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Middle School Teachers' Perceptions of Data Use Within Professional Learning Communities

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COLLEGE OF EDUCATION

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William James Baker Jr.

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2015

Abstract

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MA, University of Phoenix, 2009

BS, East Carolina University, 2000

Doctoral Study Submitted in Partial Fulfillment

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Abstract

Researchers have shown that effective use of student data by teachers can inform teaching practice, leading to improved outcomes on standardized tests. In order to improve declining test scores at the middle school under study, professional development on the use of data teams was implemented. However, a year after implementation, teachers were still not utilizing data within their professional learning communities (PLC) effectively or at all. This qualitative case study addressed the problem of the need for teachers to use data more effectively. The conceptual framework of the study was based on the models of PLCs by DuFour and of data teams by Love. The research questions addressed how teachers perceived and used data in their PLCs in order to improve instruction. Qualitative data were collected from individual interviews with 7 teachers, observations of 8 PLC meetings, and review of PLC documents. Triangulation and member checking were used to bolster trustworthiness of interpretations. The data analysis led to 4 common themes: teachers felt they were forced to use data, had excessive responsibilities within PLCs, were busy with other required tasks, and needed more training on data use. The findings led to the design of a 5-day professional development series on data teams to be implemented at the middle school. This study has the potential to increase teacher capacity in using student data to inform instruction and to improve student achievement at the local school and district levels.

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Dedication

This work is dedicated to my past, present, and future students. My passion and relentless devotion to teaching and my everlasting commitment to my students is my driving force of becoming the best possible teacher I can become.

Acknowledgments

I would like to give honor and thanks to God for all that he has done for me, for he is the reason I breathe. To my family who have supported and encouraged me during this journey, a special thank you for everything you have done to help me get through these past few years. I love you and am looking forward to celebrating this accomplishment with you. To Bella, my 16-year-old Yorkshire Terrier, and Bianca, my 16-year-old Maltese, both of whom I lost this year, I love you girls and hope to be reunited with you one day. You have been my faithful support and companions. A special thanks to all my friends who have patiently been putting up with me for the past few years while I was partaking in this incredible journey. You have provided me with support, prayers, love and the inspiring words that have kept me going.

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Section 1: The Problem

Introduction

Over the past 70 years, the Federal Department of Education, State Departments of Education, School District Administrators, and school educators within the United States have continually tried to reform the educational system through a variety of approaches in order to increase student achievement. Three major movements of reforming education were initiated within the educational system in the United States including equity-based reform, school choice, and standards-based reform (Jennings, 2012). No other movement has had such an impact on education as the No Child Left Behind Act (NCLB) of 2001, the reauthorization of the 1965 Elementary and Secondary Education Act (ESEA) (United States Department of Education, 2004). Because of this act, states now design and use standardized testing systems to hold educators accountable rather than improve student achievement (Jennings, 2012). One main goal of NCLB was to close the achievement gap between various groups of children including gender, race, and socioeconomic levels (NCLB, 2001).

With NCLB addressing two major aspects of reform, increased accountability for student achievement, and raising teacher capacity, school systems countrywide needed a way to reform schools and increase teacher efficacy. In order to meet the demands of NCLB, schools began to adopt learning organizations that bring teachers together to collaborate and use student data to make the decisions necessary to adjust their educational practices to improve student learning. These organizations are called

Professional learning communities (PLCs) (DuFour, DuFour, & Eaker, 2009; Hord, 1997). Within these communities, teachers meet regularly to discuss individual student strengths and weaknesses, effective strategies used in their classrooms, design common formative, summative, and benchmark assessments, analyze student data, and design instructional remediation strategies to improve student success (DuFour, DuFour, Eaker, & Many, 2006; DuFour, Eaker, & DuFour, 2008; Marzono, 2003; Schmoker, 2011).

Favorable results from PLCs depend on teachers collaborating and most importantly using student data as the basis of each meeting (DuFour, 2004; Gajda & Koliba, 2008; Love, 2009). With the number of reform initiatives being implemented throughout the United States (Binkley, Keiser, & Strahan, 2011), schools are now required to collect, analyze, and record large amounts of data and then use the analysis of the data to drive instruction to meet the needs of each student (Marzono, 2010; McNulty & Besser, 2010). With the number of new initiatives introduced into schools in recent years, many of those initiatives are not being successfully established, supported, or evaluated on effectiveness (Love, 2009). Ensuring that teachers are using data effectively within PLCs should be at the forefront of school reform models in order to be effective in raising educator capacity and student achievement.

Definition of the Problem

The administration of Eastside Middle School (pseudonym) implemented PLCs into the school in 2010, allowing opportunities for educators to work together in collaboration to determine student needs with the intent goal of raising student

achievement. In 2013, after standardized test scores had shown there was a need to improve students' reading and math scores, the school administration implemented a 5-hour professional development session on the use of correctly using data while in the school's PLCs (Massachusetts Department of Education, 2012). The data professional development session assisted teachers in collaboratively designing common formative, summative, and benchmark assessments, collecting data, analyzing data, and designing specific, measurable, achievable, realistic, and timely (SMART) goals for individual students based on the data analysis.

Researchers have shown that using student data to improve teacher efficacy had a significant impact on student achievement (Love, 2009; Peery, 2011). According to the principal of Eastside Middle School (EMS), insufficiently using student data has been an issue for the teachers in the school for many years, yet the administration has not developed a high-performing data culture (B. Carter, personal communication, September 18, 2012). The purpose of this study was to examine middle school teachers' perceptions of data usage within PLCs and teachers' perceptions of their needs to use data more effectively to improve teacher capability and to raise student achievement.

Depka (2006) stated that through the collection and analysis of student data, schools are able to determine the needs of development and thus, data-based student improvement goals are created. The administration of EMS created a culture of collaboration among the middle school teachers through PLCs. However, according to the principal, the teachers in the core subject area PLCs were not collecting, analyzing, or

using data to create the necessary data-based goals that would improve student achievement (B. Carter, personal communication, September 18, 2012). There had only been one 5-hour long, professional development session demonstrating how to collect, analyze, and use data within a PLC at the school since PLC implementation. Many teachers were still not comfortable or knowledgeable about using data to drive decisions (Anfara, 2010; Mandinach, 2012). According to Love (2009), schools that use the process of collaborative inquiry become schools that use multiple data sources continuously to improve student achievement and teacher efficacy. Building a high-performing data culture within schools increases teacher best practices and raises student achievement.

Holcomb (2004) discussed the transformation of schools and districts into cultures of data-driven environments for alignment and achievement processes that benefit educators. Findings from the study can inform the administration of EMS about teachers' perceptions of the use of PLCs as data teams and in what ways teachers were currently using data within PLCs. Other findings will inform the administration of EMS how teachers assess their use of data when compared to the data team concept, and teachers' perceptions of their needs to use data more effectively. With this knowledge and understanding, the administration can develop a data rich environment across the district to enable teachers to be more effective in the classroom and thus raise student achievement.

Rationale

Evidence of the Problem at the Local Level

The local problem was that using student data to inform instruction had been an issue for the teachers in EMS for many years, yet the administration had not developed a high-performing data culture within the middle school (B. Carter, personal communication, September 18, 2012). During a faculty meeting, the principal stated that there were an inefficient number of teachers using student data within the PLC settings to enhance teacher learning and student achievement (B. Carter, personal communication, September 18, 2012). The principal made this statement after reviewing the previous year's PLC minutes, teacher field notes while in PLCs, and teacher lesson plans. Not using data was a significant problem because without using student data to drive teacher decisions and set individual student goals, the PLC would be considered ineffective (Holcomb, 2004; Love, 2009). The students at the school had shown little to no growth in student reading scores and there were deficits in student mathematics scores on the state's standardized Massachusetts Comprehensive Assessment System (MCAS) for the previous 2 years (Massachusetts Department, 2011).

To improve the efficacy of teachers using data within the school, the principal implemented the concept of data teams at the beginning of the 2013 school year. Data teams are PLC-type organizations where teachers continually use student data to design instruction for student improvement (Gray & Harrington, n.d.). The teachers were to use the data team's methodology within their already established PLCs. In October of 2013

the principal initiated a onetime 5-hour professional development session for teachers on using the data team methodology. In this session the lead social studies teacher of EMS gave examples of how to collect student data from common assessments, analyze data, and to make instructional decisions based on that analysis. Teachers at the school were to submit a minimum of three data team meeting's minutes at the end of the school year showing how they used data to inform their instructional decisions. In May of 2014 during a faculty meeting, the principal stated that only one data team turned in the necessary paperwork showing where they used data to make needed adjustments to their instruction for remediation purposes (B. Carter, personal communication, May, 2014). Teacher explanations of why they did not successfully commit to the data team methodology included the lack of training, not understanding the data team concept, and the lack of need to use student data to inform their instruction (B. Carter, personal communication, May, 2014).

Building a high-performing data culture within the school would be the first step in improving learning for all teachers and students (Love, 2009). Teachers need to understand student data, how to collect the data, how to analyze the data, and how to design individual student goals based on the data in order to raise student achievement (Anfara, 2010; Mandinach, 2012). Establishing effective PLCs within a school includes the process of training teachers on using data to identify individual student needs and increase teacher efficacy.

Evidence of the Problem from the Professional Literature

The conceptual framework of this study is based upon the extensive works of DuFour (2004), Hord (1997), Love (2009), and Peery (2011). DuFour is an expert on PLCs in the educational community and is the author of a body of work that describes how PLCs should be implemented including their purpose, structure, roles of members, function, principal role, and how PLCs should be assessed and sustained. Hord (2008) stated that the main purpose of PLCs is to collect, analyze, and use student data, to inform instruction. However, many teachers within PLCs are not using data effectively or they are not using data at all (Anfara, 2010; DuFour, 2004; Mandinach, 2012). In effective data teams teachers continually use student data to examine their teaching practices and make the necessary changes needed to inform instruction that leads to higher student achievement (DuFour, 2004; Hord, 2008).

Many PLCs implemented within schools across the United States were improperly established, maintained, or evaluated (DuFour, 2004; Lindsey, Jungwirth, Pahl, & Lindsey, 2009; Love, 2009). Professional learning communities created a place where educators can use student data to improve instruction to maximize student learning. However, teachers are using student data ineffectively or they are not using data at all within many PLC organizations (Anfara, 2010; DuFour, 2004; Lindsay et al., 2009; Mandinach, 2012). Love's (2009) research on how data should be used in school settings to improve teacher efficacy and improve student achievement has been used to implement successful data teams in many educational environments. Despite the many

different educational reform initiatives to increase student test scores (Binkley et al., 2011), including the introduction of PLCs, student achievement gaps are still present within schools (Bringing Achievement Gaps, 2010).

Data teams have shown to be effective in helping raising student achievement by concentrating strictly on using student data to inform their instructional practices (Gray & Harrington, n.d.). Data teams support systemic reform, collaborative organizational learning, and effective use of data to transform school districts into high performing data-rich cultures.

Definitions

Academic achievement gap: The difference in student academic achievement between students of different social groups (United States Department of Education, 2014a).

Adequate yearly progress (AYP): a series of academic performance goals designed for each school, school district, and state. (Walker, 2010).

Collaborative inquiry process: The process where teachers are working together using multiple data sources continually to improve teacher capacity and student achievement (Love, 2009).

Common assessments: Assessments that are created and given by all the teachers at the school who teach the same course and grade level. The items on the common assessments are designed to prioritize state and local standards and learning goals and align with national, state, and local standardized tests (Peery, 2011).

Data-driven instruction: The continuous use of common assessments including; formative, summative, and benchmark assessments to gauge student strengths and weaknesses in order to continually improve instruction to maximize student learning (Love, 2009).

Data Team: An approach where teachers, administrators, and other educational specialists work together using student data to inform instructional practices (Massachusetts Department of Education, 2014a).

Massachusetts Comprehensive Assessment System (MCAS): The MCAS is a standardized testing system used to hold schools and districts across Massachusetts accountable, on a yearly basis, to ensure that every student is on grade level in reading and mathematics by the year 2014 according to the No Child Left Behind Act (Massachusetts Department of Education, 2014b).

Professional Learning Community (PLC): A community of educators including teachers, administrators, and other specialists systematically working collaboratively to improve teacher capacity and student achievement (DuFour, 2004).

Significance

Professional learning communities are at the forefront of educational reform processes in most school districts throughout the United States. Using PLCs to improve teacher effectiveness and increase student achievement has shown great success in many school systems (Huguet, Marsh, & Bertrand, 2014). However, many administrators have implemented PLCs into their schools without clear direction or a deliberate purpose. One

main goal of the PLC is to ensure teachers are using student data to design a set of SMART goals allowing for teacher improvement that help increase student achievement. Without proper teacher training on what data to collect, how to collect data, how to analyze data, and how to design and implement goals based on the data, PLCs become ineffective by not improving either teacher ability or student achievement (Gray & Harrington, n.d.; Love, 2009).

In this study I examined four core subject PLCs. This lent to the significance of the study by determining teacher perceptions of using data, how the data are currently used, how teachers assess their use of data when compared to the data team concept, and their needs to use data. Studying the problem of why teachers are ineffectively using data within the school may help the administration and district office personnel discover ways to improve the efficacy of teachers using student data. Using student data will lead to more informed instructional decisions and higher student test scores. When teachers in PLCs are effectively using data to identify individual student needs and improve their teaching practices, student achievement will increase (Cowan, 2010).

The findings from this study provided the Eastside School system with insight into the need for introducing a more comprehensive professional development program on designing effective data teams. The findings of this study may support the district administration's understanding that it is imperative to change the culture of the district to one that uses data for alignment and achievement. Transforming the preexisting PLCs within the schools throughout the district into effective data teams will increase the

likelihood of building a high performing data culture district wide. The project is unique because it addressed the issues of integrating PLCs with data teams that increase and sustain teacher efficacy, student learning, and high academic achievement (Huguet, Marsh, & Bertrand, 2014).

Guiding Research Question

To address the problem of why teachers are not using data to guide their instructional practices at EMS, I designed the following research questions to get a better understanding of teacher's perceptions of using data. Using a qualitative case study approach allowed me to conduct a holistic, in-depth study that examined the perceptions and viewpoints of the middle school teachers' use of data at EMS. The following are the research questions that I addressed in this study:

1. What are the middle school teachers' perceptions of the use of PLCs as data teams?
2. How are the middle school teachers currently using data within PLCs to raise student achievement?
3. How do the middle school teachers assess their use of data when compared to the data team concept?
4. What are the middle school teachers' perceptions of their needs to use data more effectively?

Review of the Literature

For this literature review, I used the following terms to search for research articles: PLCs, data teams, student achievement, and data-driven instruction. The literature research came from a variety of sources including; doctoral dissertations, peer-reviewed journal articles, case studies, and books. I began the review of literature by finding the latest information on PLCs, then narrowed the topic to how educators use data within PLCs.

With the federal, district, and state levels continuously striving to improve student standardized test scores and the overall accountability of those scores being placed on teachers, many school districts have implemented PLCs and data teams within their schools (Honig, & Venkateswaren, 2012; Kensler, Reames, Murray, & Patrick, 2011; Mandinach, 2012). The main focus of both the PLC and data team is to ensure teachers are continually collaborating using student data to inform and improve instruction to meet the needs of their students (Peery, 2011; Wohlstetter, Datnow, & Park, 2008). The problem with many of the new school improvement initiatives, including the implementation of PLCs, is that many schools are not properly implementing these programs, not understanding teacher perceptions of using student data, and implementing too many initiatives at the same time (Peery, 2011).

Professional Learning Communities

Background

Hord (1997) coined the term PLC for a group of educators that regularly meet, share knowledge, and use collaborative inquiry. The purposes of teachers working in PLCs are to increase teachers' instructional practices and raise the academic performance level of all students (Allison et al., 2010; Arredondo-Rucinski, 2012; DuFour & Mattos, 2013; Hall & Hord, 2011; Kennedy & Smith, 2013; Mullen & Schunk, 2010). DuFour and Eaker (1998) created a more comprehensive model of PLCs, based on Hord's (1997) original model, for implementation in schools across the US. This model included the idea that PLCs use collaboration among teachers, student data to drive instruction, shared vision and mission among staff, and continuous focus on the improvement of student learning. In 2006, DuFour stated that the overall goal of a PLC is to improve teacher efficacy and improve student learning. According to Marzano (2011) the introduction of teacher PLCs is the most influential movement in changing teaching practices that leads to the improvement of teacher instruction and student achievement.

DuFour (2004) suggested that too many teachers work in isolation. Thus, the PLC was designed to provide opportunities for teachers to collaborate as learning communities to develop ways to improve teaching practices and raise student achievement. DuFour (2004) also suggested by turning schools into learning environments the process of continuous learning will take place, changing the culture of the school from one of teaching to one of learning. The collaboration inquiry processes within PLCs is the best method for educators to de-privatize their educational knowledge and expertise (Fullan, 2010; Hip & Huffman; 2010; Levine & Marcus, 2010). Through cooperative and

collaborative relationships among teachers within PLCs, a significant impact on teacher efficacy has been made (Levine & Marcus, 2010). Effective PLCs use the collaborative inquiry process that provides educators and other stakeholders of school districts with an opportunity to set SMART goals to improve teacher efficacy and student achievement (Kilbane, 2009). Although these experts in the field have varying definitions of PLCs, the one common theme among them is that teachers are collaborating to improve their practice using student data to ensure students are receiving a higher quality of education.

The problem is that too many educational institutions are using the term PLCs too loosely and the concepts of PLCs are in danger of losing the intended purpose (Castleman, 2013; Doerr, 2009; DuFour, DuFour, & Eaker, 2009; Jones, Stall, & Yarbrough, 2013). DuFour and Eaker (2009) stated that many educational institutions are using the term to identify any groups of educators thrown together without proper training because of common interests. PLCs are more than just a collection of educators who work together sharing stories, materials, and advice (Kilbane, 2009; Protheroe, 2008). An effective PLC is one that focuses on learning, creating a collaborative culture, and creating a result-oriented environment (DuFour & Eaker, 2009; Kilbane, 2009; Love, 2009).

What is an Effective PLC

The following are characteristics of an effective PLC: shared teacher vision and goals, strong teacher collaboration, a commitment to ongoing improvement, data-driven, and supportive conditions including supportive leadership (DuFour, DuFour, Eaker, &

Many, 2006; DuFour & Marzano, 2011; Hord, 1997). Other important characteristics of establishing an effective PLC include ensuring that there is a designated time and place to have PLCs, belief that teachers should continually learn, and the environment is result-oriented (DuFour et al., 2006).

There is a gap between what an effective program is and how to implement those programs in order to ensure higher student achievement (Chaparro, Smolkowski, Baker, Hanson, & Ryan-Jackson, 2012). Although there are models that demonstrate how to establish an effective PLC, many institutions have failed at doing so (Chaparro et al., 2012). To help establish an effective PLC, Easton (2009) has designed a series of protocols that can be used to ensure PLCs are effective. Protocols that should be in place to establish an effective PLC include procedures for student work, for examining professional practice, for addressing issues and problems, and for effective discussions (Easton, 2009).

The review of the literature indicates that there are positive connections between effective PLCs, greater teacher effectiveness, and higher student achievement (DuFour et al., 2004; DuFour & Eaker, 1998; McNulty & Besser, 2010). According to Layne (2012) there are many definitions of teacher effectiveness including teachers who are knowledgeable and teachers who enjoy the subjects they teach. Many agree that an effective teacher keeps students actively engaged and makes the lessons relevant and interesting to the students. Student achievement can be defined as how much a student has achieved according to their educational goals (Bromberg, Theokas, & Education,

2013). Student achievement is the main focus for teachers due to the many educational reforms that have been placed on schools and school districts.

Research studies show that effective PLCs have had a positive impact on teacher instruction that led to an increase in student achievement (Ermeling, 2010; Gallimore, Ermeling, Saunders, & Goldenberg, 2010; Kilbane, 2009; King, 2011; Rahman, 2011; Szczesiul and Huizenga, 2014). The implementation of effective PLCs have improved the teacher collaborative inquiry process that led to higher student engagement and success (McNutty & Besser, 2010; Lieberman & Mace, 2010; Love, 2009; Vescio, Ross, & Adams, 2008).

PLCs at the school are designed allowing teachers who have common prep times, teach the same grade level, and teach the same subjects to collaborate and design SMART goals for themselves and their students. Each PLC has two or three participants. The literature review did not indicate a specific number of participants that are needed to create an effective PLC. However, the literature review showed that PLCs that are grouped together by grade level, self-organized, and goal oriented may be true effective professional learning communities (Easton, 2012). What makes a PLC effective is not how the PLC is created according to Easton (2012); it is the purpose of the PLC that makes the difference. According to Peery (2011) it is not the size of the PLC that is important it is the effectiveness of the PLC that matters. The literature review showed that most PLCs had an average of four to five participants. According to Hord (2011) there is still much to learn on how to create and maintain effective PLCs.

In a case study conducted by Maloney and Konza (2011), the researchers set out to determine what processes are used to develop an effective PLC and what factors impact the development of an effective PLC. Their findings showed three clear characteristics of what made the implementation of the PLC effective. One factor was the personal and professional investments that teachers made to ensure the success of the PLC. Another factor determined was the teachers' value on professional development both individually and in terms of a collective school culture. Lastly, the researchers discovered that teachers' use of data while in the PLC setting was a factor that led to the success of the PLC (Maloney & Konza, 2011).

A study completed by Szczesiul and Huizenga (2014) on the implementation of PLCs in two school systems showed that one school was successful in implementing the PLC whereas the other school was not as successful. In the case of the successful PLC initiative, teachers shared a common goal of increasing student achievement by working collaboratively using student data to increase their teaching practices. Their overall common vision and mission was to increase student learning. The school that did not have successful outcomes did not share the same vision (Szczesiul & Huizenga, 2014). According to Levine (2011), a strong PLC is one where teachers share the same vision and mission to increase student achievement through the collaborative inquiry process.

A 5-year, quasi-experimental investigation that examined nine Title 1 schools showed using a similar PLC model led to a significant increase in student achievement (Gallimore et al., 2010). Teachers in the schools were able to see the connection between

engaging in instructional reflection and increasing student outcomes (Gallimore et al., 2010). Another study showed that connections among instructional plans and student outcomes can lead to visible changes in teachers' practices while working in PLCs (Ermeling, 2010). Ermeling (2010) stated that the results of teacher improvement and higher student outcomes are more likely to occur when schools create effective PLCs that are devoted to improving teacher capacity. A similar study using a mixed-method approach showed that when teachers worked in effective PLCs student achievement increased (Roberts, 2010). The results comparing the teachers' perceptions and student test scores on the state's standardized tests in both English and math showed positive increases in student achievement (Roberts, 2010). Another comparable study showed that when teachers worked collaboratively in PLCs and reflected on their practices, student achievement improved sharply (Lomos, Hofman, & Bosker, 2011a). The collaborative inquiry process allows teachers to reflect on their practices and provides opportunities to learn from their peers (Giles, Wilson, & Elias, 2010).

Although changing teacher practices is difficult, one study showed that by implementing a PLC model known as an instructional learning team (ILT) the teachers in the school were successful in making positive changes to their practices (Brendefur, Whitney, Stewart, Pfiester, & Zarbinisky, 2014). The teachers shared ideas and values, focused on student learning, used more reflective discourse, and increased their teaching knowledge (Brendefur et al., 2014). Rahman's (2011) qualitative research study conducted in Bangladesh found that PLCs offer opportunities for teachers to collaborate

using student data in order to improve student outcomes and improve their own professional learning. The development of the PLCs gave them much needed time to collaborate using student data to make the necessary changes to their instructional practices to raise student achievement (Rahman, 2011).

In a qualitative multiple-case study conducted in Ireland, King (2011) used PLCs to get an overview of teachers' involvement in the collaborative professional development initiative within the school district. King (2011) found that the teachers within these schools wanted to sustain the practices of using data within PLCs due to the positive impact they had on student learning. Similar outcomes came from a case study that was conducted in a Norwegian school (Rismark & Solvberg, 2011). The implementation of the PLCs provided teachers with the time to reflect and develop better teaching practices through knowledge-sharing activities through sustained collaboration (Rismark & Solvberg, 2011). A study that took place in Canada corroborates the idea that when teachers sustained collaborative professional learning, teachers acquired greater instructional skills leading to greater student achievement (Bruce, Esmonde, Ross, Dookie, & Beatty, 2010). By participating in collaborative PLCs the teachers in the study were able to improve student achievement by continually setting SMART goals using student data and implementing various teaching strategies into their instruction (Bruce et al., 2010). Similar findings were found in a case study conducted in the Netherlands (Thoonen et al., 2011). The findings showed that when teachers were working

collaboratively, building upon their own professional development to improve their instructional practices, improved student achievement occurs (Thoonen et al., 2011).

