caribbean that are used in or useful for secondary and tertiary industries. Identify the main non -renewable and renewable resources found in the Caribbean region and the territories that are known to have significant supply of these resources and give examples of the secondary industries and or the products derived from these resources.
General Science	Topic: "Space Exploration" Distinguish between manned and unmanned space exploration Research and display vehicles used in the exploration of space Research and discuss benefits of space exploration
Health Science	Topic: "Food and Nutrition" Identify the six food groups of the Caribbean. List examples of food from each group.

	Identify the six food nutrients. List deficiency diseases as well as sources of the nutrients. Explain what a balanced meal is. Prepare a balanced meal.
Study Skills	Interpreting Graphs- Explain what a bar graph and line is. Interpret a given bar graph and line graph to answer questions. Present given information in a bar graph and line graph. Draw a bar or line graph to present information in a table.

Date	Reflection
Monday May 03, 2021	There never seem to be enough time during the day to achieve the day's objectives. Students understanding of subject/verb agreement was very limited. Students need much practice to master subject / verb agreement rule specifically the rule which relates to "either…or, neither…nor" Students seemed to have a vast knowledge about the domestic uses of water. They had to be prompted to identify other uses of water beyond the domestic uses. The verbs from the passage were identified. Students have little difficulty in identifying the action verbs, however, the auxiliary verbs prove to be a challenge. More activities will be prepared so that this problem can be resolved. Students seemed to have basic knowledge of adding fractions, however, some misconceptions about adding fractions. Some added the denominators. The use of diagrams assisted greatly in helping students understand the concept. Students did not have much to say on the topic: Human Resources." After they understood the meaning of the term, they were able to give many examples and explain why human resources are the most important resources of a country. However, when it came to the expressive writing, students had difficulty expressing themselves, thus, sample paragraphs will be prepared to assist with the writing.
Tuesday May 04, 2021	Students fall short in taking responsibility for their learning. Reinforcement activities remain undone my most. A stricter form of punishment has to be established to deal with this problem. Students continue to enjoy online activities as they look forward to working on their devises. The use of online games seems to be a great way to reinforce the addition of fractions with unlike denominators. It is apparent that a lot of reteaching or revising of concepts which were previously taught has to be done. Students needed constant reminders of the four types of questions in comprehension to help them understand and answer the comprehension questions in Unit 9.
Wednesday May 5, 2021	Spelling and Vocabulary remains a problem. Students are unfamiliar with many words at their level because of the fact that they do not read for enjoyment. They are being taught some spelling rules to assist them but a lack of revision on their part makes it difficult to help them. New ways to motivate them to read and spell will have to be identified. More online activities in all areas will have to be prepared as students look forward to going online.

Thursday May 06, 2021	Very few students access the slides on nutrition posted in the Google Classroom. New strategies have to be employed to get students to take accountability for their learning. Most students have little difficulty in adding and subtracting fractions. When each concept is introduced, many examples have to be done in order for some students to get a good grasp of the concept, thus, the small group instruction seems to be very effective.

GRADE: 1 UNIT OF WORK
SUBJECT: Numeracy
TOPIC: Counting

CONTENT STANDARDS: MT.1.CS.NS.1. Pupils can construct understanding of whole numbers up to twenty.

MT.1.CS.NS.4. Pupils can utilize concrete, pictorial, symbolic representation and mental strategies to perform computational tasks involving the four basic operations – addition, subtraction, multiplication, and division.

PERFORMANCE STANDARDS: MT.1.NS.UN.1. Count in a variety of ways (by1's, 10's to 100, by 2's and 5's to 50, backwards from 10, and count on, in 1's from a given number up to 100.

MT. 1. NS. UN. 9. Demonstrate fluency when working with whole numbers up to 20 (e.g. speak of 12 as: ten plus two; six plus six; one less than thirteen, etc.)

MT.1.NS.OS.1. Use examples to explain the procedures for carrying out addition, subtraction, and repeated addition, using appropriate vocabulary such as 'total' 'sum', 'join together', 'subtract'. 'take away', and 'sets of'.

WEEK THREE May 3 - 7, 2021							
SPECIFIC OBJECTIVES	CONTENT OUTLINE	SUGGESTED ACTIVITIES	MATERIALS	ASSESSMENT		DISTRIBUTED WORK/EXTENSION ACTIVITIES	Reflection
				FORMATIVE	SUMMATIVE		
Number of the Day (Daily activity)							
• Count in sequence to 100.	**Counting numbers** are the set of **numbers** that we use to learn how to **count**. 1, 2, 3, 4, 5, and so on. They are also called	Sing • Count to 100 Sing it twice. The first time, students sing it all the way through. The second time, the song will start somewhere in the middle, and kids count to 100 starting at that random number (somewhere around 50).	song 100 chart 50 chart counters	Participation in game Correctly identify the missing numbers when playing in pairs.	Missing numbers 1-100 worksheet .	Mathematics textbook pg 18, nos: 1,2,3 Seesaw activities	The majority of the students are able to count to 100 by rote. These same students were also able to identify the

	natural **numbers**— maybe since they feel natural to us because they are naturally the first **numbers** we learn	(Discussion) Students examine a 100 chart: What do you notice about how the chart is set up? What do you notice about how the numbers change/stay the same? **Mystery Number Game:** Teacher hides 1 number smaller than 10 (students close eyes).***Guiding Question: What number is missing? How do you know? How would we write that number?*** Activity is repeated with 3 or 4 numbers as a class. Students will play this game in pairs. They will write the missing numbers in standard form. Students in need of intervention will play on the 50 chart instead of a 100 chart.	missing 100 worksheet record sheet				missing number between 1 to 100. However, some of the students struggle to write the missing numbers on a 100 hundred chart. They had difficulty in recognizing numerals to 100. Despite these challenges, they participated in the lesson and tried really hard to identify the missing number and numerals between 1 and 100. Numerals 1 to 20 is still a challenge for some of the students and thus more opportunities to practice and gain mastery will be provided.

• Count to 100 • Count by 10's to 100	It is like normal counting (1,2,3,...) except there is an extra "0": 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, ...	Sing • Count to 100 Students will help the teacher piece together a broken hundreds chart. Then count chorally to 100. Introducing counting by 10 using unifix cubes • Counting by 10s • Counting by 10's Students are given popsicle sticks and rubber bands to make groups of 10. Create a 'Counting by tens' chart. Make groups of 10 with concrete material on the chart. Students write the numbers on post-its and stick them on the chart. Colour 10's on the hundred chart. Discussion: Describe the pattern. *(It is a whole column on the chart.)* Look at the numbers that you colored. How are they all alike? *(They all end in zero).* How are the numbers different? *(The number in the tens place is different.* Skip count by 10s using a number line.	song broken 100 chart unifix cubes (100) String Beads beans 10's cards 100 chart 10's caterpillar 10's worksheet	Arrange the caterpillar on the wall while counting by 10's.	Complete counting by 10's cut and paste worksheet .	Counting by 10s game	The majority of the students are able to count by 10s to 100 by rote. They are also able to write the numerals in ascending order. Students understood that counting by 10 means adding to the previous number. They recognized that all the numbers must end with a zero. With the exception of Joshua, Leah, Mickey and O'Neil, students were able to complete the counting by 10s worksheets with little input from the teacher.

							Absent from class were Ryann and Keishon. However, Ryann quickly grasped the concept upon his return to school. More practice is still needed.
• Count in sequence to 100. • Count by 2's to 50 • Count the number of objects in a set of up to 20 objects.		Review counting by 1;s and 10's to 100 with song. Give students a number card asking them to count on to a given number from the number which is on their card. Brainstorm and record a list of things that come in twos on a large sheet of paper. Allow students to create pairs of various objects on their desk. Allow students to skip a number on the number line and count by twos. Sing: • Counting by 2's	Sticks. Number Line Ten frames Eyes prints	Arrange feet out the wall and students count by twos.	Complete counting by twos ten frame activity		Students were able to list things that come in 2s. They were also able to count by 2s to 30 really well. Counting by 2s from 30 to 50 requires help. Students grasp counting by 2s quicker than counting by 10s, which is quite surprising.
		Create a chart for counting by twos. Give each child a pair of eyes to colour. Use the eyes to create the	Counting by 2's workshee			Mathematics textbook pg 23	

		chart. Allow students to count and decide what numbers are placed on the chart. Skip count by twos on a number line.	t. Counting by 2's cut and paste activities. Cutouts for writing numbers.				
• Count in sequence to 100. • Count by 5's to 50.	Skip Counting by 5s has a nice pattern: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, … That pattern should make it easy to learn and remember.	sing: • Count by 5s Listen to a story Skip count on a number line (refer to story) Create a Counting by 5s anchor chart using their hand prints. colour the multiples of 5 to 50 on a hundreds chart. Flash Card Game: Teacher flips over a flash card and shows it to the class. Students must say the number that comes before and after that number." "For example, if I pulled the number 25, the number that comes before that is 20 and the number that comes after is 30."	Story - Flowers for a Friend (see BL) number line bristol boar		worksheet counting by 5s dot to dot	ABCYA- skip counting	
• Count on from a given number.	one less" means take away 1.	Students will make sets of numbers that are called out by the teacher.	One more		Complete worksheet activity: Count the		

• Make and draw sets of up to 20 objects. • Make and draw a set that is equal to, one more than, or one less than a given set	1 more is when we want to add 1 more of somethin g.	Students will show numbers on a ten frame. Students draw to show sets of numbers 1- 20. **Game - "Pop!"** (1 more/1 less) Students count up or down to a number, moving around the circle, until they arrive at the target number. The person who says the target number has to say "POP!" and then sit down. You keep playing until there is only one person remaining. Using concrete objects, students will count to a specific number. Then add one more or take away one. (starting with numbers 0 - 10 first and then 10 - 20) Draw sets to show 1 more and 1 less than a given number Use the number line to identify the number that is one more and one less than the given number.	One less sticks bottle caps ten frame number line		objects and write the correct number next to each set. Count the objects and circle the correct number for each set.		
• Identify the ordinal position of an object in an arrange ment of up to 10 objects.		Share their knowledge of ordinal numbers. Listen to a story. Game - Get Yourself in Order		Match ordinal numbers with their written representati ons in "Get Yourself in Order" warm up.	Apply knowledge of ordinal numbers to successfully solve riddles for teacher assessment .		

		Work on ordinal numbers (and written representations) using an ordinal number line and animal cards. Ordinal Bingo Students race and then state the ordinal position of each participant.		Practice ordinal number recognition during Ordinal Numbers Bingo Game.	Place animal cards on an ordinal number line in the correct sequence as directed by the teacher.		
• Compare sets of up to twenty objects using the symbols '=', ;>', '<' • Compare pairs of numerals (up to 20) using the symbols >', '<'		Students discuss the phrases "greater than," "less than," and "equal" and provide examples of each. Students each have three papers that have been labeled "greater than," "less than," or "equal" across the bottom. They will use small stickers to create sets that show greater than, less than, or equal to on paper that has been folded in half to create left and right sides. Students determine the number of stickers that they place in each set and on each side of the paper. The student will look at the paper to determine whether the set on the left is greater than, less than, or equal to the set on the right. Students will be shown a construction paper alligator with the mouth open to the left side. Here we will discuss the name of the alligator (Allie) and how she only eats bigger numbers. Students will watch as the teacher writes two sets of numbers on the board and the gator "eats" the bigger number.					

Appendix E: School Two Grade 4 Sample Instructional Unit Plans

Grade 4 Unit Plans

Ages 8-9 years olds

Teachers: Mr. Javid
Ms. Tilly
Ms. Wenia
Ms. Gertrude

Duration: May 6th to

6 Lessons

Health and Family Life Education:

Broad Objectives

Students will:

1. Understand the meaning of the term food is.
2. Understand the importance of food.
3. Identify the six major food groups.
4. Identify the nutrients provided by food.
5. State function and sources of each nutrient found in food.

Nutrient	Function	Sources
Water	It helps food digest Hydrates cells in the body Help organs like brains and lungs work well Regulate your body temperature (to feel cool) Helps prevent constipation Prevents dehydration	Celery, soup, boullion, coconut water, oranges, water melons, cucumbers, mango, coconut water, wax apple
Carbohydrates (energy giving foods)	Provides the body with a chief or primary source of energy (the ability to do work). Serves as foods for brains and the central nervous system Contains fibre which helps keep the body fit and healthy. Fibre also prevents constipation.	**sugary foods** (sweet fruits, jam, honey) – simple carbs **starchy foods** (bread, potatoes, rice, dasheen) **Cereals/ grains)** cornflakes, oats (complex carbs)

		Fibre foods include legumes, potatoes with skin, pumpkin with skin, carrot, guavas with skin, apples with skin, melons, broccoli, berries, oranges
Proteins	**Foods from animals** e.g. milk, eggs, meats, fish, cheese **Foods from plants** e.g. peas, beans, nuts	Building block for our bodies For growth and repair/ development of damaged tissue/ Builds Maintains, and replaces the tissues in your body Builds red blood cells.

Table showing different sources and functions of Vitamins

Vitamins	Sources	Functions
A	Carrot, cabbage, green vegetables	Helps us to see well Makes visual pigment in the eye
B Contains about 12 vitamins	Whole wheat bread, cereal, peas Meat	Keeps the body healthy B_1, B_2, B_3 Works with enzyme in energy release B_{12} growth and development of red blood cellss
C	Citrus fruits, raw vegetables	Helps heal cuts and wounds Keep gums and teeth healthy Needed for absorption of irons by bones
D	Milk, milk products, eggs, liver, the sun	For growth and development of bones and teeth
E	Egg yolk, nuts, vegetable oil, wheat germs	Protect cells against chemical injury
K	Green vegetables, liver, egg yolk	Needed for blood clotting
Water (not a vitamin)	Water, celery, cucumbers, water melon, milk juice	helps digest food, keep body clean carries nutrients from food throughout your body helps regulate body temperature through perspiration

Table showing different sources and functions of minerals

Minerals	Sources	Functions
Calcium Ca	Milk, egg, cheese, green vegetables, peas and beans	For making strong bones and teeth For the clotting if blood

		Needed for the contraction of muscles
Iron Fe	Liver, kidney, egg, green vegetables, meat	For making haemoglobin in the red blood cells
Iodine	Sea foods, green vegetables, milk, cheese, iodise table salt,	Needed for the formation of thyroxin by the thyroid gland
Sodium Na	Table salt, butter, cheese, bacon, ham	To regulate our body fluid, To help in the functioning of the nerves
Phosphorous p	Egg, nuts, sea food, fish, milk, cheese	Needed for bones and teeth formation
Fluorine F	Toothpaste and in some drinking water	Make teeth resistant to tooth decay
Potassium K	Vegetables, banana, fruits, milk, eggs	To maintain water balance in the body Helps in the functioning of nerves

Carbohydrates

When you think of the word "Carbohydrates", the first image that might pop into your head may be a bowl of pasta, a baked potato or a plate of rice. And you're right! However, there are other foods that contain carbohydrates that may not be as obvious. These include nutritious foods such as fruit, dairy and legumes as well as foods with less nutritional value such as biscuits, cakes and lollies.
Carbohydrates are in most of the food we eat. Carbohydrates are the **sugary foods** (sweet fruits, jam, honey), **starchy foods** (bread, potatoes, rice, dasheen) and **Cereals/ grains)** cornflakes, oats) contained in the food we eat.
For example, fruits contain the carbohydrate fructose and glucose, **dairy** has lactose, a potato has starch, and the list goes on. Carbohydrates are broken down by the body into simple sugars. These sugars circulate in the bloodstream and are used by the body's cells for **energy**. The brain also uses one of these simple sugars (glucose) as its primary **energy** source. This is why children need carbohydrates to stay alert and active throughout the day.

Fats

The body uses fat as a fuel source, and fat is the major storage form of energy in the body. Fat also has many other important functions in the body, and a moderate amount is needed in the diet for good health. Fats in food come in several forms, including saturated, monounsaturated, and polyunsaturated. Too much fat or too much of the wrong type of fat can be unhealthy. Some examples of foods that contain fats are butter, oil, nuts, meat, fish, and some dairy products

Proteins

Protein builds, maintains, and replaces the tissues in your body. (Not the tissues you blow your nose in! We mean the stuff your body's made up of.) Your muscles, your organs, and your immune system are made up mostly of protein. You'll find protein in lots of yummy foods like eggs, nuts, beans, fish, meat, and milk.

Water

Water is a colourless, odourless and tasteless liquid which serves many different purposes. Water is used in chemical processes within the body. Water dominates more than 60% of the human body. It helps regulate body temperature and digest food. Water enables our bodies to carry out all of its functions in the day, it continually moves about and is lost in urine, sweat, tears, blood and the air we breathe. Children, in particular, need to make sure they re-hydrate, as water is the primary way they regulate their body temperature. Even foods that do not look like they have moisture in them do contain water. The amount of water you can get from foods can make up to approximately 20 per cent of your daily requirements.

Mathematics Unit Plan

Lessons	Topic/ Sub topic	Time Allotted	Specific Objectives	Content	Resources	Suggested Activities	Assessment
1	Addition	1 hour 15 minutes	1. Review Roman Numerals. 2. Define the term "double." 3. Solve basic addition number sentences. 4. Recall vocabulary related to addition. 5. Solve one step and two step problems involving addition.	Double- 2 times or twice the amount/number	CUBES Anchor chart Parcel of stickers	Question of the day: What is the Roman Numeral for the number 24? Students will play pass the parcel to go over addition facts. When the parcel reaches the student, he/she must answer the addition question that the teacher will call out e.g. what is the sum of 8 and 5. If the student responses correctly then he/she can take a sticker out of the parcel. Students and teacher will take turns using CUBES and then solving a two- step problem with the term "double" on the board. For example, Joseph picked 3905 coconuts on his planation. Matt picked double the number of coconuts that Joseph did on his own planation and Stephen picked 2083 coconuts. (a) How many coconuts did Matt pick? (b) How many coconuts did Joseph, Matt and Stephen pick altogether? Students work in pairs to solve a two- step problem. The teacher will guide the process to ensure that all steps are followed.	Students solve at least 2 problems independently. Teacher will provide guidance to slower students.
2	Addition Drill and Practice session	55 minutes	1. Review Roman Numerals. 2. Solve basic addition number sentences. 3. Solve one step and two step problems involving addition.	Same as above.	CUBES Anchor chart	Question of the day: Find the sum of 8 and 4. Write your answer in Roman Numerals. 1 minute rush: Students will be given 1 minute to complete a list of 15 basic addition number sentences. Students and teacher work together to solve a worded problem. For example, $2708- Year 1 $12455- Year 2 _____- Year 3	Students will be given worded problems to copy and complete independently. Teacher provides guidance to individual students when required.

