EXPLORING THE IMPACT OF SPECIAL EDUCATION PROFESSIONAL LEARNING COMMUNITIES ON STUDENTS WITH DISABILITIES

by

Christie Peavyhouse Overall

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Dissertation Committee:

Dr. Kevin S. Krahenbuhl, Chair

Dr. Heather Dillard

Dr. Jess Grayum

For James

I love you and am proud to be your mom.

In loving memory of my daddy,

your light will forever shine bright.

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ABSTRACT

Across the nation, students with disabilities are struggling to close the achievement gap. Many schools have adopted the PLC framework and implemented special education PLCs in their schools in order to address this deficit. This study examined data from 13 elementary schools in a school district. The data was analyzed to determine if special education PLCs are making an impact on the achievement of students with disabilities. A survey was also used to examine the opinions of the special education teachers in the district on how they felt about their special education school team.

This quantitative study first analyzed the data from two groups: schools that have special education PLCs and schools that do not. Then data from four groups was analyzed to determine if the frequency in which the special education PLCs met impacted achievement differently. A total of 270 student samples were taken from the school district for the data analysis. The results from these two tests determined no significant difference in progress between either of the groups. Lastly, a survey was analyzed to determine how special education teachers felt about their team. The results from survey indicated an overall positive view of their special education teams. Based on these findings it is recommended that the school district in the study take a closer look at their special education PLCs and consider making some changes in order to ensure student achievement. Further research is also recommended to determine if the impact of special education PLCs is different in other regions around the United States.

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CHAPTER I: INTRODUCTION

Introduction

Learning communities are being implemented in many professions across the United States. Education is among one of the professions that is implementing learning communities, and they are quickly becoming very prominent across the United States. Furthermore, many of the schools and systems that are implementing these learning communities are finding an association with success (DuFour, 2015). These communities can be referred to as learning communities, communities of practice, professional communities of learners, and communities of continuous inquiry and improvement (Feger & Arruda, 2008). The most popular term currently used for these communities is a Professional Learning Community (PLC). PLCs can be used by teachers and staff members to collaborate on student achievement and determine if students are making gains toward mastery.

The academic needs for students with disabilities have always been a concern for public schools across the nation, and this has taken on an increased emphasis in the past few decades. With the enactment of No Child Left Behind (NCLB) Act in 2001 and an increased emphasis on accountability, it has been brought to light the fact that certain groups in particular were being underserved. Among these groups are students with disabilities. In 2004, the U.S. Department of Education re-authorized the Individuals with Disabilities Education Act (IDEA) from 1997. Since the enactment of these two laws, educators have struggled to find a solution to bridging the gap for students with disabilities. Under these two laws, students with disabilities are required to have the same access and exposure to the general education curriculum as their typically

developing peers. Not only that, students with disabilities are expected to also achieve proficiency on each state's standardized achievement test. This poses a problem for many special educators and administrators. Teachers, administrators, and other professionals, who work closely with students with disabilities, need to collaborate on ideas and plans for these students in order for them to gain access to the general education curriculum. This can take many hours of planning on an individual teacher. All students with disabilities have their own individual learning plan, and special education teachers need more time to specifically address each student's individual needs in order for them to achieve academic progress. How can special education teachers effectively collaborate with other professionals and administrators within their building to properly plan for their students with disabilities? One way that shows promise to be an effective method for collaboration is Professional Learning Communities (PLCs). PLCs are an ongoing process in which educators work collaboratively through research and inquiry in order for students to achieve their best results possible (Dufour, Dufour, Eaker, Many, & Mattos, 2016). When teachers and school personnel participate in PLCs, they can meet to discuss individual students and make a plan based on the student's needs. PLCs also allow for teachers to share ideas, strategies, and successful methods. Often times, PLCs will share assessment data and determine if a plan is working or if it needs to be adjusted. The PLC approach is one that administrators support for teachers to be able to collaborate effectively with other personnel in the school or district (Blanton & Perez, 2011). Much success has been tracked through the PLC process. When working together as a team, teachers are able to accomplish many things and ensure that all students are

getting the best education to fit their needs. When teachers participate in a learning community, they continuously seek learning and act on what they learn (Hord, 1997).

Context

School districts are now requiring their teachers to participate in PLC meetings on a regular basis. This also includes special education teachers. Special education PLCs have been relatively rare to see in public schools, despite the fact that special education teachers could possibly be among those who would benefit the most from collaboration within their school (Pella, 2011). Now more than ever, school districts are taking note of the effectiveness on student growth and achievement they are seeing as a result of teachers meeting as PLCs. Ocean View school district implemented PLCs for their general education teachers in 2016. In 2017, after reviewing the previous year's data, Ocean View school district required their special education teams in each school to start meeting as a PLC. This new requirement by the district officials was due to lack of achievement made by students with disabilities on the state standardized achievement test. Although mandated, these special education PLCs had limited enforcement, and how they have manifested varies widely. Some of the schools started conducting what they thought were PLCs and some of the schools did not. In 2018, this school district used special education coaches to develop these special education teams into more structured PLCs. There are still some special education departments in schools in this district that are not meeting as PLCs. For the special education departments that are meeting as PLCs, the special education coaches attend all of their PLC meetings to ensure fidelity and that the components of a PLC are being followed.

In March of 2020, Covid-19 swept across the United States causing school systems to shut down all around the nation. Ocean View school district's last day of in-person classes for the 2019-20 school year was March 13, 2020. For the rest of the school year, teachers planned instruction virtually and online programs were used to supplement in-person classes. There was very little student data from that time period as it was optional for students to participate. School officials understood there is immense possibility for an even wider summer slide than in a typical school year. Also, during this time period, Ocean View school district was in the process of transitioning to new district leadership. This transition was unexpected by all in the district. New district leaders were taking over during this time of uncertainty with very little experience in this type of leadership role due to the suddenness of a tragic, unforeseen event. In August 2020, Ocean View school district reopened on a hybrid learning plan. Students in grades 3rd-6th were automatically enrolled in distance learning from home and students in grades kindergarten-2nd were given the option to learn in-person at their school. After fall break in October, all students in grades kindergarten-6th grade were given the option to return to school for in-person learning. Students were also given the option to continue distance learning. The setting for this study is to determine the effectiveness of Professional Learning Communities that are occurring within a school district. Specifically, this study will analyze the impact Special Education PLCs have on student achievement among students with disabilities in a suburban school district.

Problem Statement

The role of the special education teacher is much different than the general education teacher. Special education teachers must ensure their students are making

progress toward their Individualized Education Plan (IEP) goals. In most circumstances, students with disabilities are also working toward mastery of grade level standards. It is up to the special education teacher to make sure the students' IEPs are being followed, progress is being made, and the students are making gains in all areas. Special education teachers typically teach a specific group of students. Those groups may be based on ability, age or a combination of both. Often special education teachers are not with their students all day. Some teachers may only see the student for 30 minutes once a day or maybe even 15 minutes twice a month depending on the disability. Other special education teachers spend the entire day with their students with little down time to analyze data. Special education teachers are continuously seeking support from other staff members and administrators to be able to perform their job duties. When students with disabilities are not progressing to mastery on grade level standards, schools are looking for ways to ensure progress for these students through many different ways. PLCs may be a way for special education teachers to collaborate with other teachers and staff members in order to benefit students with disabilities.

Statement of Purpose

The purpose of this study is to determine if special education PLCs are having an impact on the learning of students with disabilities. This study is also seeking to find if the frequency of special education PLCs show more impact on student learning than others. The researcher hopes to gain insight to share with the school district on the effectiveness of these PLCs in order to make district wide decisions concerning students with disabilities.

Research Questions

As school districts are seeking solutions to determine how to bridge the gap for students with disabilities, they are also trying to figure out if their solutions are actually working. Special education PLCs is one solution that school districts are using to help teachers of students with disabilities collaborate on different ways to help this special population. Therefore, three research questions were developed in order to investigate the effectiveness of special education PLCs within this school district.

Q1. To what extent are special education PLCs associated with improved learning outcomes for students with disabilities?

H_0: There is no impact on student learning.

H_1: There is an impact on student learning.

Q2. Does the frequency of special education PLCs meetings make a difference in terms of improved learning outcomes for students with disabilities?

H_0: There is no difference in student learning.

H_1: There is a difference in student learning.

Q3. What parallels and divergences exist between PLCs that meet at different frequencies?

H_0: There are no parallels nor divergences between PLCs that meet at different frequencies.

H_1: There are parallels and divergences between PLCs that meet at different frequencies.

Significance of Study

There is a large collection of data that says PLCs have a good empirical baseline for improving student learning and achievement. There have not been many studies looking specifically at the impact that special education PLCs are having on students with disabilities (Curry, 2008; Wood, 2007; Wood & Whitford, 2010). This study would be worthwhile for school districts, schools, teachers and students with disabilities. When special education teachers work together to improve their classroom practices, the performance of students taught by these teachers improves, especially the performance of the students who struggle most (Blanton & Perez, 2011). This study could help bridge the gap between a known-effective practice and a consistent area, students with disabilities, in need of improvement. This study is significant because if it had not been conducted, the school district in which the study was conducted would still be allowing each school to determine the frequency and layout of their special education PLCs.

Research Plan

The research method and design for this study was a quantitative approach. The researcher chose to use theoretical framework for this study as it was the more appropriate framework for a quantitative study. Social Cognitive Theory (SCT) is one of the most important theoretical frameworks for understanding and explaining how people acquire and maintain behavior patterns (Schunk, 2012). The basis of SCT is that social-cognitive determinants, such as self-efficacy, motivation, outcome expectations and social support are often the best predictors of how one will behave in a social setting (Bandura, 1986). Social constructivism theory is also a very important theoretical framework for understanding why people learn better in social environments. Russian

psychologist, Lev Vygotsky, believed that knowledge was constructed through interactions and dialogue with others which led to the creation of the theory of social constructivism. Vygotsky (1978) insisted that knowledge is constructed in a social environment through social interactions with other people while using language as a tool to construct meaning. This process aids in the acquisition of knowledge and leads to successful learning (Vygotsky, 1978).

The population of interest consisted of students in grades kindergarten through sixth who receive special education services during the school day. These special education services ranged anywhere from one time a month for 15 minutes to 30 minutes a day to five and a half hours a day. The sample for this study was 13 schools within one school district in a suburban school district in Tennessee. This school district was chosen due to its diverse population of students with disabilities. It was also chosen on the basis that some of the schools within the district have fully established special education PLCs and some of the schools do not. The role of the researcher in this study was to collect, organize, analyze, and reflect on reading benchmark data that was conducted by teachers at each school.

Definitions and Abbreviations

aimswebPlus An assessment, data management, and reporting system that provides national and local performance and growth norms for the screening and progress monitoring of math and reading skills for all students in kindergarten through 8th grade.

Collaboration A systematic process in which teachers work together interdependently in order to impact their classroom practice in ways that will lead to

better results for their students, for their team, and for their school (DuFour, DuFour, Eaker, & Many, 2010, p. 12).

Professional Learning Community (PLC) An ongoing process in which educators work collaboratively in recurring cycles of collaborative inquiry and action research to achieve better results for the students they serve. PLCs operate under the assumption that the key to improved learning for students is continuous job-embedded learning for educators (DuFour et al., 2016, p. 10).

Students with Disabilities The term "child with a disability" means a child—with intellectual disabilities, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance (referred as "emotional disturbance"), orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities; and who, by reason thereof, needs special education and related services (IDEA, 2004).

Summary

Schools in the United States are under a tremendous amount of pressure to close the learning gap for students with disabilities. One strategy that schools are using as an area of focus for this problem is the implementation of PLCs and specifically special education PLCs. This study seeks to find if these special education PLCs are having any impact on the learning and achievement of students with disabilities. This chapter included information about the problem statement, purpose of this study, research questions that will be answered, significance of study, and the research plan of the study.