The response to intervention (RTI) prevention framework can improve teacher practices and increase student achievement (Prewett et al., 2012; Vanderheyden & Harvey, 2013). In this model, the teachers use a multi-tiered framework that uses various academic and behavioral interventions focused on the needs of the at risk students in expectation to close the achievement gaps among groups of students (Prewett et al., 2012; Vanderheyden & Harvey, 2013). In a multi-phased case study of 40 middle schools that implemented PLCs using the RTI framework, the researchers showed that all schools were successful in creating a high-data based culture where teachers used a variety of student data to inform instructional decisions (Prewett et al., 2012). In a 2-year study in Oregon, the researchers compared student data from schools that have implemented the effective behavioral and instructional support systems (EBISS), a PLC model that focuses on improving student outcomes. The EBISS PLC model blends together the RTI model and positive behavioral interventions and supports. This PLC model differs from many other PLC models in that its members not only include core subject teachers, but also include special educators, education specialists, nurses, and social workers. The findings showed there was an increase in student achievement at certain grade levels and the number of teachers using student data to inform instruction rose sharply (Chaparro et al., 2012).

Not all researchers have shown that PLCs have benefited student achievement. A qualitative research study showed little consensus of the teachers within the school in whether or not the PLC had a positive effect on student achievement (Elbousty & Bratt, 2010). The findings showed that the teachers had varying views on the results of the PLCs' implementation. Three of the teachers showed that the PLC had a positive impact on student learning, while on the contrary, three teachers stated that the PLC had little to no impact on their students' achievement levels (Elbousty & Bratt, 2010). Other findings showed that some teachers believed that the PLC required more work for the teachers while others stated that the PLCs made their jobs much easier. The findings also indicated that some participants would like to continue with the PLCs while the others stated they would like to end the PLCs. Lesar (2013) found that there was no correlation between the grade-level implementation of the PLCs and student achievement based on the state's standardized test (Lesar, 2013). However, the teachers were still optimistic and enthusiastic about continuing the PLCs. The teachers stated that the PLCs offered knowledge about student performance, support for collaboration, quality of instruction, shared leadership, and how these characteristics were aspects in improving their efficacy as teachers and increasing student outcomes (Lesar, 2013).

Professional learning communities have shown to have a positive impact on improving teacher capacity and student achievement (Bruce et al., 2010; Chaparro et al., 2012; Elbousty & Bratt, 2010; Thoonen et al., 2011). Although many administrators have implemented PLCs into schools, PLCs have been shown to be ineffective (Chaparro et

al., 2012). To ensure that a PLC is effective, the following characteristics should be included in the design of the PLC, shared teacher vision and goals, strong teacher collaboration, a commitment to on-going improvement, data-driven, and supportive conditions including supportive leadership (DuFour, DuFour, Eaker, & Many, 2006; DuFour & Marzano, 2011; Hord, 1997)

Data Teams Within PLCs

Background

Despite decades of educational reform including the introduction of PLCs, student achievement gaps still persist within our schools (Brining Achievement Gaps, 2010). The problem is that although many schools are collecting an overwhelming amount of data, school personnel are not using the data correctly to set goals for raising teacher efficacy and student achievement (Anfara, 2010; Kensler, Reames, Murruy, & Patrick, 2011; Schildkamp, & Kuiper, 2010). Schools that do not have a systemic process for effectively and collaboratively using data will continue to languish in low-teacher efficacy and low-student achievement. Research shows that when schools become a culture where educators continuously collaborate, commit to individual student needs, and continually use data to inform their decisions to improve their capacity student achievement will improve (Schildkamp & Kuiper, 2010).

Many schools are collecting and using only data from standardized tests to inform decisions (Anfara, 2010). Unfortunately, only using data from these tests will result in many missed opportunities to improve both teacher capacity and student learning. The

data from standardized tests often comes too late to meet student needs (Young, 2006). It is imperative that teachers use data from a variety of sources including formative assessments, formative common assessments, benchmark assessments, observational data, and summative assessments on a continuous basis to inform teacher practices (Cosner, 2012; Schildkamp & Kuiper, 2010). Using student data will allow teachers to get a better understanding of their students' strengths and weaknesses and will help teachers to track their students' progress allowing opportunities to readjust their instruction to meet the needs of the individual student (Cosner, 2012). Data teams should use a precise method in reviewing student work, applying instructional strategies, and monitoring student learning throughout the process of initiating student remediation and strategies (Love, 2009).

According to Anfara (2010), teachers' lack of knowledge and their beliefs about collecting, analyzing, and using student data are the reasons that more teachers are not using data. Schools that are improving teacher capacity and student achievement are systematically educating teachers to collect data, analyze data, and use the data to inform their teaching practices and set goals for students. According to Peery (2011), the term data team was coined by the Leadership and Learning Center to show how data-driven decision making is the responsibility of the administration and educators within schools. Teachers who use collaborative inquiry allow data to become a catalyst to improve learning and teaching (Marsh & Farrell, 2014). Continuously using data gives teachers the constant feedback that is necessary to pinpoint individual student needs, encourages

teacher collaboration, and guides instructional improvement necessary to raise student achievement (Marsh & Farrell, 2014; Vanderheyden & Harvey, 2013). Using data-driven decisions is an essential of effective educational practices across all school levels (Mandinach, 2012).

Educators are rich in data but information poor (Anfara, 2010; Kensler et al., 2011; Killion & Roy, 2009; Mandinach, 2012; Marsh & Farrell, 2014). The problem according to Love (2009) is that many PLCs are being implemented without the proper training on using data to inform decisions. To understand how teachers use data in some schools in the Netherlands, a qualitative case study was conducted (Schildkamp, & Kuiper, 2010). The findings showed that out of the six schools studied, the teachers used little data to inform their instructional practices due to the lack of training on how to use the data effectively (Schildkamp, & Kuiper, 2010). Similar results from a study in Canada, resulted in the teachers stating that the problem with effectively using student data was due to the lack of training (Main, 2012).

A comparative case study examining two districts use of data showed similar results as the previous studies (Kerr, Marsh, Ikemoto, Darilek, & Baraney, 2006). In the case study, teachers were lacking the knowledge and skills needed to use data effectively to inform instructional decisions (Kerr et al., 2006). Another study on data-driven decision making resulted in the teachers stating that they were unprepared to engage in the process of using data to inform instructional decisions (Dunn, Airola, Lo, & Garrison, 2013). In all of these studies, according to the teachers, the main reason teachers were not

using data or using data ineffectively to drive instruction was the lack of professional development on using data to inform instruction.

Data team PLCs are designed to increase teacher data-informed decision making and improving instruction by meeting the needs of individual students (Schildkamp & Kuiper, 2010). Whether the collaborative inquiry process takes place within a PLC or a data team, using data should be the driving factor for instruction. Administrators who have not implemented the data team model need to ensure that data are being used as the driving factor within their existing PLCs. When data are used effectively, teachers can identify individual student needs, improve teacher capacity, and improve student achievement. Without the use of data to inform teacher decisions and set goals, PLCs and data teams will become ineffective.

In more recent years students have a more rigorous curriculum and are required to perform at higher levels than previously so, teachers need to design and implement effective data teams to increase student achievement (Wayman, Cho, & Richards, 2010). Many schools have tried to implement PLCs with little to no success (Peery, 2011). It is important that teachers are data literate, meaning teachers need to use understand and use data more effectively to guide instruction (Mandinach, & Gummer, 2013). Thus, Love (2009) and Peery (2011) agree that schools need to transition existing PLCs into effective data teams.

In developing an effective data team, researchers recognize similar characteristics of how effective data teams should be constructed. The following are characteristics that

are needed to design an effective data team: data-driven, strong leadership, shared vision and goals, trust and collaboration, and having high expectations for success (Holcomb, 2004; Love, 2009; Peery, 2011). Other characteristics that are needed to design an effective data team according to Holcomb (2004) include: having a safe and orderly environment, frequently monitoring of student progress, continued communication with parents, and one that focuses on student learning. Many characteristics of effective PLCs and effective data teams overlap. However, the one characteristic that is constant in all experts' opinions of what makes an effective data team is the use of data to inform instruction.

Within the data teams, teachers design various forms of common assessments based on individual student weaknesses in order to improve teacher instruction and increase student achievement (Peery, 2011). According to Peery (2011), data teams exhibit the qualities and characteristics of an effective PLC. Establishing an effective data team within the school will provide the requirements to change the school environment from one of teaching to one of learning (Peery, 2011). In order for teachers to become more advanced at using student data to inform instruction, Mandinach and Gummer (2013) and Cosner (2012) suggested that data-driven decision making needs to become part of a teacher's preparation, leaders of the schools need to discover ways to incorporate data-driven strategies and ideologies into teacher professional development, and ensure that participants' roles are clear within data teams. Cosner suggested in order for teachers to become more advanced at using data to drive their decision making,

administration of school districts need to implement more professional development for teachers on using data more effectively.

How Data Teams Have Improved Teacher Capacity and Raised Student Achievement

To ensure continuous improvement, teachers and administrators need to use student data to make the necessary data based decisions that will lead to higher success for teachers and students (Schildkamp & Kuiper, 2010). Data-based decisions should be the driving factor of all educators (Marsh & Farrell, 2014). Teachers who collect and analyze student data can make instructional changes to their practices to improve student achievement by: (a) prioritizing educator instructional time, (b) identifying problem areas for individual instruction for students, (c) determining the effectiveness of lesson plans; (d) narrowing the achievement gap, (e) enhancing instructional practices, (f) identifying instructional strategies, and (g) improving curriculum (Marsh & Farrell, 2014).

Holding school districts, administrators, and teachers more accountable than ever for increasing student achievement has led to an abundance of student data collected from a variety of both formative and summative assessments. Anfara (2010) stated that many teachers are not using student data because of teachers' lack of knowledge and skills to collecting, analyzing, and using data to inform instruction. The process of systematically using data to identify student weaknesses and progress is a rational method to monitor continuous improvement of students and modify instruction to fit individual needs (Hamilton et al., 2009).

A checklist provided by Hamilton et al. (2009) may help to improve teacher use of data. The checklist included making data a necessary part of PLCs, establishing a clear vision of data use throughout the school, provide supports, and grow and sustain a school district-wide data system. Data that teachers, school administrators, and district leaders should collect include attendance, financial data, student behavior and discipline, coursework, grades, student dropout rates, finances, perceptual data, opinions of students and parents, and teacher data (Bernhardt, 2009; Schildkamp & Kuiper, 2010).

Data team initiatives have had positive benefits on teacher effectiveness and student achievement. Two meta-analyses showed links between how PLCs and data teams have been beneficial to raising educators' effectiveness leading to higher student success (Arredondo-Rucinski, 2012; Lomos, Hofman, & Bosker, 2011). The meta-analyses, determined that through the interventions of PLCs and Data Teams teacher capacity along with student achievement improved significantly (DuFour & DuFour, 2007; Olivier & Hipp, 2010; Pankake & Huffman, 2010; Roundtree & Hipp, 2010). McLaughlin and Talbert (2010) stated that when educators use PLCs and data effectively, they build teacher capacity for making the necessary changes within the school resulting in increased student achievement. Researchers in one experimental case study analyzed the effects of implementing data teams and data initiatives in over 500 schools (Carlson, Borman, & Robinson, 2011). The findings showed that the data initiatives, including data interpretation training, resulted in substantial improvements in the areas of mathematics and reading (Carlson et al., 2011).

The administration in 59 school districts across seven states implemented a district-level reform model that was created by the Center for Data-Driven Reform in Education (Slavin, Cheung, Holmes, Madden, & Chamberlain, 2012). The data-driven reform involved the process of training teachers to collect, interpret, and disseminate data to inform and guide district and school reform efforts and comparing them to schools that did not implement the reform model. Researchers showed that there was a significant difference in student scores from schools that implemented the reform model and those that did not (Slavin et al., 2012). In one study conducted in Holland, researchers found schools that used the collaborative inquiry process, focused on student achievement through the use of data, and shared a common vision became successful schools that had higher student achievement (Lomos, Hofman, & Bosker, 2011b).

Although most research results indicate that there is a relationship between using student data to drive instruction and higher student achievement, some suggests that it does not always hold true. One study using a mixed-method approach was part of a larger project that took place over a 5-year period (Anderson, Leithwood, & Strauss, 2010). The findings from the study that took place in 180 schools in 43 school districts and nine states showed little correlation between higher student achievement and the use of data to inform instruction (Anderson et al., 2010). Researchers in another study showed that teachers who were using student data, were unable to increase student achievement (Shepard, Davidson, & Bowman, 2011). Researchers examined teachers' perceptions about using student data from formative assessments and district designed benchmark

assessments across seven school districts. Researchers found that teachers were not collaborating among their peers and that there were no established PLCs within the schools in which the teachers worked (Shepard et al., 2011).

Teachers were not receiving the proper data training needed to inform their instruction and raise student achievement levels (Slavin et al., 2012). Teachers indicated the need for clearer vision and implementation of professional development on effectively using student data to drive instruction. Using the data team model, PLCs allow teachers to collaborate with peers using a variety of student data to discover instructional strategies to improve their practices. Data teams are most effective when they are data-driven, have strong leadership, participants have shared vision and goals, participants continuously collaborate, and participants have high expectations for success.

Implications

During this qualitative case study I interviewed teachers who participate in core subject area PLCs, observed the PLC process, and reviewed documents from prior PLCs. By thoroughly examining the PLC process within the middle school, I examined teachers' perceptions of how data are used within PLCs and teachers' perceptions of their needs to use data more effectively to improve teacher capability and raise student achievement.

Outcomes from this study have the potential for positive social change for students, teachers, and administrators within EMS. Improving teacher knowledge and understanding teacher perceptions of how data can be used to determine individual

student needs may lead to more effective teaching, which in turn could lead to more successful students. The findings from the study may help administrators of EMS and district to understand the importance of establishing and maintaining a high data-rich culture by establishing effective PLCs. A data-rich culture may increase the collaborative inquiry process, teacher effectiveness, and improve student success.

The outcomes from this study showed that teachers at the school need a better understanding of how to use data within PLCs to guide instruction. The outcomes of this study led to the development of a professional development model that may support the teachers' needs in understanding student data, how to collect the data, how to analyze the data, and how to design individual student goals based on the data within the PLC setting (See Appendix A). I designed a series of professional development sessions on establishing data teams within the current PLCs. The professional development framework may guide teachers on how to use data daily to guide instructional decisions, provide instructional strategies for individual students, and differentiate instructions to meet individual student needs.

Summary

The conceptual framework shows how many educational experts have outlined the necessity of implementing PLCs into schools to improve student learning. As in the case of EMS, the principal has recently implemented the concept of data teams without properly training the teachers and understanding the teachers' perceptions of using student data, within the PLC setting, to inform instruction. This year alone, the principal

and district personnel have implemented four other school initiatives, which have overwhelmed the already abundant workload of the teachers. School resources for teacher professional development including time and money are limited. Thus, it is imperative for the administration and district leaders to plan and provide relevant professional development to teachers. Researchers have shown that when proper implementation and continual use of data occurs, teachers continued to improve their practice and increase student achievement (Arredondo-Rucinski, 2012; Lomos, Hofman, & Bosker, 2011). One possible outcome of this study is to develop a rich data culture within EMS ensuring that teachers are continually using student data to drive instruction to increase student scores on the state's standardized tests. This may be done by implementing a series of professional development sessions in establishing data teams within existing PLCs.

In Section 2, I discuss the methodology in conducting this study. I discuss the sampling procedures, data collection methods, data analysis methods, and the proposed data presentation strategies. Section two includes the ways I ensure credibility, reliability, and validity throughout the entirety of the study. I include a section discussing the assumptions and possible limitations that may occur within the study.

Section 2: The Methodology

Introduction

Examining teachers' perceptions of how data are used within PLCs and teachers' perceptions of their needs to use data more effectively is the focus of this qualitative case study. Most educators have not properly been trained to use student data to inform their practice and to meet the individual needs of students (Love, 2009). This qualitative case study investigated the problem of why teachers are not using data effectively within EMS. To understand the teachers' perceptions of using student data, this study examined teacher use of data within PLCs and decisions that were made in the PLCs that influenced their instructional practices.

Description of Proposed Research Method

The best method to answer the posed research questions is an intrinsic qualitative case study. According to Lodico, Spaulding, and Voegtle (2010) a case study is a qualitative approach that is used to discover meaning, to explore procedures, and further expand the understanding of a person, group, or situation. Concentrated, rounded in description, bounded, particularistic, descriptive, and experiential are characteristics of case studies (Hammilton & Corbett-Whittier, 2013; Merriam, 2009; Yin, 2009, 2012). A qualitative case study was the best choice of approach for the purpose of the study because case studies are bounded, holistic, lifelike, and provide a rich description of the phenomenon under study (Bogdan & Biklen, 2007). According to Yin (2003) a qualitative case study is an approach to research that simplifies the investigation of a

phenomenon within its context that uses an assortment of data sources. Using a qualitative case study method allows the researcher and the participant to collaborate closely while the participants tell their story (Crabtree & Miller, 1999). Another advantage of using a qualitative case study is using open-ended questions and probes during the interview process that encourages responses that are more in-depth, meaningful to the participant, unanticipated by the researcher, and explanatory in nature (Yin, 2009, 2012). Through the qualitative process participants are able to describe in detail their interpretations of reality allowing the researcher a better understanding of the participants' actions (Yin, 2003). One reason why I chose a qualitative case study to examine the perceptions and viewpoints of the participants is that it allowed me to use multiple sources of data (Yin, 2003). I used the qualitative case study approach to provide an in-depth investigation to determine why teachers are not using student data to drive instruction. The case study approach also maximizes what could be learned in the period of time available for the study (Creswell, 2010). Using the case study approach helped to understand not only the perception of the individual participant, but of the group of participants as a whole and the interaction between them (Yin, 2003).

The type of case study that I chose to use was the intrinsic case study. The intrinsic case study is used when the case itself is of major interest in the investigation (Baxter & Jack, 2008; Creswell, 2012; Mills, Durepos, & Wiebe, 2010; Stake, 1995; Yin, 2003). In an intrinsic case study the researcher's investigation is motivated to get a better understanding about the exclusivity of the case instead of trying to build theory or

comparing the case to other cases (Mills et al., 2010). In this study, it was my intent to get a better understanding of teachers' perceptions of how data are used within PLCs and teachers' perceptions of their needs to use data more effectively to raise students' standardized test scores. Stake (1995) suggested that the intrinsic case study is the best approach when the researcher has a sincere interest in the case and when the researcher wants to get a clear understanding of the case. I sincerely wanted to understand ways to improve teacher use of data while working in PLCs that can be used to inform instruction.

According to Hyette, Keeny, and Disckson-Swift (2014) performing a qualitative case study allows the researcher more flexibility in performing the study than offered by other qualitative approaches such as phenomenology, ethnography, narrative analysis or grounded theory methods. Case studies are methodologically designed specifically to answer the research questions and are specific in the case that is going to be studied (Creswell, 2012). I chose not to use the phenomenology or the ethnography approach since I was not describing the participant's similar experiences, I was more interested in their individual experiences (Creswell, 2012). Since I was not trying to produce a general explanation of a specific method, action, or communication formed by the opinions of a larger number of participants I did not use the grounded theory approach (Creswell, 2012). The narrative analysis approach was not used because narratives are not the purpose of the study (Creswell, 2012).

The data came from three different sources including interviews, observations, and document reviews. I conducted seven interviews with core academic teachers from the middle school. Core academic subjects are subjects that students receive core content credit including, English, math, science, and social studies. Along with the interviews, I observed four PLCs in action. The PLCs observed include one from each of the four core subject areas. These PLCs are made up of two teachers who teach the same grade level, teach the same core subject, and have common planning times. The PLCs were created so that teachers could design common assessments, review common data, continually review the common core standards, and create SMART goals. A total of nine teachers were observed, two teachers from each of the four PLCs and one special education teacher who was placed in the math PLC. Reviewing PLC documents from previous PLCS was the third data collection method that I used during this study. The reviewed documents were from prior PLC meetings from the same participants of the PLCs that I observed. I analyzed documents from the last two PLC minutes of the four PLCs that I observed, making a total of eight documents that I reviewed. Dragon 12, a voice recognition software program was used to transcribe the interview and observation recordings. The software program worked well for some of the transcriptions, but others had to be transcribed by hand due to poor recordings.

I was the sole collector of the data and the one who performed the data analysis throughout this case study. The primary role that I had within EMS is a mathematics specialist. I had no affiliation with any teacher PLCs or data teams within the middle

school where the study took place. I did not have any supervisory roles over any of the teachers within the school. Charges of researcher bias have been an ongoing issue with qualitative research due to the question of researcher subjectivity (Bogdan & Biklen, 2007). In order to be aware of my personal biases, I used the process of reflexivity to persistently challenge personal opinions and prejudices in the collection and analysis phases of the research by staying away from generalizations, supporting all statements with evidence, being aware of my personal biases, reducing subjectivity, and using sensitive language.

School Setting

The Eastside School District is located within a wealthy to upper-middle class suburban neighborhood on the outskirts of a large city in New England. The school district services approximately 3,323 students within their five public schools including three elementary schools, one middle school, and one high school (Eastside School District, 2013). The study took place within the one middle school in the district that serves 628 students (Eastside School District, 2013). The demographic of the students include 82% Caucasian, 10% Asian, 5% African American, and 3% other or mixed races (Eastside School District, 2013). Only 8% of the students are either on a reduced or free lunch plan and 12% of the students take part in a special education program within the school (Eastside School District, 2013). There are 65 teachers, two assistant principals, and one principal at the school. All 65 teachers are either working towards their Master's degree or have already obtained one. There are three educators within the building,

including the principal, who have obtained doctorates in Education (Eastside School District, 2013).

The following are the Eastside School District's Improvement Plan Goals (Eastside School District, 2013):

- To promote and sustain a culture of proficiency for all.
- To use student performance data to inform decision making.
- To examine and revise curriculum, instruction and assessments.
- To sustain a more inclusive, reflective and engaged school community.
- To communicate and collaborate with the Eastside School District community in supporting our vision and achieving our goals.

Permission to Conduct the Study

To obtain permission to conduct this study I asked permission at all levels including the Eastside School District, the middle school principal at EMS, teachers I interviewed, and teachers I observed within the PLCs. Before accessing the school and the participants, Walden University's institutional review board (IRB) awarded me permission to conduct the study. The main purpose of the IRB is to ensure that the researcher has acquired proper informed consent from the participants and to ensure that safety and confidentiality are put in place prior to the study's implementation (Bodgan & Biklen, 2007; Creswell, 2012). I sent a detailed description of the study describing the procedures of collecting and analyzing the data and what I planned to do with the findings. Other descriptions include conceivable risks to the participants, how I protected

the participants' confidentiality, and other pertinent information including an informed consent form to the IRB (Bodgan & Biklen, 2007). The IRB confirmed that the benefits of the study outweigh the risks of the study (Walden University, n.d.). The IRB also ensured that I followed all federal and local regulations while conducting a study.

Sampling Procedures

During a weekly faculty meeting, I asked all 28 core subject teachers who teach English, math, science, and social studies at EMS to participate in the study by allowing me to interview them, observe them during a PLC, or both. I provided each core teacher with a copy of both the interview and observation consent form during this meeting. I reminded all core teachers that if there are any questions or concerns about participating in the study that they may ask me in person or email me at my school email address. A significant portion of this study involved collecting data from research participants. Selecting the appropriate participants and obtaining their consent to participate in the study is one of the first steps in creating a positive working relationship (Mitchell, 2010). Trust between the researcher and participants needs to be established and maintained during the entirety of the study to support quality results (Mitchell, 2010). To establish trust I obtained written consent from teachers who were interviewed and observed in the study. The consent forms briefly explain the purpose of the study, what the study accomplishes, how I protected their confidentiality, and what the participants gained from the study (Creswell, 2012). The teachers personally handed the consent forms back to me and others put them in my school mailbox. To protect confidentiality, I provided each

teacher with a security envelope. I personally provided each participant with a copy of the signed consent forms.

My preference was not to observe the same teachers that I interviewed in order to maximize the number of participants to collect a broader set of data. Out of the teachers who volunteered to participate in the study, I used the purposeful sampling method to choose whom I would like to participate in the study. I first selected the participants for the observations by choosing the pairs of participants who volunteered who were in the same PLC. I observed four PLCs, one from each of the core subject areas. The teachers who volunteered to participate in the study, whose PLC partner did not want to participate, were the teachers whom I selected to interview. I was fortunate to get a large number of participants for the study.