						The table below shows the amount of money that Johnny saved in 3 different years. a) How much money did he save in year 1 and year 2 altogether? b) In year 3 Johnny saved two times the amount that he saved in year 2. How much money did he save in Year 3?	
3	Addition / Total cost	1 hour 30 minutes	1. Review Roman Numerals. 2. Solve basic addition number sentences. 3. Write amounts of money in figure. 4. Write addition number sentences involving money vertically. 5. Solve addition number sentences involving money vertically.	Same as above. Total cost – the cost of a set of items altogether	Anchor chart Class shop Ball Price tags	Question of the day: What number is written below? (XXIX) Last man standing: Students form a circle around the class. Teacher stands in the middle of the circle. He/she will call out a number sentence and send the ball to a student. If the student is able to answer correctly then he/she remains standing. Students will discuss the pricing of items in the class shop. Students will volunteer to write the agreed price of the items of price tags and attach it to the items. Teacher will model how she would calculate the total cost of different items at the shop. For example, what is the price of 1 box of cornflakes, a can of milk and 2 lbs of sugar? Special emphasis will be placed on aligning the prices vertically before adding. Students and teacher will work on the board to calculate the total cost of items. Emphasis will be placed on alignment. Class auction: Teacher will auction out groups of items from the shop. The student will only be able to gain ownership of the items if they are the first to calculate the total cost.	Students will solve at least 5 number sentences based on total cost.
4	Addition / Total cost	1 hour	1. Review Roman Numerals. 2. Solve basic addition	Same as above		Question of the day: Marvin has 4 plums. He received 5 more from his mother. How many plums does he now have? Write your answer in Roman Numerals.	Students will solve a worded problem independently . A price list

			number sentences. 3. Write amounts of money in words. 4. Solve worded problems to calculate total cost.			Students will number their page from 1-10. The teacher will read out a basic addition number sentence. The students will write the answers on their books. Students will swap books and correct the answers. A price list will be introduced to the class. pencil- 75c notebook- $4.60 eraser-45c calculator-$57.90 laptop-$1983.75 Students will work with a partner to write each price tag in words. Students and teacher will work together to answer questions related to the price list. For example: What is the most expensive item on the list? What is the cheapest or least expensive item on the list? What is the total cost of one laptop, a calculator and a pencil? (Students must try to define the term "total cost" before solving the problem). What is the total cost of 3 notebooks? Students will work with a partner to answer some more questions related to the price list.	will be given and students will answer questions based on the price list.

Appendix F: School One Sample Weekly PLCs Schedule for Grades 3, 4, 5 and 6

Grades 3 and 4 Weekly Schedule

TIME	PERIOD	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:45 – 9:15	1	Devotion	Assembly/ EDC	D E V O	T I O N	Grade Assembly
9:15 – 10:30	2	Literacy		Numeracy	Numeracy	Literacy
10:30 – 10:45		B	R	E	A	K
10:45 – 12:00	3	Numeracy	Literacy	Literacy	Literacy	Numeracy
12:05 – 12:30		L	U	N	C	H
12:30 – 1:00		U	S	S	R	USSR
1:00 – 2:00	4	Science	P.E	Social Studies	Social Studies	Music/ PLCS
2:00 - 3:00	5	French	HFLE	Science	Visual Arts	I.T/ PLCS

Grades 5 Weekly Schedule

TIME	PERIOD	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:45 – 9:15	1	Devotion	Assembly/ EDC	D E V O	T I O N	Grade Assembly
9:15 – 10:30	2	Literacy		Numeracy	Numeracy	Numeracy
10:30 – 10:45		B	R	E	A	K
10:45 – 12:00	3	Numeracy	Literacy	Literacy	Literacy	Literacy
12:05 – 12:30		L	U	N	C	H
12:30 – 1:00		U	S	S	R	USSR
1:00 – 2:00	4	French	Music/PLCs	Social Studies	Science	Visual Arts
2:00 - 3:00	5	HFLE	I.T/PLCs	Science	Social Studies	P.E

Grade 6 Weekly Schedule

TIME	PERIOD	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9:00 – 9:30	1	D E	V O	T I	O N	Grade Assembly
9:30 – 10:30	2	Numeracy	Literacy	Science	Health	Numeracy
10:30 – 10:45		B	R	E	A	K
10:45 – 11:25	3	Social Studies	PE	Science	Numeracy	Visual Arts
11:25 – 12:05	4	Social Studies	PE	Science	Numeracy	Visual Arts
12:05 – 12:30		L	U	N	C	H
12:30 – 1:00		U	S	S	R	USSR
1:00 – 1:40	5	Literacy	Numeracy	I.T PLCS	Literacy	EDC
1:40 - 2:20	6	Literacy	Numeracy	Music PLCS	Literacy	Literacy
2:20 – 3:00	7	Literacy	Numeracy	French PLCS	Literacy	Library

Appendix G: School Two PLCs Weekly Schedule

Language Arts Timetable

Time	Monday	Tuesday	Wednesday	Thursday	Friday
9:15 – 10:15	Philip	Laurent	S.B.A		Philip
10:15 – 10:30	**B**	**R**	**E**	**A**	**K**
10:30 – 11:15		Philip	Laurent	Laurent	Laurent
11:15 – 12:00	Laurent	Pierre	Pierre	Philip	Pierre
12:00 – 1:00	**L**	**U**	**N**	**C**	**H**
1:00 – 2:00			Philip	Pierre	
2:00 – 3:00	Pierre		R.K	S.B.A	P.L.C

Appendix H: School Three Request Letter for Parental Supervision

RICHFOND COMBINED SCHOOL
RICHFOND, DENNERY, SAINT LUCIA

18th September 2018,

Dear Parent,

The teaching staff of the above-mentioned institution is currently engaged in a series of activities aimed at enhancing instruction at our school.

One such initiative is a Professional Learning Community (PLC). This involves the discussion of best practices, and how to engage in effective practices aimed at catering to the varying needs of our learners.

It is proposed that this activity be held during the instructional day. Consequently, there is need for supervision of students while we engage in this process.

You are important partners in the education of our students. Therefore, we request your assistance in making this a reality. The teachers will be engaging in our P.L.C on Thursday 20 September 2018 at 1:30-2:30pm. We request your assistance to supervise the students of Grade_____whilst teachers engage in this activity.

Anticipating a favourable response.

Please let us know of your willingness by tomorrow 19, September 2018

Thanking you in advance for your cooperation.

Yours sincerely

S. Etienne (Mrs.)

(Principal)

Appendix I: School Three PLCs Term Activities Schedule

RICHFOND COMBINED SCHOOL

2019 TERM ONE

CALENDER OF ACTIVITIES

SEPTEMBER (2019)

2nd Reopening of School

11th Opening Service

13th Launch of Academic Cup

18th ELP Workshop

19th P.L.C

23rd Launch of Numeracy Term

24th P. T. A. Meeting

Commencement of District Football Competition

Presentation by Overseas Sponsors

25th Unit Planning Workshops

Presentation of Buddy Bench

27th Student Council Workshop for Class Representatives

OCTOBER (2019)

1st P.L. C

Commencement of Teacher's Week

4th Launch of Creole Heritage Month

End of District Football Competition

8th Teacher Appreciation Day

10th Professional Development Day

Appendix J: School One PLCs Artefact

Grades Three to Six

Steps to Signing in to Google Classroom App

(Only Appropriate for Android Tablets/phones and Apple Devices)

Steps

1. Go to Appstore/Playstore and search for term "Google Classroom or Classroom". Look for the app with green backboard and white shilohuette. Download the app.

2. Open the app and click "Get Started'.

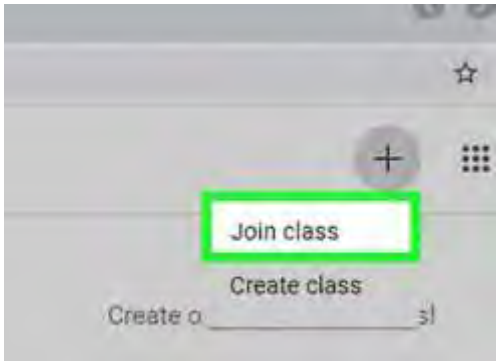
3. Click the "Add Account" and then click "OK". DO NOT USE YOUR PERSONAL ACCOUNT.

4. Add your government given email address.

firstname.lastname@micoudprimary.edu.lc
Password is default set as: Student123.
PS. You can change your password later by signing in to gmail.

5. Read the Terms and Conditions and then click Accept after you have done this.

6. You should be in an empty classroom at this point. If the teacher has set up a Google classroom for you, you will see a “Join” button where you can join the class. If this has not been done, go to the Join Class tab.



7. Insert the Class Code that the teacher has given to you.

You should be successfully joined into Google Classroom

Appendix K: School One PLCs Presentation Artefact


CREATING A SEESAW ACCOUNT
Time: 5 mins
Steps:
1. Download the Seesaw app or create an account on the web by visiting the Seesaw app. Url: app.seesaw.me
2. Click "I'm a teacher"
3. Create account- click "Teacher sign in with google" and follow the prompts to create your account.


Creating a Class in SeeSaw
Steps:
1. Create your class and give it a grade level.


NAVIGATE SEESAW
Explore the features
Finding activities
Editing activities
Creating Activities

Appendix L: School Three PLCs Artefact

Resources used in PLC

Good morning Ms. Maxwell and blessings to you. Please find attached two of the resources used in the PLC that I conducted at my school. This PLC focused on presenting a strategy, TIEFET, which focuses on the development of the MIDDLE paragraphs in students' narrative pieces.

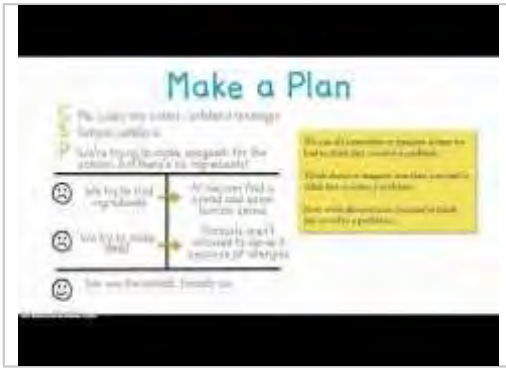
The word document contains two samples of what a finished piece may look like (These do not belong to my students).

The link is for a video that details the process which teaches the students the TIEFET strategy, using a writing piece.

Should you have any questions, please feel free to ask.

Kind regards,
Anette

https://www.youtube.com/watch?v=zpdxXdbtGRo



How to Write Narrative

How to write a narrative story

www.youtube.com

Attachments area
Preview YouTube video How to Write Narrative

“I can’t believe we’re here!” I squealed. My friends and I swiftly ran through the Casino aboard the Carnival Dream Cruise ship. This was the most memorable vacation ever, but also one of the scariest times of my life. My best buds Niyah, Kayla, and Ayden were all invited to join my family on the cruise ship. “Watch out for the big crowds and stay together,” mom demanded, “I’ll be at the Wa-ha-hi spa! Smooches!” As we dashed through the casino, suddenly a gigantic stampede of people wiped out my friends and I. “HELP!” I screamed as I was tossed aside like a pancake flipping out of a pan. “Where are my friends? Oh no…..Great, just great… what am I going to do now?” I whined.

Then I had the most ingenious idea, “I can ask the cruise ship patrol officer!” I darted to the skinny officer. He was as thin as a pencil, wearing the most hideous red and black uniform. “Hello officer, have you seen my friends?” I inquired. He glared at me with a huge smile. “Hola!” he explained. I figured he didn’t hear my question, so I repeated, “Have you seen my friends?” Could you believe he said “Hola!” again? This time he looked at me puzzled and reached out to shake my hand. “No! No! No!” I screamed in horror. I realized at that point that he only spoke Spanish. All of my efforts went down the drain and I knew I had to come up with another plan.

Then it hit me! Why don’t I check the arcade? I zoomed toward the flashing lights, loud games, and the sound of KACHING, coins falling. I started by looking near the green pool tables, but they weren’t there. Next I looked around the video games, but they were nowhere near Pac Man or Sugar Rush. All of a sudden I spotted the purple headband that Niyah was wearing this morning. “Niyah! Niyah!” I screamed. The girl turned around and objected, “Who’s Niyah?” It wasn’t Niyah, I was so embarrassed I ran out of the arcade as fast as a torpedo! My plan blew out like an old tire.

Suddenly it dawned on me, “I’m never going to find my friends…I’ll be lost forever!” I cried. I trudged to the rear of the ship, dragging my chin on the ground. I leaned on the rail, crying my eyes out. All of a sudden, I heard exciting screams coming from the water below. “That sounds like Ayden and Niyah” I thought to myself. I peered down at the water and to my surprise it was them! “I’ve been looking everywhere for you!” I exclaimed. “How could you guys go boogie boarding without me?” They all looked at me with a smirk and said “Hola!” We laughed. I will never forget that awesome vacation!

Appendix M: School Two Principal PLCs Presentation Artefact

Presentation for Needs Assessment with teachers

Learning needs assessment: assessing the need

- Learning needs assessment is a crucial stage in the educational process that leads to changes in practice
- Learning needs assessment can be undertaken for many reasons, so its purpose should be defined and should determine the method used and the use made of findings
- Exclusive reliance on formal needs assessment could render education an instrumental and narrow process rather than a creative, professional one
- Different learning methods tend to suit different students and different identified learning needs
- Part of needs assessment can be empowering students to find ways of identifying their own learning needs
- felt needs (what people say they need), expressed needs (expressed in action) normative needs (defined by experts), and comparative needs (group comparison). Other distinctions include individual versus organizational or group needs

Formal needs assessment methods include critical incident techniques, gap analysis, objective knowledge and skills tests, observation, self assessment, video assessment, and peer reviews.

Gap or discrepancy analysis

This formal method involves comparing performance with stated intended competencies—by self- assessment, peer assessment, or objective testing—and planning education accordingly.

Reflection on action and reflection in action

Reflection on action is an aspect of experiential learning and involves thinking back to some performance, with or without triggers (such as videotape or audiotape), and identifying what was done well and what could have been done better.[18,19] The latter category indicates learning needs.

Reflection in action involves thinking about actual performance at the time that it occurs and requires some means of recording identified strengths and weaknesses at the time. The Canadian MOCOMP programme uses formalised reflection as its basic process.[20] Similarly, PUNs and DENs (see box boxB3)B3) are well known in British general practice.

Self- assessment by diaries, journals, log books, weekly reviews

This is an extension of reflection that involves keeping a diary or other account of experiences.[21] However, practice might show that such documents tend to be written nearer the time of their review than the time of the activity being recorded.

Peer review

This is rapidly becoming a favourite method. It involves doctors assessing each other's practice and giving feedback and perhaps advice about possible education, training, or organisational strategies to improve performance. *The Good CPD Guide* describes five types of peer review—internal, external, informal, multidisciplinary, and physician assessment.[11] The last of these is the most formal, involving rating forms completed by nominated colleagues, and shows encouraging levels of validity, reliability, and acceptability.[22,23]

Observation

In more formal settings doctors can be observed performing specific tasks that can be rated by an observer, either according to known criteria or more informally. The results are discussed, and learning needs are identified. The observer can be a peer, a senior, or a disinterested person if the ratings are sufficiently objective or overlap with the observer's area of expertise (such as communication skills or management).

Critical incident review and significant event auditing

Can also be used on an individual basis to identify learning needs.[24] The method involves individuals identifying and recording, say, one incident each week in which they feel they should have performed better, analyzing the incident by its setting, exactly what occurred, and the outcome and why it was ineffective.

Practice review

A routine review of notes, charts, prescribing, letters, requests, etc, can identify learning needs, especially if the format of looking at what is satisfactory and what leaves room for improvement is followed.

Multiple interventions targeted at specific behaviour result in positive change in that behaviour

- Learning by doing – discovering learning – Brunner. Let them come up with it themselves. Stop spoon feeding,
- Building up personal knowledge and experience
- Discussing
- Having errors corrected and misconceptions understood
- Practice makes perfect… ample time for practice and skill development not just one shot
- Teaching by doing
- Building on knowledge and skill
- Bite-size learning from “bits and pieces” taking it in chunks
- Retrieving and applying knowledge stored in memory… tape into those schemas. Not blank slates. Give vicarious experiences where necessary
- Learning from supervision. Proper supervision and needs will be spotted
- Receiving feedback… constant feedback to students especially in areas of weakness and improvements being obtained

- Engage in oral Presentation and summarizing…. Deepen comprehension skills

Appendix N: School One Questions Guiding PLCs Prepared by Principal A

TEACHER REFLECTION

1. **What went well?**

2. **What came up during the lesson which was unanticipated?**

3. **What didn't go as you had planned?**

4. **What changes were made during the delivery of the lesson and why?**

5. **Were the materials available and appropriate?**

Appendix O: School Two PLCs Improvement Plan Prepared by Principal

Individual Class Intervention Plan for Learning

Teacher: **Grade:** **No. of Students:**				
Assessment Results in:				
Literacy	**Numeracy**			
Action Plan Goals *(indicate from your Group Summary Sheet which literacy/numeracy etc. needs are being addressed)*				
Literacy:				
Time line:	Action/steps:	Persons responsible:	Resources:	Evidence of success:
Progress/Monitoring Notes:				
Week 2	Week 4	Week 6	Week 8	Week 10

Numeracy:				
Time line:	Action/steps:	Persons responsible:	Resources:	Evidence of success:
Progress/Monitoring Notes:				
Week 2	Week 4	Week 6	Week 8	Week 10
End of cycle notes:				

Appendix P: School Two Resources for PLCs Facilitation by Principal

Sample lesson discussed with novice teachers

Standard-based Lesson Template		
Teacher:	Date: 6/2/19	Duration: 60mins
Grade: 6	**Class Name:** Grade 6 Champions	
Subject: Science	**Unit title:** Structure and Function	
Lesson Title: The Skeletal System		
Standards Addressed:	**Content Standard** - ST. CS. LS.6: Pupils can identify the structure of the major systems of plants, animals and humans **Performance Standard** - ST.6.LS.SF.1: Describe the parts and functions of each part of the main systems in human (e.g. skeletal)	
Lesson Objectives	**Pupils will be able to:** a.) Recall the parts of the skeletal system b.) Explain the functions of the skeletal system c.) Make a model of a skeletal system	
Essential/ focus Question(s)	● Why are bones important to the human body? ● How would your body look if it didn't have any bones? ● How would your body function if it didn't have any bones?	
Content	**Structure of the Skeletal System** - The vertebral Column or backbones run the length of the body between the skull at the upper and the pelvic girdles at the lower end. - **Twelves** pairs of ribs and a breastbone or sternum in the chest gives protection to the lungs and other vital organs in the chest cavity. - The shoulder or pectoral girdle consists of **fours, two** clavicles and scapula, which serve as a place of attachment for the arms.	