CHAPTER II: LITERATURE REVIEW

Introduction

As first described by Senge (1990), learning organizations were places "where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collection aspiration is set free, and where people are continually learning how to learn together" (Senge, 1990, p. 3). These learning organizations have evolved into what we now know as learning communities (Hord, 1997). Professional Learning Communities (PLCs) are becoming a staple in many schools and school systems since the implementation of No Child Left Behind (NCLB) according to Blanton (2011). De Neve and Devos (2017) agree that the PLC concept has gained considerable attention in the last three decades. PLCs are being used to focus educational organizations more on teaching, learning and school improvement (Fullan 2001). Blanton (2011) reasons that the PLC approach is one that administrators support for teachers to be able to collaborate effectively with other personnel in the school or district. DuFour, DuFour, Eaker, Many, and Mattos (2016) address that the PLC process is not a program. It is a continuously ongoing process within a school that can only be implemented by the staff. In many studies, evidence indicates that when teachers participate in PLCs their classroom practices will often improve states Vescio, Ross, and Adams (2008). The idea of PLCs has become popular as a viable response to the pressures teachers face to improve student achievement (Dufour et al., 2016). According to DuFour et al. (2016), for interventions within a school to be successful, it takes a school wide collective effort utilizing the specialized training and unique talents of each staff member. In order for school personnel to stay

cohesive and focused on teaching and learning issues, the PLC is an essential component (Darling-Hammond, 1995). When teachers participate in a learning community, they continuously seek learning and act on what they learn (Hord, 1997).

Foundation of a PLC

The foundation of a PLC rests on the four pillars of mission, vision, values and goals (DuFour et al., 2016, p. 37). The mission statement of a PLC asks the question, "Why do we exist?" The mission statement gives the fundamental purpose of why the PLC exists. The vision statement gives direction and asks, "What do we need to become to accomplish our purpose?" The values, also referred to as collective commitments, of a PLC ask, "How must we behave to create the PLC that will achieve our purpose?" The values guide the PLC's behavior in order to achieve the vision. The last pillar of a PLC is the goals. The goals are established to prioritize targets and timelines. Goals are used for the PLC to know how the progress is tracked (DuFour et al., 2016).

An effective PLC has a clearly articulated mission in which the members share an understanding of and a commitment of the school's goals and priorities (Lezotte, 2002). A mission statement answers the question, "Why do we exist?" In a PLC setting, the mission statement should give the fundamental purpose of the PLC (DuFour et al., 2016). Missions can be very powerful statements of purpose and clarity to teachers, students and community members. In order to have effective leadership within a PLC, a clearly crafted mission statement should be established and agreed upon by all members of the team (Kanter, 2004). Mission statements should describe the future of a PLC, not the current reality (Lezotte & Snyder, 2011). If a mission is only giving a description of the current reality, there will be no value in moving forward with inspiring stakeholders and

achieving success. According to DuFour, DuFour and Eaker (2008), a common problem with mission statements is actually underestimating the power of the mission. When PLCs lack a compelling mission, they will have difficulty overcoming major obstacles to improve their schools (DuFour et. al., 2008). Without a clear sense of purpose, a shared mission only provides individuals the freedom to do their own thing instead of working collaboratively as a team (DuFour et al., 2008). Lezotte and Snyder (2011) compare a PLC without a clear mission to a team of four horses hooked up to pull a wagon. The only problem is that when the horses are ready to pull, they are all pulling in opposite directions. This is the same in PLCs without a clear purpose. Teachers and staff members will be focusing on their own personal beliefs instead of the core values and beliefs of the PLC. Once a mission statement is established, all PLC actions and programs should be evaluated based on the PLC's mission. A PLC's mission should be the guide for every program, policy and practice that is implemented within that setting (Lezotte & Snyder, 2011).

The next pillar of the foundation of a PLC is the vision. In order for a PLC to have a vision statement, it must already have a mission statement in place (DuFour et al., 2008). Fullan (2007) warns that a shared vision does not come immediately in the change process. A vision will come later as team members work together and learn through their common experiences (Fullan, 2007). Often times, a mission and vision are used interchangeably, but they are two very different terms (DuFour et al., 2008). The vision statement gives a sense of direction for a PLC and provides guidance on current and potential strategies, programs, and procedures for the PLC to follow (DuFour et al., 2016). As with the mission, vision statements should be collaboratively developed by all

members of the PLC. It is difficult to relay the importance of a shared vision within a PLC (Blanchard, 2007). A clear shared vision has also been described as the essential element to a successful change process (Kotter, 1996). Burt Nanus (1992) has concluded that a vision statement is the key to excellence and long-range success in order to improve an organization. Vision statements should have the following characteristics (Kotter, 1996, p. 72): imaginable, desirable, feasible, focused, flexible, and communicable. DuFour et al. (2008) suggests that vision statements should motivate and energize people, create a proactive orientation, give direction to people within the organization, establish specific standards of excellence, and create a clear agenda for action.

Collins and Porras (1994) have voiced that while creating a mission and vision is helpful in the improvement process of a PLC, they are lacking sustainability and are not sufficient. In order to bring a mission statement to life, teachers must transparently communicate their values to students as it relates to their mission and challenge one another to live up to that commitment (Muhammad & Hollie, 2012, p. 28). Values play an important role in changing and improving the behavior of a PLC. Values are often referred to as collective commitments (DuFour et al., 2016). Collective commitments are when team members share a mutual obligation to the future of the PLC. The values of a team should provide guidelines on how you proceed as a PLC (Blanchard, 2007). Values must answer the question about how PLCs must behave in order to create the school that will achieve their purpose (DuFour et al., 2016).

Goals help a PLC to identify their targets and timelines on what they want to achieve (DuFour et al., 2016). Goals should be short-term and attainable by the team.

Achieving short-term goals gives PLC members a sense of confidence and self-efficacy (Kanter, 2005). In order for a PLC to sustain, members must see some results in order for the needed transformation to happen. It is also imperative to celebrate those short-terms goals when they are met (DuFour & Eaker, 1998.) Goals also play a key role in maintaining the values (collective commitments) of a PLC. Goals are motivating to a PLC and help to clarify the purpose of the PLC through gaining success (DuFour et al., 2016). SMART (strategic, measurable, attainable, results oriented, and time bound) goals are used by PLCs to truly focus on the results of their actions (Conzemius & O'Neil, 2013). PLC SMART goals should be aligned to school and district goals as well to achieve a common goal (DuFour et al., 2016). It is extremely important that PLCs focus on the results and not the activities that got them there (DuFour et al., 2016). When PLCs set explicit academic goals that are aligned with state standards, they consistently perform higher and often exceed the state standards (Dolejs, 2006). DuFour et al. (2016) recommend balancing attainable goals with stretch goals. Stretch goals are defined as goals that are so ambitious that they could not possibly be attained unless the PLC makes significant changes (Tichy, 1997). PLCs can thrive by having many attainable goals followed by stretch goals. If PLCs do not implement a balance of stretch goals with attainable goals, teams will either never move out of their comfort zone or will give up in hopelessness (DuFour et al., 2016). That is why a good balance between the two is necessary for any new implementation. DuFour et al. (2016, p. 107) suggest 10 tips for moving forward by using goals to focus on results:

Table 1

10 Tips for Using Goals to Focus on Results

1.	Remember less is more
2.	Tie all goals to district goals
3.	Provide templates for goal setting for every team
4.	Make certain goals are team goals rather than individual goals
5.	Ensure team goals are established by teams rather than for teams
6.	Monitor work toward a goal by requiring teams to create specific products that are directly related to achieving the goal
7.	Celebrate progress
8.	Consider affective goals as well as academic goals
9.	Include stretch goals in direct goals
10.	Be wary of the complacency that can set in when a stretch goal has been achieved

(DuFour et al., 2016)

Elements and Characteristics of a PLC

In order to understand the function of PLCs, one must first know the key elements and characteristics of how a PLC should operate. According to DuFour et al. (2016), a PLC should first and foremost establish norms for this group in order to have successful collaboration and professionalism within their team of members. DuFour et al. (2016) state that regardless of whether they are intentional or not all teams establish norms, ground rules or habits, that govern the group. In order for teams to work collaboratively together and be productive, they should intentionally work through a process to create

common norms for their team (DuFour et al., 2016). The norms of a team should not be viewed as rules, but as collective commitments by each team member (Kegan & Lahey, 2001). Eaker and Keating (2015) recommend that norms of a team do not have to follow a particular format, but they should be personal commitments from each team member so they will adhere to them. Blanchard (2007) addresses the issue that if norms are not established and expectations are not clarified, then teams are more likely to fail. When done well, norms can help establish the trust, openness, and accountability that move teams from the trivial to the substantive (DuFour et al., 2016). DuFour et al. (2016) recommend six tips for creating norms within a PLC. These tips can be viewed in Table 2.

Table 2

Six Tips for Creating Norms

1.	Each team should create its own norms.
2.	Norms should be stated as commitments to act or behave in certain ways rather than as beliefs.
3.	Norms should be reviewed at the beginning and end of each meeting for at least six months.
4.	Teams should formally evaluate their effectiveness at least twice a year.
5.	Teams should focus on a few essential norms rather than creating an extensive laundry list.
6.	One of the team's norms should clarify how the team will respond if one or more members are not observing the norms.

(DuFour et al., 2016)

Through their extensive studies of PLCs, Nelson, LeBard, and Waters (2010) have identified eight key characteristics of successful PLCs.

1. Allocation of time and resources used in support of teacher's collaboration needs;
2. Trust and interdependence in the spirit of the team;
3. Focused collaboration topics centered upon inquiry and on-going action research in relation to the task of teaching and learning;
4. Common value and vision focused on betterment of the teaching process for all the students, not just a specific few;
5. Building connection between teaching, learning, and cognitive processes;
6. Shared leadership by all;
7. Open to new knowledge and insight regarding all aspects of academia: the learner, learning/teaching, and curriculum; and
8. Formation of a cohesive perspective of not only the classroom and school environment, but of the entire district including mandates and standards.

Nelson et al. (2010) firmly believe that adhering to these eight characteristics will lead to better teaching and student learning, therefore making PLCs a worthwhile experience for all involved.

DuFour et al. (2016) have a similar outlook on how PLCs should conduct their professional communities. DuFour et al. (2016) recommends that PLCs should have three big ideas: a focus on learning, collaborative culture and collective responsibility, and results orientated. Lomos, Hofman, and Bosker (2011) have studied what they consider to be effective PLC practices in Dutch schools and have found that there are five

essential attributes which include reflective dialog, collaborative activity, derivatization of practice, shared sense of purpose, and focus on student learning. Focusing on learning should be the main idea of all PLCs (DuFour et al., 2016). In order to focus on learning, teachers must know what the students need to learn. That is where the results orientated part of their three big ideas come into play. Teachers within the PLC have a few tasks to complete together such as developing an assessment with shared values followed by the construction of common formative assessments (CFA) (Elbousty & Bratt, 2010). Assessments are considered to be formative if they are used to identify students who are not proficient, identify students who are proficient, show proof of student learning, and drive teacher instruction (DuFour & Reeves, 2016). PLC members should gather evidence of the student learning and share their findings with the other members at all PLC meetings. Then, the PLC can develop strategies and ideas to build on strengths and address weaknesses in the student learning (DuFour et al., 2016). In order for PLCs to focus on learning, four critical questions must be asked by the team (DuFour et al., 2016; Eaker & Keating, 2015). These questions can be viewed in Table 3. The first question that all PLCs should be asking has to do with what students should know and be able to do. This would involve unpacking the priority standard that is being taught. When a PLC unpacks a standard, they identify verbs (skills) and knowledge (concepts) within that standard. From there they will discuss learning targets, assessment types, vocabulary, learning progression, and scaffolds and supports for students that will potentially need them (Friziellie, Schmidt, & Spiller, 2016). By focusing on these four essential questions, PLCs can center their work on student learning and consistent expectations.

Table 3

Four Critical Questions for a PLC

1. What do we want all of our students to learn and be able to do in each course and unit?
2. How will we know if they have learned and can do these things?
3. How will we respond when students experience difficulty or when students do not learn it?
4. How will we extend the learning for students who have shown proficiency?

(DuFour et al., 2016; Eaker & Keating, 2015)

Hord (1997) lays the claim that PLCs should have five attributes. All five attributes must be in place in order for a PLC to be successful. These attributes are:

1. supportive and shared leadership among teachers and administrators
2. shared values and vision centered upon student learning
3. collective learning and application of learning
4. supportive conditions
5. shared personal practice, teachers should be sharing specific practices they use with specific students and how they overcome challenges

DuFour and Reeves (2016) share that when educators are truly working in a PLC, they must recognize five essential components:

1. Work together in a collaborative team rather than in isolation and take collective responsibility for student learning.
2. A guaranteed and viable curriculum must be established.

3. Use assessments developed by the team that includes common formative assessments based on the curriculum.
4. Use the results from the common formative assessments to determine proficiency, extended learning, and to drive instruction.
5. Create interventions to help students that are struggling to achieve proficiency.