I used the maximum variation purposeful sampling method. This involved purposefully selecting the participants who have a wide range of difference on scopes of interest (Patton, 2009). To gather multiple perspectives of the teachers within the school, I included teachers of various ages, ethnicity, gender, subject matter taught, grade level taught, and years of experience. The principal provided the teacher information via his annual teacher report.

Throughout this study, participants were given an identification number to ensure their confidentiality. I was the only one who knew who participated in the study and all data gathered remain confidential. To ensure the participants' confidentiality, the information they provided for this study was kept in a locked file cabinet, as well as, a

password protected computer kept in my home. Participants' names, or any other identifying information, are not included in the research findings. After the completion of the research, I shared the results of this study with each of the participants during member checking sessions. The participants were given a copy of the findings, the interpretations of the findings, and the conclusions. The participants were asked to share their thoughts and opinions of the findings. Their thoughts and opinions of the findings were documented on the member checking template (See Appendix I). After 5 years all interview notes will be shredded, recordings will be destroyed, and computer stored data will be permanently removed.

Participant 1

Participant 1 took part in the interviewing process. Participant 1 holds a Master's degree in elementary education and was the only teacher at the school to have obtained their National Board Certification. Her certification area is mathematics in grades 5 through 8. She had been teaching mathematics in 5th through 8th grades throughout her 24 years of teaching. Five of those years had been at the school where the study took place, and the rest of her years in education took place in a neighboring school district.

Participant 2

Participant 2 took part in the interviewing process. Her certification areas are English grades 5th through 8th, history grades 9th through 12th, special education for moderate disabilities. She currently holds a Master's degree in special education and has

completed 20 hours of education post master's degree. She had the least experience of all the participants with only 2 years of teaching, both of which were at EMS.

Participant 3

Participant 3 took part in the interviewing process. She holds certification in elementary education and English grades 5th through 8th. She currently holds a Master's degree in general education and has completed 40 hours of education post master's degree. Participant 3 had 24 years of educational experience, 11 years at her present assignment teaching 6th grade English and 13 years teaching English to 7th and 8th graders at a neighboring school.

Participant 4

Participant 4 took part in the interviewing process. Her certification areas are special education and mathematics in grades 5th through 8th. She has obtained her Master's degree in mathematics education and had been teaching for 4 years, all which had been at EMS. She taught 7th grade mathematics for 1year and 3 years in 6th grade.

Participant 5

Participant 5 took part in the interviewing process. Participant 5 holds certification in many areas including social studies 5th through 9th, history 5th through 12th and English 5th through 12th. She has obtained her Master's degree in history and has completed more than 40 hours of education post master's degree. She also holds an administrative license but has not held an administrative position. She had taught at her current assignment, 8th grade social studies teacher for 21 years. She had also taught

social studies for an additional 16 years in grades 5th through 7th. All of her 37 years of teaching had taken place at EMS.

Participant 6

Participant 6 took part in the interviewing process. Participant 6 holds many certifications including elementary K-6th, special education Pre-K through 8th, Math 5th through 8th. She holds a Master's degree in mathematics education and a Master's degree in special education. She had taught for 7 years, 2 of them at her current assignment teaching 6th -grade mathematics and 5 years teaching special education at a school for special needs children.

Participant 7

Participant 7 took part in the interviewing process. Participant 7 holds a certification in science for grades 5th through 8th. She has been teaching for 17 years, all which have taken place at EMS. She has taught grades 6th, 7th, and 8th. She has obtained a Master's degree in general education and has completed over 40 hours of education post master's degree.

Participant 8

Participant 8 was a member of the mathematics PLC that I observed. She had 27 years of experience teaching mathematics and music. She had taught mathematics in grades 7th through 12th for 25 years and music for 2 years. Her certification areas include mathematics grades 5th through 12th. She had taught at EMS for 21 of those years teaching mathematics to 7th and 8th graders.

Participant 9

Participant 9 was a member of the mathematics PLC that I observed. She holds certification in the area of mathematics grades 5th through 12th. She currently holds a Master's degree in general education. Participant 8 had taught mathematics for 13 years, 9 of those at EMS. She had taught mathematics to 7th and 8th graders.

Participant 10

Participant 10 was a member of the Science PLC that I observed. Participant 10 currently holds certification in Biology in grades 5th through 8th and General Science in grades 5th through 8th. She has obtained a Master's degree in General Education and has completed more than 90 hours of education post master's degree. All 17 years of her teaching experience had taken place at EMS, and all had been in 6th -grade science.

Participant 11

Participant 11 was a member of the science PLC that I observed. She holds certification in the areas of elementary education in grades 1st through 5th, general science in grades 5th through 8th, and special education. She holds a Master's degree in general education and has completed more than 90 hours of education post master's degree. She had been teaching for 37 years. The last 12 years of teaching had taken place at EMS teaching 6th-grade science. The other 25 years of teaching took place in another state and included teaching at the elementary level.

Participant 12

Participant 12 was a member of the social studies PLC that I observed. He had 20 years of educational experience. Before he became an educator, Participant 12 worked as an attorney for a law firm that protected children's rights. He holds many certifications including social studies in grades 5th through 9th, history in grades 5th through 9th, and history grades 9th through 12th. His experience in education included teaching social studies to 6th through 8th graders.

Participant 13

Participant 13 was a member of the social studies PLC that I observed. Her certification includes 5th through 9th social studies and 5th through 9th history. She currently holds a Master's degree in history and had been teaching 6th and 8th grade social studies for 13 years at EMS.

Participant 14

Participant 14 was a member of the English PLC that I observed. She had the most experience of all the participants who took part in the study. She holds certification including English in grades 5th through 9th, elementary education, and English in grades 9th through 12th. All of her 39 years of teaching experience had been at EMS teaching grades 6th, 7th, and 8th.

Participant 15

Participant 15 was a member of the English PLC that I observed. Her teaching certifications include history in grades 5th through 9th and English in grades 5th through 9th. She holds a Master's degree in general education. She currently was teaching 6th-

grade English but had also taught 6th-grade history. She had been teaching at EMS for 4 out of her 12 years of teaching experience.

Data Collection Methods

This section is dedicated to the methods of data collections that I used to conduct this qualitative case study. According to Bogdan and Biklen (2007), data refers to the rough materials researchers collect to form the basis of analysis. Forms of data that researchers may collect in qualitative research include interview transcripts, observation field notes, diaries, photographs, official documents, and newspaper articles (Bogdan & Biklen, 2007; Creswell, 2012). The data collection for this study took place concurrently including one-on-one interviews, observations, and a comprehensive review of PLC documents.

Interviews

I conducted seven semi-structured, one-on-one interviews with the teachers at the middle school within the Eastside School District. According to Creswell (2012), using a small number of participants provides a comprehensive depiction of the phenomenon with the addition of each new individual. By using seven participants for the study, I was able to reach saturation and depict a rich in-depth depiction of teachers' perceptions of using data to raise student achievement and how they were currently using data.

I used the interview protocol to briefly discuss the purpose of the study and the confidentiality measures that I used with the participants prior to the interview starting (See Appendix B). I designed a series of interview questions that I used during the

interviews and also used a number of probing questions to seek more information or clarity of the participant's responses in order to obtain a qualitative rich descriptive narrative (Lodico et al., 2010). The questions asked in the interviews were open-ended response questions with the flexibility to record and examine any unexpected dimensions of the topic that arose during the interviewing process (Bogdan & Biklen, 2007; Jacob & Furgerson, 2012).

The one-on-one interviews took place in a confidential setting outside of the school that was mutually agreed upon prior to the interview. The interviews lasted between 19 and 32 minutes. With the participant's approval, all interviews were audio recorded to preserve the comprehensive conversation for a complete and thorough analysis (Merriam, 2009). Throughout the interviews, I documented other aspects of the interviews that the recordings could not capture, including the participants' facial expressions, body language, and behaviors. In order to keep track of and analyze the data, I used ATLAS-ti, a computer software programs designed specifically for aiding in the collection and analysis phases of qualitative research (Bogdan & Biklen, 2007).

PLC Observations

Depending on the availability of the teachers' schedule as well as the researcher's schedule, I collected data from interviews, observations, and documents. During the data collection process I observed four PLCs in action. There were 14 core subject PLCs within the school, each made up of two teachers who taught the same core subject and grade level. I observed four PLCs in action, one from each of the four core subject areas.

I purposefully chose the PLCs to observe from those who gave their consent. I observed each of these PLCs twice during the study to ensure I obtained a true reflection of the workings of each of the PLCs. During these 40 minute observations, I observed teacher use of data while in PLCs, teacher perceptions of using data, and how data were used to drive the PLC meeting.

During these observations, I took on the role of a nonparticipant allowing me to investigate further how teachers in PLCs at the middle school use data (Merriam, 2009). Before beginning the observation of the PLC, I distributed the Observation Protocol to ensure the rights of the participants (See Appendix D). During the observations, I recorded the data using field-notes using the Observation Template (See Appendix E). The field-notes focused on how the teachers in the PLCs are using data to inform their decisions, change their instructional practices, and increase student achievement. The field-notes were both descriptive and reflective in nature recording an accurate account of events, activities, people, and the researcher's personal thoughts and insights. Permission was asked to audio record the PLCs to cross reference the field notes to ensure that the field-notes are as accurate as possible.

Document Review

The review of the documents used not only helped to answer the study's research questions but also to triangulate the study's developing findings (Merriam, 2009). The documents that I reviewed were previously recorded PLC minutes from the same participants of the PLCs that I observed. The PLC documents are kept in PLC binders

stored in the teacher's workroom or put in Teacher Share on the schools' email system and are open for all teachers to review. Prior permission was given by the principal to review these documents and use them for the study. To record and save the documents, I used the scanner in the teachers' workroom, where the PLC binders were kept, to create a word document and uploaded them to a password-protected computer for further analysis. Many of the documents were available online in the Teacher Share folder. I sent a copy of the documents found online to the folder where I kept the scanned documents. To keep track of the information discovered through the examination of the documents I used the document review protocol (See Appendix G). To maintain confidentiality of all the participants, I provided each of the teachers' names found on any document with an ID number that linked them to their responses.

I aligned the investigation of the documents with the research questions. In the review of the documents, I recorded the different types of student data used by the teachers and how the teachers in the PLCs used student data to inform their instructional decisions. I looked for teachers' perceptions of how data were used within PLCs and how teachers were currently using data within their PLCs. I looked to see how teachers assess their use of data when compared to the data team concept and teachers' perceptions of their needs to use data more effectively. I asked prior permission from the appropriate individuals to locate and use the documents for the study. Before using any document, I examined it to determine if the document aided in the investigation into the research questions and ensured the document was accurate and complete (Creswell, 2012).

Data Analysis Methods

Data collection and analysis took place simultaneously throughout the study to ensure that the data being collected were not unclear, repetitive, or overwhelming (Merriam, 2009). The analysis phase of the study began directly after the first interview to organize, refine, and narrow the interview questions specifically asking the questions that pertained to answering the research questions. This procedure of refining the interview questions took place prior to each of the interviews (Creswell, 2012). I audio recorded and created verbatim transcriptions of all interviews (See Appendix C), observation field notes (See Appendix F), and reviews of documents (See Appendix H) for a better set of data for analysis and coding process (Merriam, 2009). I used an open coding system during the analysis phases, to help determine any common phenomenon or themes discovered throughout the interview transcripts, observation field notes, and document review. I focused on the data segments that are relative to the research questions discovering common themes and categories. I followed Bogdan and Biklen's (2007) 10 suggestions on analyzing data including; developing analytic questions, document participant's comments as I conducted the study, and wrote memos throughout the process on what I was learning. To design a case study database (Yin, 2009) I used the ATLAS-ti Computer Assisted Qualitative Data Analysis Software (CAQDAS) package that helped me organize, track, and analyze the data throughout the study (Bogdan & Biklen, 2007). To determine the accuracy and credibility of the findings, I used member checking and auditing. I scheduled the member checks to take place outside

of the school at the participants' convenience. All member checks took place using one-on-one consultations with each participant and the researcher. During the member checks, I reviewed the findings of the study, discussed the interpretations, discussed the project, and offered the participants an opportunity to reflect and provide suggestions (See Appendix I and J). Creswell (2009) suggested that member checking should be done by sharing the findings and common themes that emerged from the data instead of sharing the interview transcripts. Each member check took approximately 20 minutes to complete. To help avoid bias, I was aware of my role during the research process, the analysis phase of the research, and personal perspectives and data usage that might interfere with the interpretations of the findings (Creswell, 2012).

Findings

The purpose of this qualitative study was to examine middle school teachers' perceptions of data usage within PLCs to improve teacher capability and raise student achievement. I collected data from interviews, observations, and examination of documents to investigate the teacher's perceptions of data usage. The research questions were designed to examine how the teachers perceived using data, their knowledge of using data, and their current practices of using data. The data collection took place over a 2-month period. The findings were soundly and precisely related to the research questions. The study's findings were based on the teacher's personal perception of data usage within their educational practices. Four common themes and two sub-themes emerged almost immediately while completing the analysis and coding of the data from

the interviews observations, and the examination of documents. The results revealed overlaps of common themes during the analysis of the data. The findings were then broken down into the individual themes and sub-themes revealed during the analysis of the data.

Forced to Use Data

The first common theme discovered was the teachers' beliefs that they were forced to use data to instruct their decisions on how they run their classrooms. Most of the participants during the interviews stated that being required to use data in making educational decisions took away their individual judgments and autonomy as teachers. Other teachers reported that all the school and district mandates placed on the teachers took away from their personal choices as teachers. The majority of the teachers during the interviews stated the pressure to use data is based heavily on the state's standardized test scores and continual assessments. Many of the participants even used the same verbiage when refereeing to mandated data usage, using the word forced, as part of their description of data teams. All the interview participants stated that they were being made to use data just to satisfy an administrative requirement. Participant 1 described that by using data as part of their PLC was just the administration way satisfying a district led initiative. Participant 2 stated, "We need to use data for informing our instructional decisions as well as, basically to just coordinate with our coworkers to see what we can do better, so that we know what we are doing. But I feel as though we are being forced to do this." Participant 3 mentioned that their individual teaching practices were being taken

away because now they are being forced to use data instead of using what they have learned in their education classes and their years of practice. Participant 4 said that she understood that data is important, but she can make instructional decisions without having to have data. Participant 4 stated, "I have been teaching for many years, and I am able to make instructional decisions without needing to collect and analyze student data." Participant 5 believed she was also able to adjust her instruction without collecting and analyzing student data. Participant 5 stated, "I often can tell by my students' faces whether or not I need to change my instruction." Participant 6 stated the administration's directives of the data teams initiative was state mandated. Therefore, that is why the teachers are now being required to use data to instruct their practice. Participant 7 said, "I feel like we are collecting data for data sake. Someone is just checking off a box and is this informing anything that we do, not sure." The participants' responses clearly demonstrated that they believe they are being forced to use data because it is another district-wide initiative being placed on all the teachers of the district.

Not Enough Data Training

The analysis of the interviews, observations, and document review revealed the common theme that teachers believed that they needed more professional development on how to use data to inform their instruction. The participants felt that the one-time shot of professional development on data teams they received was ineffective in explaining how to collect and analyze the data. The participants felt they needed more information on what to do with the data after collecting it. All seven of the participants believed that

they did not have enough training on how to use data while in PLCs. The participants had several recommendations for administrators in implementing data teams within schools. All seven of the participants reported that they needed more professional development than just the one session that they received. The participants all mentioned that the administration attempted to provide them with professional development about the data team concept, but failed in their implementation of the training.

Participant 1 wanted the administration to have follow-up professional development of data teams. Participant 1 stated, “I think that it would have been more effective if we had follow-up meetings to make sure that we know what we are doing.” Participant 2 said that the professional development was overwhelming with too much content for only one professional development session. Participant 2 stated, “We had too much to learn in such a short period of time, it was really overwhelming. Everyone else thought so too.” Participant 2 also stated, “They said here are the steps, here you go, go through it, and this is what you are supposed to fill out. Not so much help, but they gave us a little instruction, but we tried to figure it out ourselves.” Participant 3 believed that the one-time professional development session was ineffective in its implementation as well. Participant 3 said, “I think that they just threw it together at the last minute because it was poorly designed.” Participant 4 said, “That the one-time session was ineffective because so many teachers have no idea how to use data. I feel as though the administration don’t understand what a data team is either. The professional development should be more than a day.”

One unexpected statement that came from this interview was what Participant 5 stated, “The training here was poor.” The reason I found it to be surprising was that the person being interviewed was the facilitator of the data team professional development given. Participant 5 mentioned that the problem was that she felt it was the way the district worked. Participant 5 said, “We like to say we did it, although it wasn’t done well.” Participant 5 also believes that the professional development needed sustainability. Participant 5 explained that the session was a “one-time shot, overwhelming, confusing and that the administration assumed a level of knowledge that no one had, and we were shoved out the door and asked to do it.” When asked how the administration should remedy this, Participant 5 stated, “We need to go back to square one. The teachers in this building would have a better appreciation for the process of a data team if they were trained in it and had sufficient time to do it. We also need more than just one session, and we need several to split up professional development so that it is not so overwhelming.” Participant 5 said, “The administration needs to train the staff properly.” Participant 6 also believed that the professional development of data teams was something that was put together at the last minute. Participant 6 stated, “It had to be thrown together at the last second because it was really bad.” Participant 6 also said, “We only got one example, I think it should be on more than just learning how to take the data, but more focused on what you do with the data. I know that there is so much to do during professional development, but this is important.” Participant 7 believed that with better and more training that the teachers at the school would have benefited more and would be using

data better while in their PLCs. Participant 7 stated, “slow down, collect feedback from teachers, if not repeat it. It should be done during professional development and split up throughout the year and spend time reflecting on what we are doing.” It was obvious in the participants’ responses that all the participants felt the one-time professional development session that they received on data teams was ineffective in its implementation. All participants would like to have seen a better-designed session and would have liked to have follow-up sessions to ensure that they had a clearer understanding of data teams.

Too Many Responsibilities in PLCs

Another common theme discovered was that teachers believed that they had so many other responsibilities to take care of during their PLCs that they believed they did not have time to use data. Most participants indicated that they have been working on curriculum mapping and have not had a chance to work with data so far. All seven of the participants stated that one way of improving the way PLCs use data is providing more time to do so. The participants believe that the district and school have placed too many PLC responsibilities on them at one time. The main suggestion was for the administrators to limit the amount of requirements to perform in their PLCs allowing time to work on data. Participant 1 stated, “There are too many things to do in our PLCs, we have only been able to work on curriculum mapping, I just wish they would give us more time to use data.” Participant 2 mentioned that designing common assessments and working on their Rubicon Atlas curriculum mapping have taken up all of their time in their PLC.

Participant 3 commented, “With all the stuff that we have to do in our PLCs and other duties, it is difficult to be able to work on data too.” Participant 3 also stated, “The professional development needed clearer expectations of what needs to occur in PLCs and that there are too many things to do in our PLCs, we have been doing curriculum mapping and realigning everything with Common Core…all we have done in the past three years is redesigned the curriculum and with all the assessments we are designing, we don’t have time to look at the data.” Participant 4 said, “The first suggestion would be for the principal to stop putting so much on them at one time. I feel overwhelmed with everything that has to be done.” Participant 5 mentioned that data is something that they will only do twice a year because that is the requirement. Participant 5 said, “With everything that must be done in our PLC, we will only have time to do the two data team requirements that the administration wants us to do.” Participant 6 explained that she was not working on data in her PLC, due to the other responsibilities that must get completed in her PLC. Participant 7 stated, “Curriculum mapping has taken up most of the time, and we don’t even use it.” The responses clearly demonstrate the participants’ beliefs that there are too many responsibilities to perform while in their PLCs and using data does not seem to be a priority.

I observed four PLCs, one from each of the content areas. The participants of the PLCs that I observed were not the same participants that I interviewed. I observed each PLC twice to get a better understanding of what occurs during the PLCs. The data revealed that teachers were not using data effectively within their PLCs or were not using

data at all. During the observations, it was very clear that participants were working on responsibilities other than data teams. The data collection also involved examining documents from prior PLCs. The documents I examined were of the minutes of previous PLC meetings of the same four PLCs that I observed. I examined the minutes from two prior PLC meetings.

The first observation revealed that the science PLC was using data to discover the progress of students from a pre and post-test. The teachers discussed the progress of students and highlighted the students who did not make progress or went down in their scores. During this observation, the participants did not record the data, and the participants were only determining if the students had increases in their scores and the students who went down in their scores. No other discussion of student scores was mentioned. The participants of this PLC failed to discuss how they were going to use this information to inform their instruction to remediate those students who did not make progress. The second observation of the science PLC revealed the teachers were not using student data in designing a common summative assessment for the next unit. The review of the two PLC documents of prior sessions revealed that the science PLC was either working on curriculum mapping or designing a common summative assessment. The members of this PLC were very professional. They began by discussing what they completed in the last PLC session and what they would be working on in each of the PLCs that I attended. The PLCs began on time, and the participants both took accurate minutes of the meetings. Before the PLCs began, both members turned off their cell

phones and stayed in the room working in their PLCs until the bell rang for their next class. The examination of the minutes from their prior PLC meetings were detailed and uploaded into the system the very same day.

Both observations of the math PLC showed the participants were designing a common assessment for the same unit. During the second observation of the math PLC, the participants were able to complete the common summative assessment. Since the PLC completed the assessment early, the participants dismissed the PLC, and the participants went back to their classrooms. The document review of the PLC minutes revealed the participants of this PLC were either working on designing common assessments or curriculum mapping during prior PLC sessions. Again, there was no mention of the participants using data during any of the PLCs that I observed or reviewed. There were three members of this PLC. However, only two of them were present both times that I observed the meetings. And during the first PLC observation the third member entered the meeting 12 minutes after the meeting started and only stayed for 8 minutes. During the first observation, the meeting did not begin on time but continued 15 minutes past the time the meeting was supposed to end. During both PLC meetings, all members continued to use their cell phones and were working on other responsibilities such as grading papers and entering grades into their grade books. The members documented the minutes of the meeting after the session had ended and was uploaded in the system a few days later.

During both observations of the English PLC, the teachers were designing a curriculum map of an English unit using Rubicon Atlas©. The participants were discussing the objectives, student outcomes, vocabulary, and standards for one of their units. The document review showed the participants of the English PLC were discussing pacing, creating a common summative assessment, or working on curriculum mapping. The observations and examination of documents revealed that the members of the English PLC were not using data during these times. Both members of the English PLC were very professional. Each PLC meeting began promptly and continued for the full 45 minute period. The members of the PLC were actively engaging in collaboration practices during the sessions and respectfully listened to one another. The minutes were taken during the meeting and uploaded at the conclusion of the session.

Both observations of the social studies PLC showed the teachers were grading tests, talking on their cell phones, making copies, or leaving campus to get coffees. The teachers in the social studies PLC were not collaboratively working on any of the responsibilities required to perform during a PLC session. The document review showed that the teachers in the social studies PLC stated that they were working on designing common assessments. Later I discovered that the team used the same common assessment as the prior year. Both PLCs began after the start time and ended before the 45 minute period was completed. The minutes of the meeting were not recorded and were not uploaded into the system.

The eight observations of the four PLCs and the examination of the eight documents revealed that teachers were not using data while in PLC meetings, but instead were working on other PLC responsibilities. Most of the observations revealed teachers were working on curriculum mapping, designing common summative assessments, or pacing.

Too Many School-Wide and District Initiatives

One common theme discovered during the process was that teachers believed school and district levels had implemented too many initiatives at the same time. Six of the seven teachers stated that the school and district had implemented too many school-wide initiatives within the same year as they implemented the data team concept. Participant 1 believed she would be able to work on data if it were not for all the other responsibilities that the district and school have placed on her. Participant 4 stated, "I believe that we would use more data if we didn't have everything else thrown at us at one time." Participant 6 would like to see the district stop implementing school, district, and state initiatives until they can master the ones that they have already implemented. Participant 6 said, "Until we can fully understand the initiatives we already have, they need to quit giving us more of them." P6 commented, "I also believe that there are a lot of demands with the new evaluation system, and the new state-wide and national initiatives are overwhelming." Participant 7 provided several examples of initiatives that the administration have implemented within the past school year. Participant 7 stated, "The district has implemented so many new initiatives, like the new Common Core

Standards, the new teacher evaluation system, Keys to Literacy, PARCC the new standardized test that we will be using, and so many other everyday duties and responsibilities." The data revealed that most of the teachers interviewed believed that too many initiatives had been introduced, not allowing teachers the time necessary to collaborate on using student data to inform and guide their instruction.