<table>
<tr><td></td><td>

The bone structure of the arm consists of the humorous in the upper arm and the ulna and the radius in the lower arm. These are bones that forms the elbow joint
There are four different types of bones found in the skeletal system. They are the long bones, short bones, flat bones and irregular bones.

</td></tr>
<tr><td></td><td>
<u>Functions of the Parts of the Skeletal System</u>
<table>
<tr><th colspan="2">Parts</th><th>Names of Bones</th><th>Functions</th></tr>
<tr><td colspan="2">Skull</td><td>Cranuim
Face bones Mandible (jaw bone)</td><td>Protects the brain</td></tr>
<tr><td colspan="2">Ribcage</td><td>Ribs
Sternum (breast bone)</td><td>Protects heart and lungs</td></tr>
<tr><td colspan="2">Girdles</td><td>Pectoral Girdle (arms)
Pelvic Girdle (legs)</td><td>Support arms and legs</td></tr>
<tr><td rowspan="2">Limbs</td><td>Upper Limb</td><td>Upper arm (humerus)
Lower arm (ulna,
(Radius
Carpels
56 phalanges</td><td>Hold things</td></tr>
<tr><td>Lower limb</td><td>Upper leg (Femur)
Lower leg (tibia)
(Fibula)
Tarsals
Phalanges
Patella</td><td>Allow movement.</td></tr>
<tr><td colspan="2">Vertebral Column</td><td>(33 bones)</td><td>Protects the spine</td></tr>
</table>
</td></tr>
<tr><td>Vocabulary</td><td>Skeletal system, axial skeletal, appendicular skeletal, frame work, anterior and posterior</td></tr>
<tr><td>Previous Knowledge</td><td>Parts of the skeletal system</td></tr>
<tr><td>Materials/Resources Technology</td><td>ICT tools; computer, video, speakers, projector, worksheets, whiteboard, papers, pictures, text</td></tr>
<tr><td>Differentiated Instruction</td><td>Groups of students
Teacher will give students a set of materials and resources to make a model of a skeletal system with guided instructions. Some students will be given a model of the skeleton to assemble, whereas other would be given pictures.</td></tr>
<tr><td>Assessment Strategies: Formative/Summative (formal/informal assessment) Include HOT questions</td><td>

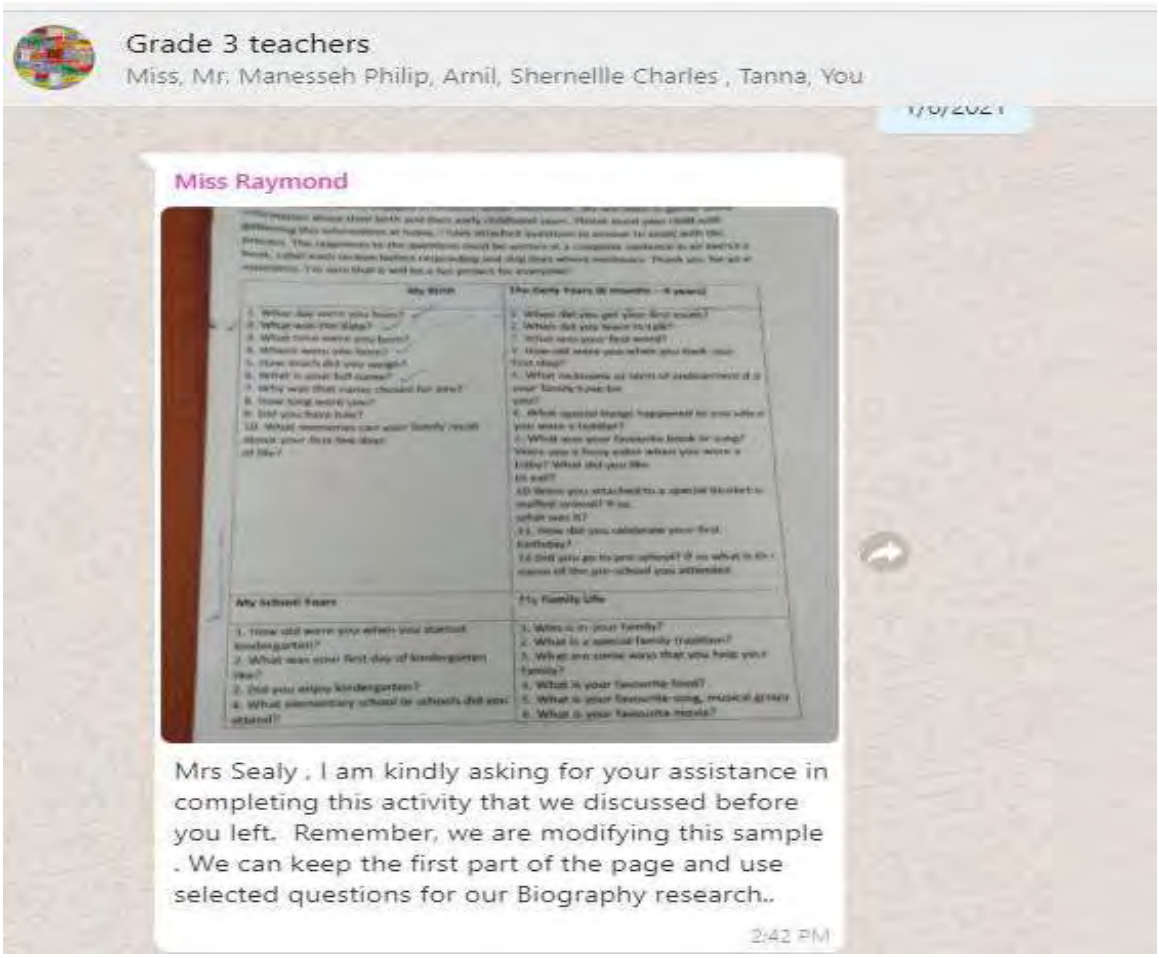
Observation
Whole class discussion
Worksheets
Question paper

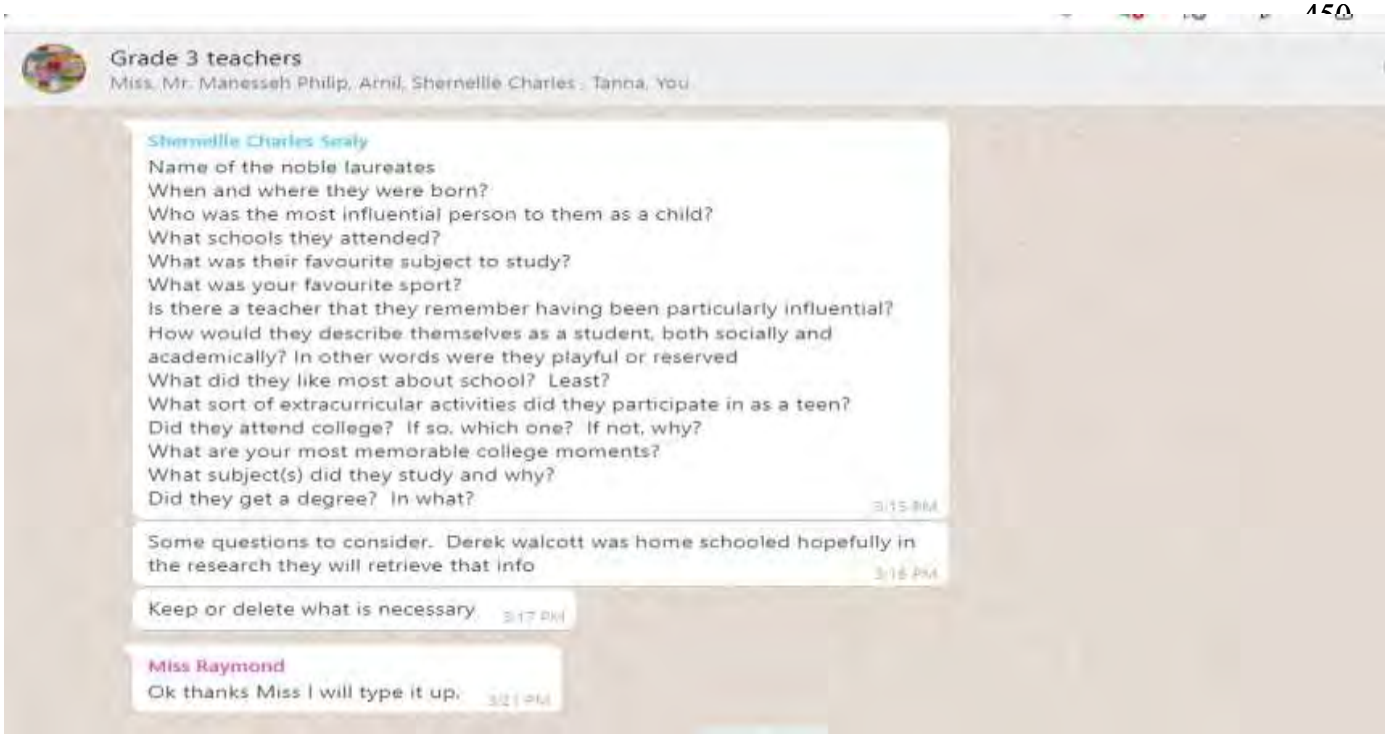
</td></tr>
</table>

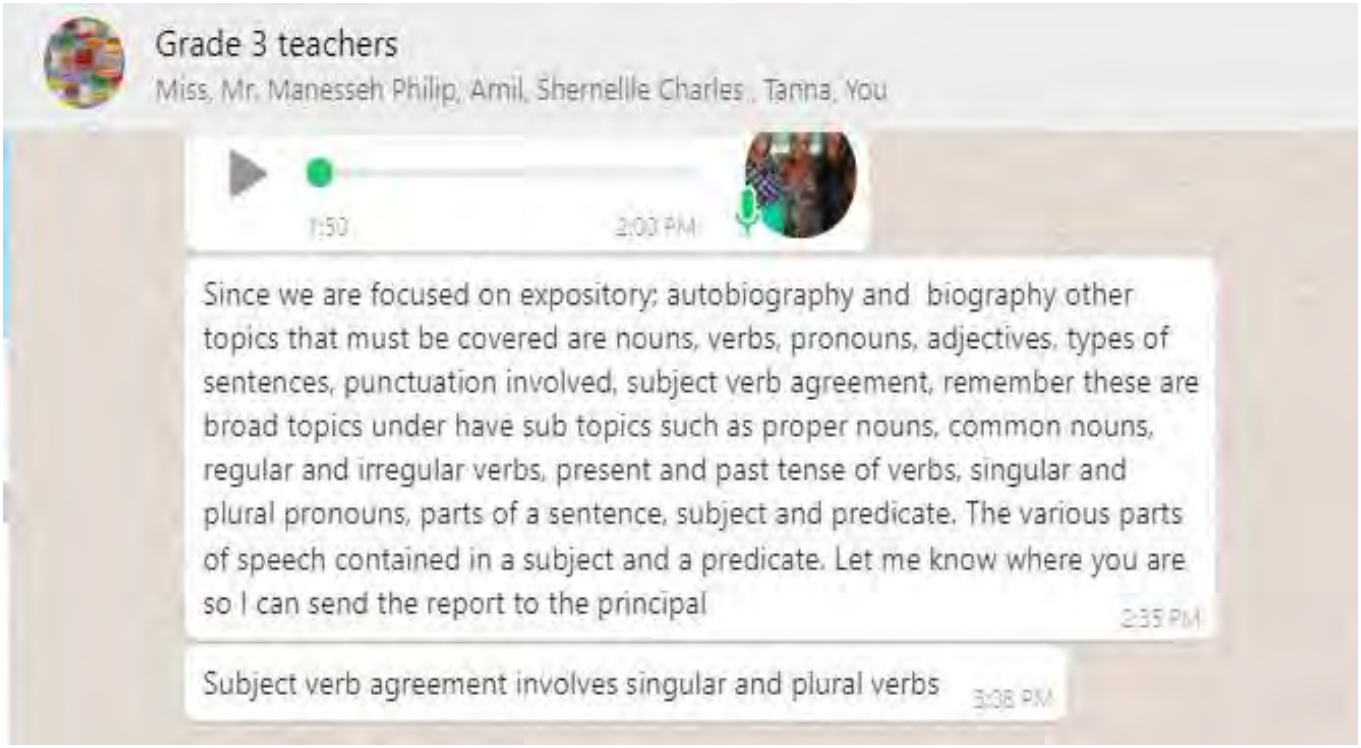
Warm up/ Bellringer(5) mins	• Students and teacher will sing and play the game the **"Head, Shoulders, Knees and Toes"(shortened version).**

Appendix Q: School Two Grade 3 WhatsApp Group Planning Sample

Grade Level Planning for Grade 3 via WhatsApp




Grade 3 teachers
Miss, Mr, Manesseh Philip, Arnil, Shernelle Charles , Tanna, You
Shernelle Charles Sealy
Name of the noble laureates
When and where they were born?
Who was the most influential person to them as a child?
What schools they attended?
What was their favourite subject to study?
What was your favourite sport?
Is there a teacher that they remember having been particularly influential?
How would they describe themselves as a student, both socially and academically? In other words were they playful or reserved
What did they like most about school? Least?
What sort of extracurricular activities did they participate in as a teen?
Did they attend college? If so, which one? If not, why?
What are your most memorable college moments?
What subject(s) did they study and why?
Did they get a degree? In what?
Some questions to consider. Derek walcott was home schooled hopefully in the research they will retrieve that info
Keep or delete what is necessary
Miss Raymond
Ok thanks Miss I will type it up.


Grade 3 teachers
Miss, Mr, Manesseh Philip, Arnil, Shernelle Charles , Tanna, You
1:50
2:03 PM
Since we are focused on expository; autobiography and biography other topics that must be covered are nouns, verbs, pronouns, adjectives, types of sentences, punctuation involved, subject verb agreement, remember these are broad topics under have sub topics such as proper nouns, common nouns, regular and irregular verbs, present and past tense of verbs, singular and plural pronouns, parts of a sentence, subject and predicate. The various parts of speech contained in a subject and a predicate. Let me know where you are so I can send the report to the principal
2:35 PM
Subject verb agreement involves singular and plural verbs
3:08 PM

Appendix R: As well as a sample uncompleted consent form

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UU_IC - Version 2.0

Informed Consent Form

Part 1: Debriefing of Participants

Student's Name: Nadia Athleen Maxwell

Student's E-mail Address: nadiamaxwell41@gmail.com

Student ID #: R1607D1704120

Supervisor's Name: Dr. Zahyah Hanafi

University Campus: Unicaf University Malawi (UUM)

Program of Study: Ph.D – Doctorate of Philosophy-Education

Research Project Title: A Case Study: Impact of Professional Learning Communities on the professional development of teachers at three elementary schools in Saint Lucia

Date: 21-Oct-2020

Provide a short description (purpose, aim and significance) of the research project, and explain why and how you have chosen this person to participate in this research (maximum 150 words).

You are being asked to participate in this proposed study, which aims to explore principals and teachers' beliefs of the impact of Professional Learning Communities (PLCs) on the professional development of teachers at three Saint Lucian elementary schools. I am asking you to take part, because you have been a teacher or principal involved in established PLCs at your school. The research seeks to obtain a more indepth understanding of teachers and principals beliefs of the PLCs; the implementation processes of PLCs; ways in which PLCs have influence on the professional development of teachers; areas in which the PLCs are inadequate or lacking; and suggestions on ways in which the PLCs can be improved to better meet the professional development needs of teachers.

The above named Student is committed in ensuring participant's voluntarily participation in the research project and guaranteeing there are no potential risks and/or harms to the participants.

Participants have the right to withdraw at any stage (prior or post the completion) of the research without any consequences and without providing any explanation. In these cases, data collected will be deleted.

All data and information collected will be coded and will not be accessible to anyone outside this research. Data described and included in dissemination activities will only refer to coded information ensuring beyond the bounds of possibility participant identification.

I, Nadia Athleen Maxwell, **ensure that all information stated above is true and that all conditions have been met.**

Student's Signature: Nadia Maxwell

Appendix S: UREC Provisional Documents

Nadia Maxwell REAF_DS_ Doctoral Studies REAF Form Sept 13, 2020

UNICAF UNIVERSITY

REAF_DS - Version 3.0 ☐

UNICAF UNIVERSITY
RESEARCH ETHICS APPLICATION FORM
DOCTORAL STUDIES

UREC USE ONLY:
Application No:
Date Received:

Student's Name: Nadia Athleen Maxwell

Student's E-mail Address: nadiamaxwell41@gmail.com

Student's ID #: R160701704120

Supervisor's Name: Dr. Zahyah Hanafi

University Campus: Unicaf University Malawi (UUM)

Program of Study: UUM: PhD Doctorate of Philosophy - Education

Research Project Title: A Case Study: Impact of Professional Learning Communities (PLCs) on the professional development of teachers at three elementary schools in Saint Lucia

1. **Please state the timelines involved in the proposed research project:**

Estimated Start Date: 19-Oct-2020 Estimated End Date: 30-Nov-2020

2. **External Research Funding (if applicable):**

a. **Do you have any external funding for your research?**

☐ YES ☑ NO

If YES, please answer questions **2b** and **2c**.

b. Please list any external (third party) sources of funding you plan to utilise for your project. You need to include full details on the source of funds (e.g. state, private or individual sponsor), any prior / existing or future relationships between the funding body / sponsor and any of the principal investigator(s) or co-investigator(s) or student researcher(s), status and timeline of the application and any conditions attached.

NA

c. If there are any perceived ethical issues or potential conflicts of interest arising from applying or and receiving external funding for the proposed research then these need to be fully disclosed below and also further elaborated on, in the relevant sections on ethical considerations later on in this form.

NA

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3. **The research project**

a. Project Summary:

In this section please fully describe the purpose and underlying rationale for the proposed research project. Ensure that you pose the research questions to be examined, state the hypotheses, and discuss the expected results of your research and their potential.

It is important in your description to use plain language so it can be understood by all members of the UREC, especially those who are not necessarily experts in the particular discipline. To that effect please ensure that you fully explain / define any technical terms or discipline-specific terminology (maximum 300 words +/- 10%).