An ideal learning community would consist of teachers being engaged in deep levels of inquiry, focused on student learning, and willingness to formulate strategies to assist struggling students. A core characteristic of professional learning communities is an enduring focus on student learning (Elbousty & Bratt, 2010). McLaughlin and Talbert (2006) also agree that a crucial portion of a PLC must be looking at student work together and examining student strengths and weaknesses. Teachers working together in a true PLC should be gathering data and evidence of student learning on academic subjects as well as student behavior. The PLC should have a process for collecting and analyzing student data (DuFour & Reeves, 2016). This data analysis process also involves an elevated amount of trust within the team. In order for team members to effectively collaborate, they must trust one another enough to be honest and at ease sharing their collected student data (Graham & Ferriter, 2010). Graham and Ferriter (2010) recommend a simple checklist of trust building strategies to try with the PLC. These strategies can help teams track their efforts to improve the interpersonal connections with teachers on the PLC.

Table 4

Building Relationships with Teachers

Trust-Building Strategy to Try
☐ Stop by for an informal conversation before or after school with colleague. ☐ Freely share resources related to the current unit of study with colleague. ☐ Celebrate the work of colleague publicly beyond team. ☐ Share the workload for an upcoming activity with colleague. ☐ Own up to a mistake that caused conflict with colleague. ☐ Assume positive intentions when involved in a disagreement with colleague. ☐ Co-plan and teach an upcoming lesson with colleague. ☐ Write a handwritten note of thanks or praise to colleague. ☐ Ask for guidance from colleague. ☐ Find a way to laugh with colleague. ☐ Other

(Graham & Ferriter, 2010).

Administrative Support and Involvement

Principals and administrative support play a vital role in PLCs. There has been a growing emphasis on the role of the school leader upon student test scores (Hurley, Seifert, & Sheppard, 2018). Principals are the only ones in the school that can ensure that professional learning efforts are well suited for all departments within a school (Davidson & Algozzine, 2002). Schechter and Feldman (2019) shared that data analysis and interviews revealed that school principals should be the ones to coordinate the collaborative learning that occurs in their schools. Noted by Hargreaves and Find (2003), wise principals will eventually realize that it is a collective effort from all of their teachers in order to reach instructional goals. Principals should understand that they cannot reach those instructional goals on their own. The most successful principals are the ones who distribute leadership throughout their building while relying on the

expertise of teacher-leaders within their schools (Leithwood, Seashore-Louis, Anderson, & Wahlstrom, 2004). It is the role of the administrator to find ways to encourage staff members to share their knowledge with other team members (Schechter & Feldman, 2019). In order to improve the educational opportunities of all students in a school, especially those with disabilities, the principal's leadership in PLCs is crucial (DiPaola & Walther-Thomas, 2003). The principal's role is highly substantial for the PLC process to be successful (Schechter & Feldman, 2019). School administrators collaborate with other professionals to ensure that staff members have the support and resources they need in order to perform their jobs well and foster successful collaboration through all departments in the school, most importantly the special education department (Walther-Thomas, Korinek, McLaughlin, & Williams, 2000). A principal's connection to their school's professional learning communities has the most influence on teachers and teaching practices by shaping the school's organizational climate (Harris, 2002). Principal support in PLCs have a positive effect on student achievement via teachers' expectations (Park, Lee, & Cooc, 2019).

Effects of PLCs on Student Achievement

When teachers collaborate, they are generally considered to be more effective rather than remaining isolated in their classrooms (Darling-Hammond & Richardson, 2009). Research by the National Development Council (2001) has linked teacher collaboration to student outcome data. In order to create a more collaborative culture within their building, many schools are adopting the PLC model to focus more on student achievement data and to determine the outcomes of their instruction (DuFour, Eaker, & DuFour, 2005; Hord, 1997). Teachers participating in PLCs will also provide more

chances for students to succeed in different educational opportunities (Anderson & Larson, 2009). When teachers become curriculum experts, students benefit from their expertise.

What is the point of participating in a PLC if a teacher does not know how their PLC participation effects their students' achievement? All PLCs should have common values and mutual goals (Owens, 2010). Those goals should be centered around student achievement. The problem that is happening is that most schools are not looking at the long-term effects of PLCs on their students' achievement. Schools in the United States are concerned with the here and now, when they should actually be concerned about their future (Servage, 2009). By looking at year-to-year trends, schools can emphasize and focus on what works for student learning. PLCs are being frequently implemented within failing schools, but there is not much research to support the claim that PLC practices are aiding in student achievement (Vescio, Ross, & Adams, 2008). The evidence that PLC practices used as a means to improve student learning and achievement is sparse (Hurley et al., 2018). Some of the earliest research on the effects of PLC focused more on creating a more pleasant workplace for teachers and overall school improvement (Bryk, Camburn, & Louis, 1999; Darling-Hammond & McLaughlin, 1995). More research is indicating the need to turn the focus more to student learning and student achievement instead of teacher relations and satisfaction (Dogan, Pringle, & Mesa, 2016). Mintzes, Marcum, Messerschmidt-Yates, and Mark (2013) have discovered that when teachers discuss critical issues in PLCs, their instruction for student learning is modified as a result their teaching is more tailored to the students' needs.

Most of the published research studies on PLCs do not assess actual student achievement, but there are a few exceptions (Burns, Naughton, Preast, Wang, Gordon, Robb, & Smith, 2018). A study conducted by Louis and Marks (1998) collected data from nearly 6,000 students across a three-year period. The results from this study indicated a positive relationship between PLCs and student achievement on learning tasks. Another study conducted in Australia by Crippen, Biesinger, and Ebert (2010) showed improvement in student outcome based on teacher participation in PLCs. However, the data that was collected in the study was based on teacher perception of the student data, not the actual data itself. Sigurdardottir (2010) studied PLCs in three elementary schools in Iceland. The results from this study also pointed to improvement in student achievement scores. The only change implemented in these schools was PLCs for teachers. This shows a direct effect of student achievement being related to their teacher's participation in PLCs (Sigurdardottir, 2010). Effective PLC practices appear to be linked to student learning, but it is recommended that more research be conducted in many different settings to examine the specific attributes of a PLC (Burns et al., 2018).

A 2-year study conducted by Wood (2007) examined teachers, administrators, and academic coaches in a school system that participated in regular PLC meetings. All participants in the study volunteered and wanted to improve professional development in the district. The findings from this study indicated that over the 2-year period, positive relationships between teacher collaboration and student learning were formed. More specifically, teachers' behavior changed (i.e. less negatively, less feelings of isolation, and increased retention) and student achievement improved (Wood, 2007).

A more recent study conducted by Hurley et al. (2018) studied eight schools over a three-year period whose teachers were actively participating in regular PLCs. They wanted to center their research to determine if the focused district-wide initiative to increase the use of PLC practices would result in improved student learning and achievement (Hurley et al., 2018). The results from this study were not what the school district had hoped for. Three of the schools that participated in the study showed a steady increase in student achievement over the three years. Two of the schools showed neither growth nor decline in student achievement. The most alarming results indicated that three of the schools whose teachers actively participated in the PLCs showed a decrease in student achievement. The greatest decline for all three schools was in the final year of the study (Hurley et al., 2018). It was noted from the findings that the three schools that had a decline in student achievement were not conducting their PLCs with fidelity. This might have been a reason for the decline. Another reason stated was that during the three-year period studied, the three schools with the decline experienced changes in building level leadership.

Professional Development in PLCs

High quality professional development has been widely discussed by school leaders over the past few years. What makes a highly effective professional development for teachers? Should professional development be included in the PLC process? Bates and Morgan (2018) conducted a meta-analysis of 35 research studies focusing on effective professional development. Based on their research, Bates and Morgan (2018) have recommended seven common elements of an effective professional development they found during their research. These elements can be viewed in Table 5.

Table 5

Elements of an Effective Professional Development

1.	There should be a focus on the content that the teachers are teaching their students.
2.	Professional development should actively engage the teachers and allow for planning time.
3.	There is a high need for collaboration within team members.
4.	Teachers need models of effective practice and guided opportunities.
5.	There should be an emphasis on the importance of coaching and expert support within a school after the professional development has been delivered.
6.	Teachers should be given time for feedback and reflection.
7.	Teachers should engage in cycles of continuous learning throughout the school year.

(Bates & Morgan, 2018)

The seven recommended elements for professional development of Bates and Morgan (2018) closely align to the PLC process. Their research may point in the direction that professional development should be embedded into PLC meetings on a regular basis.

Professional developments should not be a one-shot, sit and get approach or a one and done (Darling-Hammond, 2010). Professional development sessions should be weeks, months and possibly years on the same or similar topics. Ideally, PLCs should be implementing professional development into their meetings throughout the school year. Effective professional developments should contain all seven elements in order for teachers to successfully implement what was learned (Bates & Morgan, 2018). In

another study conducted by Bayar (2014), effective professional development activities should consist of six components: 1) tailored to teacher needs, 2) match school needs, 3) teacher involvement in the design/planning of professional development, 4) active participation opportunities for the teachers, 5) long-term engagement, and 6) high-quality presenters. Bayer's (2014) findings confirm with Bates and Morgan's (2018) analysis of effective professional development.

Ajani and Govender (2019) recommend that using cluster system (PLCs) for delivering professional development is more effective than presenting to an entire faculty. When working with smaller groups, the teachers are more likely to feel comfortable participating and interacting with their team (Ajani & Govender, 2019).

The effectiveness of teacher professional development can be measured with the following levels: teachers' acceptance of and satisfaction with the professional development intervention, teacher learning (changes in knowledge, motivation, beliefs, etc.), teachers' classroom practice, and student learning (Lipowsky & Rzejak, 2015). Just because the professional development is being perceived as "effective" does not necessarily lead to changes in a teacher's beliefs or knowledge (Guskey, 2002). The determining factor of an effective professional development is when improved student performance is noted (Lipowsky & Rzejak, 2015).

Special Education History, Laws, and Policies

The history of special education dates back to the late 19th century. In the late 1800's, special schools and classes were formed for children with severe disabilities such as deafness, blindness, and mental retardation. These schools gradually morphed into special programs in public schools during the 20th century. One of the landmark cases for

education was Brown v. Board of Education in 1954 (LaNear & Frattura, 2007). This court case not only laid the groundwork for minority students, but it opened the door for many cases involving the equal rights of all students (LaNear & Frattura, 2007). In 1965, congress enacted the Elementary and Secondary Education Act (ESEA) that provided states with grants to establish programs for disadvantaged students. This program opened the door for congress to enact the Education of the Handicapped Act: Public Law (P.L.) 91-230 in 1970. P.L. 91-230 is considered the be the first law for children with disabilities and encouraged states to develop educational programs and resources for students with disabilities (LaNear & Frattura, 2007). Neither ESEA or P.L. 91-230 gave specific mandates on how to use the funds provided by the grants (Jacob, Decker, & Hartshorne, 2011). These two acts did not show a substantial educational improvement for students with disabilities (Sullivan & Castro-Villarreal, 2013). In 1975, P.L. 91-230 was revised and a new law, P.L. 94-142: The Education for All Handicapped Children Act, was enacted for the U.S. congress. This law held states accountable for providing educational services for all children with disabilities, even those with significant impairment caused by severe disabilities (Jacob et al., 2011). This new law ensured that children with disabilities were protected and given the right to a public education through a legal check and balance known as procedural safeguards (LaNear & Frattura, 2007). These procedural safeguards are designed to protect the rights of children with disabilities and their parents.

The original special education law P.L. 94-230 has been revised and added to numerous times over the past 50 years. In 1990, the Individuals with Disabilities Act (IDEA) was passed. IDEA changed the language of the P.L. 94-230 and added new

disability categories. IDEA was revised once again in 1997 by reorganizing the structure of the law and adding new components. Then in 2004, one of the most extensive changes came to special education law (Fuchs & Vaughn, 2005). The Individuals with Disabilities Education (Improvement) Act of 2004 mandated equity, accountability, and distinction in education for children with disabilities. IDEA 2004 also mandated for all students identified with a disability to be offered a free and appropriate public education (FAPE) in the United States. This new law also brought about a new way to identify a student with a disability. Response to intervention (RTI) regulations were established with IDEA 2004 which required schools to intervene with struggling students and prove they have been exposed to a research-based intervention before the student can be referred for a special education evaluation (Ahearn, 2009). This new way of identifying students with learning disabilities also decreased the overrepresentation of minority students in special education and advanced nondiscriminatory assessment (Fuchs & Vaughn, 2005; Orosco, 2010). IDEA 2004 also changed the way Individual Education Plans (IEP) were written for students with disabilities. The new law ensured that IEP teams for students with disabilities in public schools were setting appropriate goals and services based on the student's performance levels and assessments. IDEA 2004 also mandated that special education teachers meet the highly qualified status defined in the law. Another addition to IDEA 2004 was discipline regulations for students with disabilities. This required IEP teams to determine if a specific discipline issue was a direct result of the student's disability. This new discipline mandate was not like any that had ever been put into law (Galway & Metsala, 2011). IDEA 2004 has also provided

states with grants and specific funding to be used for students with disabilities in order to improve their educational experience (Zirkel, 2008).