Teachers Were Not Using Data or Using Data Ineffectively

One sub-theme discovered during the coding process was that teachers were either ineffectively using data within their PLCs or not at all. The data from the interviews, observations, and documents clearly show the absence of data usage within the participants' PLCs. Teachers were not using data to inform their daily instructional practices, but were using data to inform next year's instruction. Most teachers stated that they were using data to determine the effectiveness of a unit to make the necessary adjustments for the upcoming school year. One teacher said that she was not taking part in the data team process at all. Participant 7 stated, "I am not on a data team, and we have not been spoken about a data team so, I don't know. I am unclear about what a data team is and what the responsibilities of a data team are." I asked Participant 7 why she believed she was unsure about the data team concept. Participant 7 stated, "I am cloudy about what is a data team, who is the data team; I am foggy on that. I don't think we have had a clear presentation about data teams." The observation and document data also demonstrated the lack of data usage within PLCs. The eight PLC observations and the

eight documents reviewed showed teachers were performing other PLC responsibilities other than using data.

Three participants stated that they were not using data while in their PLCs. Participant 1 stated, "My PLC has been working on curriculum mapping and have not had a chance to use data. We will make sure that we complete the data forms in time to turn into the administration." Participant 3 mentioned that she collects and analyzes her own students' data, but does not discuss or share data with her PLC partner. Participant 3 was not using data at all within her PLC. Participant 3 stated, "We are not using data within the PLC. We have not looked at it once this year. Although I have looked at my own growth on pre and post-tests, we have not looked at the data collaboratively." Participant 4 mentioned that her PLC had not been able to work on anything but designing curriculum mapping units and creating common assessments. Participant 4 stated, "We haven't had a chance to work on data, with all the other stuff that we are working on." The document review and observations clearly showed that teachers at the school were not using student data to drive instruction.

The teachers who were using data stated that they were using the data because that is what they were told to do. However, they were not using the data to inform instruction. The teachers were just using the data to complete a form that is due at the end of the school year. Participant 2 mentioned their PLC would make sure that their PLC would complete the data team forms by the end of the year. Participant 2 stated, "Trying to be nice here." Then I asked her, to be honest, reminding her that her statements will

remain confidential. Participant 2 then stated, “Well there are two things, one is that we are actually doing some data collection. I am not sure how actually valid it all is. And I know that the stuff that I did, rather it is good, bad, or ugly I kept using data.” Participant 6 stated that she was not using data within PLCs until the implementation of the professional development session and that they are now only using data twice a year. Participant 7 stated, “It has afforded the time for us to get together and talk about what we are doing. That is the plus side. The downside is that we are so forced to collect this data, write up our two units for standard based curriculum. The participants discussed how they were using data only twice a year because that is what was mandated by the administration.

All seven teachers interviewed discussed how important it was to use data to determine if students were successful by using pre and post-tests. The teachers also stated that the data was helpful in determining the effectiveness of the unit so they can make the necessary changes for the upcoming school year. Participant 3 stated, “We should compare student results from the pre and post-tests to determine if there is something wrong with the layout of the unit or how we presented the material…to make tweaks in the unit for the next year.” Participant 5 believed that student data from assessments should be used to create better lessons for the next school year. Participant 5 stated, “I think data should drive upcoming lessons and next year’s lessons.” Participant 7 stated, “We will give pre and post-tests, collect the data for that, and that we will give midterms and look at MCAS data from year to year. Then figure out what to do with the

information." The participants clearly did not understand the importance of using data to guide their daily instructional practices or the need to use data throughout a unit to ensure student mastery before the summative assessment.

The participants commented on using data from only summative assessments but, only one participant said they used formative assessment data. The participant who used formative assessments mentioned the assessments are not designed collaboratively although, in the PLC, she developed them and used them herself. Participant 1 mentioned that she only used data from pre and post-tests to help design lesson plans for the next school year. Participant 1 stated, "Knowing what I have incorrectly taught or not spent enough time on, will help me next year with my lesson planning." Participant 2 explained how she was only using data from a minimum of assessments spread out across the school year. Participant 2 said,

> Right now we are using data from a baseline for our open responses. We are also going to be using another one in December and another one in the third term, and the fourth term to see where we go from that. Another way we are using it is we created pre and post-tests.

Participants 6 and 7 mentioned that their use of data was for designing units for the next school year. Participant 6 stated, "We use data from assessments to determine what to do next year. The data come from summative assessments." Participant 7 stated, "To look at the results of a unit once we are finished or when we finished the MCAS. It is informing my decisions of what to do next year." Participant 7 also stated, "Next year I will be

aware of what to slow down on and the stuff where kids understand from the get-go so we can fly through those." The data showed that the teachers at the middle school were not using data correctly to inform their daily instruction, but instead were using data to plan units for the upcoming school year.

PLC and Data Team Disconnection

Another sub-theme discovered was that many teachers did not understand that the data team process was on ongoing part of their existing PLCs. Many teachers believed that data teams and PLCs were separate entities and that data only needed collecting two or four times a year. Many of the teachers stated that they were just collecting data twice or four times a year, because that is what the administration told them to do. The administration required the teachers to submit two data team forms at the end of the year.

During the interviewing process, Participant 7 had me stop the interview and turn off the tape recorder. She asked if this interview was making her look stupid. I then explained that it did not make her look stupid, but that it clearly showed how poorly the teachers were prepared for the data team concept. She felt comfortable with the answer and allowed the interview to continue.

Most of the participants stated that data team concept was separate from the PLC because they were only required to produce two data team reports. However, there was a misconception about how many data cycles teachers were responsible for completing each year. The misconception of the number of data reports that were due each year is another reason that I believe teachers were confused and had not been given enough

instruction in their data team responsibilities. During the interviews, the teachers clearly understood the difference between PLCs and data teams, but most participants did not make the connection of the two. However, Participant 2 stated, “That it has been more intertwined than anything. Because data teams actually come from the PLCs really, it’s all kind of all intertwined too, so we are kind of doing both.” The other participants believed that PLCs and data teams are two separate things. Participant 4 stated, “I like the idea of a PLC, but I think they threw data teams into that, and I think that they are two separate entities.” Participant 7 stated,

> In my opinion that has not been delimitated enough and where are we going with this, so what is the data team doing with the information once it has gathered it. I feel like we are collecting data for data sake.

Participant 7 also said,

> They (administration) should be clear on the verbiage, clear on the expectations, how often you are meeting, what the data that you are collecting is and what are you doing with it. Is a data team different from a PLC, if not don’t call it something different. It is very confusing. I am waiting for a data team to come down and say ok, let’s do data. The way they are doing things is almost mystical.

It is apparent that most of the teachers do not have an understanding of data teams within PLCs and the function that they serve.

The findings from the interviews, observations, and document review revealed the participants were not using data while in their PLCs to inform their daily instruction. The

analysis of the data revealed four common themes and two sub-themes of why data were not being used in guiding instruction.

- The participants felt the administration was forcing them to use data.
- The participants believe that there were too many responsibilities to perform while in their PLCs.
- The participants believe that there were too many school, district, state, and national initiatives being introduced.
- The participants do not believe they had the proper data team training to use data effectively.
- The participants were either not using data at all or using data ineffectively.
- The participants clearly did not understand the interconnections between PLCs and data teams.

Data Presentation Strategies

Presentations of qualitative studies are mainly through narrative discussions (Creswell, 2012). According to Creswell (2012), a narrative discussion is a written report that qualitative researchers use to summarize their data analysis findings. Unlike quantitative research that uses a variety of visual graphs and charts to help provide answers to a specific theory, qualitative research uses descriptive narratives. For the presentation of findings, I used a qualitative scientific structure report (Creswell, 2012). The report includes an introduction, the procedures, literature review, the findings, and

discussion. Linking devices, key concepts, and infusing the central phenomenon within all parts of the study including the problem statement, purpose statement, research questions, data collection, data analysis, and findings accomplish interconnectivity of the different sections within the study (Creswell, 2012). The report will be presented in a meeting with the administrators of EMS and the school's improvement committee.

The narrative discussion includes a comprehensive description that supports the themes and categories discovered during the coding process (Creswell, 2012). The report also includes participants' direct quotes captured during the interviews and observations. Using these quotes allows the reader to capture the true feelings, emotions, and experiences of the participants to support the findings. The report was written in rich detail allowing the reader to visualize the participants, events, and school settings. Within the narrative discussion a section where I discussed my personal views on the research topic was included to inform the readers of my own personal perspectives on using data to raise student achievement.

The research report was written ensuring that I was sensitive and respectful of the participants, schools, and district. I will follow Creswell's (2012) guidelines to ensure that I use language that avoids demeaning attitudes, biased assumptions, and biases based on gender, sexual orientation, racial groups, disabilities, or age (p. 277). To enhance the acceptability of the research, I used the process of encoding when writing the report. When writing the report, I was mindful of the audience for whom I was writing, ensuring

that I paid close attention to tone, vocabulary, and ensuring the continued confidentiality of the participants.

Credibility

Credibility refers to whether the perceptions of the setting or event of the participants correspond with the researcher's portrayal of them within the study (Lodico et al., 2010). The idea of credibility of research equates with the idea of validity of research (Lodico et al., 2010). To ensure credibility, I spent ample time within the setting by interviewing the participants and guaranteeing that member checking took place. I established a strong level of trust and rapport among each participant within the study. I have known the teachers for 3 years and have built strong relationships with each teacher within the school.

To validate the findings, I used the triangulation process of corroborating and cross checking evidence from the interviews, observations, and document reviews (Creswell, 2012). I examined the information obtained from the three different data collection processes and used a constant comparative approach to discover a common idea or theme during the analysis phase of the study. Using triangulation assured the study was accurate, reliable, and valid by using the findings and conclusions from multiple sources of information. To add credibility to the research, I recognized personal biases rather than claimed that the study is objective (Stake, 2005).

I conducted a negative case analysis of the data. Negative case analysis enhances rigor and is used to ensure verification (Strauss & Corbin, 1990). To perform the negative

case analysis, I examined all data from the three different sources to discover any contradictions that occurred within the themes or ideas. I expected to find contradictions and variations among the participants' responses and the other data collected during the study as there is with most case studies. However, this was not the case during the interviewing process. All the interview participants of the study had very similar responses to the interview questions. There were significant variations of the data found during the observations and document review. The teachers in one department PLC that I observed were very conscientious during their PLC keeping precise minutes of the meetings showing how they used data to drive their instruction. The other three PLC observations and the document review showed that data were not used effectively in instructing the practice of those teachers.

Reliability and Validity

To ensure that the study holds merit and was considered credible among fellow researchers, I used a variety of measures to ensure reliability and validity existed within the study. Reliability, in qualitative research, means that participants should answer closely related questions in a similar manner, and when administered multiple times, the answers should remain consistent (Creswell, 2012; Merriam, 2009). Validity in qualitative research demonstrates that the interpretations of the answers of questions match the proposed purpose of the question being asked (Creswell, 2012; Merriam, 2009). Although these two terms are sometimes interchangeable; Creswell (2012) suggests that reliability means consistency and the term validity means trustworthiness.

The criteria for validity in qualitative research should have credibility, approval, and trustworthiness (Guba & Lincoln, 2000).

To address reliability and validity throughout the study, I used a number of different strategies. To address any possible biases, I designed a thorough, honest, and intensive reflection on any preconceptions I had towards the topic of the study. The reflection was saved as a document on a computer for easy access while analyzing data. Because the reflection was on my password protected computer I was the only one able to access it. According to Stake (2005) it is important to recognize your biases when performing a qualitative case study to ensure its trustworthiness. Throughout the study, I reflected on addressing any possible biases during the data collection and data analysis phases of the study.

To ensure reliability, I recorded and took detailed field notes during the interview and observation stages of the data collection process. To preserve the integrity of the data and to ensure verbatim responses for data analysis, I audio recorded all interviews using the voice recorder on a cell-phone (Lodico et al., 2010). After transcribing the interviews and analyzing the data, I shared the findings with the participants from the interviews to maintain accuracy and integrity of the interviews. Member checking allowed the participants opportunities to review, for accuracy and credibility, the analysis of the data collected, the interpretations made from the analysis of the data, and the conclusions and findings (Creswell, 2012).

Assumptions and Limitations

Like all other types of research, qualitative research encompasses its own set of assumptions. Throughout the study, I assumed the findings and facts to be true, but not necessarily confirmed (Creswell, 2007; Merriam, 2004). One major assumption of qualitative research is that the results of a qualitative study cannot be considered generalizable and will lack objectivity (Delmar, 2010; Halkier, 2011). It was not the intent of this study to make any generalizations to any other populations.

Throughout the study, I assumed that the teachers involved in the study responded in an open, honest, and timely manner. I assumed that the teachers who participated in the study were doing so under their own volition and not feeling any pressure from me or the administration to take part in the study. It was also assumed for this study that all participants were actively working within a PLC and had adequate knowledge of the purpose and functions of a PLC. I was open to the possibility that some of the PLCs in the school were not fully functioning according to the PLC model defined by Hord (1997) and DuFour (2004) and were using student data appropriately to drive-instruction and raise student achievement as was the case in three out of the four PLCs that I observed.

Additionally, I assumed that I was an objective observer and restrained from using any personal biases throughout the study. Using interviews, observations, and document reviews led me to the assumption that the data collected revealed accurate, honest, meaningful, and reliable results. I assumed that all teachers were creating and

using common assessments and using the data to drive instruction and PLC meetings. The findings showed that this was not the case for all teachers. My position in the same school as the participants was another possible limitation (Creswell, 2012).

Understanding that the idea of the strengths outweighs the limitations is why I decided to perform a qualitative case study. According to Merriam (2009), the case study was the best method to answer specific research questions because of the nature of the problem. The case study uses a reader's insights and results that are helpful in the structure of further research on the topic (Merriam, 2009). Generalizability is the major limitation of qualitative case studies (Delmar, 2010; Halkier, 2011; Merriam, 2009). Most qualitative research studies began with the understanding that generalizability is not the main reason for choosing the qualitative research method

Limitations of this research study include possible flaws in the data collection and analysis procedures that possibly had an effect on the study's outcomes and findings (Creswell, 2012). One possible limitation of the study was the small sample of seven teachers at the school who were chosen to participate in the study. Another limitation was that the study occurred within the only middle school within the Eastside School District, not allowing for a larger sample of teachers with different knowledge and experiences to participate. Although it was not the purpose of this study, findings and outcomes cannot be generalized to the entire school district. The sole purpose of this study was to answer the research questions to get a better understanding of how the teachers within EMS were using data to drive instruction.

Conclusion

Having teachers continually improve their knowledge and skills of their practice will ensure students are achieving at higher levels. Effective use of PLCs provides teachers with opportunities to work together collaboratively using student data to inform and make instructional decisions that will enhance their instructional capacity and improve student achievement. The purpose of this study was to examine teachers' perceptions of how data were used within PLCs and teachers' perceptions of their needs to use data more effectively to improve teacher capability and raise student achievement.

During this qualitative case study, I was the only one performing the data collection process by interviewing teachers who were participating in PLCs, observing the PLC process, and reviewing documents from prior PLCs. I used a purposeful sampling method to choose the participants for the seven interviews and the eight observations of four PLCs. The participants were teachers from EMS. I provided all the participants with an interview and observational protocol, permission forms to participate in the study, and reassured participants of the confidentiality measures I take before, during, and after the conclusion of the study. I also conducted a review of documents from past PLC sessions to help answer the research questions. I asked the principal of the Eastside School District for permission to review the documents before the beginning of the data collection. I designed a document review protocol and template to ensure alignment with the research questions (See Appendix H).

I continually was aware of any biases that I may have by completing a thorough and honest reflection of any preconceptions I have towards the topic of the project study. I performed a negative case analysis that enhanced the rigor and ensure verification by examining any contradictions not aligned with the research questions. Using interviews, observations, and document reviews allowed me to achieve triangulation of the data to improve the study's credibility and validity.

Understanding teachers' perceptions of using data within the PLC setting may allow the administration to have a better understanding of the teachers' insights on using data to drive instruction. Also, understanding how teachers are presently using data within the PLC setting may allow the administration to determine if professional development is needed to enhance the method of using data within the PLC setting to drive instruction. Comparing teacher perceptions of using data within PLCs and how and using data within data teams may provide the administration with the necessary information to make the decision to implement data teams within the Eastside School District. Understanding teachers' perceptions of their need to use data more effectively may also provide the administration an opportunity to decide if professional development on using data more effectively is needed within the school.

Although there is a vast amount of research and literature on the benefits of PLCs, there is little research that specifically addresses the teachers' perceptions of using data within PLCs to drive instruction. Another possible outcome of this study could be that the findings may add to the body of existing research on PLCs. This study may contribute to

the understanding of how effective PLCs use student data on a continual basis to reach the needs of each student and raise student achievement levels.

Section 3: The Project

Introduction

In section three, I describe the project (See Appendix A) that addresses the problem of teachers not using student data in making instructional decisions at EMS. The findings of the middle school teachers' perceptions of using data led to designing a project, a 5-day professional development (PD) series. This PD series may provide the information and steps to help the teachers at the middle school establish effective data teams. The project may also help teachers overcome their reluctance to use data by providing the knowledge and tools to be successful in using data to drive instruction.

Section three includes a description of the project, the project's objectives and goals, and a brief description of the rationale for why I chose PD as the genre for the project. A literature review on professional development follows detailing what constitutes effective PD, constructivist learning theory, adult learning theory, and how the literature supports the project. Implementation of the project is discussed including sections on potential barriers, supports, timetables, and roles and responsibilities of everyone involved in the project. The evaluation process of the PD series is also detailed in this section. I discuss the potential impact of the project on change in the local community and beyond.

Description and Goals

The overall goal of this PD project is to provide the teachers with the necessary knowledge, materials, and resources to be successful in using student data to inform their

instructional decisions. The teachers will learn how to collaborate to create common formative, summative, and benchmark assessments. Teachers will gain the knowledge of how to collect and analyze student data from the common assessments to improve teaching strategies. The analysis of the data will allow teachers to design SMART goals and action plans to meet the needs of each student. SMART goals are teacher created objectives that are specific, measurable, achievable, relevant, and timely. The project consists of a 5-day PD series taking place in one school calendar year. The PD will support the PLC concept. The objectives and goals of the PD will be measurable and observable. The overriding goal is to train teachers on how to use data effectively to improve teacher capacity and student achievement. The objectives of the PD include the following:

- The teachers will create common formative, summative, and benchmark assessments.
- The teachers will recognize what data to collect and how to collect the data.
- The teachers will analyze student data from common assessments effectively.
- The teachers will design SMART goals and action plans based on the analysis of the data.

The teachers will evaluate and reflect on their practices of using data to improve their teaching capacity and increase student achievement.

Rationale

The problem at EMS is that teachers are continually reluctant to use data within their PLCs to guide their instruction to improve student achievement levels. As the school's state standardized test scores continued to decline over the past few years, the principal designed a half-day PD session to implement data teams within the school. The half-day PD session was designed to instruct teachers on how to design common assessments, collect data, and analyze data in hopes to raise student test scores. The PD session also included selecting members of each data team and defining the roles and responsibilities of each member.

Although all the teachers at the middle school participated in the PD session, they were still unwilling to use student data in informing their instructional decisions. To address the problem, I chose to investigate the teachers' perceptions of why they were not using student data to guide their instructional decisions. The data analysis revealed four main themes as to why the teachers were not collaboratively using data in designing their lesson plans. The teachers at the middle school stated that the half-day professional development session was ineffective, overwhelming, and that the professional development session did not contain enough training on data usage. Therefore, the teachers feel unknowledgeable and uncomfortable in using data to inform their practice. Other themes discovered were teachers' beliefs that there are too many new initiatives, too much to do while in PLCs, and the idea that they are forced to use data while in their PLCs.

The findings of the study show that the teachers at the school had not been satisfied with past PD sessions. During the interviews, teachers stated that past PD sessions were overwhelming, were designed ineffectively and did not provide enough information to understand the concept or initiative entirely. Understanding that teacher PD is the primary way for teachers to engage in improving their practice, I chose to use the PD genre in designing the project (Darling-Hammond et al., 2009). It was my intent to develop and conduct a series of PD sessions that contain the characteristics necessary to be highly effective.

New educational reforms are on the rise including districts and states adopting the new Common Core Standards, new teacher evaluations that are dependent on student test scores, and the development of new high-stakes state tests. Thus, it is imperative that teachers continue to develop their practice and engage in continual learning opportunities that will increase their teaching capacity. Administrators need to provide continual learning opportunities for teachers, supports, and the time and resources needed to engage actively in the learning process. Although PD is potentially useful in assisting teachers with opportunities to learn, most PD are designed ineffectively and are often just one-time sessions (Yoon et al., 2007). This project aims at providing the teachers with a 5-day PD session requiring a change in the teachers' practice that may lead to more efficient teaching and higher student achievement levels.

One-time PD sessions can be overwhelming with the vast amount of information needed to cover within the short period. The project was designed to be a continual effort

that encompasses a 5-day series of PD to have ample time to cover the material. Extending the professional development to a five-day series allows for a slower pace that provides many opportunities for questions, evaluation of practice, and reflections on knowledge learned through this process. Designing the project with a slower pace may address the problem of teachers feeling overwhelmed. This project may provide the proper amount of training on data usage for teachers to feel more comfortable and knowledgeable about using data regularly to inform their instruction. The project addresses the issue of teacher beliefs of having too much to do while in a PLC by providing a list of responsibilities of teachers while in PLCs. The project will provide many examples of cases where data use has raised teacher capacity and increased student achievement. By demonstrating how data usage has been successful in raising student scores, teachers may feel less forced to use data and instead feel more open and willing to use data.

Review of the Literature

The literature review provides an explanation as to why a PD genre was used to design the project. The literature review includes research on the characteristics and resources that are needed to create effective PD. The adult learning theory and the social constructivist theory were also discussed to show how the theories informed the content of the project. The data team concept was revisited to help defend and define the choices made in designing the project.

For this literature review, the following terms were used to search in ERIC, SAGE, and ProQuest for research articles: professional development, characteristics of effective professional development, constructivist theory, and adult learning theory, PLCs, and data teams. The literature research came from a variety of sources including; doctoral dissertations, peer- reviewed journal articles, case studies, and books. The review of the literature includes the latest information on PD as well as the characteristics of effective PD. The literature review also includes information on constructivism and the adult learning theory.

Professional Development

Improving student achievement has become the goal that drives PD. With the implementation of the NCLB Act, Common Core Standards, and the new teacher evaluation systems, has led many districts to focus on improving PD for teachers. Professional development provides opportunities where teachers share their knowledge and experiences with fellow teachers and engage in sessions where the entire faculty share the teaching and learning experience (Petti, 2013). Knowing the significance of how teacher PD is in increasing teacher capacity and student achievement, districts must ensure that the PD designed is highly effective (Borko, Jacobs, & Koellner, 2010). Designing effective PD includes guaranteeing that it is designed by setting goals and objectives, based on district data, includes a shared vision, includes ways to ensure teacher buy-in, and ways to overcome potential barriers.

Due to state and federal mandates that are now in place, the control of PD in education has transferred back to school districts and away from teachers within the districts (Gheen & Modarresi, 2009). The removal of control from teachers for designing their PD leads to PD sessions that are not specifically designed to raise teacher capacity that will improve student achievement (Mol, Bus, & De Jong, 2009). The control of PD has transferred back and forth from district, to teacher, and to state over the past few decades (Loucks-Horsley & Matsumoto, 2010). NCLB legislation and Common Core Standard initiatives have forced school districts to take away teachers' control of what is required to improve their teaching and replaced it with what the district believes will increase test scores (Gheen & Modarresi, 2009; Neuman & Wright, 2010). Taking away teachers' control of PD has led to many teachers becoming reluctant and resistant to district designed PD (Gheen & Modarresi, 2009). Having teachers take part in designing their PD may help the buy-in process of ensuring teachers are open and willing to learn during the PD process (Borko et al., 2010; Gheen & Modarresi, 2009; Van Driel & Berry, 2012). Teachers' attitudes and openness to the PD process improve when teachers are part of the designing process, design goals and objectives, and feel like their voices matter (Snyder, Hemmeter, & McLaughlin, 2011).