There are calls for careful and deliberate improvements to the overall quality of teaching in elementary schools in Saint Lucia. One of the recommendations emanating from the Organization of Eastern Caribbean States (OECS) Early Learners Report (2016); OECS Report on Teacher Education (2018); for school reform and the enhancement of teacher quality and student learning outcomes and professional development in Saint Lucia, is to implement the strategy of Professional Learning Communities (PLCs). PLCs utilized mechanisms which provide teachers with the platform to evaluate and regenerate their practices collaboratively, interrogate their current beliefs about teaching and reassess their students learning requirements. Thus, this leads to improve school culture, effective teaching and student achievement (Barton & Stepanek, 2012; Hord, & Hall 2014; Pirtle & Tobias, 2014; Stoll, Harris & Handscomb, 2012). Three elementary schools in one educational district in Saint Lucia had established PLCs in 2018 so as to enhance teacher quality and student learning outcomes. This study will thus explore teachers and principals beliefs on the impact of established PLCs on the professionally development of teachers at three elementary schools in Saint Lucia. The findings from this research study will add valuable insight for researchers, instructional leaders, principals, teacher educators, Ministry of Education officials and teacher professional development institutions with regards to the use of PLCs as a tool to enhance teacher quality. This study will be guided by three research questions:

1. How do principals and teachers at the three elementary schools view PLCs?
2. How are PLCs created and implemented at the three elementary schools?
3. How do PLCs impact the professional development of teachers at three elementary schools in Saint Lucia

b. Significance of the Proposed Research Study and Potential Benefits:

Outline the potential significance and/or benefits of the research (maximum 200 words).

The findings from this study will add valuable insight for the teachers, researchers, instructional leaders, principals, teacher educators, Ministry of Education officials and teacher professional development institutions. Consequently, it will add to the growing body of research on principals and teachers' beliefs on PLCS and its overall impact on teachers' professional growth. In addition, the findings of this study will contribute and assist in the development of professional development programs to enhance teacher quality in Saint Lucia. Therefore, recommendations stemming from this investigation can serve as a basis for further research and inform instructional leaders on the use of PLCs in the professional development of elementary school teachers locally, regionally and globally.

4. **Project execution:**

a. The following study is an:

- [ ] experimental study (primary research)
- [ ] desktop study (secondary research)
- [ ] desktop study using existing databases involving information of human/animal subjects
- [x] Other

If you have chosen 'Other' please Explain:

A qualitative case study will be deployed. A qualitative case study will be deployed. Two data collection methods will be used. Document analysis of PLCs artefacts, three teacher focus group interviews, and three individual principal semi structured interviews will be used to determine how PLCs are implemented, principals and teachers' beliefs of PLCs and the impact of this strategy on their professional growth.

b. Methods. The following study will involve the use of:

Method	Materials / Tools
[x] Qualitative	[x] Face to Face Interviews
	[ ] Phone Interviews
	[x] Face to Face Focus Groups
	[ ] Online Focus Groups
	[x] Other *
[ ] Quantitative	[ ] Face to Face Questionnaires
	[ ] Online Questionnaires
	[ ] Experiments
	[ ] Tests
	[ ] Other *

*If you have chosen 'Other' please Explain:

One other data collection method will be used, that is document analysis of PLCs sessions documents.

5. **Participants:**

a. **Does the Project involve the recruitment and participation of additional persons other than the researcher(s) themselves?**

☑ YES **If YES, please complete all following sections.**

☐ NO **If NO, please directly proceed to Question 7.**

b. **Relevant Details of the Participants of the Proposed Research**

Please state the number of participants you plan to recruit, and describe important characteristics such as: demographics (e.g. age, gender, location, affiliation, level of fitness, intellectual ability etc). It is also important that you specify any inclusion and exclusion criteria that will be applied (e.g. eligibility criteria for participants).

Number of participants: 33

Age range: From 20 To 55

Gender: ☑ Female ☑ Male

Eligibility Criteria:

- Inclusion criteria: Participants must be principals' and teachers' at the selected schools understudy
  Participants must be informed teachers and principals who are part of the established PLCs at the three elementary schools
- Exclusion criteria: Teachers and principals not part of the established PLCs at the elementary schools
  Teachers and principals not willing to participate in the research investigation

Disabilities: All persons (teahers or principals) with or without disabilities who are part of the established PLCs willing to participate will be allowed.

Other relevant information (maximum 100 words):

The number of participants I plan to recruit are three (3) principals. The number of teachers selected for focus group interviews for each school will vary. School A has approximately 24 teachers; School B- 30 teachers; and School C- 12 teachers. The sample size will be within the range of thirty (30) teachers from the three elementary schools understudy.

c. Participation & Research setting:

Clearly describe which group of participants is completing/participating in the material(s)/ tool(s) described in 5b above (maximum 200 words).

This study will involve the following tasks:

1. Gain access to PLCs documents. The contents of PLCs documents will be read to determine how PLCs are implemented; how in-service teachers engaged in the PLCs, and how PLCs impact the professional development of teachers.
2. There will be three (3) individual interviews of school principals and three teacher focus-group interviews (one at each site) to allow teachers to share their perceptions of PLCs; how they engaged in the PLCs sessions; and the impact of PLCs on their professional growth.

d. Recruitment Process for Human Research Participants:

Please clearly describe how the potential participants will be identified, approached and recruited (maximum 200 words).

i. Principals and teachers of the three selected schools will be invited to participate in the study. All teachers and principals at three elementary schools who are members of established PLCs will receive comprehensive explanations about the aims and tasks and benefits of being involved in this investigation. All principals and teachers will receive a debriefing form with all these comprehensive details. All PLCs member teachers at the elementary school will be invited to participate. Based on the number of persons who volunteer, a number of participants which are members of established PLCs will be selected to be part of focus group interviews.

ii. Letters which provide a comprehensive explanation of the aims, benefits, and tasks of the investigation will be provided to all principals and teachers at the three sites to volunteer to participate in interviews.

e. Research Participants Informed Consent.

Select below which categories of participants will participate in the study. Complete the relevant Informed Consent form and submit it along with the REAF form.

Yes	No	Categories of participants	Form to be completed
☑	☐	Typically Developing population(s) above the maturity age *	Informed Consent Form
☐	☐	Typically Developing population(s) under the maturity age *	Guardian Informed Consent Form

* Maturity age is defined by national regulations in laws of the country in which the research is being conducted.

f. Relationship between the principal investigator and participants.

Is there any relationship between the principal investigator (student), co-investigators(s), (supervisor) and participant(s)? For example, if you are conducting research in a school environment on students in your classroom (e.g. instructor-student).

☐ YES ☑ NO

If YES, please specify (maximum 100 words).

6. Potential Risks of the Proposed Research Study.

a. Are there any potential risks, psychological harm and/or ethical issues associated with the proposed research study, other than risks pertaining to everyday life events (such as the risk of an accident when travelling to a remote location for data collection)?

☐ YES ☑ NO

If YES, please specify (maximum 150 words).

b. Please choose the appropriate option

		Yes	No
i.	Will you obtain written informed consent form from all participants?	☑	☐
ii.	Does the research involve as participants, people whose ability to give free and informed consent is in question?	☑	☐
iii.	Does this research involve participants who are children under maturity age? **If you answered YES to question iii, please complete all following questions.** **If you answered NO to question iii, please do not answer Questions iv, v, vi and proceed to Questions vii, viii, ix and x.**	☐	☑
iv.	Will the research tools be implemented in a professional educational setting in the presence of other adults (i.e. classroom in the presence of a teacher)?	☐	☑
v.	Will informed consent be obtained from the legal guardians (i.e. parents) of children?	☐	☑
vi.	Will verbal assent be obtained from children?	☐	☑
vii.	Will all data be treated as confidential? If NO, please explain why participants' anonymity or confidentiality is not appropriate for this proposed research project, providing details of how all participants will be informed of the fact that any data which they will provide will not be anonymous or confidential.	☑	☐
v.	Will all participants/ data collected be anonymous? If NO, please describe the procedures to be used to ensure anonymity of participants and/or confidentiality of the collected data both during the conduct of the research and in the subsequent release of its findings.	☑	☐

		Yes	No
ix.	Have you ensured that personal data and research data collected from participants will be securely stored for five years?	☑	☐
x.	Does this research involve the deception of participants? If YES, please describe the nature and extent of the deception involved. Explain how and when the deception will be revealed, and who will administer this debrief to the participants:	☐	☑

c. **Are there any other ethical issues associated with the proposed research study that are not already adequately covered in the preceding sections?**

☐ Yes ☑ No

If YES, please specify (maximum 150 words).

d. **Please indicate the Risk Rating.**

☐ High ☑ Low

7. **Further Approvals**

Are there any other approvals required (in addition to ethics clearance from UREC) in order to carry out the proposed research study?

☑ YES ☐ NO

If YES, please specify (maximum 100 words).

An application form for permission to carry out research in education must be completed and signed by the researcher and supervisor and submitted to the Corporate Planning Unit at the Ministry of Education in Saint Lucia for approval before the commencement of approved research. Approval was granted.

8. **Application Checklist**

Please mark √ if the study involves any of the following:

- ☐ Children and young people under 18 years of age, vulnerable population such as children with special educational needs (SEN), racial or ethnic minorities, socioeconomically disadvantaged, pregnant women, elderly, malnourished people, and ill people.
- ☐ Research that foresees risks and disadvantages that would affect any participant of the study such as anxiety, stress, pain or physical discomfort, harm risk (which is more than is expected from everyday life) or any other act that participants might believe is detrimental to their wellbeing and / or has the potential to / will infringe on their human rights / fundamental rights.
- ☐ Risk to the well-being and personal safety of the researcher.
- ☐ Administration of any substance (food / drink / chemicals / pharmaceuticals / supplements / chemical agent or vaccines or other substances (including vitamins or food substances) to human participants.
- ☐ Results that may have an adverse impact on the natural or built environment.

9. **Further documents**

Please check that the following documents are attached to your application:

		ATTACHED	NOT APPLICABLE
1	Recruitment advertisement (if any)	☐	☑
2	Informed Consent Form / Guardian Informed Consent Form	☑	☐
3	Research Tool(s)	☑	☐
4	Gatekeeper Letter	☑	☐
5	Any other approvals required in order to carry out the proposed research study, e.g., institutional permission (e.g. school principal or company director) or approval from a local ethics or professional regulatory body.	☑	☐

10. Final Declaration by Applicants:

(a) I declare that this application is submitted on the basis that the information it contains is confidential and will only be used by Unicaf University for the explicit purpose of ethical review and monitoring of the conduct of the research proposed project as described in the preceding pages.

(b) I understand that this information will not be used for any other purpose without my prior consent, excluding use intended to satisfy reporting requirements to relevant regulatory bodies.

(c) The information in this form, together with any accompanying information, is complete and correct to the best of my knowledge and belief and I take full responsibility for it.

(d) I undertake to abide by the highest possible international ethical standards governing the Code of Practice for Research Involving Human Participants, as published by the UN WHO Research Ethics Review Committee (ERC) on http://www.who.int/ethics/research/en/ and to which Unicaf University aspires to.

(e) In addition to respect any and all relevant professional bodies' codes of conduct and/or ethical guidelines, where applicable, while in pursuit of this research project.

☑ **I agree with all points listed under Question 10**

Student's Name: Nadia Athleen Maxwell

Supervisor's Name: Dr. Zahyah Hanafi

Date of Application: 06-Sep-2020

Important Note:
Please now save your completed form (we suggest you also print a copy for your records) and then submit it to your UU Dissertation/project supervisor (tutor). **In the case of student projects, the responsibility lies with the Faculty Dissertation/Project Supervisor.** If this is a student application, then it should be submitted via the relevant link in the VLE. Please submit only electronically filled in copies; **do not** hand fill and submit scanned paper copies of this application.

Ministry of Education Approval for Research

SAINT LUCIA

MINISTRY OF EDUCATION

Application for Permission to Undertake Research in Public Schools

A. ***(Please write legibly)***

RESEARCHER:

Surname: MAXWELL First Name: Nadia

Address: 20 Lady Mico Street, Micoud, ST. Lucia

Email Address: nadiamaxwell41@gmail.com

Telephone Number(s): 4544552 Mobile: 4854516

School/Institution: UNICAF Malawi University

Department/Faculty: Education

Programme of Study: PHd Educational Leadership and Management Year:

Level: *Undergraduate* ☐ *Graduate* ☐ *Post Graduate* ☑

Completion date of Programme of study: 2021

Objective(s) of Research: This qualitative research seeks to gain insight into:

1. Principals' and Teachers' beliefs of Professional Learning Communities
2. The implementation processes of the Professional Learning Communities
3. Ways in which Professional Learning Communities impact professional development of teachers
4. Areas in which Professional Learning Communities are lacking or inadequate
5. Suggestions or ways in which Professional Learning Communities can be improved to better meet the professional needs of teachers

Data Required for: *Long essay* ☐ *Dissertation/Thesis* ☑ *Publication* ☐

3

School(s) where research is to be carried out: *(Please List)*

Micoud Primary School
Dennery Primary School
Aux Lyons Combined School

Proposed Sample* 25 - 40 Teachers

Estimated duration of research in school(s): From: November 2019 To: June 2020

Documents/Materials obtained from the Ministry of Education: *(Please List if applicable)*

Signature of Applicant: Nadia Maxwell Date: September 15, 2019

B. Tutor's Approval (where applicable)

The above mentioned research work is being carried out under my supervision.

Tutor's Name: Zahyah Hanafi Signature: .....

C. Ministry of Education – Official Approval

The above request for permission to carry out research in Public Schools is hereby approved according to the conditions overleaf.

Signature of Authorizing Officer: ..... Date: .....
Research Officer

---

* *Researchers are advised to restrict the sample size to a minimum of teachers/students to minimize disruption to schools.*

Signature of Applicant: Nadia Maxwell Date: September 15, 2019

B. Tutor's Approval (where applicable)

The above mentioned research work is being carried out under my supervision.

Tutor's Name: Zahyah Hanafi Signature:

C. Ministry of Education — Official Approval

The above request for permission to carry out research in Public Schools is hereby approved according to the conditions overleaf.

Signature of Authorizing Officer _____ Date: 1/10/19
Research Officer

Researchers are advised to restrict the sample size to a minimum of teachers/[illegible] minimize disruption to schools.

Ministry of Education, [illegible] Gender Relations and [illegible] Development
01 OCT 2019
Corporate Planning Unit (Saint Lucia)

Nadia Maxwell UU_GL _Gatekeeper letter (2) - Sept 14

UNICAF

UU_GL – Version 2.0

Gatekeeper letter

Address: District Five Education Officer

Date: 06-Sep-2020

Subject: Permission to Conduct Research Study

Dear Education Officer,
I am a doctoral student at Unicaf University, Malawi. As part of my degree I am carrying out a case study on the "Impact of Professional Learning Communities (PLCs) on the professional development of teachers at three elementary schools in Saint Lucia".

I am writing to request permission to access three elementary schools with established PLCs in Educational District Five to recruit volunteers to participate in this research.

Subject to approval by Unicaf Research Ethics Committee (UREC) this study will use two data collection methods. I hope to interview three school principals; conduct teacher focus group interviews at each site to determine their beliefs on PLCs; and the impact of this technique on their professional growth. Furthermore, the content of PLCs sessions documents will be analysed for PLCs processes, teacher engagement in PLCs, and the focus of these sessions.

This qualitative case study research project on the impact of PLCs on teachers' professional development will be guided by my supervisor, Dr. Zahyah Hanafi. If approval is granted, I will interview principals from the three schools in their respective offices at a time convenient for them. The interviews will last between 30 minutes to an hour. The teacher focus groups interview will be conducted after school for 60 minutes and will be held in the school library. No costs will be incurred by either the school or school district or individual participants.

Thank you in advance for your time and for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.
If you agree, please submit a signed letter of permission on your educational district letter-head acknowledging your consent and permission for me to conduct this study.

Yours Sincerely,

Student's Name: Nadia Maxwell
Student's E-mail: nadiamaxwell41@gmail.com
Student's Address and Telephone: Micoud, Saint Lucia 1 758 4864516
Supervisor's Title and Name: Dr. Zahyah Hanafi
Supervisor's Position: Research Supervisor, Unicaf University
Supervisor's E-mail: z.hanafi@unicaf.org

Nadia Maxwell UU_IC_Inform consent form - Sept 13

UNICAF

UU_IC - Version 2.0

Informed Consent Form

Part 1: Debriefing of Participants

Student's Name: Nadia Athleen Maxwell

Student's E-mail Address: nadiamaxwell41@gmail.com

Student ID #: R1607D1704120

Supervisor's Name: Dr. Zahyah Hamafi

University Campus: Unicaf University Malawi (UUM)

Program of Study: Ph.D – Doctorate of Philosophy-Education

Research Project Title: A Case Study: Impact of Professional Learning Communities on the professional development of teachers at three elementary schools in Saint Lucia

Date:

Provide a short description (purpose, aim and significance) of the research project, and explain why and how you have chosen this person to participate in this research (maximum 150 words)

The research aims to explore principals and teachers' beliefs of the impact of PLCs on the professional development of in-service teachers at three Saint Lucian elementary schools. This research seeks to obtain information on:
1. Principals and teachers' beliefs of the professional learning communities.
2. The implementation processes of the Professional Learning Communities.
3. Ways in which Professional Learning Communities have influence on the professional development of teachers.
4. The areas in which the Professional Learning Communities are inadequate or lacking.
5. Suggestions on ways in which the Professional Learning Communities can be improved to better meet the professional development needs of teachers.

The above named Student is committed in ensuring participant's voluntarily participation in the research project and guaranteeing there are no potential risks and/or harms to the participants.

Participants have the right to withdraw at any stage (prior or post the completion) of the research without any consequences and without providing any explanation. In these cases, data collected will be deleted.

All data and information collected will be coded and will not be accessible to anyone outside this research. Data described and included in dissemination activities will only refer to coded information ensuring beyond the bounds of possibility participant identification.