Although many changes of the original special education law have taken place over the past 50 years, the main reason for having laws for students with disabilities is to make sure they are given the same educational opportunities as their non-disabled peers (Turnbull, 2005). The law has changed dramatically since it was first enacted in 1970. Teachers are now held accountable for following students' IEPs and guaranteeing academic success for all students. The accountability does not solely fall on the back of special education teachers. This accountability is for all teachers that serve students with disabilities (Zirkel & Krohn, 2008).

Special Education Curriculum

NCLB and IDEA mandate that students with disabilities receive access to grade level standards-based instruction with strong accountability provision in order to produce higher student outcomes on state mandated standardized achievement tests (Baker & Linn, 2002). According to IDEA, special education teachers must develop research-based instruction that is specifically designed to help students with disabilities make progress to proficiency in the general education curriculum since they are required to participate in state mandated achievement tests (Gregg, 2007). To effectively tailor instruction for students with disabilities, teachers must agree that they should not (Frizellie, Schmidt, & Spiller, 2016):

- Lower the grade level standard or expectation
- Eliminate complex elements of a standard, task, text, or concept
- Use below grade level material consistently

- Provide simplified text
- Rescue students when they are struggling on a difficult concept

In order for students with disabilities to have access to this type of curriculum three components of the educational environment must coordinate to guarantee the efficacy of this new accountability: curriculum, instruction, and assessment (Elliot, Braden, & White, 2001). By aligning these three components of general education with the intervention in the special education classroom, students with disabilities are more likely to show greater progress on the state achievement test. Porter (2004) states that there are three types of curricula: the intended, the enacted, and the assessed curriculum. Since most students with disabilities are being assessed on the curriculum that is being taught in the general education classroom, it is most logical that the general education curriculum be reinforced in the special education classroom as well. The report *A New Area: Revitalizing Special Education for Children and their families* made three major recommendations for special education programs: (1) Focus more on results and focus less on process, (2) Embrace a model of prevention and not a model of failure, (3) Think of students with special needs as general education students first and special education students second in classrooms and in boardrooms (Friziellie, Schmidt, & Spiller, 2016). A study conducted by Kurz, Elliott, Wehby, and Smithson (2010) and published in *The Journal of Special Education* followed a group of eighth-grade students with disabilities in math. The school in which the study was conducted implemented a special education curriculum that aligned closely to the standards that were being taught in the general education classroom. The results of this study indicated a significant statistical difference in the scores of the students that were presented the standards aligned curriculum in the

special education classroom as opposed to the students that were taught a skills-based curriculum. The students who received the standards-based curriculum greatly outperformed the students who did not receive the standards-based instruction. Kurz et al., (2010) indicated that this change in curriculum should be the focus for school districts looking for an answer on how to "grow" their students with disabilities. Webb (1999) suggests that a well-aligned curriculum will allow the school districts to make the necessary instructional changes needed to translate the goals of the federally mandated policies. Marzano (2003) indicates the need for curriculum to be sequenced and organized in a logical way in order for students to have the best opportunity to learn. By sequencing and organizing a special education curriculum that aligns to the general education curriculum, students will have the reinforcement in the special education setting needed to master the standard taught in their general education classroom. Bernhardt (2013) discusses after the implementation of NCLB schools began focusing on the "Bubble Kids", the students that were just slightly below proficiency, other groups of students began to show a decline in their achievement due to the focus only being on a small number of students. Actually, this is exactly what can be focused on in a special education classroom setting. Those so called "Bubble Kids" are often the students with IEPs that are close to being proficient on the state standardized achievement test. Elementary and secondary schools both need to consider the extent to which they make decisions and take action in accordance with beliefs that all students can learn at high levels and that everyone in the school has a collective responsibility for all students' learning (Friziellie, Schmidt, & Spiller, 2016, p. 16).

Special Education PLCs

One subgroup scoring persistently low on state achievements when compared with peers the same age is students with disabilities (McLaughlin, 2010). The challenges of teaching students with disabilities require an ongoing commitment to collaborative professional learning (Lashley & Boscardin, 2003). Even for students with the most substantial disabilities, the expectation that learners can and will make progress is still very much in effect and maintaining a growth mindset is imperative (Friziellie et al., 2016, p. 36). Schools with this low achieving subgroup are seeking out improvements in progress by implementing special education PLCs within these schools. School leaders are using these PLCs to foster learning communities as a means for meeting both the intent and the essence of the federal laws concerning the education of students with disabilities (DiPaola & Walther-Thomas, 2003). Since special education has such a unique structure, it requires extensive cooperation between various professionals. PLCs can be structured to foster these networks for joint thinking and learning to enrich students' welfare (Reiter, 1994). Due to scheduling conflicts and lack of special education personnel in a school, PLCs involving this group often face many obstacles says Little (2003). Prater and Sileo (2002) also agree that lack of special education veteran teachers pose a problem when implementing the PLC approach within schools. These special education PLCs can decrease the isolation that many special education teachers feel while working in a school. This feeling of isolation is often felt among speech/language pathologists, school psychologists, and often times resource teachers (Park, Lee, & Cooc, 2019). When reflective teaching is done collectively, it is more effective than when it is done in isolation (Hattie, 2009). By building these specialized

PLCs, all teachers can see themselves collectively responsible for the success of the students (Whalan, 2012). Special education PLCs will not mirror the layout of a general education PLC. Their organization and configuration will focus more on instruction of students with academic or behavior difficulties according to Levine and Marcus (2009). Levine and Marcus (2009) also discuss how these nontraditional PLCs are more loosely structured with the focus of conversation directed toward specific students rather than whole classroom concepts. When properly implemented and maturity starts to take place, teachers begin placing a greater emphasis on students with disabilities and those that are struggling to make progress (Wood & Whitford, 2010). According to Wood (2007), teachers working in PLCs feel trusted and valued among their colleagues. This allows teachers to openly discuss classroom issues and specific students of concern (Little, 2003). Which in turn will allow for a more productive professional learning community. Frizellie et al. (2016) make a recommendation to ensure collaborative teams are keeping a commitment for a guaranteed and viable curriculum for all students they must consider the following keys to moving forward as a PLC. These keys can be viewed in Table 6.

Table 6

Keys to Moving Forward

• Focus all collaborative teamwork on answering the four critical PLC questions as they relate to the grade-level standards.
• For students whose needs are so complex that the grade-level standards are not attainable, focus all collaborative teamwork on answering the four critical PLC questions as they relate to moving that student closer to functional access to the grade-level standards.
• Question mindset constantly: Do we, as a team, really believe that *all* means *all*?

(Frizellie et al., 2016)

Making the Change

Making a shift to a new way of doing things can be a difficult concept of change for some people to accept. One of the earliest pioneers that discussed planned change theory was Kurt Lewin. Lewin (1951) discussed three key agents that must be in place before change can occur: unfreezing (when change is needed), moving (when change is initiated), and refreezing (when equilibrium is established). Ronald Lippitt (Lippitt, Watson, & Westley, 1958) distinguished seven phases of change that according to Tomey (2009) can be clustered within Lewin's three stages of change. Rogers (2003) based his research on Lewin's theory of change and expanded to create five phases of planned change: awareness, interest, evaluation, trial, and adoption. Alan Deutschman (2007) discusses his theory of the three keys to change which he calls the three Rs: relate, repeat, and reframe. He describes them as new hope, new skills, and new thinking.

Deutschman's theory is based on three real-world examples in which he discusses in depth in his book *Change or Die: The three Keys to Change at Work and in Life.*

In the realm of K-12 education, there is someone that is always trying to implement a change (Marzano, Waters, & McNulty, 2005). Cuban (1987) posed a question about why these innovations fail. Cuban recognized that there are two types of change that happen within organizations. First-order change is thought to be incremental (Marzano et al. 2005). First-order change is when schools take the next obvious step in the change. Whereas second-order change is a dramatic departure from the expected or also referred to as deep-change. Heifetz (1994) has discussed the difference in first- and second-order change by describing the three types of problems: Type I, Type II, and Type III. Type I problems have a clearly defined solution. Type II problems are well defined but have no clear solution. Type III problems require a new way of thinking. Heifetz (1994) suggests that Type I and Type II problems require first-order change, and Type III problems will need second-order change. DuFour et al. (2010) state "the goal of first-order change is to help us get better at what we are doing [and] second-order change, however, is a dramatic departure from the expected and familiar" (p. 248). Walters and Grubb (2004) discuss nuances to first- and second-order change. These nuances can be viewed in Table 7.

Table 7

First-Order vs. Second-Order Change

First-Order Change	**Second-Order Change**
An extension of the past	A break from the past
Within existing paradigms	Outside of existing paradigms
Consistent with prevailing norms and values	Conflict with prevailing norms and values
Incremental	Complex
Implemented with existing knowledge and skills	Requires new knowledge and skills
Implemented by experts	Implemented by stakeholders

(Walters & Grubb, 2004)

When introducing the concept of professional learning communities into a school, it can be considered a second-order change. DuFour et al. (2010) make the point that when you are making a second-order change, your goal is to modify the current culture of a school or organization. Second-order change requires people to completely change their way of thinking and shift their thoughts to an idea that might be uncomfortable. These school culture shifts take time and does not happen instantaneously (Gruenert & Whitaker, 2015). Clarke (2000) has advised that second-order change should not be taken lightly as it is not a small task. Pristine (1992) has cautioned schools that when second-order change is needed it should not be approached hesitantly. Second-order change should be well thought out and come with swift action (Fullan, 1993).

Summary

This literature review has presented an overview of PLCs as they are currently in place in education. PLCs can be used for many purposes within schools and organizations. DuFour et al. (2016) points out that PLCs can be the key missing component for schools seeking to close the student achievement gap. Trust, professionalism and change are common variables that DuFour et al. (2016) and Senge (2006) have identified as factors with the implementation and transformation of PLCs. The purpose of this chapter was to review literature related to the key topics of foundations and elements of a PLC, administrative support, effects of a PLC on student achievement, professional development in PLCs, special education PLCs, special education curriculum, and change.

CHAPTER III: METHODOLOGY

Introduction

This chapter provides information regarding the quantitative research design used within this study. Included in this chapter is an overview of the rationale the researcher used when designing this research study as quantitative. This chapter also includes descriptions of the population and sample participants, the instruments used to collect data, and information regarding analysis of the quantitative data.

Restatement of Questions and Purpose

This study used a quantitative design approach to determine if special education PLCs are having an impact on student achievement. This study is a cross-sectional study because the researcher looked at a snapshot in time rather than following longitudinal data across multiple years. This study also investigated the difference between the frequency of special education PLCs and if the impact of student achievement varied depending on frequency of meetings. The two central purposes for this study are to analyze the effectiveness of special education PLCs in a suburban school district to assess its merit for taking to scale and to inform the school district in which the research is conducted to what extent these PLCs are impacting student learning and achievement. The following research questions were considered:

Q1. To what extent are special education PLCs associated with improved learning outcomes for students with disabilities?

H_0: There is no impact on student learning.

H_1: There is an impact on student learning.

Q2. Does the frequency of special education PLCs meetings make a difference in terms of improved learning outcomes for students with disabilities?

H_0: There is no difference in student learning.

H_1: There is a difference in student learning.

Q3. What parallels and divergences exist between PLCs that meet at different frequencies?

H_0: There are no parallels nor divergences between PLCs that meet at different frequencies.

H_1: There are parallels and divergences between PLCs that meet at different frequencies.

Research Setting/Context

The research setting for this study takes place in a suburban school district in the mid-south region of the United States. Ocean View school district consists of 13 schools. During the 2017-2018 school year, this district required the formation of special education PLCs in each building across the district. This was brought on by the subgroup, students with disabilities, not performing well on the state mandated achievement test that was given the previous school year. Not all special education departments adhered to the required PLC meetings and most of the schools that were having special education PLC meetings were all different from each other. At the beginning of the 2020-2021 school year, 10 of the 13 schools were having some type of special education PLC meetings on a regular basis. Still, three schools were not having regular special education PLCs or were just not meeting at all due to the lack of enforcement by the district.