Characteristics of Effective Professional Development

Teacher PD is the primary source of how teachers improve their knowledge, advance their instructional practices, and stay current in the newest teacher methodology (DuFour, 2009). Professional development is the primary source of teacher continued

learning; therefore, it is imperative to ensure that the PD is designed and implemented to be effective. In one study conducted on PD, most of the participants declared that past professional development had been useless in improving their capacity as teachers (Darling-Hammond et al., 2009).

Effective PD involves teachers in many different learning opportunities that are supportive by all stakeholders, job-embedded, focused on teacher instruction, collaborative, and continually ongoing (Hunzicker, 2010). Effective PD should align with the educators' practice, allow for teacher input, allow time to implement the new initiatives, and time to reflect the process (Van Driel & Berry, 2012).

Supportive Professional Development

Professional development is supportive of the administration of the school district, the administrator of the school, and the teachers of the school (Hunzicker, 2010). This process includes combining the goals of the district with the goals of the individual teachers (Hunzicker, 2010). Professional development should be designed to involve all levels of educators within the building including the administrators, educators, and paraprofessionals and include their input in the designing process (Hunzicker, 2010). An effective PD session includes teacher personal and professional goals (Hunzicker, 2010). Including these goals when designing professional development will also help in ensuring teacher buy-in. When planning PD, it is important to incorporate teacher individual learning styles.

Job-embedded Professional Development

Professional development is more effective, applicable, and genuine when the PD is job-embedded (Hunzicker, 2010). Teachers are more open and willing to commit to professional development when they see that it is addressing their specific needs and concerns of their everyday duties and responsibilities (Hunzicker, 2010). When teachers recognize PD is designed, keeping their daily responsibilities in mind, it allowed teachers to commit to the PD. Job-embedded PD including coaching, mentoring, PLCs, and data teams involves teachers learning while they are performing their daily duties and responsibilities (Quick, Holtzman, & Chaney, 2009). Teacher involvement in implementing initiatives from traditional teacher sessions, including follow-up activities and reflections, is also part of ensuring that PD is job-embedded (Tate, 2009).

Instructional-focused Professional Development

To ensure the effectiveness of the PD, it is imperative that it is instructional-focused (Hunzicker, 2010). The PD should be designed with the primary goal of increasing student achievement (Quick et al., 2009). Professional development should focus on grade level, subject area, and student learning goals (Hunzicker, 2010). Since the professional development is instructional-focused, teachers are more willing to commit because they can see how it relates to their everyday job duties and responsibilities (Quick et al., 2009).

Collaborative Professional Development

Actively engaging teachers in their PD including collaborating with peers supports the effectiveness of the PD. The collaboration process allows teachers

opportunities to share their concerns, ideas, and work together using the problem-based inquiry process to discover solutions (Hunzicker, 2010). Collaborative PD results in higher learning experiences for teachers than traditional methods of implementing PD (Quick et al., 2009). Teacher learning from PD increases with the opportunities by allowing teachers to share their thoughts, experiences, and reflections (Hunzicker, 2010).

Ongoing Professional Development

Effective PD is an ongoing process. Most PDs are one-time sessions; however, in order to be effective, the PD should take place over an extended amount of time (Hunzicker, 2010). The more time teachers are actively engaging in the PD process, the more likely the teachers' instructional practices will improve (Quick et al., 2009). If the PD is to be effective in its implementation, it must involve a recurrent process that will last over an extended amount of time. Lasting instructional changes take a minimum of 3 to 5 years of continued PD (Quick et al., 2009).

A study using a mixed method approach using 62 middle school math teachers focused on the elements needed for PD to be successful (Koellner, Jacobs, & Borko, 2011). The study's findings showed that there are three essential elements that must be present in order for PD to be successful. The first essential element is that PD must foster PLCs where teachers continually collaborate and work together to solve problems. The second key element is that the PD must develop the teachers' knowledge in the field in which they work. And thirdly, the PD must support the visions and needs of the teachers, school, and district (Koellner et al., 2011).

Constructivist Theory

Adult learning theories provide insight into how adults learn and receive knowledge. Using the information gained from the understanding of the different learning theories can provide a framework used to design effective and sustainable professional development. When designing professional development sessions, the constructivist theory should be used in understanding how adults learn (Borko et al., 2010). According to the constructivist theory, learning is an active process where adults gain their knowledge from their prior experiences (Shapira-Lishchinsky, 2014). Many learners are distressed and reluctant when learning new concepts. Thus, it is helpful to the learner if what they are learning can be based on their prior knowledge and experiences (Powell & Kalina, 2009). Cognitive development occurs when the learner uses prior experiences and background knowledge in learning new information (Shapira-Lishchinsky, 2014).

Constructivist theorists believe that the individual learner is actively participating in creating, interpreting, and organizing what they are learning (Shapira-Lishchinsky, 2014). Two ideas of constructivism involve cognitive constructivism and social constructivism. Cognitive constructivists base their beliefs on the acquisition of knowledge through personal experiences, whereas, the social constructivism bases their beliefs on acquiring knowledge through the experiences shared with others (Shapira-Lishchinsky, 2014).

Professional development involving group settings allow learners to fashion new cognitive experiences where they can challenge their personal experiences to create new

knowledge (Willey & Burke, 2011). The culture of most teachers in schools today is one where teachers work independently rarely communicating instructional strategies and decisions with their peers (Fullan, 2010; Hip & Huffman; 2010; Levine & Marcus, 2010). Social constructivism allows for the shift from teachers working in isolation to working collaboratively.

Adult Learning Theory

Because professional development has become a necessary expectation in today's schools, understanding the characteristics of adult learners is an important starting point (Hunzicker, 2010). For PD to be effective the design should incorporate Knowles' six principles of adult learning (Knowles, Holton, & Swanson, 2005; Scott & Scott, 2015). The first principle discussed is that adults are internally motivated and self-directed. The theory basis the premise that adults feel imposed when they are mandated to learn (Knowles et al., 2005; Scott & Scott, 2015). The role of the facilitator of learning is to aid adults in becoming more self-directed, motivated, and responsible for their own learning. Ways of allowing learners to become more engrossed in their learning are by providing a pace that is not overwhelming, be actively interested in the learners' beliefs and opinions, include learners' interests in designing tasks, and use multiple learning styles to reach all learners.

The second principle of the adult learning theory is similar to the constructivist theory in where teachers like to bring their background knowledge and experiences to their learning (Knowles et al., 2005; Michelson, 2011; Scott & Scott, 2015). Adult

learners use their present foundation of knowledge and experiences in combination with their new knowledge in understanding new concepts. The facilitator of learning should include student interests when designing PD and encourage learners to use and share their past experiences when collaborative problem solving. Adult learners should also be asked to be aware of personal biases during the learning process.

The third principle states that adults are goal oriented (Knowles et al., 2005). Adult students are more willing to learn when they see a need or purpose to learn in order to solve a real-life problem (Knowles et al., 2005). As a facilitator it is their role to provide real case studies and goals that are based on the learners' personal experiences. The fourth principle states that teachers are relevancy orientated (Knowles et al., 2005; Scott & Scott, 2015). Adult learners need to understand the relevance of what they are going to learn and what the desired outcomes are. One way facilitators can accomplish this is to provide opportunities for feedback from learners including expectations, what they have learned, and how they are going to use it.

The fifth principle states that adults are practical (Knowles et al., 2005). Facilitators can remind adult learners of the reasons why they are learning certain concepts and reassure the learners that what they are learning is practical and applicable to their job. The facilitator should ensure that all learners are actively engaged in the learning process and that ample time is available for learners to practice and reflect on what they are learning. Finally, the sixth principle of the adult learning theory is that adult learners demand respectability (Knowles et al., 2005). Many ways facilitators can

ensure they are being respectful of their students is by regarding them as equals, encouraging them to express their opinions without the fear of retaliation, recognizing their wealth of knowledge and experiences, and creating an environment that respects diversity. The adult learning theory is based on methods that adults learn best when using collaboration and problem-solving approaches (Knowles et al., 2005). The adult learning theory uses the idea of teachers and educators are equal partners during the learning process (Knowles et al., 2005).

Data Teams as a PLC

The literature includes educational studies on how implementing data driven initiatives have benefited teachers and students. One study showed how teachers used common assessments to inform their instructional practices in improving the mathematics scores of the students (Goertz, Olah, & Riggan, 2009). The study included 45 elementary school teachers in nine schools. The study results showed that while some teachers were successful in the use of data, many teachers were unsuccessful in using data to inform their instructional decisions (Goertz et al., 2009). The results revealed when district-wide efforts provided the proper training on how to use data, the teachers were more encouraged to use data in decision-making (Goertz et al., 2009). The outcomes of the study also revealed that although many teachers collected and analyzed the data, many teachers were still reluctant in changing their existing instructional practices (Goertz et al., 2009). Other findings led to suggesting that district administrators need to allocate more professional development on interpreting the data and designing action plans to

improve teacher approaches and strategies (Goertz et al., 2009). This research supports the implementation of professional development designed to aid teachers in developing SMART goals and action plans using the analysis of student data. The SMART goals and action plans provide teachers with the necessary steps to adjust their instruction to ensure individual student achievement.

In one study conducted using 549 schools in 59 districts, the researchers implemented data-driven initiatives to increase math and reading scores. The results of the study showed that the data-driven initiatives were successful in raising student achievement levels (Carlson, Borman, & Robinson, 2011). Another study conducted over a 2-year period for implementing data-driven initiatives showed positive results in student reading achievement levels (Mokhtari, Thoma, & Edwards, 2009). A professional development session on implementing a successful framework for creating effective PLCs was successful in raising student test scores (Mokhtari et al., 2009). The professional development demonstrated that by using ongoing collaboration and student data to inform teacher instructional decisions, teachers were able to show student improvement (Mokhtari et al., 2009). After the 2-year period of implementation of effective PLCs, all grades from kindergarten to fifth grade showed significant gains in reading comprehension (Mokhtari et al., 2009). The studies revealed that transforming existing PLCs into effective data teams improve teacher learning. Data teams allow opportunities where teachers can collaborate using student data to improve their teaching practices resulting in increased student achievement.

Implementation

The implementation of the project will take place during one school calendar. There are eight professional days built into the school's calendar, and five of these will be designated to implement this project. The PD sessions will take place during the months of September, October, November, February and April. I will be the facilitator of the data PD series. Each of the PD sessions will take place during the half-days designated for teacher development. Each session will last 3.5 hours. All teachers, administrators, and paraprofessionals of EMS will be invited and expected to attend.

New teachers to the school will also partake in the 5-day professional development series. Providing new teachers with the data team PD empowers new teachers with the knowledge and experiences that will allow them to become proficient data users and positive contributors to their data team. Further development of this PD should lead to designing a comprehensive data team evaluation system. Evaluation of data teams is needed to ensure teachers gained the required knowledge of using data to inform their instructional decisions. The evaluation of the data teams will provide assurance that the necessary time, tools, support, and resources are available.

Potential Resources and Existing Supports

This project requires several potential resources in order to implement it effectively. The project will require a large enough location to accommodate all the teachers at EMS. I will ask the permission of the administrator to use the middle school's library as the site where the PD will take place. The library is the location where most of

the school's existing PD takes place. In addition to the library, I will require an overhead projector, the use of the laptops for teachers to take the pre and post-assessments, and a large white projector screen. My personal laptop will be used in conjunction with the projector to display the project's visual presentations and other electronic data information. Teachers will be provided with journal articles, documents, and case histories that represent best practices when working with student data.

The project will require the approval of the superintendent, principal, and curriculum director to allocate five of the eight professional development days needed to conduct the data team sessions. To assist teachers throughout the project, I will request that the principal provide extra time for teachers to work on data within their PLCs. The project will require a simple guideline of the goals and objectives that the teachers are going to be responsible for completing during PLC sessions. The findings of the study revealed that the teachers at the middle school believe there are too many new school and district initiatives and too much to complete in PLCs. The principal and superintendent will be asked to limit or postpone all new initiatives during this project's implementation and provide teachers with clear directions of what to accomplish during PLCs.

Potential Barriers

Time and financial resources are potential barriers that may arise during the implementation of this project. The district has allocated 8 PD days within EMS's calendar. I will be asking for 5 of the PD days to implement the project. The 5 days of PD requested may not be allocated to the project due to the numerous school, district, state,

and federal mandates and initiatives. However, if this occurs, I will request 3 PD days of 1 school calendar year and 2 PD days for the following school year. The project can easily be redesigned to take place over a 2-year period instead of only a 1-year period. Since these PD days take place on half-days, I will only have 3.5 hours each PD day to provide teachers with the project's materials.

Most PD is labor intensive and, therefore, can be expensive to implement. Funding for substitutes, travel expenses, lodging, and consultants can consume the vast majority of the money that districts set aside each year for PD. The project is designed to cut down on the formidable costs that can accrue during teacher development. The PD will take place within the school setting, during designated PD days, without the need for substitutes and consultants.

I foresee the main barriers of this project are teacher's beliefs, attitude, and reluctance towards the sessions because of past experiences with ineffective PD sessions. Ninety percent of teachers who participated in PD have stated that the experience was one that did not lead to increasing their teacher knowledge and were irrelevant to their teaching practices (Darling-Hammond, et al., 2009). During the study, I discovered that teachers' attitudes and opinions about the data team PD they received were not positive. The teachers believed that the PD was overwhelming, designed ineffectively, and did not contain enough information in order to be successful data users. The findings also revealed that teachers at the school felt forced to use data to make instructional decisions, taking away their individuality and instinctive nature as a teacher. Teachers' attitudes and

beliefs towards PD could play an important role in the success of the project for establishing effective data teams at EMS.

Proposal for Implementation and Timetable

The first of the 5 sessions of the PD will begin in September after teachers have arrived back to school from summer break. Teachers complete a self-assessment on their perceptions of using data to inform their instructional decisions. The rest of the session will be designed to share research on data usage, discuss upcoming sessions, and instruct teachers on how to design standard based, common assessments. The second session of collecting student data is in October. This session will be designated to show teachers what data to collect, how to collect it, and how to display and securely store it. Analyzing the data will be discussed in the third session in November. In February, after winter break, the fourth installment of the project will take place. During the interviews, many of the teachers said they felt confident in collecting and analyzing student data, but did not know what to do with the data once collected. February's session clarifies how to use the data analysis to create SMART goals and action plans to fix the problems discovered during the analysis of the data. This crucial step in using data was not discussed during the data team PD that the principal had previously conducted. I will continue the discussion of action plans in the fifth and final phase of the project that will in April. This session will also discuss the evaluation phase of using data and will provide teachers the opportunity to ask questions and reflect over the project's implementation.

Roles and Responsibilities of Student and Others

The role of the superintendent and curriculum director will be that of supporting the project by allotting the 5 days needed to conduct the PD and providing the necessary resources to implement the teacher development. The principal of the Eastside School District will provide the setting for the development and make the necessary arrangements to ensure teacher participation. The roles and responsibilities of the teachers will be that of learners who are open and actively engaging in collaborative PLCs. Teachers will design common assessments, collect data, analyze data, and create SMART goals and action plans. Teachers will also be responsible for continually evaluating and reflecting on the data team process. The primary responsibility of developing and implementing the project will fall on me. The 5-day PD session includes the objectives, goals, agenda, timeline, activities, and assignments. I will be the sole facilitator of the PD. The analysis of the data from the pre and post self-assessments will be used to design SMART goals for future development. I will also be the designer, collector, and the one analyzing teacher surveys after the completion of each PD session to ensure the effectiveness of the sessions. To answer questions and clarify any misconceptions concerning the data process, I will be available throughout the year during the PD implementation for any questions or concerns that might arise. I will be the individual responsible for evaluating the PD by using a pre-existing evaluation tool.

Project Evaluation

A formative, goal-based evaluation will be used to determine the effectiveness of each session in order to make early improvements. I will evaluate the professional development throughout the entire process. The evaluation of the professional development will begin from the onset of providing the sessions. Professional development must be analyzed for effectiveness regularly to ensure that the sessions will be successful in improving teacher capacity (Killion & Roy, 2009). When determining the effectiveness of the sessions, two important aspects will be considered, teacher perceptions of the professional development and if the objectives and outcomes of the sessions are being met. Teachers' perceptions of the professional development will assist in determining if the teachers are going to buy-in to the idea of using common assessments. A summative, goal-based evaluation will also take place to determine the professional development session's effectiveness.

The first phase of the evaluation process will be to provide the middle school teachers with a pre self-assessment that was adapted from Professional Development Survey for Educators and School Leaders (Pennsylvania Department of Education, 2014). During this session the teachers will take a pre self- assessment is used to determine teacher beliefs and attitudes towards the upcoming professional development and their perceptions of using student data in making their instructional decisions. The pre self-assessment is designed to gather teachers' opinions, principles, and perceptions that underlie and influence teachers using data. I will be asking opinions on how teachers

believe student data can aid in their teaching practices in raising test scores. I will ask the teachers to provide their opinions on what they will need in the upcoming professional development sessions to be valid data users. The qualitative data will be used to guide me in ensuring that the upcoming development commits to the teachers' needs and wants. This pre self-assessment will also inquire about teachers' knowledge of using data and how they are presently using student data to inform their teaching practices.

The second phase of the evaluation process intends to gauge the participants' reactions to each of the professional development sessions. The middle school teachers will be asked to take an anonymous survey via SurveyMonkey. Examples of questions found in the survey include: what more do you need to know about formative assessments, what more do you need about analyzing data, and what more do you need about creating SMART. The information gathered from each of these surveys will allow me to make necessary adjustments to the upcoming professional development sessions to help guarantee each session's effectiveness.

The third phase of the evaluation process will review examples of the middle school data team's common assessments and their SMART goals that teachers design in their PLCs. The priority will focus on student common formative assessments. The purpose of this evaluation step would be to examine the participants' attained learning. I will examine each of the formative common assessments to ensure that they are meeting the teachers' and students' needs as well as meeting the Common Core Standards,

district, and state requirements. Teacher SMART goals will be reviewed to determine if teachers are designing goals that are specific, measurable, attainable, realistic, and timely.

The next phase is to determine the effectiveness of the overall professional development series by determining if teachers are benefiting from the sessions. This will be done through an anonymous post self-assessment completed on SurveyMonkey. I will compare the responses to teacher pre and post self-assessments to determine the effectiveness of the 5-day professional development series. The key idea is to determine if teachers have shown improvement academically. I will also examine teacher progress through analyzing quantitative data such as classroom tests, benchmark assessments, and the state's standardized test.

The overall evaluation goal is to determine the effectiveness of teacher use of student data in continuing to reflect the practices and make the necessary changes to ensure each student's mastery of the concept. Ongoing evaluation of the professional development including conversations, surveys, and data from benchmark and MCAS assessments are needed to ensure the professional development is successful in turning the school into a high-data culture. The principal and administrators of the district will need to continue evaluating and monitoring teacher use of data to ensure teachers are continually evaluating their instructional practices in obtaining higher student achievement.

Implications Including Social Change

Local Community

The project offers opportunities for teachers to gain that knowledge and provide them with the necessary tools to be successful in using data to increase their teaching capacity. The project may allow teachers the insights on how to carefully plan their lessons in order to meet the needs of each student. Teachers will improve their collaborative skills while working with their fellow teachers during PLCs to design common assessments, collect and analyze data, and design lessons to meet the needs of their students.

The students may also benefit from the project's professional development series. Students will be evaluated using common assessments that are Common Core Standards-based and are designed to reflect the state's standardized tests. Individual student needs will be met through continued reflection of the data from their formative assessments. Students may also benefit from this project by obtaining higher scores on their assessments including the state's standardized tests. The administration of the school and the district will benefit from having more knowledgeable teachers, obtaining higher scores on the state's standardized tests, shrinking student achievement gaps, and obtaining a culture where teachers continually reflect on their practices by using student data.

Far-Reaching

A far-reaching implication could be the continued focus on transforming all of the schools in the Eastside School District into ones where teachers continually use student data to increase teacher capacity and student achievement. If the professional development is found to be successful in increasing teacher data use in planning instruction and increasing student achievement scores, district leaders can implement the sessions in all the schools in the district. Other neighboring school district administrators may use this project to implement data team initiatives via the five-day professional development series throughout their schools as well.

Conclusion

The purpose of this project is to provide the teachers at the school with the necessary knowledge, tools, materials, and resources needed to transform the school into a data rich environment. The 5-day PD project will take place during 1 school calendar year. I discussed the project's goals and objectives as well as detailed the rationale on for the PD design. Section three also included a literature review of professional development. Implementation phases of the project were discussed including timetables, supports, resources, barriers, and the roles and responsibilities of everyone involved throughout the study. This section provided a thorough evaluation plan on how to ensure the project's effectiveness and the impact of social changes, including local levels and far-reaching. Section four includes a summary of the reflections and conclusions discovered during this project study.

Section 4: Reflections and Conclusions

Introduction

Gaining an understanding of teacher perceptions of using data while in their PLCs was the main focus of this study. According to the principal of the middle school where this study took place, teachers were not using data to inform their instructional practices and make the necessary changes to their instruction to support and enhance student achievement. By using a qualitative approach I was able to collect teachers' perceptions of using data during PLC sessions. An analysis of the data led me to design a series of PD sessions that might lead to a positive change in the way the teachers use data within PLCs.

At the study's conclusion, I reflected on this amazing journey and found it to be one that was encouraging and informative. This section will include a discussion on the project's strengths and limitations. This section also includes detailed reflections on the researcher's professional growth as a scholar, project developer, leader, and practitioner. Lastly, I will discuss the study's implications for social change and the implications for future research.

Project Strengths

The project that I designed may be used to address the teachers' reluctance to use data while in PLCs. Teacher concerns were discovered by identifying the four main themes that were revealed in the analysis phase of the study including not enough training on data use, too many initiatives going on at one time, too much to do while in a PLC,

and the idea that they are forced to use data while in their PLCs. The main strength of this project was designing five PD sessions addressing each of the teachers' concerns on using data while in PLCs. Through this series of PD, teachers may learn how to use data more effectively and understand how by, using data, they can enhance their instructional practices that will increase student achievement.

A common concern of all teachers that were interviewed was the idea that there was no clear understanding of the participants' roles and expectations while working in their PLCs. Another strength of this project is that during the PD sessions, teachers will be given a clear understanding of what their roles and expectations are while working in PLCs, including using data. The PD will provide the teachers with procedures to use while in the PLC. The procedures provide teachers with a clear understanding of each member's roles and responsibilities while working in a PLC. The PLC procedures will also provide the teachers with step-by-step directions on using data while working in their PLCs.

Recommendations for Remediation of Limitations

The main limitation that I foresee is that there are only 8 designated professional development days worked into the school calendar. The project that I designed will use 5 professional development days within 1 calendar year. With all the other initiatives that the school and district have designated as priorities, it will be difficult to be able to get permission to complete the project as written. Either rewriting the project so that it will only take three days of professional development to complete, or keeping the 5 days, but

stretching it over 2 calendar years can remedy this problem. One of the issues discovered during the study was that teachers believed there was too much to learn and do during the school's professional development days. Knowing this, I would prefer to expand the project over a 2-year period ensuring that the project's professional days are designed to avoid overwhelming the teachers.

Another limitation is that this professional development series could possibly be considered another initiative that the district is implementing. I would assure the teachers at the school that sharing the results and findings of the study internally drives the professional development. All 7 of the teachers that were interviewed stated that they would like to have more professional development on data teams.

Scholarship

Being a mathematician, I was familiar with quantitative data and believed that I would take that approach to the study. However, after substantial consideration and research, I decided to use a qualitative approach. Using a qualitative method provided me with a highly descriptive set of data that was analyzed providing answers to the research questions and led to designing the professional development project. This experience allowed me to perform a vast literature review on many topics including those for the study and topics that complement the study. This journey has allowed me to investigate a local problem within a school where I work and discover ways to correct the issue.

Project Development and Evaluation

Through the development of this project, I discovered that it is important to address a problem at the local level. Completing a research project locally allows the researcher the opportunity to create a project that is specific in addressing the problem at a local level. The project may be used in other schools or school districts. However, this project was made to specifically repair the problem at a local level. The project development not only must have a specific purpose, but must also contain specific goals, budget, timeline, and an evaluation process to ensure its effectiveness. The evaluation phase of the project begins with the implementation of the project and continues throughout all phases of the project. Understanding that PD must be analyzed for effectiveness regularly will ensure that the PD will be successful in improving teacher capacity (Killion & Roy, 2009). The evaluation of the project will consist of a group interview of all the teachers involved in the PD, surveys and questionnaires, individual interviews, and the examination of student data.