I, Nadia Athleen Maxwell, **ensure that all information stated above is true and that all conditions have been met.**

Student's Signature: _____

UNICAF UNIVERSITY

DU_IC- Version 2.0

Informed Consent Form

Part 2: Certificate of Consent

This section is mandatory and should to be signed by the participant(s)

Student's Name: Nadia Athleen Maxwell

Student's E-mail Address: nadiamaxwell41@gmail.com

Student ID #: R1607D1704120

Supervisor's Name: Dr. Zahyah Hanafi

University Campus: Unicaf University Malawi (UUM)

Program of Study: Ph.D – Doctorate of Philosophy-Education

Research Project Title: A Case Study: Impact of Professional Learning Communities on the professional development of teachers at three elementary schools in Saint Lucia

I have read the foregoing information about this study, or it has been read to me. I have had the opportunity to ask questions and discuss about it. I have received satisfactory answers to all my questions and I have received enough information about this study. I understand that I am free to withdraw from this study at any time without giving a reason for withdrawing and without negative consequences. I consent to the use of multimedia (e.g. audio recordings, video recordings) for the purposes of my participation to this study. I understand that my data will remain anonymous and confidential, unless stated otherwise. I consent voluntarily to be a participant in this study.

Participant's Print name: _____

Participant's Signature: _____

Date:

If the Participant is illiterate:

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had an opportunity to ask questions. I confirm that the aforementioned individual has given consent freely.

Witness's Print name: _____

Witness's Signature: _____

Date:

Appendix T: UREC Final Approval Documents

Ap

Focus Group Interviews (Teachers)

Focus Group Interview Protocol: A case study about principals and teachers' beliefs on the impact of Professional Learning Communities on the professional development of teachers in three elementary schools in one educational district in Saint Lucia.

Time of Interview:

Date:

Place:

Interviewer: Nadia Maxwell

Number of participants in the Focus Group:_____

Introduction:

Dear Participants,

I would like to thank you for taking time from your busy schedule to attend this interview session today. Everything that is said in this session will be recorded unless you specifically request otherwise during our interview. As stated in the recruitment letter, I am conducting a case study for the partial fulfillment of my doctoral program at UNICAF University. The purpose of this study is to explore teachers' beliefs of the impact of professional learning communities (PLCs) on the professional development of teachers. Please remember that I will be audiotaping our conversation as well as taking notes during our discussion. The audio recording will be transcribed in its entirety for review by me and all participants. At the conclusion of this interview I will use pseudonyms so that your anonymity and all participants will be protected.

Guidelines that will help our discussion go more smoothly are:

1. Only one person should speak at a time
2. Please avoid side conversations
3. Everyone needs to participate and no one should dominate the conversation
4. The focus group should last no longer than one to one and a half hour. Many of you have cell phones, please avoid using cell phones during the interview session. If at all, please

turn off your cell phones. If you need to keep your cellphone on, please put it on vibrate and leave the room if you have to make a cell call.

Guiding Questions for Focus Group Discussion

Demographics

1. What is your age?
2. How many years have you held this post or worked at this organization?
3. What grade/ grades do you teach?
4. Do you teach all content areas or teach a specialization?
5. What is your highest level of qualifications?
6. How would you describe a Professional Development Community at your school? Or
7. What does professional development in PLCs look like in your school?
8. How are these PLCs sessions organized?
9. How are these PLCs sessions designed?
10. How are these PLCs sessions determined?
11. What are some of the topics in the school PLCs?
12. Were the topics or focus of PLCs sessions beneficial to your growth as a professional?
13. What are your thoughts/beliefs about these professional development activities?
14. Could you talk about opportunities that you have experienced as a result of being a part of a Professional Learning Community?

a. Have these experiences helped you grow professionally?

7. Has being part of a Professional Learning Community made a difference for you as a professional? If YES, how? If NO, why? Can you provide some examples? (Explain your answers)
8. Do you think you would have experienced the same opportunities without the organization/establishment of the Professional Learning Community at your school? If YES, why? If NO, why? (Explain your answers)
9. Talk about professional development at your school. Has the approach to professional development changed since the implementation of the Professional Learning Community/ Communities? If YES, please explain how? If NO, why?
10. Please describe ways in which teachers have a voice in the way PLCs protocols are followed?
11. What role does your school principal play in the PLC process within your school?
12. Could you talk about or share the opportunities for professional growth at your school?

- Based on the response provided for example "collaborative relationships or collaborative planning" ask: How do staff members go about collaborating with each other?

13. Do you think that the implementation of PLCs in the last year has contributed to your school improvement? If YES, how? If NO, why?
14. How does participating in a PLCs impact classroom teaching?
15. What is the best thing about the PLCs process at your school?

16. Could you tell me about the challenges involved with the PLCs implementation at your school?
17. If you could change one thing about the PLCs at your school, what would it be?

Thank you for your time today!!!

Possible Probing Questions

1. Would you explain further?
2. Can you provide an example?
3. Please describe what you mean?
4. Can you clarify, I want to make sure I understand?
5. One thing I have heard several persons'/individuals mention is----------. I am curious as to what the rest of the group thinks about that?
6. Are there any other thoughts that have occurred to you?

Maxwell Nadia Updated Principal Interview Protocol Nov26

AP

Interview Protocol/ Questions for Principals (Individual interview)

Interview Protocol: A case study about principals and teachers' beliefs on the impact of professional learning communities on the professional development of teachers in three elementary schools in one educational district in St. Lucia.

Time of Interview:
Date:
Place:
Interviewer: Nadia Maxwell

Introduction:
Dear Participant

I want to thank you for taking time from your busy schedule to allow me to interview you today. Everything that is said today will be recorded unless you specifically request otherwise during our interview. As stated in the recruitment letter, I am conducting a case study for the partial fulfillment of my doctoral program at UNICAF University. The purpose of this study is to explore principals' beliefs of the impact of professional learning communities (PLCs) on the professional development of teachers. Please remember that I will be audiotaping our conversation as well as taking notes during our discussion. The audio recording will be transcribed in its entirety for review by me and you. At the conclusion of this interview I will use a pseudonym so that your anonymity will be protected.

Questions:

1. What is your age?

2. How many years have you held this post at this organization??

3. What is your highest level of qualifications?

4. How well do you believe the PLCs model has been implemented at your school?

- Probe based on the response (full implementation or partial implementation)

5. How would you describe the PLCs at your school?
    a. What is a working definition of PLCs at your school?

6. What role do you as the principal play in the PLCs process at your school?

7. What do you believe is the most crucial aspect of the PLCs process? Why?

8. Discuss your beliefs on how PLCs have had an impact on the instructional climate at your school?

9. What are some of the topics of the PLCs sessions?
    a. How were these sessions determined/ designed?
    b. Were these sessions beneficial to the professional growth of teachers? If YES, how? If NO, why?

10. Please describe ways in which teachers have a voice in the way PLC protocols are followed?

11. What are your expectations of teachers when they question their practices concerning the PLCs?

12. How do you create an environment of shared goals and values within your school?

13. How does the PLCs process contribute to improving teacher practice?

14. How do you allocate time for teachers to collaborate and plan so that it does not interfere with their teaching time?

15. How has the use of time set aside for PLCs impacted teaching at your school?

16. How has the implementation of PLCs impacted professional collaboration at your school?

17. Describe how implementation of PLCs at your school impacted teacher leadership?
18. Has the implementation of PLCs changed teachers' beliefs on teaching and learning? If YES, how? If NO, why?
19. Have your teachers grown as professionals from their participation in PLCs?
20. How does the PLC process contribute to the improvement of teacher practice in your school?
21. What advantages have you realized from the implementation of PLCs at your school?
22. What disadvantages have you realized from the implementation of PLCs at your school?
23. Tell me about the challenges involved with the implementation of the PLC process/ model at your school.
24. In what ways can the PLCs process be improve to enhance teacher growth?

Possible Probing Questions

1. Would you explain further?
2. Can you provide an example?
3. Please describe what you mean?
4. Can you clarify, I want to make sure I understand?
5. One thing I have heard several persons/ individuals mention is———————. I am curious as to what the rest of the group thinks about that?
6. Are there any other thoughts that have occurred to you?

Ministry of Education Approval for Research

SAINT LUCIA

MINISTRY OF EDUCATION

Application for Permission to Undertake Research in Public Schools

A. ***(Please write legibly)***

RESEARCHER:

Surname: MAXWELL First Name: Nadia

Address: 20 Lady Mico Street, Micoud, ST. Lucia

Email Address: nadiamaxwell41@gmail.com

Telephone Number(s): 4544552 Mobile: 4854516

School/Institution: UNISCAF Malawi University

Department/Faculty: Education

Programme of Study: PHd Educational Leadership and Management Year:

Level: *Undergraduate* ☐ *Graduate* ☐ *Post Graduate* ☑

Completion date of Programme of study: 2021

Objective(s) of Research: This qualitative Research seeks to gain insight into:

1. Principals and teachers' beliefs of Professional Learning Communities
2. The implementation processes of the Professional Learning Communities
3. Ways in which Professional Learning Communities impact professional development of teachers
4. Areas in which Professional Learning Communities are lacking or inadequate
5. Suggestions or ways in which Professional Learning Communities can be improved to better meet the professional needs of teachers

Data Required for: *Long essay* ☐ *Dissertation/Thesis* ☑ *Publication* ☐

School(s) where research is to be carried out: *(Please List)*

Micoud Primary School
Dennery Primary School
Aux Lyons Combined School

Proposed Sample*: 25 – 40 teachers

Estimated duration of research in school(s): From: November 2019 To: June 2020

Documents/Materials obtained from the Ministry of Education: *(Please List if applicable)*

Signature of Applicant: Nadia Maxwell Date: September 15, 2019

B. Tutor's Approval (where applicable)

The above mentioned research work is being carried out under my supervision.

Tutor's Name: Zahyah Hanafi Signature: ....

C. Ministry of Education – Official Approval

The above request for permission to carry out research in Public Schools is hereby approved according to the conditions overleaf.

Signature of Authorizing Officer: .... Date: ....
Research Officer

* *Researchers are advised to restrict the sample size to a minimum of teachers/students to minimize disruption to schools.*

....

....

....

....

Signature of Applicant: Nadia Maxwell **Date:** September 15, 2019

B. Tutor's Approval (where applicable)

The above mentioned research work is being carried out under my supervision.

Zahyah Hanafi

Tutor's Name: Zahyah Hanafi **Signature:** .....

C. Ministry of Education — Official Approval

The above request for permission to carry out research in Public Schools is hereby approved according to the conditions overleaf.

Signature of Authorizing Officer _____ Date: 1.10.19

Research Officer

Researchers are advised to restrict the sample size to a minimum of teachers/students to minimize disruption to schools.

Nadia Maxwell Signed Consent Form Oct 21, 2020

UNICAF UNIVERSITY

UU_IC - Version 2.0 AP

Informed Consent Form

Part 1: Debriefing of Participants

Student's Name: Nadia Athleen Maxwell

Student's E-mail Address: nadiamaxwell41@gmail.com

Student ID #: R1607D1704120

Supervisor's Name: Dr. Zahyah Hanafi

University Campus: Unicaf University Malawi (UUM)

Program of Study: Ph.D – Doctorate of Philosophy-Education

Research Project Title: A Case Study: Impact of Professional Learning Communities on the professional development of teachers at three elementary schools in Saint Lucia

Date: 21-Oct-2020

Provide a short description (purpose, aim and significance) of the research project, and explain why and how you have chosen this person to participate in this research (maximum 150 words).

You are being asked to participate in this proposed study, which aims to explore principals and teachers' beliefs of the impact of Professional Learning Communities (PLCs) on the professional development of teachers at three Saint Lucian elementary schools. I am asking you to take part, because you have been a teacher or principal involved in established PLCs at your school. The research seeks to obtain a more indepth understanding of teachers and principals beliefs of the PLCs; the implementation processes of PLCs; ways in which PLCs have influence on the professional development of teachers; areas in which the PLCs are inadequate or lacking; and suggestions on ways in which the PLCs can be improved to better meet the professional development needs of teachers.

The above named Student is committed in ensuring participant's voluntarily participation in the research project and guaranteeing there are no potential risks and/or harms to the participants.

Participants have the right to withdraw at any stage (prior or post the completion) of the research without any consequences and without providing any explanation. In these cases, data collected will be deleted.

All data and information collected will be coded and will not be accessible to anyone outside this research. Data described and included in dissemination activities will only refer to coded information ensuring beyond the bounds of possibility participant identification.

I, Nadia Athleen Maxwell **, ensure that all information stated above is true and that all conditions have been met.**

Student's Signature: Nadia Maxwell

UNICAF UNIVERSITY

UU_IC - Version 2.0

Informed Consent Form

Part 2: Certificate of Consent

This section is mandatory and should to be signed by the participant(s)

Student's Name: Nadia Athleen Maxwell

Student's E-mail Address: nadiamaxwell41@gmail.com

Student ID #: R1607D1704120

Supervisor's Name: Dr. Zahyah Hanafi

University Campus: Unicaf University Malawi (UUM)

Program of Study: Ph.D – Doctorate of Philosophy-Education

Research Project Title: A Case Study: Impact of Professional Learning Communities on the professional development of teachers at three elementary schools in Saint Lucia

I have read the foregoing information about this study, or it has been read to me. I have had the opportunity to ask questions and discuss about it. I have received satisfactory answers to all my questions and I have received enough information about this study. I understand that I am free to withdraw from this study at any time without giving a reason for withdrawing and without negative consequences. I consent to the use of multimedia (e.g. audio recordings, video recordings) for the purposes of my participation to this study. I understand that my data will remain anonymous and confidential, unless stated otherwise. I consent voluntarily to be a participant in this study.

Participant's Print name: _____

Participant's Signature: _____

Date:

If the Participant is illiterate:

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had an opportunity to ask questions. I confirm that the aforementioned individual has given consent freely.

Witness's Print name: _____

Witness's Signature: _____

Date:

Nadia Maxwell Signed Gatekeeper Letter Oct 21, 2020

UNICAF UNIVERSITY

UU_GL - Version 2.0AP

Gatekeeper letter

Address: District Five Education Officer

Date:

Subject: Permission to Conduct Research Study

Dear Education Officer,
I am a doctoral student at Unicaf University, Malawi. As part of my degree I am carrying out a case study on the "Impact of Professional Learning Communities (PLCs) on the professional development of teachers at three elementary schools in Saint Lucia".

I am writing to request permission to access three elementary schools with established PLCs in Educational District Five to recruit volunteers to participate in this research.

Subject to approval by Unicaf Research Ethics Committee (UREC) this study will use two data collection methods. I hope to interview three school principals; conduct teacher focus group interviews at each site to determine their beliefs on PLCs; and the impact of this technique on their professional growth. Furthermore, the content of PLCs sessions documents will be analysed for PLCs processes, teacher engagement in PLCs; and the focus of these sessions.

This qualitative case study research project on the impact of PLCs on teachers ' professional development will be guided by my supervisor, Dr. Zahyah Hanafi. If approval is granted, I will interview principals from the three schools in their respective offices at a time convenient for them. The interviews will last between 30 minutes to an hour. The teacher focus groups interview will be conducted after school for 60 minutes and will be held in the school library. No costs will be incurred by either the school or school district or individual participants.

Thank you in advance for your time and for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.
If you agree, please submit a signed letter of permission on your educational district letter-head acknowledging your consent and permission for me to conduct this study.

Yours Sincerely,
Nadia Maxwell

Student's Name: Nadia Maxwell
Student's E-mail: nadiamaxwell41@gmail.com
Student's Address and Telephone: Micoud, Saint Lucia 1 758 4654516
Supervisor's Title and Name: Dr. Zahyah Hanafi
Supervisor's Position: Research Supervisor, Unicaf University
Supervisor's E-mail: z.hanafi@unicaf.org

NADIAM_1 REAF Form

UNICAF UNIVERSITY

REAF_DS - Version 3.0AP ☐

UNICAF UNIVERSITY
RESEARCH ETHICS APPLICATION FORM
DOCTORAL STUDIES

UREC USE ONLY:
Application No:

Date Received:

Student's Name: Nadia Athleen Maxwell

Student's E-mail Address: nadiamaxwell41@gmail.com

Student's ID #: R1607D1704120

Supervisor's Name: Dr. Zahyah Hanafi

University Campus: Unicaf University Malawi (UUM)

Program of Study: UUM: PhD Doctorate of Philosophy - Education

Research Project Title: A Case Study: Impact of Professional Learning Communities (PLCs) on the professional development of teachers at three elementary schools in Saint Lucia

1. **Please state the timelines involved in the proposed research project:**

Estimated Start Date: 19-Oct-2020 Estimated End Date: 30-Nov-2020

2. **External Research Funding (if applicable):**

a. **Do you have any external funding for your research?**

☐ YES ☑ NO

If YES, please answer questions **2b** and **2c**.

b. Please list any external (third party) sources of funding you plan to utilise for your project. You need to include full details on the source of funds (e.g. state, private or individual sponsor), any prior / existing or future relationships between the funding body / sponsor and any of the principal investigator(s) or co-investigator(s) or student researcher(s), status and timeline of the application and any conditions attached.

NA

c. If there are any perceived ethical issues or potential conflicts of interest arising from applying or and receiving external funding for the proposed research then these need to be fully disclosed below and also further elaborated on, in the relevant sections on ethical considerations later on in this form.

NA

3. **The research project**

a. Project Summary:

In this section please fully describe the purpose and underlying rationale for the proposed research project. Ensure that you pose the research questions to be examined, state the hypotheses, and discuss the expected results of your research and their potential.

It is important in your description to use plain language so it can be understood by all members of the UREC, especially those who are not necessarily experts in the particular discipline. To that effect please ensure that you fully explain / define any technical terms or discipline-specific terminology (maximum 300 words +/- 10%).

There are calls for careful and deliberate improvements to the overall quality of teaching in elementary schools in Saint Lucia. One of the recommendations emanating from the Organization of Eastern Caribbean States (OECS) Early Learners Report (2016); OECS Report on Teacher Education (2018); for school reform and the enhancement of teacher quality and student learning outcomes and professional development in Saint Lucia, is to implement the strategy of Professional Learning Communities (PLCs). PLCs utilized mechanisms which provide teachers with the platform to evaluate and regenerate their practices collaboratively, interrogate their current beliefs about teaching and reassess their students learning requirements. Thus, this leads to improve school culture, effective teaching and student achievement (Barton & Stepanek, 2012; Hord, & Hall 2014; Pirtle & Tobias, 2014; Stoll, Harris & Handscomb, 2012). Three elementary schools in one educational district in Saint Lucia had established PLCs in 2018 so as to enhance teacher quality and student learning outcomes. This study will thus explore teachers and principals beliefs on the impact of established PLCs on the professionally development of teachers at three elementary schools in Saint Lucia. The findings from this research study will add valuable insight for researchers, instructional leaders, principals, teacher educators, Ministry of Education officials and teacher professional development institutions with regards to the use of PLCs as a tool to enhance teacher quality. This study will be guided by three research questions:

1. How do principals and teachers at the three elementary schools view PLCs?
2. How are PLCs created and implemented at the three elementary schools?
3. How do PLCs impact the professional development of teachers at three elementary schools in Saint Lucia

b. Significance of the Proposed Research Study and Potential Benefits:

Outline the potential significance and/or benefits of the research (maximum 200 words).