Table 8

Ocean View School District Special Education PLC Schedule

Once a Month	Twice a Month	Once a Week	Do Not Meet
School A	School G	School I	School K
School B	School H	School J	School L
School C			School M
School D			
School E			
School F			

Methodology

The research method and design for this study is a quantitative approach. Quantitative research is an approach for testing objective theories by investigating the relationship among variables (Creswell & Creswell, 2018). Quantitative methodology has three advantages (Trochim & Donnelly, 2008):

1. Flexibility in context to allow the phenomena to be studied across multiple settings.
2. Reduction of bias that may be infused when studying subjects who experience the phenomena.
3. Ability to have a deeper analysis of multiple factors within the study.

Creswell and Creswell (2018) recommend using quantitative research when you need to identify the (1) factors that influence an outcome, (2) the efficacy of an intervention, or (3) understand the best predictors of outcomes.

This quantitative investigation employed a theoretical framework centered around Social Cognitive Theory (SCT) to examine special education PLCs in a school district in the American southeast. SCT is one of the most important theoretical frameworks for understanding and explaining how people acquire and maintain behavior patterns. The basis of SCT is that social-cognitive determinants, such as self-efficacy, motivation, outcome expectations and social support are often the best predictors of how one will behave in a social setting (Bandura, 1986).

This quantitative research study utilized nonexperimental research by using a correlational design investigative approach (Creswell & Creswell, 2018) to determine if special education PLCs were impacting student learning and achievement. Correlational designs use statistical processes to determine and describe what, if any, relationships exist between variables or data sets. The study consisted of the researcher gathering data to determine what, if any relationships exist among the variables and if there are any differences in the levels of practice of these variables between schools with special education PLCs and schools without special education PLCs.

Rationale

Students with disabilities in the United States are not meeting state standards in order to achieve mastery on the state mandated achievement tests, nor are they at Ocean View school district. The study will be worthwhile for school districts, schools, teachers and students with disabilities. This study is significant because if it had not been

conducted, the school district in which the study was conducted would still be allowing each school to determine if their special education PLCs are effective on student learning and achievement.

Participants and Data Sources

This research study consisted of a survey being conducted simultaneously while student data was being collected. The participants in the survey were all the special education teachers in Ocean View school district. The survey was derived from the work of Graham and Ferriter (2010) from their book *Building a PLC at Work.* The survey, The Trust on Our Team Survey (Appendix A), was designed to collect information about the levels of trust on the special education PLCs. The results from this survey gave the researcher an inside view of the special education teachers' perceptions of the special education PLCs in their school.

Participants in the student data study were all students classified as students with disabilities receiving special education services in Ocean View school district in an elementary school setting (K-6). From that, a stratified random sample from each school was taken so that at least 20 students were selected from each school. A total of 270 students participated in the study. The reason for using a stratified random sample is to ensure that the sample level mirrors that of the population of students with disabilities in Ocean View school district. Data was collected from the 2019-20 school year and the 2020-21 school year. Participants were given a reading benchmark assessment at the beginning of each school year. The students were then given another benchmark assessment in December of the same school year. All participants received direct special education services in reading between the two benchmark assessments by special

education teachers and staff. Participants were assigned numbers to protect their identities. Participating schools were assigned a letter to protect their identities. The school system in this study received a pseudonym in order to protect the identity of all participants. All participants were kept anonymous in this study and aggregated group data is the only point of analysis. The district and schools are all reported only through their pseudonyms.

Data Collection Procedures

During the first week of September 2020, the survey, The Trust on Our Team Survey (Graham and Ferriter, 2010), was distributed electronically through email to all special education teachers in the Ocean View school district. The participants were given one month to respond. After the second week of September, the participants were sent a reminder email with the link to the survey. The survey was closed on October 1st and the results were collected by the researcher. The survey was completed by 57 percent of the special education teachers in the district. The researcher entered the survey data into Statistical Package for the Social Sciences (SPSS). Statistical analyses and descriptive statistics were ran using SPSS. The output from SPSS was organized by survey questions and findings were analyzed and reported.

The student benchmark data was collected by certified teachers throughout the entire school district. The benchmark can be given with paper/pencil and also electronically on a computer. The data was uploaded into a database at the school level and submitted to the district office. All students are given the benchmark assessment three times a year: fall, winter, and spring using aimswebPlus. According to the aimswebPlus Efficacy Research Report published April 2018, “aimswebPlus is an

assessment, data management, and reporting system that provides national and local performance and growth norms for the screening and progress monitoring of math and reading skills for all students in kindergarten through 8th grade." AimswebPlus uses curriculum-based measurements that are brief and timed to measure fluency on basic skills. It also uses untimed standards-based assessments to measure current learning standards. AimswebPlus currently has over 132,000 users of the program. One benefit of aimswebPlus is it gives teachers information needed to differentiate instruction and determine which students need more intensive interventions. The aimswebPlus reading composite for kindergarten consists of assessments that measure early literacy skills, foundational skills such as letter reading, word reading, and phonological awareness. The first grade reading composite measures oral reading fluency. The second and third grade reading composite measures oral reading fluency, silent reading fluency, vocabulary, and reading comprehension. The fourth through sixth grade reading composite measures silent reading fluency, vocabulary, and reading comprehension.

An instrument is considered to be reliable when it has a Cronbach's Alpha coefficient that is above .70 and a Stratified Alpha coefficient that is about .70 as well. An instrument is considered more reliable the closer to 0 that it is. With a Cronbach's Alpha coefficient mean > .70, the aimswebPlus untimed assessments are considered to be reliable. With a Stratified Alpha coefficient mean of > .87, the aimswebPlus reading composite is considered to be a reliable assessment. The National Center on Intensive Intervention (NCII) requires predictive validity coefficients of .70 or higher to obtain the maximum rating of validity. All mean predictability coefficients ranged from .69 to .83 and all mean concurrent validity coefficients ranged from .68 to .80. With these means,

aimswebPlus reading composites are considered to be a valid instrument for what it is set out to measure.

Table 9

Cronbach's Alpha: Measure of Internal Consistency (Realibility)

Chronbach's Alpha	**Internal Consistency**
$a \geq 0.9$	Excellent
$0.9 > a \geq 0.8$	Good
$0.8 > a \geq 0.7$	Acceptable
$0.7 > a \geq 0.6$	Questionable
$0.6 > a \geq 0.5$	Poor
$0.5 > a$	Unacceptable

(Cronbach, 1951)

The researcher first obtained approval from the Institutional Review Board (IRB) to conduct this study. The researcher then sent the survey electronically to the special education teachers of Ocean View school district. The researcher collected and analyzed the survey data using SPSS. The researcher then requested the data from the district office from the RTI coordinator. The participant scores were blinded by the RTI coordinator and then given to the reseracher as electronic copies of the student data. The difference in fall to winter scores for each group was calculated for the 2019 and 2020 years by taking the fall benchmark and subtracting it from the score on the winter benchmark. This gave the researcher the growth score. The researcher entered the student data into SPSS. Statistical analyses and descriptive statistics were run using SPSS. The output from SPSS was organized by research question and findings were analyzed and reported. Table 10 presents a simplified sequence of steps.

Table 10

Data Collection Procedures

Step 1	Obtained IRB approval
Step 2	Survey sent to special education teachers
Step 3	Survey results collected and analyzed in SPSS
Step 4	Requested data from RTI Coordinator
Step 5	Scores were blinded and sent to researcher
Step 6	Student data entered into SPSS
Step 7	Statistical analysis and descriptive statistics ran with SPSS
Step 8	Organized data
Step 9	All findings analyzed and reported

Data Analysis Procedures

An independent samples t-test was performed by using SPSS for research question one to determine if there was a statistically-significant difference between special education PLCs and student achievement. For research question two, SPSS was used to perform an Analysis of Variance (ANOVA) on the student data to determine if there is a statistically-significant difference between groups of PLCs that meet at difference frequencies on student achievement. The one-way ANOVA compares the means between groups to determine if they are statistically significantly different from each other. Lastly, descriptive statistics were utilized to determine the differences in the mean of the student data from the fall benchmark to the winter benchmark to find any

parallels and divergences that existed between the frequency of special education PLCs. Descriptive statistics from the survey data were also used to provide insight to research question three.

Table 11

Data Analysis Procedures

Research Question	**Data Source**	**Data Analysis Procedure**
To what extent are special education PLCs associated with improved learning outcomes for students with disabilities?	Benchmark data from fall 2019, winter 2019, fall 2020 and winter 2020	Descriptive Statistics Independent Samples T-Test
Does the frequency of special education PLCs meetings make a difference in terms of improved learning outcomes for students with disabilities?	Benchmark data from fall 2019, winter 2019, fall 2020 and winter 2020	Descriptive Statistics ANOVA
What parallels and divergences exist between PLCs that meet at different frequencies?	Benchmark data from fall 2019, winter 2019, fall 2020 and winter 2020 Likert Survey Questions	Descriptive Statistics

Summary

Chapter three discussed the design of this study-a quantitative study design that included pre-and post-test data along with descriptive data. The data came from a survey

given to the special education teachers and from the fall and winter benchmark assessments from students with disabilities. A total of 13 schools were involved in the data collection and approximately 270 students participated in the study. Rationale, data collection procedures and data analysis were discussed in this chapter as well.

CHAPTER IV: FINDINGS

Introduction

This chapter is organized by the data collected and the analysis conducted. The chapter begins with the context of the research study followed by the data and analysis of aimswebPlus benchmark results and the special education teacher survey. This chapter concludes with a summary of the results and analysis.

Outlined in this chapter are the quantitative results that address the following research questions:

1. Q1. To what extent are special education PLCs associated with improved learning outcomes for students with disabilities?

   H_0: There is no impact on student learning.

   H_1: There is an impact on student learning.

2. Q2. Does the frequency of special education PLCs meetings make a difference in terms of improved learning outcomes for students with disabilities?

   H_0: There is no difference in student learning.

   H_1: There is a difference in student learning.

3. Q3. What parallels and divergences exist between PLCs that meet at different frequencies?

   H_0: There are no parallels nor divergences between PLCs that meet at different frequencies.

   H_1: There are parallels and divergences between PLCs that meet at different frequencies.

Context

All students in Ocean View school district in grades kindergarten through sixth are administered the aimswebPlus benchmark assessments three times a year: fall, winter, and spring. The aimswebPlus reading composite for kindergarten consists of assessments that measure early literacy skills, foundational skills such as letter reading, word reading, and phonological awareness. The first grade reading composite measures oral reading fluency. The second and third grade reading composite measures oral reading fluency, silent reading fluency, vocabulary, and reading comprehension. The fourth through sixth grade reading composite measures silent reading fluency, vocabulary, and reading comprehension.

The data collected in this study came from all 13 schools in the Ocean View school district. The participants consisted of students in grades first through sixth who have an IEP and receive special education services. Kindergarten students were not in the sample group since they do not have benchmark data for the 2019 school year. AimswebPlus benchmark composite scores were collected from the 2019 fall and winter benchmark and the 2020 fall and winter benchmarks. A stratified random sample was used to ensure that the sample level mirrors that of the population of students with disabilities in Ocean View school district. There are 13 disabilities recognized and outlined in the IDEA. The state in which this research was conducted also recognizes functional delay as a disability that greatly impacts the learning of children, therefore it was included in the sample. Students who have a disability of speech and/or language were grouped together for this study. The category, low incidence disabilities, consists of students with the following disabilities: intellectual disability, emotional disturbance,

deafness, hearing impairment, vision impairment (including blindness), deaf-blindness, multiple disabilities, traumatic brain injury, and orthopedic impairments. See Table 12 for a complete breakdown of the sample per school. A total of 1,104 students participated in this study. Out of the 1,104 students, 270 students were sampled from the 13 schools. Out of each school, 21 students were randomly sampled with the exception of school K which only had 18 students with IEPs in the entire school.

The Trust on our Team survey was sent to all special education teachers in the Ocean View school district. All 56 special education teachers were emailed the link to the survey on September 1, 2020. A reminder email containing the survey link was sent during the third week of September. In total, 32 of the 56 special education teachers responded to the survey. All 32 of the special education teachers who responded completed 100 percent of the survey questions that asked if they agree, disagree or were neutral with the statement which was the first part of the survey. The second part of the survey asked the teachers to rank the importance of the previous statements. Only 6 of the 32 participants completed the ranking portion of the survey. Therefore, the results of the second part of the survey were not analyzed nor reported by the researcher since less than 20 percent of the participants completed that portion.