Leadership and Change

Understanding that change is important to ensure that all teachers and students are learning at their fullest potential is a trait that all leaders must share. During the past 2 years, standardized test scores declined in the school under study. As a member of the mathematics department at the school, it was disheartening for me to see all of the hard work of the department's teachers and the students not be represented by the scores on

the state's standardized test. I chose to conduct this research study to get a better understanding of teacher perceptions of using data while working in their PLCs.

Effective leaders have the ability to identify areas where improvement needs to occur within their buildings. At the same time, an effective leader must be able to communicate and promote these changes with the teachers. To have the teachers' buy-in to change initiatives is a necessity if the leader of the building wants the change initiatives to be successful and sustainable. If teachers are to commit to the change initiatives, they will have to invest an incredible amount of time and energy. Thus it is imperative that the leader of the building convince the staff that the change initiatives may make a positive change for both the staff and students. The data revealed that the leaders of the middle school were unable to get the teachers to buy in to the data team initiative, resulting in the teachers' reluctance to use data within PLCs. The project that I designed may convince the teachers that using data in PLCs is achievable given the actualities of everything else that they must achieve while working in their PLCs, time restraints, and all the other school-based responsibilities that they must accomplish daily. The project also shares with teachers the many cases where data teams have been successful in improving teacher capacity and raising student achievement. Reviewing real cases where data teams have been successfully implemented and have been successful in raising achievement scores may help with the buy-in process.

Analysis of Self as Scholar

This incredible journey provided me with many opportunities to become a researcher and a scholar. As I began the literature review, I quickly realized that there was an incredible amount of literature pertaining to the study. I learned how to carefully choose peer reviewed articles that were pertinent to the study. One characteristic of a true scholar is a continuous learner. Throughout this process I have become a scholarly learner. This process provided opportunities to improve on personal reading skills, communication skills, technology skills, qualitative literacy skills, time management skills, organizational skills, and social skills. I have learned how to set goals and accomplish those goals by setting priorities and strict timelines. As a scholar I will continually strive to advance the field of education by using the latest research and collaboration with other scholars in the field. This process has also given me the foresight that I can do anything as long as I put forth the best of my abilities.

Analysis of Self as Practitioner

Through this journey, I learned that becoming a true scholar in the field of education means that I must become a lifelong learner, continue to improve my capacity as an educator, and be open and willing to change. While performing the literature research, I often found myself questioning my own pedagogical ideals of education. Was I using data effectively? Was I working collaboratively with my peers? Was I continually re-examining my own methodologies and instructional practices? This experience

allowed me to reflect on myself as a practitioner and gave me ideas on how to improve on my instructional and teaching practices.

Analysis of Self as Project Developer

I sat through many professional development sessions that were poorly designed, not relevant to my educational practices, and overwhelming. I used these experiences to properly design the PD project. The project was designed to ensure it was relevant to the teachers and not overwhelming. As a project developer, it is a priority to design the project with the goal of increasing teacher buy-in in order for the project to be more successful in improving their instructional practices and raising student achievement. As the project developer I learned it was also important to ensure that the professional development was a continual, logical professional development series that unfolds as processes over an extended amount of time. The 5-day professional development project that I designed will allow teachers to be able to practice what they have learned over an extended amount of time.

The Project's Potential Impact on Social Change

Carefully designed professional development may provide middle school teachers with the necessary tools needed to be able to successfully use data to make the necessary changes in their instruction that will increase student achievement. This project was designed to support the teachers' needs and provide them with real cases where data teams have been successful in improving teacher abilities and raising student achievement. The project was also designed to promote teacher buy-in that may lead to

the sustainability of data use to inform, commit, and sustain the concept of using data to inform instruction. The project will provide teachers with tools to collaborate effectively on collecting student data, analyzing the data, and to make changes to their instructional practices. The overall purpose of this project is to raise teacher awareness of where their instructional practices can be strengthened to improve their teaching and eventually raise student achievement levels.

Implications, Applications, and Directions for Future Research

The literature review showed that when teachers used student data to inform instruction, teacher capacity and student achievement increased. Teacher collaborative use of student data to inform instructional decisions while working in PLCs is the key to success in teacher and student learning. The project may provide the necessary tools for teachers to successfully collect, analyze, and make the necessary decisions to their instructional practices that will benefit all stakeholders. This project would take place during 5 professional development days built into 1 school calendar. The literature revealed that when teachers continually collaborate using student data to make changes in their instructional practices it provides them opportunities to ensure that each student is mastering the instructional concept. Confirming each student's mastery of the concept resulted in higher achievement scores and smaller achievement gaps among groups of students. The project on using student data to inform instruction could enhance the middle school teachers' instructional practices, raise student achievement levels on the

state's standardized test, and close the achievement gaps through ongoing professional development.

After completion of this study, I would like to complete a complementary study by increasing the sample size of the participants to include teachers from all of the schools from the district. This study would use a quantitative approach instead of a qualitative one that was used to conduct this study. A quantitative approach allows the researcher to generalize the findings (Vogt, 2011, Creswell, 2012). Quantitative studies often use a random sampling method and include a much larger sample size than used in this qualitative study (Vogt, 2011, Creswell, 2012). Using the quantitative approach allows the participants to be more open and honest with their answers without having the fear of harm coming to them personally or professionally since their identities are unknown (Vogt, 2011, Creswell, 2012). Future researchers may also want to explore the impact of using student data to increase student achievement. The research could include a comparison of standardized examination scores of students whose teachers use student data to inform instruction to students whose teachers do not use student data to inform instruction.

Conclusion

The overall goal of this study was to discover teacher perceptions of using student data to drive instruction at EMS. Understanding teacher perceptions of why they were not using student data led me to design a project that may allow teachers to feel more confident and willing to use student data to drive their instructional practices. This

section provided a discussion on the project's strengths, limitations, and recommendations to overcome those limitations. This section also included discussions on my self-analysis as a scholar, practitioner, and project developer. This section also includes a discussion on how this project's potential impact on social change. Finally, implications, applications, and directions for future research based on this study were discussed.

By completing the 5-day professional development project that I designed, the teachers at EMS may become masters at using student data to drive their instruction. Using student data collaboratively while in PLCs may allow the teachers at EMS and the district level to become more effective in their classroom instruction and may eventually raise student achievement.

References

Allinson, E., Besser, L., Campsen, L., Cordova, J., Doubek, B., Gregg, L., & White, M. (2010). *Data teams: The big picture*. Englewood, CO: Lead + Learn Press.

Anderson, S., Leithwood, K., & Strauss, T. (2010). Leading data use in schools: organizational conditions and practices at the school and district levels. *Leadership & Policy in Schools, 9*(3), 292-327. doi:10.1080/15700761003731492

Anfara Jr., V. A. (2010). Data-driven decision making. *Middle School Journal, 42*(2), 56-63.

Arrendondo-Rucinski, D. (2012). *Professional learning communities and student learning: A meta-analysis of the research.* Paper presented at the Annual Meeting of American Educational Research Association, Vancouver, British Columbia.

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *Qualitative Report, 13*(4): 544-559. Retrieved from http://www.nova.edu/ssss/QR/QR13-4/baxter.pdf.

Bernhart, V. (2009). Data use: Data driven decision making takes a big picture view of the needs of teachers and students. *Journal of Staff Development, 30*(1), 24-27. Retrieved from http://www.learningforward.org/news/authors/berhart.cfm.

Binkley, R., Keiser, M., & Strahan, D. (2011). Connected coaching: How three middle school teachers responded to the challenge to integrate social studies and literacy. *Journal of Social Studies Research, 35(*2*),* 131-162. Retrieved from Eric: ISSN-0885-985X

Bogdan, R. C., & Biklen, S. K. (2007). *Qualitative research for education: An introduction to theories and methods (5th ed.)*. Boston, MA: Allyn & Bacon.

Borko, H., Jacobs, J., & Koellner, K. (2010). Contemporary approaches to teacher professional development. In P. L. Peterson, E. Baker, & B. McGaw (Eds.), Third international encyclopedia of education (Vol. 7, pp. 548–556). Amsterdam, The Netherlands: Elsevier.

Brendefur, J. L., Whitney, B., Stewart, R. A., Pfiester, J., & Zarbinisky, J. (2014). Instructional Learning Teams: A Case Study. *Journal of Curriculum and Teaching, 3*(1), 36. doi: 10.5430/jct.v3n1p36

Bringing Achievement Gaps into Focus. (2010). The Educator's Handbook for Understanding and Closing Achievement Gaps, 3–22. doi:10.4135/9781452219257.n1

Bromberg, M., Theokas, C., & Education, T. (2013). Breaking the glass ceiling of achievement for low-income students and students of color: Shattering expectations series. *Education Trust*. Retrieved from http://www.edtrust.org/.

Bruce, C. D., Esmonde, I., Ross, J., Dookie, L., & Beatty, R. (2010). The effects of sustained classroom-embedded teacher professional learning on teacher efficacy and related student achievement. Teaching and Teacher Education, *26*(8), 1598–1608. doi:10.1016/j.tate.2010.06.011

Carlson, D., Borman, G., & Robinson, M. (2011). A multistate district-level cluster randomized trial of the impact of data-driven reform on reading and mathematics

achievement. Educational Evaluation and Policy Analysis, *33*(3), 378-398. doi: 10.3102/0162373711412765

Castleman, P. (2013). *Sustained growth on state and federal assessment measures: A case study of three high schools that have implemented a professional learning community model* (Doctoral dissertation). Retrieved from Sage.

Chaparro, E. A., Smolkowski, K., Baker, S. K., Hanson, N., & Ryan-Jackson, K. (2012). A model for system-wide collaboration to support integrated social behavior and literacy evidence-based practices. *Psychology in the Schools, 49(5),* 465-482. doi:10.1002/pits.21607

Cosner, S. (2012). Leading the ongoing development of collaborative data practices: advancing a schema for diagnosis and intervention. *Leadership and Policy in Schools, 11(*1*)*, 26-65. doi: 10.1080/15700763.2011.577926

Cowan, D. F. (2010). The professional teaching and learning cycle. In K.K. Hipp & J. B. Huffman, *Demystifying professional learning communities: School leadership at its best* (pp. 57-68). Lanham, MD: Rowman and Littlefield Education.

Crabtree, B., & Miller, W. (1999). *Doing qualitative research* (2nd ed). Thousand Oaks, CA: Sage Publication Inc.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches.* Thousand Oaks, CA: Sage.

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (Laureate custom ed.). Boston, MA: Pearson Education, Inc.

Darling-Hammond, L., Chung Wei, R., Andree, A., & Richardson, N. (2009). *Professional learning in the learning profession: A status report on teacher development in the United States and abroad*. Oxford, OH: National Staff Development Council.

Depka, E. (2006). *The data guidebook for teachers and leaders: Tools for continuous improvement.* Thousand Oaks, CA: Corwin Press.

Delmar, C. (2010). Generalizability as recognition: Reflections on a foundational problem in qualitative research. *Qualitative Studies, 1*, 115-128. Retrieved from http://ojs.statsbiblioteket.dk/index.php/qual/article/view/3828/3321.

Doerr, H. (2009). Grooming teacher excellence: PLCs. *Principal,* 26-30. Retrieved from http://www.naesp.org/resources/2/Principal/2009/S-O_p.26.pdf.

DuFour, R., & Eaker, R. (1998). *Professional learning communities at work: Best practices for enhancing student achievement*. Bloomington, IN: Solution Tree.

DuFour, R. (2004). Leading edge: The best staff development is in the workplace, not in a session. *Journal of Staff Development, 25(2), 63-64*. Retrieved from http://www.nsdc.org/library/publications/jsd/DuFour252.cfm.

DuFour, R., & Marzano, R. (2011). *Leaders of learning: How district, school, and classroom leaders improve student achievement*. Bloomington, IN: Solution Tree Press.

DuFour, R., & DuFour, R. (2007). What might be: Open the door to a better future. *Journal of Staff Development, 28(3),* 27-28. ISSN: ISSN-0276-928X.

DuFour, R., DuFour, R., & Eaker, R. (2009). *Revisiting professional learning communities at work: New insights for improving schools*. Bloomington, IN: Solutions Tree.

DuFour, R., DuFour, R., Eaker, R., & Many, T. (2006). *Learning by doing: A handbook for professional learning communities at work.* Bloomington, IN: Solutions Tree Press.

DuFour, R., & Mattos, M. (2013). How do principals really improve school? *Educational Leadership, 70(7)*, 34-40. Retrieved from http://www.ciscsymposium.org/wp-content/uploads/2013/12/ST-DuFour-Mattos-Article.pdf.

Dunn, K. E., Airola, D. T., Lo, W., & Garrison, M. (2013). Becoming data driven: The influence of teachers' sense of efficacy on concerns related to data-driven decision making. *Journal of Experimental Education, 81(2),* 222-241. doi:10.1080/00220973.2012.699899

Easton, L. B. (2009). *Protocols for professional learning*. Alexandria, VA: ASCD.

Easton, L. B. (2012). Principles of design energize learning communities: Practical tips put the emphasis on learning. Retrieved from ERIC: ISSN-0276-928X

Eastside School District. (2013). School district demographics.

Elbousty, Y., & Bratt, K. (2009). *Establishing a professional learning community in a high school setting.* Paper presented at the annual meeting of the Northeastern Educational Research Association, Rocky Hill, CT., October 21-23, 2009.

Ermeling, B. A. (2010). Tracing the effects of teacher inquiry on classroom practice. *Teaching and Teacher Education, 26(3),* 377-388. doi: 10.1016/j.tate.2009.02.019

Fullan, M. (2010). *Motion leadership: The skinny on becoming change savvy*. Thousand Oaks, CA: Corwin Press.

Gajda, R., & Koliba, C. J. (2008). Evaluating and improving the quality of teacher collaboration: A field-test framework for secondary school leaders. *NASSP Bulletin, 92*, 133-153. doi:10.1177/0192636508320990

Gallimore, R., Ermeling, B. A., Saudners, W. M., & Goldenberg, C. (2009). Moving the learning of teaching closer to practice: Teacher education implications of school-based inquiry teams. *Elementary School Journal, 109(3),* 537-553. doi:10.1086/597001

Gheen, M., & Modarresi, S. (2009). *Impact of READ 180 on at-risk middle school students. Literacy outcomes: 2007-2008*. Rockville, MD: Montgomery County Schools Office of Shared Accountability.

Giles, C., Wilson, J., & Elias, M. (2010). Sustaining teachers' growth and renewal through action research, induction programs and collaboration. Teacher Education Quarterly, 91-108. ISSN-0737-5328

Goertz, M. E., Olah, L. N., & Riggan, M. (2009). From testing to teaching: The use of interim assessments in classroom instruction (Research Report #65). Philadelphia: University of Pennsylvania, Consortium for Policy Research in Education. doi:10.1037/e546712012-001

Gray, K., & Harrington, K. (n.d.). Creating Successful Elementary School Data Teams. PsycEXTRA Dataset. doi:10.1037/e518332012-001

Guba, E. G., & Lincoln, Y. S. (2000). Paradigmatic controversies, contradictions and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.). *Handbook of qualitative research,* (2nd ed), 163-188. Thousand Oaks, CA: Sage Publications, Inc.

Halkier, B. (2011). Methodological practicalities in analytical generalization. *Qualitative Inquiry 17(9)*, 787-797. doi: 10.1177/1077800411423194

Hall, G., & Hord, S. (2011). *Implementing change: Patterns, principles, and potholes*. Upper Saddle River, NJ: Pearson.

Hamilton, L., & Corbett-Whittier, C. (2013). *Using case study in education research.* Thousand Oaks, CA: Sage Publications Inc.

Hamilton, L., Halverson, R., Jackson, S., Mandinach, E., Supovitz, J., & Wayman, J. (2009). Using student achievement data to support instructional decision making. IEP Practice Guide. NCEE 2009-4067. National Center for Education Evaluation and Regional Assistance, Retrieved from http://ies.ed.gov/ncee/wwc/pdf/practice_guides/dddm_pg_092909.pdf.

Hipp, K., & Huffman, J. (2010). *Demystifying professional learning communities*. Lanham, MD: Rowan & Littlefield.

Holcomb, E. L. (2004). *Getting excited about data. Combining people, passion, and proof to maximize student achievement.* Thousand Oaks, CA: Corwin Press.

Honig, M. I., & Venkateswaran, N. (2012). School-central office relationships in evidence use: Understanding evidence use as a systems problem. *American Journal of Education*, *118(*2), 199-222. doi: 10.1086/663282

Hord, S. M. (1997). *Professional learning communities: Communities of continuous inquiry and improvement*. Austin, TX: Southwest Educational Development Laboratory.

Hord, S. M. (2008). Evolution of the professional learning community. *Journal of Staff Development, 29*(3), 10-13. Retrieved from http://staffdev.mpls.k12.mn.us/sites/6db2e00f-8a2d-4f0b-9e70-e35b529cde55/uploads/Evolution_of_the_PLC_by_Hord.pdf.

Hord, S. M. (2011). *Professional learning communities by design: Putting the learning back into PLCs*. Thousand Oaks, CA: Corwin Press & Learning Forward.

Huguet, A., Marsh, J., & Bertrand, M. (2014). Building teachers' data-use capacity: Insights from strong and struggling coaches. *Education Policy Analysis Archives 22*(52), 1-26. doi:10.14507/epaa.v22n52.2014

Hunzicker, J. (2010). Characteristics of effective professional development: A checklist. *Professional Development in Education, 37*(2), 177–179. doi:10.1080/19415257.2010.523955

Hyett, N., Kenny, A., & Dickson-Swift, V. (2014). Methodology or method? A critical review of qualitative case study reports. *International Journal of Qualitative Studies on Health and Well-being, 9*, 1-12. doi:10.3402/qhw.v9.23606

Jacob, S. A., & Furgerson, S. P. (2012). Writing interview protocols and conducting interviews: Tips for students new to the field of qualitative research. *The Qualitative Report, 17(6)*, 1-10. Retrieved from http://www.nova.edu/ssss/QR/QR17/jacob.pdf.

Jennings, J. (2012). *Reflections on a half-century of school reform: Why have we fallen short and where do we go from here?* Washington, DC: Center for Education Policy.

Jones, L., Stall, G., & Yarbrough, D. (2013). The importance of professional learning communities for school improvement. *Creative Education, 4(5)*, 357-361. doi:10.4236/ce.2013.45052

Kennedy, S. Y., & Smith, J. B. (2013). The relationship between school collective reflective practice and teacher physiological efficacy sources. *Teaching and Teacher Education, 29*, 132-143. doi:10.1016/j.tate.2012.09.003

Kensler, L. W., Reames, E., Murray, J., & Patrick, L. (2011). Systems thinking tools for improving evidence-based practice: A cross-case analysis of two high school leadership teams. *High School Journal, 95(*2*),* 32-53. doi:10.1353/hsj.2012.0002

Kilbane, J. F. (2009). Factors in sustaining professional learning community. *NASSP Bulletin, 93*, 184. doi:10.1177/0192636509358923

Killion, J., & Roy, P. (2009). *Becoming a learning school*. Oxford, OH: NSDC.

King, F. (2011). The role of leadership in developing and sustaining teachers' professional learning. *Management in Education, 25(*4*),* 149-155. doi:10.1177/0892020611409791

Knowles, M. S., Holton, E. F., & Swanson, R. A. (2005). *The adult learner: The definitive classic in adult education and human resource development*. Burlington, MA: Butterworth-Heinemann.

Koellner, K., Jacobs, J., & Borko, H. (2011). Mathematics professional development: Critical features for developing leadership skills and building teachers' capacity. *Teacher Education and Development*, *13*, 115-136.

Layne, L. (2012). Defining effective teaching. *Journal on Excellence in College Teaching, 23(*1*)*, 43-68. Retrieved from ERIC. ISSN-1052-4800

Lesar, P. V. (2013). *The relationship between grade-level team implementation of professional learning communities and student achievement in math* (Doctoral dissertation, Northern Arizona University, 2013). Retrieved from ProQuest, Publication Number 3606820.

Levine, T., & Marcus, A. (2010). How the structure and focus of teachers' collaborative activities facilitate and constrain teacher learning, *Teaching & Teacher Education, 26(3)*, 389-398. doi:10.1016/j.tate.2009.03.001

Levine, T. (2011). Experienced teachers and school reform: Exploring how two different professional communities facilitated and complicated change. *Improving Schools, 14(1)*, 30-47. doi:10.1177/1365480211398233

Lieberman, A., & Mace, D. P. (2010). Making practice public: Teaching learning in the 21st century. *Journal of Teacher Education, 61*, 77-88. doi:10.1177/0022487109347319

Lindsey, D. B., Jungwirth, L. D., Phal, J., & Lindsey, R. (2009). *Culturally proficient learning communities.* Thousand Oaks, CA: Corwin.

Lodico, M., Spaulding, D., & Voegtle, K. (2010). *Methods in educational research: From theory to practice (Laureate Education, Inc., custom ed.).* San Francisco, CA: John Wiley & Sons.

Lomos, C., Hofman, R. H., & Bosker, R. J. (2011a). Professional communities and student achievement: A meta-analysis. *School Effectiveness and School Improvement, 22(2)*, 121-148. doi:10.1080/09243453.2010.550467.

Lomos, C., Hofman, R. H., & Bosker, R. J. (2011b). The relationship between departments as professional communities and student achievement in secondary schools. *Teaching and Teacher Education, 27*(4), 722-731. doi:10.1016/j.tate.2010.12.003

Love, N. (2009). *Using data to improve learning for all. A collaborative inquiry approach.* Thousand Oaks, CA: Corwin Press.

Loucks-Horsley, S., & Matsumoto, C. (2010). Research on professional development for teachers of mathematics and science: The state of the scene. *School Science and Mathematics, 99*(5), 258-271. doi:10.1111/J.1949-8594.1999

Main, K. (2012). Effective school teacher teams: a ternary model of interdependency rather than a catch phrase. *Teachers and Teaching: Theory of Practice, 18*(1), 75-88. doi: 10.1080/13540602.2011.622556

Maloney, C., & Konza, D. (2011). A case study of teachers' professional learning: Becoming a community of professional learning or not? *Issues in Education Research, 21(*1*)*, 75-87. ISSN 1084-8959

Mandinach, E. B. (2012). A perfect time for data use: Using data-driven decision making to inform practice. *Educational Psychologist, 47(*2*)*, 71-85. doi:10.1080/00461520.2012.667064

Mandinach, E. B., & Gummer, E. S. (2013). A systematic view of implementing data literacy in educator preparation. *Educational Researcher, 42*(1), 30-37. doi:10.3102/0013189X12459803

Marsh, J. A., & Farrell, C. C. (2014). How leaders can support teachers with data-driven decision making: A framework for understanding capacity building. *Educational Management Administration & Leadership.* doi:10.1177/1741143214537229

Marzano, R. J. (2003). *What works in schools: Translating research into action.* Alexandria, VA: ASCD.

Marzano, R. J. (2010). *Formative assessment & standards-based grading: Classroom strategies at work.* Bloomington, IN: Marzano Research Laboratory.

Marzano, R. J. (2011). The perils and promises of discovery learning. *Educational Leadership*, *69*(1), 86-87. Retrieved from http://legisweb.state.wy.us/InterimCommittee/2012/Z02MarzanoLevels.pdf.

Massachusetts Department of Elementary and Secondary Education, (2011). 2011 no child left behind report card: Retrieved from http://profiles.doe.mass.edu/reportcard.

Massachusetts Department of Elementary and Secondary Education, (2012). The Massachusetts model system for educator evaluation: Training model 4: SMART goals and educator plan development. Retrieved from http://www.doe.mass.edu/edeval/traning/modules/M4.pdf.

Massachusetts Department of Elementary and Secondary Education, (2014a). District data team toolkit: Helping districts establish, grow, and maintain a culture of inquiry and data use. Retrieved from http://www.doe.mass.edu/apa/ucd/ddtt/toolkit.pdf.

Massachusetts Department of Elementary and Secondary Education, (2014b). Massachusetts comprehensive assessment system: Overview. Retrieved from http://www.doe.mass.edu/macas/overview.html.

McLaughlin, M. W., & Talbert, J. E. (2010). Professional learning communities: Building blocks for school culture and student learning. *Voices in Urban Education, 27*, 35-45. Retrieved from http://web.stanford.edu/group/suse-crc/cgi-bin/drupal/sites/default/files/Professional_Learning_Communities.pdf.

McNulty, B., & Besser, L. (2010). *Leaders make it happen: An administrator's guide to data teams*. Englewood, CO: The Leadership and Learning Center.

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.