The findings from this study will add valuable insight for the teachers, researchers, instructional leaders, principals, teacher educators, Ministry of Education officials and teacher professional development institutions. Consequently, it will add to the growing body of research on principals and teachers' beliefs on PLCS and its overall impact on teachers' professional growth. In addition, the findings of this study will contribute and assist in the development of professional development programs to enhance teacher quality in Saint Lucia. Therefore, recommendations stemming from this investigation can serve as a basis for further research and inform instructional leaders on the use of PLCs in the professional development of elementary school teachers locally, regionally and globally.

4. **Project execution:**

a. The following study is an:

- [x] experimental study (primary research)
- [ ] desktop study (secondary research)
- [ ] desktop study using existing databases involving information of human/animal subjects
- [ ] Other

If you have chosen 'Other' please Explain:

A qualitative case study will be deployed. A qualitative case study will be deployed. Two data collection methods will be used. Document analysis of PLCs artefacts, three teacher focus group interviews, and three individual principal semi structured interviews will be used to determine how PLCs are implemented, principals and teachers' beliefs of PLCs and the impact of this strategy on their professional growth.

b. Methods. The following study will involve the use of:

Method	Materials / Tools
[x] Qualitative	[x] Face to Face Interviews
	[ ] Phone Interviews
	[x] Face to Face Focus Groups
	[x] Online Focus Groups
	[x] Other *
[ ] Quantitative	[ ] Face to Face Questionnaires
	[ ] Online Questionnaires
	[ ] Experiments
	[ ] Tests
	[ ] Other *

*If you have chosen 'Other' please Explain:

One other data collection method will be used, that is document analysis of PLCs sessions documents.

5. **Participants:**

a. **Does the Project involve the recruitment and participation of additional persons other than the researcher(s) themselves?**

☑ YES **If YES, please complete all following sections.**

☐ NO **If NO, please directly proceed to Question 7.**

b. **Relevant Details of the Participants of the Proposed Research**

Please state the number of participants you plan to recruit, and describe important characteristics such as: demographics (e.g. age, gender, location, affiliation, level of fitness, intellectual ability etc). It is also important that you specify any inclusion and exclusion criteria that will be applied (e.g. eligibility criteria for participants).

Number of participants: 33

Age range: From 20 To 55

Gender: ☑ Female ☑ Male

Eligibility Criteria:

- Inclusion criteria: Participants must be principals' and teachers' at the selected schools understudy
  Participants must be informed teachers and principals who are part of the established PLCs at the three elementary schools
- Exclusion criteria: Teachers and principals not part of the established PLCs at the elementary schools
  Teachers and principals not willing to participate in the research investigation

Disabilities: All persons with or without disabilities who are part of the established PLCs willing to participate will be allowed. Participants with disabilities other than mental disabilities could participate in the research only if they can provide an informed consent for themselves. In case of participation in the research of people with disabilities, all relevant provisions will be made to accommodate the needs of disabled populations based on the condition.

Other relevant information (maximum 100 words):

The number of participants I plan to recruit are three (3) principals. The number of teachers selected for focus group interviews for each school will vary. School A has approximately 24 teachers; School B- 16 teachers; and School C- 16 teachers. The sample size will be within the range of thirty (30) teachers from the three elementary schools understudy.

c. Participation & Research setting:

Clearly describe which group of participants is completing/participating in the material(s)/ tool(s) described in 5b above (maximum 200 words).

This study will involve the following tasks:

1. Gain access to PLCs documents. The contents of PLCs documents will be read to determine how PLCs are implemented; how in-service teachers engaged in the PLCs, and how PLCs impact the professional development of teachers.
2. There will be three (3) individual interviews of school principals and three teacher focus-group interviews (one at each site) to allow teachers to share their perceptions of PLCs; how they engaged in the PLCs sessions; and the impact of PLCs on their professional growth.

d. Recruitment Process for Human Research Participants:

Please clearly describe how the potential participants will be identified, approached and recruited (maximum 200 words).

i. Principals and teachers of the three selected schools will be invited to participate in the study. All teachers and principals at three elementary schools who are members of established PLCs will receive comprehensive explanations about the aims and tasks and benefits of being involved in this investigation. All principals and teachers will receive a debriefing form with all these comprehensive details. All PLCs member teachers at the elementary school will be invited to participate. Based on the number of persons who volunteer, a number of participants which are members of established PLCs will be selected to be part of focus group interviews.

ii. Letters which provide a comprehensive explanation of the aims, benefits, and tasks of the investigation will be provided to all principals and teachers at the three sites to volunteer to participate in interviews.

e. Research Participants Informed Consent.

Select below which categories of participants will participate in the study. Complete the relevant Informed Consent form and submit it along with the REAF form.

Yes	No	Categories of participants	Form to be completed
☑	☐	Typically Developing population(s) above the maturity age *	Informed Consent Form
☐	☐	Typically Developing population(s) under the maturity age *	Guardian Informed Consent Form

* Maturity age is defined by national regulations in laws of the country in which the research is being conducted.

f. Relationship between the principal investigator and participants.

Is there any relationship between the principal investigator (student), co-investigators(s), (supervisor) and participant(s)? For example, if you are conducting research in a school environment on students in your classroom (e.g. instructor-student).

☐ YES ☑ NO

If YES, please specify (maximum 100 words).

6. Potential Risks of the Proposed Research Study.

a. Are there any potential risks, psychological harm and/or ethical issues associated with the proposed research study, other than risks pertaining to everyday life events (such as the risk of an accident when travelling to a remote location for data collection)?

☐ YES ☑ NO

If YES, please specify (maximum 150 words).

b. Please choose the appropriate option

		Yes	No
i.	Will you obtain written informed consent form from all participants?	☑	☐
ii.	Does the research involve as participants, people whose ability to give free and informed consent is in question?	☑	☐
iii.	Does this research involve participants who are children under maturity age? **If you answered YES to question iii, please complete all following questions.** **If you answered NO to question iii, please do not answer Questions iv, v, vi and proceed to Questions vii, viii, ix and x.**	☐	☑
iv.	Will the research tools be implemented in a professional educational setting in the presence of other adults (i.e. classroom in the presence of a teacher)?	☐	☑
v.	Will informed consent be obtained from the legal guardians (i.e. parents) of children?	☐	☑
vi.	Will verbal assent be obtained from children?	☐	☑
vii.	Will all data be treated as confidential? If NO, please explain why participants' anonymity or confidentiality is not appropriate for this proposed research project, providing details of how all participants will be informed of the fact that any data which they will provide will not be anonymous or confidential.	☑	☐
v.	Will all participants/ data collected be anonymous? If NO, please describe the procedures to be used to ensure anonymity of participants and/or confidentiality of the collected data both during the conduct of the research and in the subsequent release of its findings.	☑	☐

		Yes	No
ix.	Have you ensured that personal data and research data collected from participants will be securely stored for five years?	☑	☐
x.	Does this research involve the deception of participants? If YES, please describe the nature and extent of the deception involved. Explain how and when the deception will be revealed, and who will administer this debrief to the participants:	☐	☑

c. **Are there any other ethical issues associated with the proposed research study that are not already adequately covered in the preceding sections?**

☐ Yes ☑ No

If YES, please specify (maximum 150 words).

d. **Please indicate the Risk Rating.**

☐ High ☑ Low

7. **Further Approvals**

Are there any other approvals required (in addition to ethics clearance from UREC) in order to carry out the proposed research study?

☑ YES ☐ NO

If YES, please specify (maximum 100 words).

An application form for permission to carry out research in education must be completed and signed by the researcher and supervisor and submitted to the Corporate Planning Unit at the Ministry of Education in Saint Lucia for approval before the commencement of approved research. Approval was granted.

8. Application Checklist

Please mark √ if the study involves any of the following:

- ☐ Children and young people under 18 years of age, vulnerable population such as children with special educational needs (SEN), racial or ethnic minorities, socioeconomically disadvantaged, pregnant women, elderly, malnourished people, and ill people.
- ☐ Research that foresees risks and disadvantages that would affect any participant of the study such as anxiety, stress, pain or physical discomfort, harm risk (which is more than is expected from everyday life) or any other act that participants might believe is detrimental to their wellbeing and / or has the potential to / will infringe on their human rights / fundamental rights.
- ☐ Risk to the well-being and personal safety of the researcher.
- ☐ Administration of any substance (food / drink / chemicals / pharmaceuticals / supplements / chemical agent or vaccines or other substances (including vitamins or food substances) to human participants.
- ☐ Results that may have an adverse impact on the natural or built environment.

9. Further documents

Please check that the following documents are attached to your application:

		ATTACHED	NOT APPLICABLE
1	Recruitment advertisement (if any)	☐	☑
2	Informed Consent Form / Guardian Informed Consent Form	☑	☐
3	Research Tool(s)	☑	☐
4	Gatekeeper Letter	☑	☐
5	Any other approvals required in order to carry out the proposed research study, e.g., institutional permission (e.g. school principal or company director) or approval from a local ethics or professional regulatory body.	☑	☐

10. Final Declaration by Applicants:

(a) I declare that this application is submitted on the basis that the information it contains is confidential and will only be used by Unicaf University for the explicit purpose of ethical review and monitoring of the conduct of the research proposed project as described in the preceding pages.

(b) I understand that this information will not be used for any other purpose without my prior consent, excluding use intended to satisfy reporting requirements to relevant regulatory bodies.

(c) The information in this form, together with any accompanying information, is complete and correct to the best of my knowledge and belief and I take full responsibility for it.

(d) I undertake to abide by the highest possible international ethical standards governing the Code of Practice for Research Involving Human Participants, as published by the UN WHO Research Ethics Review Committee (ERC) on http://www.who.int/ethics/research/en/ and to which Unicaf University aspires to.

(e) In addition to respect any and all relevant professional bodies' codes of conduct and/or ethical guidelines, where applicable, while in pursuit of this research project.

☑ **I agree with all points listed under Question 10**

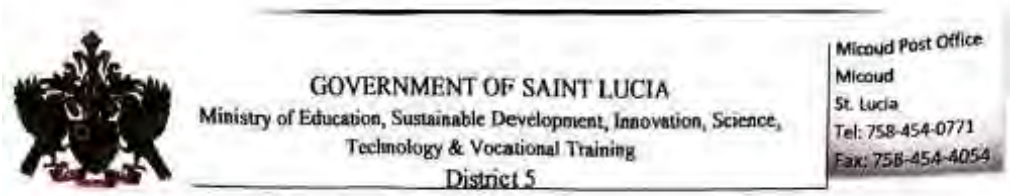
Student's Name: Nadia Athleen Maxwell

Supervisor's Name: Dr. Zahyah Hanafi

Date of Application: 06-Sep-2020

Important Note:
Please now save your completed form (we suggest you also print a copy for your records) and then submit it to your UU Dissertation/project supervisor (tutor). **In the case of student projects, the responsibility lies with the Faculty Dissertation/Project Supervisor.** If this is a student application, then it should be submitted via the relevant link in the VLE. Please submit only electronically filled in copies; **do not** hand fill and submit scanned paper copies of this application.

Appendix U: Education Officer Permission Letter



GOVERNMENT OF SAINT LUCIA
Ministry of Education, Sustainable Development, Innovation, Science, Technology & Vocational Training
District 5

Micoud Post Office
Micoud
St. Lucia
Tel: 758-454-0771
Fax: 758-454-4054

November 18, 2020

Ms. Nadia Maxwell
Senior Lecturer
Sir Arthur Lewis Community College
Morne Fortune
Castries

Dear Madam

Please be informed that permission has been granted for you to conduct research in three elementary schools in Educational District Five where Professional Learning Communities is evident.

I look forward to working with you in the District and wish you success towards the completion of your research.

Yours respectfully

.....St. Paul.....
GABRIELLE ST. PAUL (Mrs.)
Education Officer – District 5

Appendix V: Initial Codes Generated According to Research Questions

Research Question One- How do principals view PLCs?

Principals Views

School One Principal	School Two Principal	School Three Principal
PLs entail sharing of experiences, challenges, and reflection on practice Planning session where teachers look at topics, objectives, goals, tasks to be completed, how to implement tasks Sessions for instructional planning Occurred indifferent forms- virtually, face to face, at grade level, Implemented at school and grade level. Some teachers more knowledgeable of PLCs tenets than others Critical reflection on practice to make changes to improve instruction and student outcomes Sessions guided by 5 questions to reflect on practice Questions serve as guide for planning sessions	PLCs occur at grade level for past year. Before that occurred at specialized subject level Also has whole school PLCs PLCs at 3 levels Rationale for whole school was for integration of core subjects PLCs entails: sharing of experiences, best practices, class management techniques Sharing and discussing instructional issues with peers; student teacher challenges Implemented at school and grade level Collaboration sharing and analysis of school data Help teachers be reflective on structural level Make connections to ensure continuity across at grades levels and across grades	Sharing of experiences and best practices by staff Analysis of data to monitor instructional practices and student outcomes PLCs focus on planning Include use of resource personnel Was implemented to focus on reflection on practice, to improve practice Work collaboratively with peers for support and sharing of best practices, and to improve instructional practices

Research Question Two: How are PLCs Implemented at School Two?
Principals Views
School One

PLCS designed at grade Level Data driven based on	Challenges Insufficient Time	Role of Principal Mentoring role	Teachers Voice Teachers are facilitators	PLC Sessions Identify teacher strengths	PLCS Are organized according to blocks and occur when students

reflection needs of students and teaching gaps Scheduled one hour weekly	Weak PLCs structures	Attend PLCS at least once a term at grade level	PLCs stem from teachers' reflections, challenging and planning sessions	Provide opportunities to display and nurture strengths PLCs allow teachers to facilitate sessions	are with specialist teachers PlCs held in blocks during 1-3pm and 9-12pm

Research Question Two: How are PLCs Implemented at School Two?
Principals Views
School Two Principal

PLCS Focus on various topics based on need of school Sometimes held by principal or external experts (how to execute lessons effectively, language arts lesson planning, needs assessment methods and tools) PlCs held on Fridays last hour of school day (2-3pm)	Role of Principal Guide support processes of organizing PLCs Provided/ designed a template with a formative assessment focus to guide PLCS sessions	Teacher Voice Teacher had autonomy in terms of structure/ topic or PLCs at grade level	Structure PLCs timetabled School WhatsApp groups at whole and grade level Assigned year heads Grade WhatsApp groups	Challenges Inadequate Time Structure of PLCs Monitoring Inadequate Resource Personnel

Research Question Two: How are PLCs Implemented at School Two?
Principals Views
School Three

PLCs held	***Role of principal***	***Teacher Voice***	***Challenges***	***Shared Goals and values***	***Structure***
Use standards to plan lessons/units **Use of TIE Strategy to**	**Support teacher** **Principal is part of the collective in in identifying issues**	**Served as facilitators** **Sharing of instructional best practices and ideas**	**Inadequate Time** **PLCS structures are weak and inadequate**	**Allocate time to ensure teachers have collaborative discourse**	**Allocate time one/twice monthly** **Scheduled midway of morning session**

improve student writing		**All participants contribute to PLCs**	**Lack of monitoring** **Lack of resource personnel or experts**	**Encourage staff to share ideas and host PLCs**	**Parents volunteer and assisted between 10:30-12pm** **Parental Supervision during PLCs** **Scheduled for Term**

Research Question Three: How do PLCs impact teacher professional development

Recurring Views Principals School One, Two and Three

Principal School One	Principal School Two	Principal School Three
- Moved away from individual to collaborative planning - Revealed individual teacher strengths and weaknesses - Developed critical reflective practitioners - Data driven analysis and reflective practice fostered teacher professional growth - Teachers viewed themselves differently - Became critical and reflective learners - Collaborative sharing and discourse of pedagogical practices enabled insight into other ways of teaching and learning - Fostered similar goals - Celebrate together - Impetus for growth to become better teachers	- Changed the way content is taught - Planning is more substantial - More proficient execution of lessons - Teachers are empowered - improvement of teacher practice through collaborative sharing of instructional challenges, best practices, and addressing of school related challenges - developed collaborative ethos - supported and assisted each other through co-teaching, demonstrations, sharing of resources, collective planning - better able to use various resources and instructional techniques - more confidence in carrying out instructional duties	- developed collaborative ethos - improved instructional practices - build trust - teambuilding - supportive conditions - Regular discourse and reflection on practice fostered continuous learning (seeking ways to improve instructional capacity and student learning) - Got staff involved in research to constantly seek new strategies to improve teaching of concepts and practices - Teaching confidence grew - Sharing of ideas led to improvement in teaching and student performance - Critical reflection became an integral aspect of teaching lives to ensure instruction improves

Research Question1- What are teachers views of PLC? **Recurring Views of School One Teachers**
- Forum for planning - Place to share and thrash out ideas

- Forum to get support from peers and get new instructional ideas
- Sharing of best practices
- Collaborative planning where you get a range of ideas and instructional practices
- Avenue to identify students' needs
- Encompass teacher efforts
- Get resources to best meet learning needs of students
- Manipulate ideas and resources to meet students'
- needs
- Collaborative structure

Research Question Two: How are PLCs implemented?
Recurring Views of School One Teachers

- Session to meet and plan for upcoming weeks
- Reflect on instructional practices
- Plan activities around topics
- Select appropriate activities to meet student needs
- Exchange ideas/ resources/ activities to facilitate learning/ instruction
- Planning
- Creating unit plans
- Sharing activities
- Improvement plans
- Share best practices
- Curriculum mapping
- PLCs are scheduled on the timetable during specialized teaching (French, Physical Education, Information Technology, Music) sessions for different grades during morning and afternoon blocks
- Various types of PLCs: grade level and whole school
- **PLCs focus on Instruction Planning**- objectives of core subjects, unit planning to connect subjects, prerequisites, scope of curriculum sequence, best practices for teaching concepts, instructional methods, or activities
- **Teacher Voice**: teachers decide on topics based on needs of students and school/ conduct and facilitate sessions to improve pedagogical instruction to meet needs of students. Sessions facilitated by peers in areas of expertise.
- **Role of Principal**: outlines priority areas/ critical areas based on observation/ monitoring of weekly PLCs. PLCs generally left up to teachers based on students needs or weaknesses. Teachers given opportunity to determine focus of PLCs. The principal recommends areas to improve pedagogical capacity to address student learning
- **Challenges**: insufficient time, school related issues like absenteeism and interruptions in weekly schedules due to Sports and other educational activities, lack of structures to facilitate student supervision, inadequate PLCs structures
- **Areas to Improve**- more time for PLCs sessions, create more effective PLCS structures, use of resource personnel to attain a wider perspective or insight of instructional and learning experiences, consider whole school PLCs.