Table 12

Stratified Sample Breakdown

Disability	**Percentage of Students with Disability in Ocean View school district**	**Sample Number of Students Per School**
Autism	12%	3
Developmental Delay	17%	4
Other Health Impairment	12%	3
Specific Learning Disability	24%	5
Speech/Language Impairment	27%	5
Low Incidence Disabilities	8%	1
TOTAL	**100%**	**21**

Research Question 1

This section presents the quantitative results to address the research question: To what extent are special education PLCs associated with improved learning outcomes for students with disabilities? A quantitative approach was used to address the research question using data from the aimswebPlus benchmark provided to the researcher from Ocean View school district. The difference in fall to winter scores for each group was calculated for the 2019 and 2020 years by taking the fall benchmark and subtracting it from the score on the winter benchmark. This gave the researcher the growth score. Descriptive statistics were used to find the means and standard deviations of the differences of composite scores from both groups from fall 2019 to winter 2019 and from fall 2020 to winter 2020. These are summarized in Table 13. The mean growth for all

270 students on the fall 2019 to winter 2019 benchmark is 1.48. The mean growth for all 270 students on the fall 2020 to winter 2020 benchmark is 2.33. The mean growth for 2020 is greater than the 2019 mean.

Table 13

Descriptive Statistics for 2019 and 2020 Benchmarks

	N	Minimum	Maximum	Mean	Std. Deviation
2019 Benchmark	270	-64.00	56.00	1.48	13.486
2020 Benchmark	270	-80.00	69.00	2.33	18.115

Two groups were used in this study: schools who have established special education PLCs and schools who do not. In order to determine if special education PLCs are having an impact on students with disabilities, descriptive statistics were first conducted to determine the mean and standard deviation of students whose school has an established PLC and those who do not for the 2019 and 2020 benchmarks. The mean of the difference of students for the 2019 school year who have an established special education PLC is 1.09 and the mean for students who did not have special education PLCs is 2.87. The mean of the difference of students for the 2020 school year who have established special education PLCs is 2.46 and the mean for students who did not have special education PLCs is 1.9. The mean for students with an established special education PLC in their school in 2019 was lower than those who did not. However, in 2020 the mean for students with an established special education PLC in their school was

greater than the mean for students who did not. See Table 14 for the results from descriptive statistics.

Table 14

Group Statistics

	Established PLC	N	Mean	Std. Deviation	Std. Error Mean
2019 Benchmark	Yes	210	1.09	12.64277	.872
	No	60	2.87	16.14182	2.083
2020 Benchmark	Yes	210	2.46	17.63127	1.217
	No	60	1.9	19.86625	2.565

Next, an independent samples t-test was completed. Equal variances were assumed for both tests. The results of this study can be found in Tables 15 and 16.

Table 15

Independent Samples T-Test, 2019

	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
2019 Benchmark Equal variances assumed	-.902	268	.368	-1.781	1.975

The results from the independent samples t-test found there was no statistically significant difference in 2019 between students who have special education PLCs in their school and students who do not: 2019, t (268) = -.902, p = .368, so the null hypothesis could not be rejected.

Table 16

Independent Samples T-Test, 2020

	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
2020 Benchmark Equal variances assumed	.210	268	.834	.557	2.656

The results from the independent samples t-test found there was no statistically significant difference in 2020 between students who have special education PLCs in their school and students who do not: 2020, t (268) =.210, p = .834, so the null hypothesis could not be rejected.

Although the mean growth for students who had a special education PLC in their school (M = 1.09) in 2019 was lower than students who did not (M = 2.87), and in 2020 the mean (M = 2.46) was higher for students who had a special education PLC in their school than students who did not (M = 1.9), it is unjustified in claiming that the special education PLCs was the factor leading to this higher mean of growth in 2020 for students who had a special education PLC in their school.

Research Question 2

This section presents the quantitative results to address the research question: Does the frequency of special education PLC meetings make a difference in terms of improved learning outcomes for students with disabilities? A quantitative approach was used to address the research question using data from the aimswebPlus benchmark provided to the researcher from Ocean View school district. The difference in fall 2019 to winter 2019 and fall 2020 to winter 2020 was used. Four groups were used in this study. These groups were split into the frequency in which special education PLCs meet: once a month, twice a month, once a week, and does not meet. Descriptive statistics were used to determine the number of participants in each group, mean of composite difference, and standard deviation of each benchmark year.

Table 17

Descriptives 2019 Benchmark

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Once a month	126	1.15	12.559	1.11885	-51.00	41.00
Twice a month	42	.91	14.54	2.24354	-35.00	56.00
Once a week	42	1.07	11.066	1.70753	-27.00	28.00
Does not meet	60	2.87	16.142	2.08390	-64.00	49.00
Total	270	13.49	13.487	.82076	-64.00	56.00

The descriptive statistics indicate that in 2019, students in schools that do not have a special education PLC had the greatest mean (M = 2.87) over all the other PLCs that meet on a regular basis. The students with a PLC that meets once a month had a mean (M = 1.15) that was greater than the mean of the students who have a PLC that meets twice a month (M = .91) and PLCs that meet once a week (M = 1.07).

Table 18

Descriptives 2020 Benchmark

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Once a month	126	2.45	17.791	1.58495	-80.00	69.00
Twice a month	42	-.81	18.991	2.93052	-73.00	24.00
Once a week	42	5.74	15.394	2.37536	-41.00	58.00
Does not meet	60	1.9	19.866	2.56472	-57.00	47.00
Total	270	2.33	18.115	1.10242	-80.00	69.00

In 2020, students with a special education PLC that meets once a week had the greatest mean (M = 5.74) which differs from the 2019 descriptive statistics. Students with a special education PLC that meets once a month had a mean (M = 2.45) that was also greater than students who do not have a special education PLC that meets (M = 1.9). The group with the lowest mean in both 2019 (M = .91) and in 2020 (M = -.81) was the group that meets twice a month.

An ANOVA was used to analyze each category of the frequency in which special education PLCs meet: once a month, twice a month, once a week, does not meet. The results from the 2019 and 2020 benchmarks can be seen in Tables 19 and 20.

Table 19

ANOVA 2019

	Sum of Squares	*Df*	Mean Square	*F*	Sig.
Between Groups	149.934	3	49.978	.273	.845
Within Groups	48777.473	266	183.374		
Total	48927.407	269			

The results from the ANOVA for the 2019 scores showed no significant differences between groups, so the null hypothesis cannot be rejected that there is no difference in student learning based on the 2019 scores.

Table 20

ANOVA 2020

	Sum of Squares	*Df*	Mean Square	*F*	Sig.
Between Groups	914.790	3	304.930	.929	.427
Within Groups	87355.210	266	328.403		
Total	88270.000	269			

The results from the ANOVA for the 2020 scores showed no significant differences between groups, so the null hypothesis cannot be rejected that there is no difference in student learning for the 2020 scores as well. Both 2019 and 2020 ANOVA results indicate the same result that there were no significant differences between groups that meet at different frequencies. Since there were no statistical differences from either the 2019 or the 2020 ANOVA results, the post-hoc analysis were not completed as they would not find anything of importance.

Research Question 3

This section presents the quantitative results to address the research question: What parallels and divergences exist between PLCs that meet at different frequencies? A quantitative approach was used to address the research question using data from the aimswebPlus benchmark provided to the researcher from Ocean View school district and a teacher survey that was distributed to all 56 special education teachers in the district. Out of the 56 teachers who received the survey, a total of 32 teachers participated in the survey. All teachers who participated in the survey indicated they are active participants in a special education PLC that meets on a regular basis.

Descriptive statistics were used to analyze the data from the benchmark assessments (see Tables 17 and 18). The results indicate that 210 of the student participants are part of a school whose special education teachers participate in special education PLCs and 60 of the participants are part of a school whose teachers do not participate in a special education PLC. Students who were not in a school with a special education PLC in 2019 had a greater mean than students who were in a school with a special education PLC. The results in 2020 were exactly the opposite. Between 2019

and 2020, the mean for students who have special education PLCs in their school that meet once a month grew by 1.31 points. The mean for students with PLCs that meet twice a month decreased by 1.71 points from 2019 to 2020. The mean for students with PLCs who meet once a week in 2019 to 2020 grew by 4.67 points. The mean for students in schools with no special education PLCs decreased by .097 points from 2019 to 2020.

The special education teacher survey was used to determine if special education PLCs in Ocean View school district are viewed as a positive experience for teachers. The results indicated an overall positive response on all 16 questions asked. All teachers indicated on the survey that they participate in a special education PLC which means that only teachers in schools A-J participated in the survey. Teachers in schools K, L, and M are in schools who do not have special education PLCs that meet. Out of the 32 teachers who completed the survey, 22 are resource teachers and 10 are comprehensive development classroom teachers. The first questions in the survey asked the teachers to indicate the extent to which they agreed (1), were neutral (2), or disagreed (3) with the statement. The second part of the survey asked the teachers to rank the importance of each of the previous statements as very important (1), somewhat important (2), not important (3). Due to lack of participation in the second part of the survey, the results were not analyzed nor reported. Actual questions from the survey can be viewed in Appendix A.

Table 21

Special Education Teacher Survey

	Mean	Std. Deviation
Q1: Sharing Resources	2.38	.907
Q2: Feeling welcome in colleagues' classroom	1.19	.535
Q3: Feeling welcome in colleagues' classroom during instruction	1.34	.653
Q4: Feeling comfortable with colleagues' in my classroom	1.31	.693
Q5: Colleagues have good intentions and interactions with me	1.09	.390
Q6: Colleagues have good intentions and interactions with students	1.13	.421
Q7: Dependable colleagues	1.19	.535
Q8: Honest colleagues	1.22	.608
Q9: Share student results with colleagues	1.19	.592
Q10: Colleagues are competent and capable teachers	1.16	.515
Q11: Learn from colleagues	1.16	.515
Q12: Everyone on team contributes	1.19	.535
Q13: Everyone on team is pulling in same direction	1.13	.492
Q14: Team celebrates successes of members	1.28	.634
Q15: Team celebrates collective successes	1.24	.622
Q16: Looks forward to spending time with team	1.22	.608

Further analysis was completed on the teacher survey to determine the frequency of each response. All survey questions had at least 27 participants who agreed with the statement with the exception of questions 3, 4, and 14. Statement 3 had the lowest number of participants who agreed with the statement at 24, five participants were neutral and three disagreed. Statements 4 and 14 had 26 participants agree with the statement. Statement 4 had two neutral responses and four disagree. Statement 14 had three neutral responses and three disagree. Statements 3 and 4 addressed the feelings that teachers had with how welcome and comfortable they are with being in other colleagues' classrooms and having colleagues in their classrooms during instructional times. Statement 14 asked about the celebrations of personal and professional successes of individual members by the PLC.

Summary

This chapter provided the data used to answer the research questions of the study. The data presented were collected from the 2019 and 2020 fall and winter benchmarks of students with disabilities in Ocean View school district using aimswebPlus. A survey was also distributed to all special education teachers in the school district to acquire their opinion on how they feel about their special education team at their school.

The analysis of the data for research question 1 indicated that there was no statical difference in the means between the group of students who had teachers participating in special education PLCs and the group that did not. The analysis of data for research question 2 indicated that there was no statistical difference in means between groups that meet at different frequencies or did not meet at all. Data also indicated that in 2019 the

greatest mean was in the group that did not meet as a PLC. In 2020 the group with the greatest mean was the PLCs that meet once a week.

The analysis of data for research question 3 indicated several parallels between special education PLCs that meet at different frequencies. The data showed PLCs that meet once a month and once a week had greater means in growth than the PLCs that meet twice a month or not at all. All groups had positive growth in means except for the PLCs that meet twice a month in 2020 which was the only group that had a negative mean in growth. Data analysis from the teacher survey revealed an overall positive view of the special education teams in the schools with PLCs. Unfortunately, there were not any teachers from schools without special education PLCs that participated in the survey. The results from the survey might have looked different if teachers from schools without special education PLCs would have participated.

CHAPTER V: RESULTS

Introduction

Students with disabilities across the nation are struggling to make adequate progress and gains towards proficiency on state standardized achievement tests. Special education teachers are supporting students with disabilities across all academic settings and substantial progress is still not taking place. Ocean View school district has recommended the implementation of special education PLCs in all of their schools. Ten of the 13 schools in Ocean View school district have adopted the PLC model for their special education teams. Three of the schools have yet to implement special education PLCs even though the district level administrators are strongly encouraging it. Special education coaches are working closely with the schools who are meeting as special education PLCs to guarantee fidelity of the PLC model. The coaches are also urging the other schools who are not meeting as PLCs to begin forming PLCs for student progress and success. This quantitative study examined the progress made by students with disabilities in Ocean View school district over a two-year period. This study closely examined to see if special education PLCs make an impact on student learning. The results from this study indicate that there is no significant difference in student progress no matter if their teacher participates in a special education PLC or not. The results also indicate that there are no significant differences between groups that meet at different frequencies or not at all. The survey distributed to all special education teachers in Ocean View school district gave the researcher some insight to how the teachers feel about their special education school teams. Overall, the teachers indicated a positive response on the survey about their school teams.