Michelson, E. (2011). Autobiography and selfhood in the practice of adult learning. *Adult Education Quarterly*, *61*(1), 3-21. doi:10.1177/0741713609358447

Miller, M. (2009). Achieving a wealth of riches: Delivering on the promise of data to transform teaching and learning. *Alliance for Excellence Education*, 1-11. Retrieved from http://eric.ed.gov/?id=ED506783.

Mills, A. G., Durepos, G., & Wiebe, E. (2010). *Encyclopedia of case study research.* Thousand Oaks, CA: Sage Publication Inc.

Mitchell, N. (2010). *The participant-researcher relationship in educational research* (Doctoral dissertation). Retrieved from ERIC.

Mokhtari, K., Thoma, J., & Edwards, P. (2009). How One Elementary School Uses Data to Help Raise Students' Reading Achievement. *Reading Teacher*, *63*(4), 334-337.

Mol, S. E., Bus, A. G., & De Jong, M. T. (2009). Interactive book reading in early education: A tool to stimulate print knowledge as well as oral language. *Review of Education Research*, *79*(2), 979-1007. doi: 10.3102/0034654309332561

Mullen, C. A., & Schunk, D. H. (2010). A view of professional learning communities through three frames: Leadership, organization, and culture. *McGill Journal of Education, 45(2)*, 185-203. doi:10.7202/045603ar

Neuman, S. B., & Wright, T. S. (2010). Promoting language and literacy development for early childhood educators: A mixed-methods study of coursework and coaching. *Elementary School Journal*, *111*(1), 63-86. doi:10.1086/653470

No Child Left Behind (NCLB) Act of 2001, Pub. L. No 107-110 Stat 1425.

Olivier, D. F. & Hipp, K. K. (2010). Case story #1: Lake Elementary (Prek-8). In K. K. Hipp & J. B. Huffman, *Demystifying professional learning communities: 374 school leadership at its best* (pp. 73-85). Lanham, MD: Rowman and Littlefield Education.

Pankake, A. M., & Huffman, J. B. (2010). Case story #2: Mineral Springs Middle School (6-8). In K. K. Hipp & J. B. Huffman, *Demystifying professional learning 375 communities: School leadership at its best* (pp. 87-103). Lanham, MD: Rowman and Littlefield Education.

Patton, M. Q. (2009). *Qualitative research and evaluation methods (3rd ed.)*. Thousand Oaks, CA: Sage Publication Inc.

Peery, A. G. (2011). *The data teams experience: A guide for effective meetings*. Englewood, CO: Lead + Learn Press.

Pennsylvania Department of Education. (2014). Professional development survey for educators and school leaders. Retrieved from http://www.education.state.pa.us/portal/server.pt/community/pennsylvania_department_of_education/7237

Petty, A. D. (2013). Successful leaders beating the odds: Leveraging instructional rounds with professional development in schools – university partnerships. National Council of Professors of Educational Administration,

Powell, K. C., & Kalina, C. J. (2009). Cognitive and social constructivism: Developing tools for an effective classroom. *Education, 130*(2), 241–250.

Prewett, S., Mellard, D. F., Deshler, D. D., Allen, J., Alexander, R., & Stern, A. (2012). Response to Intervention in Middle Schools: Practices and Outcomes. *Learning Disabilities Research & Practice (Wiley-Blackwell), 27*(3), 136-147. doi:10.1111/j.1540-5826.2012.00359.x

Protheroe, N. (2008). Developing your school as a professional learning community. *NAESP Research Roundup*. Retrieved from http://www.naesp.org/ContentLoad.do?contentId=1094.

Quick, H., Holtzman, D. & Chaney, K. (2009). Professional development and instructional practice: Conceptions and evidence of effectiveness. *Journal of Education for Students Placed at Risk (JESPAR), 14*(1), 45-71.

Rahman, S. (2011). Influence of professional learning community (PLC) on secondary science teachers' culture of professional practice: The case of Bangladesh. *Asia-Pacific Forum on Science Learning & Teaching, 12(*1*)*, 1-22. Retrieved from https://www.ied.edu.hk/apfslt/download/v12_issue1_files/rahman2.pdf.

Rismark, M., & Solvberg, A. M. (2011). Knowledge sharing in schools: A key to developing professional learning communities. *World Journal of Education, 1*(2), 150-160. doi: 10.5430/wje.v1n2p150

Roberts, M. L. (2010). *Improving student achievement through professional learning communities* (Doctoral dissertation). Retrieved from http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1044&context=cehsedaddiss

Roundtree, L. C., & Hipp, K. K. (2010). Case story #3: Ralph H. Metcalfe School (4-8). In K. K. Hipp & J. B. Huffman, *Demystifying professional learning communities: School leadership at its best* (pp. 105-119). Lanham, MD: Rowman and Littlefield Education.

Schildkamp, K., & Kuiper, W. (2010). Data-informed curriculum reform: Which data, what purposes, and promoting and hindering factors. *Teaching and Teacher Education, 26(*3*)*, 482–496. doi:10.1016/j.tate.2009.06.007

Schmoker, M. (2011). *Elevating the essentials to radically improve student learning*. Alexandrea, VA: ASCD.

Scott, D. E., & Scott, S. (2015). Leadership for quality university teaching: How bottom-up academic insights can inform top-down decisions. *Educational Management Administration & Leadership*. doi: 10.1177/1741143214549970

Shapira-Lishchinsky, O. (2014). Simulation-based constructivist approach for education leaders. *Educational Management Administration & Leadership, 1*(17). doi:10.1177/1741143214543203

Slavin, R. E., Cheung, A., Holmes, G., Madden, N. A., & Chamberlain, A. (2012). Effects of a data-driven district reform model on state assessment outcomes. *American Educational Research Journal, 50*(2), 371–396. doi:10.3102/0002831212466909

Snyder, P., Hemmeter, M. L., & McLaughlin, T. (2011). Professional development in early childhood intervention: Where we stand on the silver anniversary of PL 99-457. *Journal of Early Intervention, 33*(4), 357-370. doi:10.1177/1053815111428336

Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage Publication Inc.

Stake, R. E. (2005). Qualitative case studies. In N. K. Denzin & Y. S. Lincoln, *The Sage handbook of qualitative research (3rd ed., pp. 443-466).* Thousand Oaks, CA: Sage Publications Inc.

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications Inc.

Szczesiul, S., & Huizenga, J. (2014). The burden of leadership: Exploring the principal's role in teacher collaboration. *Improving Schools, 17(*2*)*, 176-191. doi:10.1177/1365480214534545

Tate, M. L. (2009). Sessions: Extend learning beyond your presentation with these brain-friendly strategies. *Journal of Staff Development, 30*(1), 44-46.

Thoonen, E. E. J., Sleegers, P. J. C., Oort, F. J., Peetsma, T. T. D., & Geijsel, F. P. (2011). How to improve teaching practices: The role of a teacher motivation, organizational factors, and leadership practices. *Educational Administration Quarterly, 47(*3*)*, 496-536. doi: 10.1177/0013161X11400185

United States Department of Education (2004). Elementary and Secondary Education Act. Retrieved from http://www.ed.gov/esea.

United States Department of Education (2014a). ED data express. Retrieved from http://www.ed.gov/.

United States Department of Education (2014b). No Child Left Behind Act. Retrieved from http://www2.ed.gov/nclb/landing.jhtml.

Van Driel, J. H., & Berry, A. (2012). Teacher professional development focusing on pedagogical content knowledge. *Educational Researcher*, *41*(1), 26-28.

VanDerHeyden, A., & Harvey, M. (2012). Using data to advance learning outcomes in schools. *Journal of Positive Behavior Interventions, 15*(4), 205–213. doi:10.1177/1098300712442387

Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional learning communities on teaching practice and student learning. *Teaching and Teacher Education, 24*, 80-91. doi: 10.1016/j.tate.2007.01.004.

Vogt, W. P. (2011). *Sage Quantitative Research Methods*. Thousand Oaks, CA. Sage Publications Inc. doi.org/10.4135/9780857028228

Walden University. (n.d.). Office of Research Integrity and Compliance. Institutional review board of ethical standards in research. Retrieved from http://researchcenter.walden.edu/Office-of-Research-Integrity-and-Compliance.htm.

Walker, M. D. (2010). *Inequitable measures: The impact of NCLB on California schools making adequate yearly progress* (Doctoral dissertation). Retrieved from Sage.

Wayman, J. C., Cho, R., & Richards, M. P. (2010). Student data systems and their use for educational improvement. *International Encyclopedia of Education,* 14–20. doi:10.1016/b978-0-08-044894-7.01699-7

Willey, L., & Burke, D. D. (2011). A constructivist approach to business ethics: Developing a student code of professional conduct. *Journal of Legal Studies Eduction, 28*(1), 1–38. doi:10.1111/j.1744-1722.2010.01083.x

Wohlstetter, P., Datnow, A., & Park, A. (2008). Creating a system for data-driven making: Applying the principal-agent framework. *School Effectiveness and School Improvement, 19*(3), 239-259. doi:10.1080/09243450802246376

Yin, R. K. (2003). *Case study research: Design and methods (3rd ed.)*. Thousand Oaks, CA: Sage Publication Inc.

Yin, R. K. (2009). *Case study research: Design and methods (4th ed.).* Thousand Oaks, CA: Sage Publication Inc.

Yin, R. K. (2012). *Applications of case study research (3rd ed.)*. Thousand Oaks, CA: Sage Publication Inc.

Young, V. M. (2006). Teachers' use of data: Loose coupling, agenda setting, and team norms. *American Journal of Education, 112(*4*)*, 521-548. doi:10.1086/505058

Appendix A: The Data Teams Project

The project for this study consists of the implementation of a 5-day professional development series on developing effective data teams within EMS. The project was designed using the findings revealed from the analysis of the data from the participants' interview responses, observations of PLCs, and the document review of minutes from PLCs. The findings from the study revealed that participants were ineffectively using data within their PLCs, or they were not using data at all in making their instructional decisions.

Other findings from the study revealed that the one-time professional development session on implementing data teams was ineffective. Participants revealed that the professional development session was a one-time shot of trying to demonstrate how to use data to improve their instruction and student achievement levels. The participants stated that the session was overwhelming by trying to cram so much information into 1 professional development session. Many of the teachers stated that they would like to see the data team professional development session spread out through a number of professional development sessions. Findings from the study revealed that the participants would like more information on designing formative assessments, creating SMART goals, and developing action plans for what to do with the data once analyzed.

Extending the professional development to a 5-day series allows for a slower pace that provides many opportunities for questions, evaluation of practice, and reflections on knowledge learned through this process. Designing the project with a slower pace

addresses the problem of teachers feeling overwhelmed. This project provides the proper amount of training on data usage for teachers to feel more comfortable and knowledgeable about using data regularly to inform their instruction. The project provides many examples of cases where data use has raised teacher capacity and increased student achievement. By demonstrating how data usage has been successful in raising student scores, teachers may feel less forced to use data and instead feel more open and willing to use data.

Two common themes revealed in the study showed participants' beliefs that they are overwhelmed by having too many initiatives to do while in PLCs and too many other school and district initiatives going on at the same time. The project addresses the issue of teacher beliefs of having too much to do while in a PLC by providing information on how to intertwine the data team process with their existing PLC.

The overriding goal is to train teachers on how to use data effectively to improve teacher capacity and student achievement. The objectives of the professional development include the following:

- The participants will create common formative, summative, and benchmark assessments.
- The participants will recognize what data to collect and how to collect the data.
- The participants will analyze student data from common assessments effectively.

- The participants will design SMART goals and action plans based on the analysis of the data.

The following is a list of what each professional development session will potentially entail. The first session will stay true to its design. However, as the survey result of each session is analyzed, the data will provide me with the information on how to construct the following session.

September:

- Teacher pre self-assessment
- Share research on data usage and success stories
- Discuss and learn how to design common formative assessments
- Discuss, reflect, and the upcoming session
- Professional development session survey

October:

- Discuss prior session
- Teacher pair and share of their common formative assessments (post work from the prior session)
- Discuss data to collect
- How to collect the data
- How to store the data securely
- Professional development session survey

November:

- Discuss prior session
- Teacher pair and share of their data that they collected (post work from prior session)
- Discuss how to analyze student data
- Professional development session survey

February:

- Discuss prior session
- Teacher pair and share of their analysis of data (post work from the previous session)
- Create SMART goals and action plans
- Professional development session survey

March:

- Discuss prior session
- Teacher pair and share of their SMART goals (post work from the prior session)
- Train participants how to evaluate their data use
- Reflect on the professional development series
- Participants take post self-assessment
- Professional development session survey

Project's Literature Resources

The following is a list of journal articles, studies, dissertations, books, and guides that will be used throughout the implementation of the professional development. Many of these will be required readings and the others will be used to help reinforce the ideas of effective professional learning communities, data teams, and collaboration.

- *Protocols for professional learning*; Easton, 2009.
- *Tracing the effects of teacher inquiry on classroom practice*; Ermeling, 2010.
- *Moving the learning of teaching closer to practice: Teacher education implications of school-based inquiry teams*; Gallimore et al., 2010.
- *Factors in sustaining professional learning community*; Kilbane, 2009.
- *The role of leadership in developing and sustaining teachers' professional learning*; King, 2011.
- *Influence of professional learning community (PLC) on secondary science teachers' culture of professional practice: The case of Bangladesh*; Rahman, 2011.
- *The burden of leadership: Exploring the principal's role in teacher collaboration*; Szczesiul and Huizenga, 2014.
- *Leaders make it happen: An administrator's guide to data teams*, McNutty & Besser, 2010.
- *Making practice public: Teaching learning in the 21st century*; Lieberman & Mace, 2010.
- *Using data to improve learning for all. A collaborative inquiry approach;* Love, 2009.
- *A review of research on the impact of professional learning communities on teaching practice and student learning*; Vescio et al., 2008.
- *A case study of teachers' professional learning: Becoming a community of professional learning or not*?; Maloney and Konza, 2011.
- *Improving student achievement through professional learning communities;* Roberts, 2010.
- *Professional communities and student achievement: A meta-analysis*; Lomos et al., 2011a.
- *Instructional Learning Teams: A Case Study*; Brendefur et al., 2014.
- *Knowledge sharing in schools: A key to developing professional learning communities*; Rismark & Solvberg, 2011.

- *The effects of sustained classroom-embedded teacher professional learning on teacher efficacy and related student achievement*; Bruce et al., 2010.
- *How to improve teaching practices: The role of a teacher motivation, organizational factors, and leadership practices*; Thoonen et al., 2011.
- *Response to Intervention in Middle Schools: Practices and Outcomes*; Prewett et al., 2012.
- *A model for system-wide collaboration to support integrated social behavior and literacy evidence-based practices*; Chaparro et al., 2012.

Session 1

Introduction to the Data Team Concept

September, 2015

Purpose/Overview: Responsiveness to Data Teams is a framework for school improvement based on using data to assure teachers are continually reviewing student work. Effectively using data will assure teachers are working at their highest capacity, and all students achieve at higher levels.

Session Description: This data team professional development series is a multi-tiered framework that promotes teacher and student improvement through engaging, collaborative discussions centered on student data and data teams. Data teams employ a collaborative approach that guides instructional practices, using data-based problem-solving model that addresses individual student needs and maximizes growth for all. PLCs and data teams share a common goal: continual examination of student work, apply instructional strategies and continued monitoring student work in response to the applied instructional strategies. This session the facilitator will share with participants how PLCs and data teams can be intertwined and accompaniment each other to maximize teacher and student learning.

Session Objectives:

Pre-Institute

•Participants will complete a pre self-assessment on their perceptions of using data to inform their instructional decisions.

Session Objectives

•Participants will become familiar with the data team concept and how it can be intertwined into their already existing PLCs.

•Participants will learn how the data teams have improved student achievement in schools across the US through reading case histories of how data teams transformed schools and school districts into data rich cultures.

•Participants will learn how to design common formative and summative assessments, the focus being more on common formative assessments.

•Participants will learn about the upcoming data team sessions.

Learner Outcomes: After this session, participants will have taken the pre self-assessment, participants will have a clear understanding of the data team concept's purpose and steps, participants will be able to design effective common formative assessments and understand their purpose.

Pre Work: Participants will bring one common formative assessment and one summative assessment that they designed collaboratively within their PLCs. Participants will be emailed a link to Data Team Teacher Share to discuss and reflect on the session's content.

Post Work: Participants will bring two formative assessments to the next session that they designed collaboratively within their PLCs. Participants will take an anonymous survey to evaluate this session using SurveyMonkey.

Session 1

Introduction to the Data Team Concept

Agenda

September, 2015

I. Welcome and Introduction 11:30AM – 12:00PM (30 Minutes)

a. Coming together activity

b. Take an anonymous pre self-assessment on school's laptops

c. Discuss the purpose of the professional development series including sharing school MCAS data.

II. Discussion on PLCs and data teams 12:00PM – 1:00PM (60 Minutes)

a. Discussion on purposes of PLCs

b. Discussion on uses of data teams

c. Discussion of how these are to be intertwined

d. Share examples of schools that have been successful in implementing data teams

III. Break 1:00PM – 1:10PM (10 Minutes)

IV. Introduction to Common Assessments 1:10PM – 2:30PM (80 Minutes)

a. Discussion on purposes of common assessments

b. Discussion on using common formative assessments

c. How to design common formative assessments

d. Participants share their common formative assessments

V. Conclusion and Reflections 2:30PM – 3:00PM (30 Minutes)

a. Reflection and discussion

b. Discuss homework and the goals of the next session

c. Take an anonymous survey on this session (SurveyMonkey)

Session 1

Pre Self-Assessment

September, 2015

This pre and post-assessment survey will help understand the data team process already existing within your PLCs (Pennsylvania Department of Education, 2014). It will be used to determine if your PLC is using data effectively. The assessment will also provide valuable information to those coordinating professional development to determine your needs and requests for upcoming development. I appreciate your honest, accurate responses. You are taking this assessment using SurveyMonkey, so your answers will be anonymous. Therefore, the data collected from this assessment will not be used to evaluate you and will not cause harm to you or your position.

SECTION I: High-quality assessment design

For each of the following statements, please assess the degree of implementation in your school or school district during the past school year by marking the appropriate response.

	DEGREE OF IMPLEMENTATION Beginning				Full
1. Our team defines key standards of assessment quality in understandable terms.	1	2	3	4	5
2. We distinguish between different purposes for assessment, including assessment for learning (diagnosing, screening, monitoring progress) and assessment of learning (summarizing or evaluating performance).	1	2	3	4	5
3. Our team selects, modifies, or creates assessments to match learning goals.	1	2	3	4	5
4. We match our use of existing instruments and assessment data to the purpose of that assessment (diagnostic, screening, progress monitoring, outcome / summative).	1	2	3	4	5
5. We conduct or participate in the step-by-step development of common assessments.	1	2	3	4	5
6. We select or develop high-quality assessments using the format (selected response, constructed response, performance) that best matches the assessment purpose and type of learning being assessed.	1	2	3	4	5
7. Our team conducts a review of assessment quality, checking for accuracy, consistency, fairness, and administration issues.	1	2	3	4	5
8. We describe the sample of student performance and levels of proficiency that will be sufficient to demonstrate that learning goals have been met.	1	2	3	4	5

Please provide evidence that supports your perceptions of your school's implementation level of high-quality assessment design:

SECTION II: Assessment administration

	DEGREE OF IMPLEMENTATION Beginning				Full
9. We administer assessments in such a manner as to eliminate sources of bias or distortion that interfere with the accuracy of results, such as making appropriate modifications and accommodations.	1	2	3	4	5
10. We provide students frequent and varied opportunities to demonstrate knowledge and skills, creating a representative sample of student performance (body of evidence) that is sufficient in its scope to permit confident conclusions about achievement.	1	2	3	4	5
11. We implement specific strategies to increase student involvement in assessment e.g., students describe learning goals, self-assess, reflect on learning with others, provide input into assessment design.	1	2	3	4	5
12. Our team ensures that students and their parents have a clear understanding of the criteria by which learning will be assessed.	1	2	3	4	5

Please provide evidence that supports your perceptions of your school's implementation level of assessment administration:

SECTION III: Data analysis

	DEGREE OF IMPLEMENTATION Beginning				Full
13. Our team collects, records, and reports assessment information to accurately reflect student learning.	1	2	3	4	5
14. We collaboratively analyze and interpret the results of assessments for learning.	1	2	3	4	5
15. Time and procedures are in place to enable quality review of our bodies of evidence.	1	2	3	4	5
16. We employ a deliberate system(s) or method(s) to analyze and interpret data.	1	2	3	4	5

Please provide evidence that supports your perceptions of your school's implementation level of processes for data analysis:

SECTION IV: Using data to inform instruction

	DEGREE OF IMPLEMENTATION Beginning				Full
17. Our team makes comprehensive assessment planning a routine part of annual curriculum mapping, unit plan design, and lesson plans.	1	2	3	4	5
18. We use classroom assessment information to plan and adjust instruction.	1	2	3	4	5
19. We collaboratively look at student work and other assessment data to guide instruction.	1	2	3	4	5
20. Our team uses multiple data sources (a body of evidence) to determine learning goals and plans for each student, including students with special learning needs, e.g. ELL, ILP (Individual Literacy Plan), IEP, under-performing.	1	2	3	4	5
21. Our team ensures that both instructional plans and assessment plans clearly address learning goals for students — content knowledge, patterns of reasoning, and the products students are to create.	1	2	3	4	5
22. We use assessment results to involve students in setting learning goals and evaluating their own progress.	1	2	3	4	5
23. We use a variety of methods, e.g. report cards, portfolios, parent-teacher conferences, student involved conferences, to provide feedback to students and their parents.	1	2	3	4	5

Please provide evidence that supports your perceptions of your school's implementation level of using data to inform instruction:

SECTION V: Collaboration

	DEGREE OF IMPLEMENTATION Beginning				Full
24. We use clear processes or protocols to have professional conversations that are efficient, purposeful and related to student achievement.	1	2	3	4	5
25. We regularly discuss and reflect on our practice in relationship to student achievement.	1	2	3	4	5
26. We share the responsibility for the education of all students in our community.	1	2	3	4	5

Please provide evidence that supports your perceptions of your school's implementation level of collaboration as a learning community:

SECTION VI: "What would it / does it look like?"

In the space below, please describe how a visitor to your school would know that your faculty (a) works together to design and give common assessments, (b) collaboratively analyzes and interprets data, (c) uses that data to inform instruction and interventions to close achievement gaps.

SECTION VII: Team learning expectations and results (PRE)

In the space below, describe what you hope to gain from participating in professional learning communities.

SECTION VIII: Team learning expectations and results (POST)

In the space below, describe what you have gained from participating in professional learning communities.

Session 1

Session 1 Evaluation Survey

September, 2015

This survey was adapted from the Professional Development Survey for Educators and School Leaders and will be used to evaluate this professional development session (Pennsylvania Department of Education, 2014). The survey will allow the facilitator of the session to determine if the session was effective in its implementation. The assessment will also provide valuable information to those coordinating professional development to determine your needs and requests for upcoming development. I appreciate your honest, accurate responses. You are taking this survey using SurveyMonkey, so your answers will be anonymous. Therefore, the data collected from this survey will not be used to evaluate you and will not cause harm to you or your position. There will be an anonymous survey at the completion of each of the five professional development sessions.

Session 1

Professional Survey for Educators and School Leaders

September 2015

Circle one: Educator School Leader

Please respond to each item by circling the number which best describes your opinions. (5 = excellent; 1 = poor).

	Excellent		**Average**		**Poor**	
A. Participant Satisfaction						
1. Session was well organized	5	4	3	2	1	0
2. Session objectives were clearly stated	5	4	3	2	1	0
3. Session assignments were relevant to session objectives	5	4	3	2	1	0
4. All session materials/resources/equipment were provided or made readily available.	5	4	3	2	1	0
5. Overall instructor performance	5	4	3	2	1	0
B. Impact on Professional Practice						
1. This session enhanced participant content knowledge in the area of certification.	5	4	3	2	1	0
2. This session increased participants' skills based on research of effective practice.	5	4	3	2	1	0
3. This session provided information on a variety of assessment skills.	5	4	3	2	1	0
4. This session provided skills needed to analyze and use data in decision making for instruction or at all levels of the school system.	5	4	3	2	1	0
5. This session empowered participants to work	5	4	3	2	1	0

effectively with parents and community partners to engage others to pursue excellence in learning.						
6. This session provided the participants the knowledge and skills to think strategically and understand standards-based school reform.	5	4	3	2	1	0
7. This session enhanced the participant's professional growth and deepened your reflection and self-assessment of exemplary practices.	5	4	3	2	1	0

C. Comments and Reflection

Please take a few moments to respond to the following questions. Your answers will assist the facilitator to determine if the session was effective. Your answers will greatly assist the facilitator in determining how to improve in-service course offerings.