Research Question Three – How do Impact Teacher Professional Development?
School One- Teacher Recurring Views

- Opportunity to grow professionally through collaborative sharing and critical reflection
- Brainstorming and seeking solutions to address teaching and student learning needs
- Improvement of practice
- Sharing of best practices and successes are implemented

- How to deal with similar issues
- Gain other instructional perspectives/ insight into teaching challenging topics and concepts
- Form relationships with teachers in similar grades in and across schools to gain insight into strategies to teach a range of concepts
- Teacher instructional capacity enhanced
- Improvement of staff relations
- Teamwork
- Critical discourse for improvement
- Collaborative planning keeps staff abreast of each grade's weekly for instructional focus (everyone on same page)
- Gained a myriad of ways to teach concepts

Research Question ONE- How do teachers view PLCS?
School Two Recurring Teachers views of PLCs

- A forum for organized planning
- Place to reflect on practices as it relates to student learning (identify strengths and weaknesses)
- Forum to learn from colleagues
- Collaborative planning and learning, sharing of ideas and best practices/ success stories
- Collaborative interaction and discourse
- Gain deeper insight into teaching concepts (learn new strategies gain new instructional insights) to meet students' needs
- Forum to improve instructional decision-making
- Forum to provide direction for planning and teaching
- Observe peers teach
-

Research Question Two- How are PLCs implemented?
School Two Teacher's Recurring Views

- Sessions for planning which occur at grade level on Fridays in last hour of teaching 2-3pm
- Takes place in staff room or IT room
- Three forms of PLCs (grade level/ Subject / WhatsApp or Online/whole School
- PLCs evolved virtually due to Covid 19 pandemic
- All grades planned the same topic
- Ensured entire school focused on topics at all grades
- Teachers collaboratively planned for lessons and units
- Shared strategies, best practices which work
- All teachers implemented strategies
- Looked at student's strengths, weaknesses before planning and implementing

Design of Sessions

- PLCS determined based on needs of teachers
- Teachers meet in groups based on needs of grades or school
- Sessions focused on sharing ideas to improve pedagogical skills to enhance student outcomes
- Scheduled Fridays 2-3pm

PLCS Topics

- School related issues
- Not only pedagogical (student behaviour/ student attitude towards instruction)
- Reflect on practices of weekly instruction
- Weaknesses of students

Voice of Teachers

- Teachers have liberty to determine focus of PLCS based on curriculum topics/ student needs/ instructional week focus/ pedagogical strengths and weaknesses

Role of Principal

- Provide support and resources
- Staff and principal collaborate or decide on PLCs topics
- Monitor and ensure teachers attend and implement PLCs

Collaborative Practices

- Regular critical discourse and questioning of practices
- Assistance/ support from colleagues in areas of weakness
- Collective lesson planning/ coteaching/ demonstration to peers/ open door policy
- Sharing of content and instructional strategies
- Ensure instructional planning is geared towards needs of learners

Research Question Three-How do PLCs impact teacher professional growth and development?
School Two Teachers Recurring Views

- More time spent carefully planning lessons to cater to needs of students
- Increase knowledge about content
- Instructional skills improved and increased student performance
- Teacher relations improved
- Improved teacher confidence
- Sharing of best practices enhanced pedagogical practices and methods
- Clear focus and framework in teaching concepts- noted enhanced teacher capacity and student learning
- Provided direction for teaching
- Fosters collaboration
- Clear direction/ goals expectations for teachers and students
- Analysis and evaluation of teaching outcomes
- Critical collective and individual reflection on practices
- Increased teacher drive
- Forum for connecting with peers
- Improved communication
- Collective and individual professional growth
- Deliberate planning to meet students' needs
- Enhanced knowledge and skills of novice teachers (instructional and classroom management techniques
- Continuous learning and improvement focused on addressing student needs
- Acquired best practices to improve teaching craft
- exposure to a wide range of strategies

Challenges

- inadequate supervision of students during PLCs
- lack of human resources
- insufficient Time
- school related issues
- lack of appropriate PLCs structures

Recommended Changes

- mechanism or structure for student supervision
- involvement of resource personnel or experts to address areas of concern
- need appropriate PLCs structures
- monitoring mechanism
- more principal involvement
- further training in use of standards for planning
- parental involvement
- increase time for PLCs

Research Question One- How do teachers view PLCS?
School Three Teachers Recurring Views

- Forum for planning
- Reflecting on instructional practices
- Provide insight into colleagues' experiences and pedagogical issues
- Acquire fresher pedagogical perspectives, ideas, knowledge, and skills

Research Question Two- How are PLCs implemented?
School Three Teachers Recurring Views

- PLCs occur at junior and upper grades, Whole school approach, Subject level PLCs, grade level
- Share ideas and strategies
- Share research best practices, then implement in classroom
- Find ways to assist peers to meet needs of students
- Identify pedagogical issues
- Find ways to support each other
- Assess instructional practices
- Data driven PLCs
- Collaborative activity
- **How are PLCs organized:**
- PLCs organized based on needs of school (areas of weakness/ pedagogical needs of school and grade)
- Focus on Areas which required reteaching
- Address students' areas of weakness
- Evaluate impact of teaching
- Have critical discourse with peers on pedagogical strengths and weaknesses or difficulties in reaching students
- PLCs held at three levels- grade, subject and whole school level
- Held at least once monthly
- Data driven PLCs
- Scheduled termly
- Parental supervision during PLCs
- Scheduled morning sessions
- Attendance at PLCs dependent on areas of specialization or specialist teaching
- **Topics or focus of PLCs**
- Teaching standards
- TIE Strategy
- Use of vocabulary to teach writing
- Spelling strategies
- Teaching of mathematics for math specialist teachers
- Training in Edmondo
- **Teachers Role**: Teachers decide what happens in PLCs, share best practices, successes, facilitate PLCs Sessions
- **Principals Role:** Principal decides for whole school PLCs, collaboratively work with staff decides on whole school, grade level and specialization PLCS
- **Sharing Frameworks-** collectively help peers to teach concepts, share best practices and learn new perspectives, peer teaching, coteaching, demonstration lessons, share best practices, collective planning, open door policy, WhatsApp groups, specialized groups meet to discuss pedagogical strengths, weaknesses, difficulties in meeting learner needs, share resources and pedagogical best practices
- **Challenges-** PLCs are disorganized, poorly planned, inadequate one-shot sessions, focus of PLCs restricted to Language Arts discipline, lack of monitoring, poor PLC structures, unrealistic time frame, resource constraints, inadequate training or resource personnel, school related interruptions such as teacher absenteeism

- **Areas for Improvement**- need to have PLCs for other subject areas, more time and monitoring required, appropriate structures need to be established,

Research Question One- How do PLCs impact teacher professional development?
School Three Teachers Recurring Views

- Improved staff relations (relationship building, trust, appreciation
- Enhanced teaching instructional capacity- through sharing and collaboration with peers; sharing of instructional resources and strategies
- Identified areas affecting student performance
- Use to plan and select appropriate strategies to teach L. Arts
- How to plan more effectively (select objectives, appropriate activities to meet learner needs)
- Identify learner needs through data analysis
- Use data to address instructional needs

Appendix W: Themes and Trends in Data According to Research Questions

Table 1 illustrates the themes for Research Question 1 associated with interview data.

Theme	Description	Total participants with like responses	Sample Quotations from Participants
Theme 1: Collaborative Team Planning	Teams of teachers planning at grade, subject or whole school level	15/28	- *Teachers can come together and plan for their grade.* - *PLCs are a good venture, cooperating with colleagues at a grade level gives you a wider range of knowledge of practices which can be incorporated into your lessons to make it meaningful.* - It is kind of a reflection time. PLCS are driven by teacher reflections on practice; entails collaborative planning on a grade level. - *PLCs are a good venture, cooperating with colleagues at a grade level gives you a wider range of knowledge of practices which can be incorporated into your lessons to make it meaningful.* - We shared best practices; methods or activities which worked would be shared with the group or grade. Share other ideas. Collectively make adjustments or modify activities to suit needs of students. - *With PLCS, there are somethings the teachers do not understand, they share and discuss issues with colleagues. Even the suggestions, the strategies that are being shared in terms of best practices for teaching concepts; and even best practices in classroom management.*
Theme 2: Data - driven instructional decisions geared towards meeting student outcomes.	Examination of student data and teaching methods to design instruction to to meet students needs	15/28	- Carry out needs assessment in Grade K to guide teaching. - Discuss how we could be improving learning situation for slower students. Thrash out ideas, how we can group students/ or break up for literacy, numeracy and regroup for Science. - *We would discuss progress, how well students understood concepts. We would share strategies that worked. So, you would find sometimes we would adopt the same strategies across all grades. So, when they would continue using this strategy as they move up the grades* - *They create an avenue for teachers to further reflect on their practices and make adjustments where necessary as it relates to students learning.* - If we have a weakness in a certain area, it would be organized to address weakness in the areas. Maths, Science and L. Arts teachers meet separately to talk fortnightly to discuss pedagogical strengths, weaknesses, difficulties in reaching students.

			- We even went as far as going through random scripts or classwork of classes after instruction to identify areas of weakness and monitor growth.
Theme 3			
Common Instructional Planning Practices	Common instructional planning is the core function of PLCs	19/28	- Sometimes we shared best practices; methods or activities which worked would be shared with would be shared with the grade. - So, this is essentially what happens during PLCs. They look at objectives, the goals, planning aspect of it. What is to be done/ how to go about it? What are the challenges? Both teacher and student wise challenges. - Meet to plan, discuss what are the best activities, ideas for assigned students. Exchange ideas in terms of websites and or activities which can be used to facilitate learning. PLCS were done at a grade level. - Maths, Science and Language .Arts teachers meet separately to talk fortnightly to discuss pedagogical strengths, weaknesses, difficulties in reaching students. - Teachers would find a designated areas and plan at a Grade level. - What happened in PLCS was a collaborative decision of the literacy team. Whatever we realized was our weakness, if we needed any assistance with an issue, then that would be the focus of PLCS.
Theme 4			
Continuous Learning	PLCS framework as a mechanism for continuous or ongoing learning and improvement of pedagogical practices, knowledge, and skills to enhance student learning.	19/28	- We came together, handouts were shared with a variety of strategies which could be used to assist. We spoke about it, discussed it so that everyone would understand how to use it. From there it was implemented. - I definitely learnt new strategies and ways to help children understand concepts because as a teacher you never stop learning and so when you meet your colleagues you get to benefit from their different perspectives; you also benefit from their experiences and so on. - PLCS allows them to grow become proficient in the execution of the way they teach; they are more confident. Because with the planning they are looking at matching the content performance standards, then moving to the curriculum to look for unit and meshing everything together. I am also certain they will be more empowered to do it on their own. Planning will be more substantial for them. - I think it is a good thing working with colleagues to find out how you can improve yourself. As an individual you will not know everything. When you plan together; gives you a direction. It helps you remain focused on how to manage a class.

- Being around other teachers, hearing them, getting advice, being able to go to their classes and listen to their contributions, listening to the strategies they use helped me quite a bit. Without these PLCs planning sessions I would be a bit lost.

- It is meaningful because sometimes you learn from the other teachers and it's a time for us to reflect on best practices.

- There are opportunities for growth to learn new things, new ideas and better your instruction. Because it is through sharing that you learn you were doing something one way. But another colleague shares other methods/strategies with you, and you realize there are other ways to do things. So, the idea of meeting and sharing and having these PLCs is an opportunity for growth; its an opportunity for learning to gain success.
- PLCs are a good venture, cooperating with colleagues at a grade level gives you a wider range of knowledge of practices which can be incorporated into your lessons to make it meaningful. You gain a range of strategies that you can match with the learning needs and styles of students. You have a repertoire or range of activities you can use individually or in groups to meet their needs.

Table 2 illustrates the themes for Research Question 2 associated with interview data

Theme	Description	Total participants with like responses	Sample Quotations
Theme 1 Range of PLCs Arrangements	Range of PLCs arrangements which consist of grade level, subject, whole school and across school teams	19/28	- Normally, the PLCs in our school is organized per grade - The timetable was structured in such a way that every grade had a specific slot. - Principal carries out whole school PLCs sessions virtually - PLCs are usually held at Bi grade level. This means two grades hold PLCs together. Some grades meet individually. Like Grade K. grades 3 and 4 and 5 and 6 plan together. - Where as a group/grade level, we would plan. At that same point in 2018, teachers were specializing. At that point all language arts, mathematics, science, and social studies teachers would meet. And it was scheduled biweekly on Friday, the last hour of the day 2-3pm. - Teachers would find a designated areas and more or less plan at a Grade level. If we had 3 or 4 teachers in the grade, most times we would meet especially, if we were doing specialization. - Also, there was a time where we would meet as committees/ per specialization PLCS . Like maths, Language Arts etcetera, so we would know what each grade would do for maths since we specialize for each subject area. - So, we had PLCs in two different ways where we would meet at Grade level and where we meet on a subject specialization level.

			But it would be done interchangeably. But it would be done on a grade level where we would meet a grade, for example all Grade 4 teachers plan. - Maths, Science and Language Arts teachers meet separately to talk fortnightly to discuss pedagogical strengths, weaknesses, difficulties in reaching students. Concerns about students Also have specialization WhatsApp groups in which we share any concerns about students. Speak virtually, hold meetings via WhatsApp. Do a lot of virtual meetings in Upper grades 5 to 6. - The maths teachers do have specialized PLCS sessions especially in the upper grades. The lower grades its generally done as whole, because K-2 teachers teach all subjects. For the whole staff it was scheduled monthly For smaller specialization groups or at a divisional level lower and upper school they would be held on Friday or Thursday. This was held weekly and or fortnightly. -
Theme 2 Data driven instructional decision making based on common goals	Examination of student data and assessment of pedagogical practices to design teaching and learning to enhance Student outcomes	19/28	- We looked at not just basic scheming or planning, but we rather looked at creating unit plans and sharing activities and ideas and ways we can improve and basically share best practices. In this be case, it was really effective because we were able to look at the curriculum and map in a sense we looked at what is. expected in lower Grade 2 and what is expected in Grade 4. It was quite effective in getting us to create unit plans and share best practices. - Our PLCs entail just planning because that is what it is. Planning, scheming and lesson plans. We shared best practices; methods or activities which worked would be shared with the group or grade. Share other ideas. Collectively adjust or modify activities to suit needs of students. - It is a session where we meet and plan. We sit and discuss what we are going to do for the week. We thrash out ideas. Whatever works well we share it. Our best practices. What may work for slow children? What may be working for more advanced students? When we get our activities or what activities can work for whatever topics we are doing. Based on what we plan for the week we come up with instructional activities. - Meet to plan, discuss what are the best activities, ideas for assigned students. Discuss how we could improve the learning situation for slower students. Thrash out ideas, how we can group students or break up for literacy, numeracy and regroup for Science. - PlCs are determined based on the need for teachers to discuss experiences and share ideas to improve their skills and in turn boost student outcomes. - When we did planning, we did it according to subject areas, and I taught mathematics. When we met, we would discuss progress, how well students understood concepts. We would share strategies that worked. So, you would find sometimes we would adopt the same strategies across all grades. If everybody was using the same strategy, then the students do not always have to learn something new. For example, if a table was used as a

			strategy to assist with teaching the concept of place value. It would then be used to teach place value in all grades. So, they would continue using this strategy as they move up the grades. I think for Science, we did the strengths and weaknesses of students as well.
Theme 3			
Shared Practices Framework	Shared frames consist of research best practices, demonstration, ongoing reflective and collective discourse, co or team teaching, collective PLCs facilitation, sharing	22/28	- we rather looked at creating unit plans and sharing activities and ideas and ways we can improve and basically share best practices. - Sometimes we shared best practices; methods or activities which worked would be shared with the group or grade. Share other ideas Collectively make adjustments or modify activities to suit needs of students.
			Site A
			- The teachers are also learning to open their classrooms to others. For instance, I find each other to move in and out of classrooms better. Recognize they have to work together. Contributed to team building. - We learn how to share ideas, and to work together. It was not just about my class and my students. But rather how everything we do can benefit all students. So we learnt how to (I may disagree with your ideas but do so respectfully. I may agree with you entirely but these are my suggestions for another way of doing it).
	research and resources and open- door policy		- Collaboration for instruction. We now recognize we submit one scheme of work for each grade. However, all grade level teachers must submit a reflection. Generally during the PLCs, the teachers share their experiences about different things. In terms of learning objectives, student behaviour, student response, teacher challenge PLCS are driven by teacher reflections on practice; which entails collaborative planning on a grade level.
			- PlCs are determined based on the need for teachers to discuss experiences and share ideas to improve their skills and in turn boost student outcomes. Sharing handouts and content material and content material, saying how a topic could be approached in a better way, allowing teachers to plan for the area which they are strongest in even if we do not specialize. - What I noticed about PLCS at the school when we plan as a grade it actually brought us together. Across Grade 4 and I expect all grades it brought us closer together, The relationships grew stronger and we were able to read each other and understand each other. Even to the point sometimes when we are planning our lessons together. Before we go into the classroom we would actually do our labs. Like if we are doing an experiment, we would actually be there like we are in the

			classroom. Teacher takes the lead and other teachers would serve as other students watching. It was fun, interesting. - For PLCS, teachers have an allotted time and they know this is the time for PLCs. We have our School WhatsApp group where we share ideas using this medium. For the Grade 3s they would have their own WhatsApp group, apart from the school group where they would be communicating. - Encouraged more regular meetings, a teacher she would say peer teaching or coteaching. Since a teacher may have difficulties teaching a concept, may invite or ask another teacher or colleague. Sometimes other staff members would be invited to share their best practices. Colleagues may actually teach concepts or demonstrate concepts to peers. - Maths, Science and L.Arts teachers meet separately to talk fortnightly to discuss pedagogical strengths, weaknesses, difficulties in reaching students. Concerns about students Also have specialization WhatsApp groups in which we share any concerns about students. Speak virtually, hold meetings via WhatsApp. Do a lot of virtual meetings in Upper grades 5 to 6 . Note similar issues with students; suggestions for catering to students needs. Suggestions about what we can do and don't do.
Theme 4 Supportive Structural Processes	Site supportive structures and procedures which facilitate the implementation of PLCs include planning routines or timetables, use of guiding questions or improvement plans; schedules; supportive leadership; collective facilitation; principal facilitation ; and expert facilitation	20/28	Site A - The timetable was structured in such a way that every grade had a specific slot. Again, it depends on the grade in the morning or afternoon slot. It was held during school hours. Specialist teachers would have taken on the classes and regular teachers would be planning during that time. Each grade had a day while specialist teachers took up the classes - So, during that block I timetabled PLCs and so it worked beautifully. So specialist teacher worked from 1-3 pm and 9-12 pm. This would be PLCS time; when students of two grades were engaged in specialist subjects. - Teachers decide on topics. Decisions are made based on the needs. Remember having a PLC session with Literacy Coordinator in kindergarten based on needs. - The principal opens up the floor and she always gives us the opportunity to share what we are experiencing; do we think we can solve it. Yes, she has an input but its more or less all of us thrashing out ideas, deciding on what is best way forward. - If the principal saw a need or recognize a need; then a session would be organized. For example, the PLC with the literacy coordinator in Grade 1 is an example. If the principal saw there was a critical need; then for a grade or school PLCS would be organized to meet that need. But generally, PLCS were left up to each grade and teachers to decide.