Chapter V is divided into five main sections: (1) discussion of results and reflection, (2) implications of study, (3) limitations and delimitations, (4) recommendations for future research, and (5) conclusion. The discussion of results and reflection provide explanations of the data analysis presented in Chapter IV. This section also explains the answers to the research questions and are justified by the data collected for this study. Implications of study section gives insight to all administrators and teachers involved in Ocean View school district concerning special education PLCs. Since this study took place only in Ocean View school district, most of the implications are directly related toward the participants in this study. Limitations and delimitations are discussed in this chapter along with recommendations for future research.

Discussion

Special education PLCs are meeting throughout the Ocean View school district. However, they vary in form and focus. The researcher in the study sought to find out if these PLCs are making an impact on the learning of students with disabilities. As well as assessing the impact on learning as it also intentionally examined these varied forms. One way the researcher wanted to view this was to look at the benchmark results from fall to winter 2019 and from fall to winter 2020. This would give the researcher an idea if progress was being made by students with disabilities. Since not all schools in Ocean View school district have a special education PLC, the researcher wanted to see if that made a difference in student learning. Since 10 of the 13 schools do have a special education PLC, the researcher wanted to see if the frequency in which these PLCs meet made a difference on student learning. The researcher also wanted to see what parallels and divergences exist between these groups of PLCs. In order to make sense of all this

data, the researcher administered a survey to all special education teachers in the school district. The survey data was able to give the researcher some insight on how the teachers feel about their special education team members. This study sought to find the answers to the following questions:

Q1. To what extent are special education PLCs associated with improved learning outcomes for students with disabilities?

H_0: There is no impact on student learning.

H_1: There is an impact on student learning.

Q2. Does the frequency of special education PLCs meetings make a difference in terms of improved learning outcomes for students with disabilities?

H_0: There is no difference in student learning.

H_1: There is a difference in student learning.

Q3. What parallels and divergences exist between PLCs that meet at different frequencies?

H_0: There are no parallels nor divergences between PLCs that meet at different frequencies.

H_1: There are parallels and divergences between PLCs that meet at different frequencies.

Research Question 1

Research question 1 set out to determine if special education PLCs were associated with improved student learning outcomes for students with disabilities. Research has shown that when teachers collaborate, their instruction is more effective on student learning than teachers who do not collaborate with other teachers (Darling-

Hammond & Richardson, 2009). Louis and Marks (1998) also came to the conclusion after reviewing data from over 6,000 students in the United States, a positive relationship between PLCs and student achievement was revealed. Although very little research is available on the topic of the impact of special education PLCs on students with disabilities, Wood and Whitford (2010) have noticed that teachers who are participating in special education PLCs are placing a greater emphasis on those students who are struggling to make progress.

The two groups used in this question were schools who have established special education PLCs and schools who do not. It was determined through an independent samples t-test that there was no statistically significant difference between the scores of the groups for the 2019 and 2020 benchmark periods. Therefore, the null hypothesis could not be rejected that there is no difference. It was interesting to note that the mean of the students' growth whose teachers participated in special education PLCs (M = 1.09) was less than the mean of the students' growth of teachers who did not participate in PLCs (M = 2.87) in 2019. However, in 2020 the mean for the students' growth whose teachers participated in special education PLCs (M = 2.46) was greater than the students' growth whose teachers did not participate in special education PLCs (M = 1.9).

One reason for this difference could be the fact that in 2019 some schools were still in the PLC training process and in 2020 their PLCs became more established and fluid. As noted by DuFour et al. (2016), the PLC process is not a program that can be immediately implemented. It is a continuously ongoing process that takes places over a period of time. The act of collaboration will not ensure success. PLC teams must learn how to collaborate on the right thing (DuFour et al., 2016). Since these special education

PLCs were still in the formation process in 2019, they could possibly have been lacking the basic foundations of a PLC during that time period. More than likely, the PLCs were formulating their norms, member roles, setting goals, and determining their clear purpose during the 2019 school year.

Another reason could be because of the potential for lower test scores in fall 2020 due to the state-wide shutdown of public schools due to Covid-19. Since students lost three months of instructional time, their fall 2020 benchmark scores were possibly much lower than the 2019 benchmark scores. Although it is unjustified in making the claim that special education PLCs was the leading factor to the higher mean of growth in 2020, it can be said that special education PLCs might have played a factor in this growth.

Research Question 2

Research question 2 set out to determine if the frequency in which special education PLCs meet makes a difference in terms of improved learning outcomes for students with disabilities. It has been noted that special education PLCs will have a unique structure and vary from general education PLCs (Little, 2003). Special education teams will need to work together to determine when and how often they want or need to meet based on their individual schedules and daily tasks of the teachers (Reiter, 1994). The structure of these special education PLCs might also be looser than the general education PLCs. This will give special education teachers more freedom to direct their focus on specific students rather than whole classroom concepts (Levine & Marcus, 2009).

The participants for this question were split into four groups based on the frequency of their special education PLCs at their schools. The first group consisted of

six schools, A, B, C, D, E, and F, that meet as a special education PLC once a month. There were 126 student participant samples in this group. The next group consisted of two schools, G and H, that meet as a special education PLC twice a month. There were 42 student participant samples in this group. The next group also consisted of two schools, I and J, that meet once a week as a special education PLC. There were 42 student participant samples in this group as well. Lastly, there were three schools, K, L, and M, in the group that does not meet as a special education PLC. There were 60 student participant samples in this group. The researcher first analyzed the benchmark scores from 2019 and 2020 with descriptive statistics to determine the mean growth of each of the groups. In 2019, the group that did not meet as a PLC had the highest mean (M = 2.87). The group with the lowest mean in 2019 (M = .91) was the group that meets twice a month. In 2020, the group with the lowest mean (M = -.81) was also the group that meets twice a month. One explanation for this low mean could possibly be that the two schools who were meeting twice a month were actually having unproductive PLC meetings due to the lack of having all four pillars of the foundation of a PLC in place (DuFour et al., 2016). Another thought was that maybe they did not have enough time between PLC meetings to adequately gather student data to analyze at the meetings. But that does not explain the reasoning why students whose teachers participate in special education PLCs once a week jumped from the second lowest mean (M = 1.07) in 2019 to the highest mean (M = 5.74) in 2020. Another interesting finding from the descriptive statistics was how the group that did not meet as a PLC had a higher mean in 2019 but dropped in 2020.

The second part of the data analysis of research question 2 consisted of using an ANOVA to analyze each category of the frequency in which the special education PLCs meet. The results from the ANOVA indicated no significant statistical differences in the means between groups in either year. Therefore, the null hypothesis could not be rejected that there is no difference.

Since the ANOVA tests did not show a significant difference in scores between the groups for either years, this leads the researcher to question if the special education PLCs are really impacting the learning of students. Then one would look back at the descriptive statistics and see that there is a difference in means between the groups. The 2020 descriptive statistics results do point in a direction that maybe the PLCs are impacting students. More research over a longer period of time would need to be conducted in order to get a better view of the entire picture. Since this research was only conducted in the fall semesters of the school year, one might consider even looking at student test scores during the spring semesters as well.

Research Question 3

The data analysis approach to research question 3 was slightly different from the other two research questions. This research question sought to determine if parallels and divergences exist between PLCs that meet at different frequencies. It is recommended that more research be conducted in many different settings to determine if specific attributes of a PLC impact students at different rates (Burns et al., 2018). This research question examines different settings of PLCs that are meeting at different frequencies and analyzes the similarities and differences between the groups.

The participants in this question were split into the same four groups that were used in research question 2. Several parallels were noted from the data analysis. The groups with the greatest amount of mean growth were the PLCs that meet once a month and once a week. All groups had positive growth both years except for the group that meets twice a month. Their growth actually fell in the negative range in 2020. Another parallel was between the groups that meet twice a month and that do not meet at all. Both of their means decreased from 2019 to 2020. The groups that meet once a month and once a week both had an increase in their means from 2019 to 2020. The researcher was not able to determine the exact cause of these parallels by this study.

The second half of the data analysis for research question 3 consisted of a survey distributed to all 56 special education teachers in Ocean View school district. This survey sought out to determine the opinions about their special education team from special education teachers across the district. In order for a PLC to be successful, they need to establish core values of the PLC (Lezotte & Snyder, 2011). It is extremely important when establishing the values of a PLC that members are able to be transparent, communicate on a professional level, and commit their time to the PLC (Muhammad & Hollie, 2012). Trust among colleagues is also an important factor of a PLC. Without trust, a PLC will struggle to openly share student data and discuss ways to improve student learning (Graham & Ferriter, 2010).

Unfortunately, only 32 teachers participated in the survey and out of those 32 teachers all of them participate in special education PLCs. This caused the survey to be slightly one-sided, because it only collected the opinions of teachers who currently participate in special education PLCs. The outcome of the survey was positive for the

most part. The teachers were asked to agree (1), neutral (2), or disagree (3) with the statements. All of the means of the questions fell below 2 except for the first question asking about colleague willingness to share materials and resources with others. The lack of willingness to share resources with colleagues may be related to the fact that there is not a shared curriculum as special education teachers are working on IEP goals and specific skills instead of standards. Most special education teachers have their own set of materials for their specific curriculum which would explain why they could not be needing to share it with other teachers. When the researcher took a further look at the frequency of the answers on the survey, it was noted that three participants chose neutral and two chose to disagree with the statement which caused the mean to be greater than 2. It appears, from the results of the teacher survey, the special education teachers in Ocean View school district are viewing their special education teams in a positive manner. The researcher closely examined the results of question nine: I am not afraid to share student learning results with my colleagues. One major component of PLCs is to analyze student data as a team. Since 29 out of 32 teachers indicated they agreed to the statement indicates to the researcher that school teams are comfortable enough to share data in their PLC meetings. Another question that was closely examined was question 15: Our team celebrates our collective accomplishments. Another important component of PLCs are celebrations (Graham & Ferriter, 2010). It is vital for PLCs to celebrate when they meet short-term goals (DuFour & Eaker, 1998). Many PLCs even have celebrations as part of their norms. This reassured the researcher that the special education PLCs in Ocean View school district are celebrating their collective successes as a PLC. Based upon the data from descriptive statistics and survey results, both parallels and divergences were

found between the groups of PLCs that meet at different frequencies. Table 22 summarizes these.

Table 22

Parallels and Divergences of PLCs

	Parallels	**Divergences**
Descriptive Statistics	• PLCs that meet once a week and once a month had the greatest mean • The groups that meet twice a month and do not meet at all both had decreased means from 2019 to 2020. • The groups that meet once a month and once a week had increased means from 2019 to 2020.	• All groups had positive growth except for the PLCs that meet twice a week. The mean for this group actually fell in the negative range in 2020.
Teacher Survey	• The majority of teachers are viewing their team in a positive manner. • Teachers feel comfortable sharing student data with colleagues. • Teams are celebrating collective accomplishments.	• Only teachers who participate in PLCs completed the survey.

It is noted by the researcher that mostly parallels were found in the results of both the descriptive statistics and the teacher survey. Even though the teacher survey was one-sided due to the lack of participation of teachers not in a PLC school, the parallels of the teachers who completed the survey were very positive in respect to their teams. This was

enlightening to see that teachers who are participating in PLCs are willing to collaborate with their colleagues to impact student learning and achievement. A clear focus on student learning and willingness to formulate strategies collaboratively is a core characteristic of PLCs (Elbousty & Bratt, 2010). The results from this survey could have been very different if teachers in schools without PLCs would have completed it.

Some of the results of this study that really fit in with the literature that was reviewed was trust and collaboration. The survey revealed that these teachers are building or have established the trust needed in order to have successful PLCs. Teachers must trust one another enough to be honest and at ease sharing their collected student data (Graham & Ferriter, 2009). Collaboration seemed to be a central factor among the results as well. Even though there were not statistical differences with the results in research question one or two, there was growth in student scores from 2019 to 2020 for students whose teachers met as a PLC. When teachers collaborate, they are generally considered to be more effective rather than remaining isolated in their classrooms (Darling-Hammond & Richardson, 2009).

With that being said, student achievement slightly sticks out from the literature. Effective PLCs appear to be linked to student learning and achievement (Burns et al., 2018). Since there were not significant differences in student scores, it cannot be claimed that these special education PLCs are a direct link to student achievement. The results from this research do not necessarily align with the research on change, either. "The goal of first-order change is to help us get better at what we are doing and second-order change is a dramatic departure from the expected and familiar." (DuFour et al., 2010, p. 248). The implementation of the special education PLCs would be considered second-

order change since this had never been done and was definitely unfamiliar to the teachers. Humans tend to struggle with change when it impacts their daily lives and often resist the change (Deutschman, 2007). It appears from the teacher survey that this new change, PLCs, that has been implemented into the school system have been well received by those who have chosen to make the change.

Implications of Study

The implications of this study with Ocean View school district go beyond increasing the achievement growth of students with disabilities. Even though there was no statistically significant difference, the growth may not have been detected due to a lack of power in the analysis. Further research is warranted to examine if the small difference seen, but not affirmed statistically in this study, was found in another study with increased power. This lack of statistically significant difference should not be interpreted to suggest they are not effective for two reasons: first, the descriptive data do not support the claim and second, there was not any specific measurement of the fidelity to which these PLCs were operating as highly functioning PLCs. Results from this study and similar future studies can help improve the learning and achievement of students with disabilities across the nation. This can be accomplished by increasing the understanding of PLCs for special education teachers. Creating this understanding starts with school districts understanding the beliefs and foundation of a PLC. It is imperative for district leadership to first and foremost understand the workings of the structure of a professional learning community. There are certain actions and policies that must be in place for districts to adopt new ideas and make changes to school procedures. This study revealed implications for school districts that may be extremely useful when considering the

implementation of special education PLCs or districts that already have PLCs that need to be revamped to become fully functioning. School districts should consider laying the foundation for their special education PLCs. This could consist of training focusing on the four pillars (DuFour et al, 2016) and characteristics of PLCs for all special education teams. Special education PLCs data discussions might not look the same as general education PLCs. Most special education teachers in a school do not all teach the same curriculum as they have to tailor their instruction to the individual needs of the students. Even though the data discussions might look different, special education PLCs should still be using the four driving questions and discussing data for students. This data discussion will be more on an individual student basis rather than discussing a whole group of students. Special education PLCs should also closely follow norms in order to be successful. Norms are extremely important in these PLCs since confidential student information is often discussed. Follow-up training and professional development should also be considered after the teams begin to meet to clarify any misunderstandings or to redirect the team. Districts might want to require their teams to all meet at the same frequency in order to have consistency and equity across all schools. Since most special education teams do not have common planning times, school districts should consider hiring substitutes, using educational assistants, or other school staff to provide coverage for the special education teachers so they can meet with their PLCs during their contracted school day. Since general education teachers are provided a common planning time to meet as a PLC, special education teachers should be given the same opportunity. Another focus would be for school districts to do fidelity checks on each

PLC to ensure they are following all the guidelines laid forth in the research in order to have successful PLCs.

The success of a professional learning community begins with the leader of a school district. It is the responsibility of the leader to make sure the school team understands the components of a PLC. School principals should be the one who coordinates and fosters collaboration in their schools (Schechter & Feldman, 2019). The school or district leader should provide training and resources to members of the PLC before, during and after the PLC formation process (Walther-Thomas et al., 2000). This ongoing training and concentrated resources will guarantee new team members understand the way of the PLC. Another way that leaders can provide training to the special education team members is for them to visit already established PLCs in the district or other school districts. Training can also be conducted through virtual meetings, interviews or book studies. No matter what type of training is conducted, PLC members need to know expectations and all necessary components of a professional learning community before productivity can take place (DuFour et al., 2016). Schools and districts also need accountability measures in place to make certain PLC processes are being conducted as set forth by the district. Without accountability procedures in place, special education teams will not be able to successfully function as a PLC (Harris, 2002). Even though special education PLCs may look slightly different than general education PLCs, there are still aspects of the PLC that must be "tight" and required by everyone in the PLC to adhere to those elements (DuFour et al., 2016). DuFour et al. (2016) suggests six tight elements of the PLC process: collaboration, common goals, guaranteed and viable curriculum, common formative assessments, interventions and

extensions for students, and using evidence of student learning to make informed decisions for future instruction. There are also elements of a PLC that could be considered "loose" which would give more flexibility to the teams. Some of these loose elements might include meeting times/days, member roles, and agendas just to name a few.

The findings from this study raise some concern to the researcher. When a school district decides to require something new to be implemented within the district and does not follow-up to make sure proper implementation is taking place, they cannot expect the change to impact all students in a positive manner (DuFour et al., 2016). It appears that maybe something like this has happened with Ocean View school district. With not all schools in the district participating in special education PLCs, the district clearly has not enforced the idea to the teams. One good place for the district to begin would be actually requiring special education PLCs to form and start meeting at the beginning of the 2021-22 school year in all schools. The is one way to incorporate the accountability piece into school leadership. Building level leaders would be responsible and accountable for ensuring their special education teams are meeting as PLCs (DiPaola & Walther-Thomas, 2003).

This study did provide examples of positive student growth from the 2019 to 2020 school year in schools with special education PLCs. Although there was no statistically significant difference in scores from students who had a special education PLC in their schools and students who did not, this study will be a baseline for Ocean View school district to use for future studies. Even though the study did not show a statistically significant difference in scores from students whose special education teachers meet with

their PLCs at different frequencies, there was a difference in means between groups. This will be helpful to the school district in tracking those means over a period of time to later determine if there is a statistical difference in the future once the PLC groups are more established.

The results regarding teacher opinions about their school special education teams can also serve the district and schools. Since the results from the teacher survey were mostly positive, the district can utilize these responses for future trainings for the schools without established PLCs. For the questions that had negative responses, the district can use these to address the concerns of teachers who are currently in the established special education PLCs. These concerns can be addressed through revisiting PLC norms and trainings.

Limitations and Delimitations

This study was limited in time and scope taking place only over the course of one semester or one benchmark period for each school year. Since the time period of data collection was so limited, it is doubtful that a full picture of the impact special education PLCs have on the learning and achievement on students with disabilities is represented. The researcher did not conduct any observations or other checks for the fidelity to operating as a PLC. The researcher for this study serves as a special education teacher in one of the schools that participated in this study. The researcher did not have any direct contact with students while they were taking the benchmark assessments. The results from this study are delimited geographically. All 13 of the schools in this study are in the same suburban city in the southeastern region of the United States. The results from this study may not be able to be generalized to other regions of the United States. Also, this

study could have artificially low scores on the fall 2020 benchmark due to lack of instruction from Covid-19 school closures. The winter 2020 scores could be lower than anticipated due to the distance learning that occurred at the beginning of the school year. This study did not look at other factors influencing benchmark results such as poverty, ethnicity, native language, and specific disabilities. Another delimitation with this study was grade level of the students studied. This study was conducted in elementary schools whereas the findings may be different if it was conducted in a middle or high school setting.

Recommendations for Practice

From these findings, several recommendations have emerged. The first recommendation resulting from this study relates to the findings from the teacher survey. Based on the survey results, the participants have an overall positive view of their special education teams. It is worth further investigation to examine the reasons why teachers who are part of schools without a special education PLC did not participate in the survey. Although the special education coaches are conducting fidelity checks, it would also be beneficial to administer a different survey to teachers in PLC schools to determine exactly how they are conducting their PLC meetings and if they are following the big three ideas, using the four driving questions, and practicing norms. As described by DuFour and Reeves (2016), many schools are claiming to have implemented PLCs, but in all reality, they are practicing what they refer to as PLC Lite. This term is use by DuFour and Reeves (2016) to describe when school teams are meeting for what they consider to be PLCs, but they are actually engaging in book studies or other types of meetings that

discuss topics that do not have an effect on student achievement. This is possibly the case for Ocean View school district.

Recommendations for Future Research

Further qualitative exploration would be beneficial to a school district such as personal interviews with teachers, ethnographies of the PLCs in progress, and focus groups just to name a few. The qualitative research would need to focus on determining how teachers feel about their PLCs, decide if their PLCs are meeting their needs and if the PLC is impacting student achievement. By constructing specific interview questions about PLCs and administering it to teachers participating in special education PLCs in the district, more data could be gathered and analyzed to back up the quality and fidelity of the special education PLCs that are meeting on a regular basis. Another way to determine if special education PLCs are meeting with fidelity would be to look at shared data tracking documents, agendas, notes shared with the team after meetings, and if team members are following up on action steps. Another consideration would be to interview the teachers who work in the schools who are not meeting as PLCs and determine why the special education teams are not meeting as PLCs. One might want to look at all of the schools in the district and spend time observing each of the special education PLCs. During these observations, the researcher would need to see if the PLC has their foundation established along with the three big ideas and are using the four guiding questions (DuFour et al., 2016). Unless it is known what is happening in the PLC meetings, one cannot fully analyze their influence on student data. They would also need to consider what is going on outside of the PLC meetings and how the discussions in the PLCs are being used to improve outcomes for students with disabilities. Analysis of the

qualitative data could give insight into how each PLC functions and further data on teacher opinions. This type of exploration could also benefit the school district on how more effectively to implement a district-wide PLC mandate.

Research on this topic might also want to extend to other school districts across the region. Since this school district in which the data was collected only serves elementary school grades, it would be useful to see if the results are similar in middle and high schools. It would also be beneficial to see if other school districts are implementing special education PLCs with fidelity and how it is impacting students with disabilities. This would be an opportunity to compare and contrast data to determine what processes are impacting students with disabilities and what processes are not. Future studies might also want to consider a larger sample size for each group in order to balance the data between groups. Since this study only focused on the growth of reading scores, a study should be implemented that focuses on math data as well. Another direction to go with this research would be to look at multiple forms of assessments such as state standardized tests, progress monitoring tests and other district mandated assessments given to students. Finally, a study should be conducted in different regions around the United States to see if special education PLCs are similarly impacting students with disabilities. This research is just a snapshot of the progress made by students in one school district. It is crucial that more research be performed on this topic in larger-scale experiments to see if special education PLCs are successfully working to address the areas of need and close the achievement gap for students with disabilities.

Conclusion

Students with disabilities continue to struggle academically to close the achievement gap with their typically developing peers. PLCs are a way for many school teams to come together to address these deficits. While PLCs are not the only way to solve this problem, they are an approach for schools to start collaborating on a professional level that centers around student learning and achievement based on data analyses.

The data from this study indicated that Ocean View school district is making an effort to implement special education PLCs in their schools. This research has also opened up more focused research opportunities for this district. The results from this study suggest that there are no statistical differences between schools that have special education PLCs and schools that do not. It was also noted that there were no statistical differences between special education PLCs that meet at different frequencies. Although no significant statistical differences were noted from the data, this study has highlighted areas in which the district and other districts can improve on their special education PLCs. DuFour et al. (2016) described it best when they said, “we do not argue that the PLC journey is an easy one, but we know with certainty that it is a journey worth taking” (p. 8). With that being said, it is critical for school districts to have this mindset in order to improve the learning and achievement for not just students with disabilities but for all students.

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APPENDIX

Appendix A

Trust on Our Team Survey

For each of the descriptors below, please indicate (1) the extent to which you agree or disagree with each statement by circling one of the three letters on the left-hand side, and (2) the level of important that you place on each indicator by circling one of the three numbers on the right hand side.
D = Disagree, N = Neutral, A = Agree 1 = Very Important, 2 = Somewhat important, 3 = Not Important

My colleagues willingly share their materials, resources, and ideas with me.	D	N	A	1	2	3
I feel welcome in my colleagues' classrooms before and after school.	D	N	A	1	2	3
I feel welcome in my colleagues' classrooms during their instructional periods.	D	N	A	1	2	3
I feel comfortable with my colleagues in my room during my instructional periods.	D	N	A	1	2	3
I believe that my colleagues have good intentions in their interactions with me.	D	N	A	1	2	3
I believe that my colleagues have good intentions in their interactions with students.	D	N	A	1	2	3
I know that I can count on my colleagues.	D	N	A	1	2	3
I believe that my colleagues are honest.	D	N	A	1	2	3
I am not afraid to share student learning results with my colleagues.	D	N	A	1	2	3
I believe that my colleagues are competent and capable teachers.	D	N	A	1	2	3
I believe that I can learn from my colleagues.	D	N	A	1	2	3
I believe that everyone on my team makes meaningful contributions to our work.	D	N	A	1	2	3
I believe that everyone on my team is pulling in the same direction.	D	N	A	1	2	3
Our team celebrates the personal and professional successes of individual members.	D	N	A	1	2	3
Our team celebrates our collective accomplishments.	D	N	A	1	2	3
I look forward to the time that I spend with my colleagues.	D	N	A	1	2	3

(Graham and Ferriter, 2010)