- So she sometimes gives a directive as to what she wants to be addressed or implemented. Sometimes there are issues and so she would say grade K when you meet could you just discuss and report back to her. So it is a mixture of both teachers and principal

- In terms of the role of reflection, the role of viewing themselves as reflective practitioners; because I did give teachers some guiding questions. These questions served as a guide for reflection. And if I am not there, they may forget the questions. But when I come into PLCs sessions, I may ask two of the five questions. The five questions were something to this extent: What were the goals?; What do I need to accomplish them?; What are the barriers or challenges?; How will I overcome them?; What will I do differently?

- Generally, I play a mentoring role. For instance, I try to attend as many PLCs I can across grades throughout the academic year. Throughout the academic year, like throughout the term, I make it my business to join one session per grade.

- I try to identify as the leader every teacher's strength. So I try to identify the strengths and give them public opportunities to display that strength. Anytime there is an opportunity for professional development Teacher Kwould be sent. Because of her interactions with me, she had an attitude of willingness to learn. So teacher K is a master teacher in the virtual environment

Site B

- PLCS are scheduled weekly on a Friday.

  During COVID established protocols; Fridays were assigned for planning because students were at home; there was a bit more leverage. PLCS are scheduled an assigned time.

- At that point all language arts. mathematics, science and social studies teachers would meet. And it was scheduled biweekly on Friday, the last hour of the day 2-3pm

- Just for the short term and close of 2nd term, I guided the process in terms of what I think should occur or drive PLCS. It was not just I am doing this topic but rather looking at things formatively. I developed a template. The focus was on formative assessment because I did not think the school was practising formative assessment. I told them that in PLCS you have to look at the assessments implemented throughout the week and not just the topics required to teach. But the impact the strategies that you have used with the students.

  So, because I designed a class DEVELOPMENT PLAN. This is something that teachers will use in their PLCS every 2 weeks. Because we were focussing on formative assessment, every 2 weeks to monitor what had transpired and to decide what happens in the next two weeks in terms of what students can and cannot do. So the plan was designed for them to use

- PLC is scheduled on our timetables every Friday from 2 to 3p.m. Plcs are determined based on the need for teachers to discuss experiences and share ideas to improve their skills and in turn boost student outcome. Teachers meet in groups based on the same grade level or sometimes whole school.

- Entire staff with principal determine what occurs in PLCS

- Most part teachers have liberty to decide what happens in PLCs. Principal attends; stops by to monitor and ensure PLCS are actually happening. But it is not like she has an input. She just ensures PLCs designated time is utilized to do what is assigned.

  Site C

- We had a fortnightly schedule. So, we had literacy and numeracy PLCS. There was a heavy focus on literacy and my staff was tasking me for that.

- Sessions were planned once monthly or fortnightly mid morning to midday. What we did as a staff was decided not to dismiss our children on the Thursday PLCS was held. We sent letters home asking for parent volunteers. Parents would come into assist or volunteer. We would try to meet between 10:30 and 12pm. So classes had teams of volunteers who would in so teachers provided seatwork and review exercises so that parents could supervise so that students would not have to leave school or disrupt the normal school day. That's how it was managed at Site C.

- I agree Plcs are organized based on the need of the school. Scheduled fortnightly. Scheduled Every 3 or 4 Thursday. Some were held whole school because it was an issue that every teacher had to learn and adopt.

- Maths, Science and L.Arts teachers meet separately to talk fortnightly to discuss pedagogical strengths, weaknesses, difficulties in reaching students. Concerns about students Also have specialization WhatsApp groups in which we share any concerns about students. Speak virtually, hold meetings via WhatsApp. Do a lot of virtual meetings in Upper grades 5 to 6 . Note similar issues with students; suggestions for catering to students needs. Suggestions about what we can do and don't do.

  Fridays designated for planning.

- What happened in PLCS was a collaborative decision of the literacy team. Whatever we realized was our weakness, if we needed any assistance with an issue, then that would be the focus of PLCS.
- Allocate time to ensure teachers can have collaborative discourse. Ensure all teachers participate. Encourage staff to share ideas and host PLCs sessions.

- As a whole school, it is the principal who usually decides sometimes what happens in PLCs. Sometimes the principal would at staff meetings seek teachers' suggestions/input. And based on the topics/ issues or areas identified a decision would be made. If most persona have identified an issue, this would be a topic or focus of PLCs. Or staff may be asked to select a topic which is most pressing to look into. Or sometimes, it depends on the group. For smaller groups teachers decide focus of divisional

			and specialization PLCs. As a whole school, the principal along with teachers would decide what is the most pressing issue/ areas/ topics for professional development activities. Or sometimes the principal presents an area all teachers require professional training. - The teacher mainly decides what happens in PLCs. Specialization or divisional small group PLCs teachers determines focus of PLCs. Based on the discussion in smaller groups, someone may have come across an idea or best practice. And sometimes that person may be asked to share this the next time around or based on an issue being experienced a decision would be made on areas or topics to be addressed in PLCs. -
Theme 5			
School Related Challenges	Host of school related hurdles which hamper the implementation of PLCS which include: Weak PLCs structural processes; school related issues Time constraints, lack of human and physical resources; inadequate monitoring of PLCs	18/28	Time Constraints Site A - As it stands, time constraints, given that classes, are sometimes we do not get to put in the required time for planning. - For me it has never really worked out the way it supposed to be ‘ Because its supposed to have adequate time (time is a major hindering factor). For, example for something like this to really work. You need to have a block of time. At least an hour and a half. - As it stands, time constraints, given that classes are unsupervised, we do not get to put in the required time for planning. Site B - During Covid, The Friday were assigned for planning. In essence PLCs. That’s one of challenges faced in this new school year. Fridays were assigned for planning as this is one of the issues faced. A lot of time/ half of the day was spent on school affairs and not sufficient time was given to proper planning. By the time group planning was given it was almost time to go home. - Time was another challenge. PLCS Within the one hour in the regular 9 to 3pm day was inadequate. Even with an entire day assigned due to COVID protocols, it was very difficult to juggle how 9-3pm can be used effectively. Because I have Grades 3, 4, 5 and 6. So at least they have two hours and you have to consider the time for break and lunch. More time is required. It is a process which cannot be rushed. Wish more time was allotted. Site C - Time is a challenge. It is easier to carry out weekly or fortnightly in divisional or specialized PLCs. On the other hand, whole school is a challenge. We try to meet within the school hours but it is difficult. There is also an issue with manning classes. If after school, teachers do not want to stay or have other commitments. - Time was a major challenge. Could not have many PLCS. Because when we first started teachers were yearning for a weekly session. But you know the COVID pandemic derailed this. Weak PLCs Structural Processes Site A

- So I believe the ideas of PLCS is a good one, but maybe at our school it is not probably what it should be. And probably we need to work in that regard. .PLCS lack adequate structure in terms of goals, measuring goals and outcomes, monitoring.

- So my opinion that it really goes back to whether teachers had a clear understanding of what PLCs is all about. And I think that is where the problem lies. Because, I don't think they have a clear understanding. It depends on the grade; like I said when we were in grades 3 and 4 we had somebody supervising us. We learnt what PLCs were. But generally we are not effective in carrying out PLCs, we are just scheming.

Site B

- Inadequate supervision of students during the period of time teachers engage in plc sessions.

- Lack of appropriate structure. At the beginning PLCs was quite confusing. We were not too clear as to what PLCs actually was. Although when we began we had a strategic plan of our goals but were never aligned it to PLCs. PLCS were mainly planning and reflecting.

- Lack of resources, more training on what we really have to do.

Site C

- I think that we are ignorant of the structural principles which should guide PLCs. Because from what I see we are running it as a meeting or workshop. We need information on how to develop a structure to suit our school.

- For me, it would be scheduled. If we could plan ahead. If we are have 3 to 5 PLCs this term. Then we need know this 1st PLC would cover this. The 2nd PLC would cover this, so we as teachers we can prepare. Also it could be based on our own needs. We have been there for a while, so we can see some of our own issues. We should not be planning based on we see come up so we need a PLCS. If something comes up and we need to accommodate that's fine; but if we already have a structure and we know the upcoming agenda it will be better.

- The focus of PLCs at Site C is mainly L. Arts. Many other subjects are taking a back seat. So we should plan in a sense that every PLC or different PLCs should focus on different subjects. So that we don't put all our eggs in one basket and change the perception that if you don't excel in one subject that you are dumb or failing. Emphasis needs to be placed on other subjects rather than just L. Arts. There should be a balance of PLCS so all subject areas should be addressed.
- We had a fortnightly schedule. So, we had literacy and numeracy PLCS. There was a heavy focus on literacy and my staff was tasking me for that.

Inadequate monitoring of PLCs
Site A
- PLCS lack adequate structure in terms of goals, measuring goals and outcomes, monitoring.
-

Site B
- It was rough in 2019. It was first year; was bombarded because teachers were all out at the same time attending PLCS. So if

PLCs were structured from 2-3pm it meant all teachers were at PLCSs sessions and that students were unsupervised in classes. At this time, the principal had to do monitoring of classes for teachers; to ensure student behaviour, safety and management. Hence, was unable to sit in and plan with teachers during PLCS.

Site C

- Monitoring element is required to determine PLCS are actually happening and implementation of ideas happening. Sharing of feedback on wins and fails. Monitoring is inadequate- Yes sometimes management is invited to smaller PLCs sessions; and may not be able to attend because several PLCS sessions (upper and lower school) are running concurrently.

- There should be principal involvement in the monitoring of PLCS. Because as a school we would agree since its one area. If a teacher has found an instructional method to teach a concept, let us all try it out because we are struggling with the concept. And then the onus would be on the principal to monitor to see that her school is taking this team approach to teaching concepts.

Other School related issues

Site A

- Other school-based issues may affect planning or PLC sessions. For example other school activities took precedence over PLCs sometimes.
- For me, every time we had to plan; there was always an issue. Teacher absenteeism or the specialist teacher cannot take the class or we could not get (all) three teachers in the grade to plan. Either 2 teachers in the grade would plan during the scheduled PLCs session or we would never plan. When all grade teachers plan it was more meaningful.
- Sometimes we just begin planning and students return because the assigned teacher had an emergency or cannot attend to students because of reassignment / or overseeing of an absent teacher's students. This is problematic.
-

Site B

- A lot of time/ half of the day was spent on school affairs and not sufficient time was given to proper planning. By the time group planning was given it was almost time to go home.
-

Site C

- School based or district-based activity prevent PLCs from occurring/ Simple human error forgetting something came up.. Clashes with administrative or district activities
-

Lack of human and physical resources

Site B

- Lack of resources, more training on what we really have to do.
-

Site C

- Resources are a constraint. We probably do not have resources we need to go ahead and deliver instruction. For example, we need computers to reach students.

- Unavailability of resource personnel is another challenge. Sometimes when were trying to get external resource personnel for our second Standards session, CAMDU was booked.
-

Table 3 illustrates the themes for Research Question 3 associated with interview data

Theme	Description	Total participants with like responses	Sample Quotations
Theme 1 Enhanced Instructional Practices and knowledge	PLCs engagement led to improved pedagogical and knowledge capacity of teachers through critical reflection on practices led to assessment of pedagogical delivery, finding viable alternative solutions to address student needs, collective and data focused planning, and sharing of research best practices, and resources to advance teacher knowledge and pedagogical skills to meet students needs.	19/28	Site A - It makes teachers aware of what real work is. It forces them to view teaching through a more critical lens. As opposed to what they are always doing. Know they are never sure about what they are doing. Teachers feel insecure/ always questioning their capacity. - Draw on strengths of teachers/ training is providing opportunities for growth for teachers. They pay attention to what the data says. - There are opportunities for growth to learn new things, new ideas and better your instruction. Because it is through sharing that you learn you were doing something one way. But another colleague shares other methods/strategies with you and you realize there are other ways to do things. So the idea of meeting and sharing and having these PLCs is an opportunity for growth; its an opportunity for learning to gain success. - It is also a time many problems are identified. We thrash out possible solutions to these problems. So, it does help with my professional growth as a teacher. Site B - PLCS changed the way the content is taught, the timeframe for topics that has also changed. If something was being taught way down the line; it has been brought up. This shift came about because of PLCS. Even lesson planning- the unit planning for some grades - To pick up a wealth of knowledge from more experienced teachers ahead of me. So in terms of classroom management and instructional strategies I benefitted there.

- There is continuous improvement. When you meet you discuss learning needs of your students with colleagues. You arrive at best practices to better your teaching

Site B

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- To pick up a wealth of knowledge from more experienced teachers ahead of me. So in terms of classroom management and instructional strategies I benefitted there.

- There is continuous improvement. When you meet you discuss learning needs of your students with colleagues. You arrive at best practices to better your teaching

- I loved PLCS because it forced me to engage in reflection and to plan to be more deliberate in my planning to meet the needs of mys students. So, it really forced me to reflect with colleagues. When you reflect with your colleagues, you really get to did into your lesson. You really get to understand what the children do not understand. Sometimes through discussion you realize your students do not understand. What can I do to help my , students, reflect and be deliberate with planning
-

Site C

- Critical reflection on practices meant that teachers would always seek new ways or ideas from research and peers to improve their teaching performance so that students learning was enhanced.
-
- There was a lot of discussion on how to frame objectives, how to order objectives, how to present various activities to ensure students would learn.

Theme 2:

Collaborative and Collegial ethos	engagement in PLCs led to collaboratively solving instructional challenges, sharing instructional expertise, nurturing of respect for peers, building trust among peers, and amicable relations

Site A

- Collaboration for instruction. We now recognize we submit one scheme of work for each grade. However, all grade level teachers must submit a reflection.

- Working as a team made it easier. Maybe you have an idea from one perspective and when your colleague brings it up another way then you realize that this way may be easier. It can work that way better. Having many ideas and different ways to teach concepts. It helped a lot. Maybe you are struggling with that topic and the perspectives shared by a colleague or colleagues will help.
- It worked better for me because sometimes my colleague in Grade 3 was teaching a concept; even if I taught this concept in a previous grade. I would say I never looked at teaching the concept in that way or light. Also, when she was teaching I was able to add my perspective. when I was teaching, she was able to add; so the collaboration and team teaching worked well for the Grade 3 and the students benefitted as well

Site B

- Because of PLCS where they get to share ideas, persons who are not strong in an area, they get suggestions from persons with expertise in subjects. Persons/Specialists with strengths in an area will present best practices to each other.

- There are somethings the teachers do not understand, and they share and discuss issues with colleagues. Even the suggestions, the strategies that are being shared in terms of best practices for teaching concepts; and best practices in classroom management.

- Generally, it has improved teacher relations. All of us are in different grades, and I think Plcs have brought us closer during planning; improved confidence; improved relations. Since we share activities for teaching concepts; I think we would use suggestions/ideas from peers.

Site C

- Collaborative ethos, Teachers reflected on their practices more critically; teacher confidence grew; research culture- readings for new instructional perspectives, strategies and ideas.

- Relationship building- trust, appreciation, confidence in colleagues' abilities, open door policy, sharing of perspectives.

Appendix X: Permission Letter to Julie Morrow Regarding Use of Interview and Focus Group Protocols

Nadia Athleen Maxwell
Student: Unicaf University, Malawi
Email: nadiamaxwell41@gmail.com

September 30, 2020

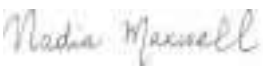
To: Dr. Julie. R. Morrow
Director of Leadership Advocacy
Achieve 2000

Dear Dr. Morrow,

My name is Nadia Athleen Maxwell, and I am currently a doctoral student at Unicaf University in Malawi. I will be referencing your 2010 Ph. D study to extend on teachers' perceptions of professional learning communities in my dissertation "the impact of PLCS on teacher professional growth in three elementary schools in one Saint Lucian educational district". Therefore, I would like to request use of the interview and focus group protocols of your PHD 2010 research study with some modifications that would specifically address my research questions. I would be grateful if you would kindly grant me permission to use these two instruments.

Thanking you in advance for responding.

Sincerely,



Nadia Maxwell

On Wed, Sep 30, 2020 at 5:14 PM nadia maxwell <nadiamaxwell41@gmail.com> wrote:
Dear Dr. Morrow,

My name is Nadia Athleen Maxwell, and I am currently a doctoral student at Unicaf University in Malawi. I will be referencing your 2010 Ph. D study to extend on teachers' perceptions of professional learning communities in my dissertation "the impact of PLCS on teacher professional growth in three elementary schools in one Saint Lucian educational district". Therefore, I would like to request use of the interview and focus group protocols of your PHD research study with some modifications that would specifically address my research questions. I would be grateful if you would kindly grant me permission to use these two instruments. I have attached a formal copy of this letter for your records.

Thank you in advance for responding.

Sincerely
Nadia Maxwell

Mon, Oct 12, 2020, 9:48 AM

Julie Morrow <morrowj1967@gmail.com>

to me

Good morning, Nadia, I hope you are well. I apologize for just responding. Your email got buried in all of my emails. Just for clarification, I wanted to make sure of exactly what you were referring to in your email and letter. As indicated in my earlier email you are more than welcome to use the questions from my interviews. You are also more than welcome to use the questions that I designed for the focus groups or anything else that you would find useful from my study. Again, I am happy to assist in any way!!! I currently work with doctoral students so I know how tedious this process can be. Julie.