1. What did you learn from this session about intertwining PLCs and data teams to effectively use data?

_____
_____
_____
_____
_____
_____

2. What did you learn during this session about the need for common formative assessments?

_____
_____
_____
_____
_____
_____

3. Explain how to collaboratively design common formative assessments within your PLCs.

4. What information was of great value to you and why?

5. What specific suggestion do you have to improve this session or upcoming sessions?

6. Any additional comments you have are welcomed.

Session 2

Collecting Data

October, 2015

Purpose/Overview: Responsiveness to Data Teams is a framework for school improvement based on using data to assure teachers are continually reviewing student work. Effectively using data will assure teachers are working at their highest capacity, and all students achieve at higher levels.

Session Description: This data team professional development series is a multi-tiered framework that promotes teacher and student improvement through engaging, collaborative discussions centered on student data and data teams. Data teams employ a collaborative approach that guides instructional practices, using data-based problem-solving model that addresses individual student needs and maximizes growth for all. PLCs and data teams share a common goal: continual examination of student work, apply instructional strategies and continued monitoring student work in response to the applied instructional strategies. In this session, the facilitator will clarify the types of data to collect, how to collect it and to secure the data.

Session Objectives:

Pre-Institute

•Participants will discuss and reflect the idea of intertwining data teams and PLCs, the participants will reflect on their need and design instructions of common formative assessments. Participants will review documents and journal articles on the interconnections of PLCs and data teams.

Session Objectives

•Participants will share with members from other PLCs their common formative assessments that were part of the post work from session 1.

•Participants will learn what data that they should be collecting.

•Participants will learn how to collect the data.

•Participants will discuss how to store the data securely.

Learner Outcomes: After this session, participants will be able to understand what types of data to collect, how to collect the data, and how to store the data securely.

Pre Work: Participants will bring one common formative assessment for pair and share with other members of PLCs. Participants will bring one set of classroom common, non-graded, formative assessments.

Post Work: Participants will bring to the next session two classroom sets of non-graded, common formative assessments. Participants will take an anonymous survey to evaluate this session using SurveyMonkey.

Session 2

Collecting Data

Agenda

October, 2015

I. Welcome and Introduction 11:30AM – 12:00PM (30 Minutes)

a. Coming together activity

b. Teacher pair and share their common formative assessments (post work from the prior session)

II. Discussion on what data to collect 12:00PM – 1:00PM (30 Minutes)

a. Discussion on formative data

b. Discussion on summative data

c. Discussion on benchmark data

d. Discussion on MCAS data

e. Discussion on other data

III. Break 1:00PM – 1:10PM (10 Minutes)

IV. How to collect the data 1:10PM – 2:30PM (80 Minutes)

a. Aggregated data

b. Disaggregated data

c. Quantitative data

d. Qualitative data

e. The three "T"s – technology, training, and time

V. Conclusion and Reflections 2:30PM – 3:00PM (30 Minutes)

a. Reflection and discussion

b. Discuss homework and the goals of the next session

c. Take an anonymous survey on this session (SurveyMonkey)

Session 2

Collecting Data

October, 2015

Circle one: Educator School Leader

Please respond to each item by circling the number which best describes your opinions. (5 = excellent; 1 = poor).

	Excellent		**Average**		**Poor**	
A. Participant Satisfaction						
1. Session was well organized	5	4	3	2	1	0
2. Session objectives were clearly stated	5	4	3	2	1	0
3. Session assignments were relevant to session objectives	5	4	3	2	1	0
4. All session materials/resources/equipment were provided or made readily available.	5	4	3	2	1	0
5. Overall instructor performance	5	4	3	2	1	0
B. Impact on Professional Practice						
1. This session enhanced participant content knowledge in the area of certification.	5	4	3	2	1	0
2. This session increased participants' skills based on research of effective practice.	5	4	3	2	1	0
3. This session provided information on a variety of assessment skills.	5	4	3	2	1	0
4. This session provided skills needed to analyze and use data in decision making for instruction or at all levels of the school system.	5	4	3	2	1	0
5. This session empowered participants to work	5	4	3	2	1	0

effectively with parents and community partners to engage others to pursue excellence in learning.						
6. This session provided the participants the knowledge and skills to think strategically and understand standards-based school reform.	5	4	3	2	1	0
7. This session enhanced the participant's professional growth and deepened your reflection and self-assessment of exemplary practices.	5	4	3	2	1	0

C. Comments and Reflection

Please take a few moments to respond to the following questions. Your answers will assist the facilitator to determine if the session was effective. Your answers will greatly assist the facilitator in determining how to improve in-service course offerings.

1. What did you learn from this session about the types of data to collect?

_____
_____
_____
_____
_____
_____
_____

2. What did you learn during this session about how to collect the data?

_____
_____
_____
_____
_____
_____
_____

3. Explain how you will securely store the data.

_____
_____

4. What information was of great value to you and why?

5. What specific suggestion do you have to improve this session or upcoming sessions?

6. Any additional comments you have are welcomed.

Session 3

Analyzing Data

November, 2015

Purpose/Overview: Responsiveness to Data Teams is a framework for school improvement based on using data to assure teachers are continually reviewing student work. Effectively using data will assure teachers are working at their highest capacity, and all students achieve at higher levels.

Session Description: This data team professional development series is a multi-tiered framework that promotes teacher and student improvement through engaging, collaborative discussions centered on student data and data teams. Data teams employ a collaborative approach that guides instructional practices, using data-based problem-solving model that addresses individual student needs and maximizes growth for all. PLCs and data teams share a common goal: continual examination of student work, apply instructional strategies and continued monitoring student work in response to the applied instructional strategies. In this session, the facilitator will demonstrate how to analyze the collected data.

Session Objectives:

Pre-Institute

•Participants will discuss and reflect over what data to collect, how to collect the data, and how to store it securely. Participants will be provided with journal articles and other documents demonstrating the correct procedures on data collection.

Session Objectives

•Participants will share with members from other PLCs the data collected from one-class set of a formative assessment (post work from the prior session).

•Participants will learn how to analyze formative assessments.

•Participants will learn how to analyze pre and post-assessments.

•Participants will learn how to analyze benchmark assessment data.

•Participants will learn how to analyze MCAS assessment data.

•Participants will learn how to analyze other student data.

Learner Outcomes: After this session, the participants will be able to analyze all different forms of student data collected throughout the school year.

Pre Work: Participants will bring one set of graded classroom common formative assessments for analysis purposes.

Post Work: Participants will bring to the next session the analysis of one-class set of common formative assessment data and one-class set of pre and post-assessment data. Participants will take an anonymous survey to evaluate this session using SurveyMonkey.

Session 3

Analyzing Data

Agenda

November, 2015

I. Welcome and Introduction 11:30AM – 12:00PM (30 Minutes)

a. Coming together activity

b. Participants pair and share their data collected from their common formative assessments (post work from the prior session)

II. Discussion of how to analyze student data 12:00PM – 1:00PM (30 Minutes)

a. Discussion on analyzing formative data

III. Break 1:00PM – 1:10PM (10 Minutes)

IV. Discussion of how to analyze student data 1:10PM – 2:30PM (80 Minutes)

b. Discussion on analyzing pre and post-assessment data

c. Discussion on analyzing benchmark assessment data

d. Discussion on analyzing MCAS assessment data

e. Discussion on analyzing other student data

V. Conclusion and Reflections 2:30PM – 3:00PM (30 Minutes)

a. Reflection and discussion

b. Discuss post work and the goals of the next session

c. Take an anonymous survey on this session (SurveyMonkey)

Session 3

Analyzing Data

November, 2015

Circle one: Educator School Leader

Please respond to each item by circling the number which best describes your opinions. (5 = excellent; 1 = poor).

	Excellent		**Average**		**Poor**	
A. Participant Satisfaction						
1. Session was well organized	5	4	3	2	1	0
2. Session objectives were clearly stated	5	4	3	2	1	0
3. Session assignments were relevant to session objectives	5	4	3	2	1	0
4. All session materials/resources/equipment were provided or made readily available.	5	4	3	2	1	0
5. Overall instructor performance	5	4	3	2	1	0
B. Impact on Professional Practice						
1. This session enhanced participant content knowledge in the area of certification.	5	4	3	2	1	0
2. This session increased participants' skills based on research of effective practice.	5	4	3	2	1	0
3. This session provided information on a variety of assessment skills.	5	4	3	2	1	0
4. This session provided skills needed to analyze and use data in decision making for instruction or at all levels of the school system.	5	4	3	2	1	0
5. This session empowered participants to work	5	4	3	2	1	0

effectively with parents and community partners to engage others to pursue excellence in learning.						
6. This session provided the participants the knowledge and skills to think strategically and understand standards-based school reform.	5	4	3	2	1	0
7. This session enhanced the participant's professional growth and deepened your reflection and self-assessment of exemplary practices.	5	4	3	2	1	0

C. Comments and Reflection

Please take a few moments to respond to the following questions. Your answers will assist the facilitator to determine if the session was effective. Your answers will greatly assist the facilitator in determining how to improve in-service course offerings.

1. What did you learn from this session of analyzing data?

_____
_____
_____
_____
_____
_____

2. What did you learn during this session about the ways to analyze different types of data?

_____
_____
_____
_____
_____
_____

3. Explain how you will decide how to analyze the data by the type of data you have.

4. What information was of great value to you and why?

5. What specific suggestion do you have to improve this session or upcoming sessions?

6. Any additional comments you have are welcomed.

Session 4

Creating SMART goals and Action Plans

February, 2016

Purpose/Overview: Responsiveness to Data Teams is a framework for school improvement based on using data to assure teachers are continually reviewing student work. Effectively using data will assure teachers are working at their highest capacity, and all students achieve at higher levels.

Session Description: This data team professional development series is a multi-tiered framework that promotes teacher and student improvement through engaging, collaborative discussions centered on student data and data teams. Data teams employ a collaborative approach that guides instructional practices, using data-based problem-solving model that addresses individual student needs and maximizes growth for all. PLCs and data teams share a common goal: continual examination of student work, apply instructional strategies and continued monitoring student work in response to the applied instructional strategies. In this session, the facilitator will share with the participants how to use the analysis of the data to create SMART goals and action plans that will ensure team accountability and commitment to improving instruction and student learning.

Session Objectives:

Pre-Institute

•Participants will pair and share with members from other PLCs. The participants will review their analysis of data from one classroom assessment. The analyzed data can come from either the analysis of a common formative assessment or the analysis of a common pre and post-test assessment set.

Session Objectives

•Participants will learn how to create SMART goals.

•Participants will learn how to create action plans.

•Participants will learn how to select common instructional strategies.

•Participants will learn how to determine results indicators.

•Participants will learn about the upcoming data team sessions.

Learner Outcomes: After this session, the participants will be able to take the analyzed data from any assessment and create SMART goals and action plans. The participants will also be able to select common instructional strategies and determine results indicators.

Pre Work: Participants will bring one analyzed class set of data to pair and share with participants other than their PLC members.

Post Work: Participants will bring to the next session two SMART goals that they have created. Participants will take an anonymous survey on this session.

Session 4

Creating SMART Goals and Action Plans

Agenda

November, 2015

I. Welcome and Introduction 11:30AM – 12:00PM (30 Minutes)

a. Coming together activity

b. Participant pair and share using the analysis of their data

II. Discussion on SMART goals and action plans 12:00PM – 1:00PM (60 Minutes)

a. Discussion on purposes of SMART goals

b. Discussion on how to design SMART goals

c. Share many examples of SMART goals

III. Break 1:00PM – 1:10PM (10 Minutes)

IV. Discussion of SMART goals 1:10PM – 2:30PM (80 Minutes)

a. Show examples of SMART goals with mistakes and allow participants to correct them

b. Allow participants to create one SMART goal from their data analysis

c. Discussion on action plans

d. Discussion on selecting common instructional strategies

e. Discussion on determining results indicators

V. Conclusion and Reflections 2:30PM – 3:00PM (30 Minutes)

a. Reflection and discussion

b. Discuss post work and the goals of the next session

c. Take an anonymous survey on this session (SurveyMonkey)

Session 4

Creating SMART Goals and Action Plans

February, 2016

Circle one: Educator School Leader

Please respond to each item by circling the number which best describes your opinions (5 = excellent; 1 = poor).

	Excellent		**Average**		**Poor**	
A. Participant Satisfaction						
1. Session was well organized	5	4	3	2	1	0
2. Session objectives were clearly stated	5	4	3	2	1	0
3. Session assignments were relevant to session objectives	5	4	3	2	1	0
4. All session materials/resources/equipment were provided or made readily available.	5	4	3	2	1	0
5. Overall instructor performance	5	4	3	2	1	0
B. Impact on Professional Practice						
1. This session enhanced participant content knowledge in the area of certification.	5	4	3	2	1	0
2. This session increased participants' skills based on research of effective practice.	5	4	3	2	1	0
3. This session provided information on a variety of assessment skills.	5	4	3	2	1	0
4. This session provided skills needed to analyze and use data in decision making for instruction or at all levels of the school system.	5	4	3	2	1	0

5. This session empowered participants to work effectively with parents and community partners to engage others to pursue excellence in learning.	5	4	3	2	1	0
6. This session provided the participants the knowledge and skills to think strategically and understand standards-based school reform.	5	4	3	2	1	0
7. This session enhanced the participant's professional growth and deepened your reflection and self-assessment of exemplary practices.	5	4	3	2	1	0

C. Comments and Reflection

Please take a few moments to respond to the following questions. Your answers will assist the facilitator to determine if the session was effective. Your answers will greatly assist the facilitator in determining how to improve in-service course offerings.

1. What did you learn from this session about SMART goals?

_____
_____
_____
_____
_____
_____

2. What did you learn during this session about the ways SMART goals work to design action plans?

_____
_____
_____
_____
_____
_____

3. Explain the steps in creating SMART goals.

4. What information was of great value to you and why?

5. What specific suggestion do you have to improve this session or upcoming sessions?

6. Any additional comments you have are welcomed.

Session 5

Review of SMART Goals and Reflection

April, 2016

Purpose/Overview: Responsiveness to Data Teams is a framework for school improvement based on using data to assure teachers are continually reviewing student work. Effective use of data will assure teachers are working at their highest capacity, and all students achieve at higher levels.

Session Description: This data team professional development series is a multi-tiered framework that promotes teacher and student improvement through engaging, collaborative discussions centered on student data and data teams. Data teams employ a collaborative approach that guides instructional practices, using data-based problem-solving model that addresses individual student needs and maximizes growth for all. PLCs and data teams share a common goal: continual examination of student work, apply instructional strategies and continued monitoring student work in response to the applied instructional strategies. In this session the participants will review SMART goals to ensure their understanding and the need to create and use them to improve student learning. The participants will learn how to evaluate their usage of data continually while working in their PLCs. The participants will also reflect on the five-day professional development session and take an anonymous post self-assessment.

Session Objectives:

Pre-Institute

•Participants will complete an anonymous post self-assessment on their perceptions of using data to inform their instructional decisions. Participants will review documents on the proper procedures in creating SMART goals.

Session Objectives

•Participants will review SMART goals.

•Participants will reflect on the five-day professional development series.

•Participants will learn how to evaluate the use of using data.

• Participants will complete a post self-assessment of using data

•Participants will complete an anonymous survey evaluating session five.

Learner Outcomes: After this session, the participants will know how to create SMART goals. The participants will also be able to design formative assessments, collect data, analyze data, and create SMART goals and action plans. Participants will also understand how to evaluate their use of data while in their PLCs.

Pre Work: Participants will bring two SMART goals that they have designed.

Post Work: Participants will continue to use what they have learned during this professional development series in creating a culture of data performance throughout the school.

Session 5

Review of SMART goals and Reflection

Agenda

April, 2016

I. Welcome and Introduction 11:30AM – 12:00PM (30 Minutes)

a. Coming together activity

b. Take the post self-assessment on school's laptops

c. Reflect on the purpose of the professional development series including

II. Review of SMART goals 12:00PM – 1:00PM (60 Minutes)

a. Discussion on SMART goals

b. Participant pair and share using their SMART goals (post work from the prior session)

III. Break 1:00PM – 1:10PM (10 Minutes)

IV. Reflection on the PD series 1:10PM – 2:30PM (80 Minutes)

a. Discussion on purposes of common formative assessments

b. Discussion on collecting data

c. Discussion on analyzing data

d. Discussion on how to evaluate the effectiveness of their data use

V. Conclusion and Reflections 2:30PM – 3:00PM (30 Minutes)

a. Reflection and discussion

b. Discuss the continual use of using data in PLCs

c. Take an anonymous survey on this session (SurveyMonkey)

Session 5

Review of SMART goals and Reflection

Agenda

April, 2016

This survey was adapted from the Professional Development Survey for Educators and School Leaders and will be used to evaluate this professional development session (Pennsylvania Department of Education, 2014). This survey will help understand the data team process already existing within your PLCs. It will be used to determine if your PLC is using data effectively. The assessment will also provide valuable information to those coordinating professional development to determine your needs and requests for upcoming development. I appreciate your honest, accurate responses. You are taking this assessment using SurveyMonkey, so your answers will be anonymous. Therefore, the data collected from this assessment will not be used to evaluate you and will not cause harm to you or your position.

Post Self-Assessment

SECTION I: High-quality assessment design

For each of the following statements, please assess the degree of implementation in your school or school district during the past school year by marking the appropriate response.

	DEGREE OF IMPLEMENTATION Beginning				Full
1. Our team defines key standards of assessment quality in understandable terms.	1	2	3	4	5
2. We distinguish between different purposes for assessment, including assessment for learning (diagnosing, screening, monitoring progress) and assessment of learning (summarizing or evaluating performance).	1	2	3	4	5
3. Our team selects, modifies, or creates assessments to match learning goals.	1	2	3	4	5
4. We match our use of existing instruments and assessment data to the purpose of that assessment (diagnostic, screening, progress monitoring, outcome / summative).	1	2	3	4	5
5. We conduct or participate in the step-by-step development of common assessments.	1	2	3	4	5
6. We select or develop high-quality assessments using the format (selected response, constructed response, performance) that best matches the assessment purpose and type of learning being assessed.	1	2	3	4	5
7. Our team conducts a review of assessment quality, checking for accuracy, consistency, fairness, and administration issues.	1	2	3	4	5
8. We describe the sample of student performance and levels of proficiency that will be sufficient to demonstrate that learning goals have been met.	1	2	3	4	5

Please provide evidence that supports your perceptions of your school's implementation level of high-quality assessment design:

SECTION II: Assessment administration

	DEGREE OF IMPLEMENTATION Beginning				Full
9. We administer assessments in such a manner as to eliminate sources of bias or distortion that interfere with the accuracy of results, such as making appropriate modifications and accommodations.	1	2	3	4	5
10. We provide students frequent and varied opportunities to demonstrate knowledge and skills, creating a representative sample of student performance (body of evidence) that is sufficient in its scope to permit confident conclusions about achievement.	1	2	3	4	5
11. We implement specific strategies to increase student involvement in assessment e.g., students describe learning goals, self-assess, reflect on learning with others, provide input into assessment design.	1	2	3	4	5
12. Our team ensures that students and their parents have a clear understanding of the criteria by which learning will be assessed.	1	2	3	4	5

Please provide evidence that supports your perceptions of your school's implementation level of assessment administration:

SECTION III: Data analysis

	DEGREE OF IMPLEMENTATION Beginning				Full
13. Our team collects, records, and reports assessment information to accurately reflect student learning.	1	2	3	4	5
14. We collaboratively analyze and interpret the results of assessments for learning.	1	2	3	4	5
15. Time and procedures are in place to enable quality review of our bodies of evidence.	1	2	3	4	5
16. We employ a deliberate system(s) or method(s) to analyze and interpret data.	1	2	3	4	5

Please provide evidence that supports your perceptions of your school's implementation level of processes for data analysis:

SECTION IV: Using data to inform instruction

	DEGREE OF IMPLEMENTATION Beginning				Full
17. Our team makes comprehensive assessment planning a routine part of annual curriculum mapping, unit plan design, and lesson plans.	1	2	3	4	5
18. We use classroom assessment information to plan and adjust instruction.	1	2	3	4	5
19. We collaboratively look at student work and other assessment data to guide instruction.	1	2	3	4	5
20. Our team uses multiple data sources (a body of evidence) to determine learning goals and plans for each student, including students with special learning needs, e.g. ELL, ILP (Individual Literacy Plan), IEP, under-performing.	1	2	3	4	5
21. Our team ensures that both instructional plans and assessment plans clearly address learning goals for students — content knowledge, patterns of reasoning, and the products students are to create.	1	2	3	4	5
22. We use assessment results to involve students in setting learning goals and evaluating their own progress.	1	2	3	4	5
23. We use a variety of methods, e.g. report cards, portfolios, parent-teacher conferences, student involved conferences, to provide feedback to students and their parents.	1	2	3	4	5

Please provide evidence that supports your perceptions of your school's implementation level of using data to inform instruction:

SECTION V: Collaboration

	DEGREE OF IMPLEMENTATION Beginning				Full
24. We use clear processes or protocols to have professional conversations that are efficient, purposeful and related to student achievement.	1	2	3	4	5
25. We regularly discuss and reflect on our practice in relationship to student achievement.	1	2	3	4	5
26. We share the responsibility for the education of all students in our community.	1	2	3	4	5

Please provide evidence that supports your perceptions of your school's implementation level of collaboration as a learning community:

Session 5

Review of SMART Goals and Reflection

April, 2015

Circle one: Educator School Leader

Please respond to each item by circling the number which best describes your opinions (5 = excellent; 1 = poor).

	Excellent		**Average**		**Poor**	
A. Participant Satisfaction						
1. Session was well organized	5	4	3	2	1	0
2. Session objectives were clearly stated	5	4	3	2	1	0
3. Session assignments were relevant to session objectives	5	4	3	2	1	0
4. All session materials/resources/equipment were provided or made readily available.	5	4	3	2	1	0
5. Overall instructor performance	5	4	3	2	1	0
B. Impact on Professional Practice						
1. This session enhanced participant content knowledge in the area of certification.	5	4	3	2	1	0
2. This session increased participants' skills based on research of effective practice.	5	4	3	2	1	0
3. This session provided information on a variety of assessment skills.	5	4	3	2	1	0
4. This session provided skills needed to analyze and use data in decision making for instruction or at all levels of the school system.	5	4	3	2	1	0
5. This session empowered participants to work	5	4	3	2	1	0

effectively with parents and community partners to engage others to pursue excellence in learning.						
6. This session provided the participants the knowledge and skills to think strategically and understand standards-based school reform.	5	4	3	2	1	0
7. This session enhanced the participant's professional growth and deepened your reflection and self-assessment of exemplary practices.	5	4	3	2	1	0

C. Comments and Reflection

Please take a few moments to respond to the following questions. Your answers will assist the facilitator to determine if the session was effective. Your answers will greatly assist the facilitator in determining how to improve in-service course offerings.

1. What are the main ideas about data and data teams that you have learned through this process?

_____
_____
_____
_____
_____
_____

2. How has this professional development series helped you improve your teaching?

_____
_____
_____
_____
_____
_____

3. What follow up professional development would you like to see be implemented?

4. What information throughout this session was of great value to you and why?

5. What specific suggestion do you have to improve this session or upcoming sessions?

6. Any additional comments you have are welcomed.

Appendix B: Interview Protocol

Doctoral Study: Middle School Teachers' Perceptions of the Use of Data within Professional Learning Communities

Interviewee: _____

Date: _____

Time of Interview: _____

Place: _____

Interviewer: William Baker

Greeting/Introduction: I would like to thank you for agreeing to participate in this research study. The interview will take approximately 40 to 50 minutes. The interview will be digitally recorded and then transcribed to ensure the integrity of your responses.

Purpose: The purpose of this study is to examine teachers' perceptions of how data are used within PLCs and teachers' perceptions of their needs to use data more effectively to improve teacher capability and raise student achievement.

Ethics/Confidentiality: Thank you for reviewing and signing the consent form. Participation in the interview will not affect your professional position. You may elect to take a break or end the interview at any time. At any time during the study if you would like to withdraw from participation, you can do so without consequence. The data collected will be kept confidential throughout the study as each interviewee will be assigned an identification number to replace your name on all documents. All data will be kept confidential by storing it at my home in a locked cabinet and password protected computer and will be permanently destroyed five years after the study's completion.

Member Checking: At a later date you will also be asked to participate as a member checker to review the data transcription of your interview and review my analysis and findings from the data of your interview. Member checking is a way to ensure that my personal biases were not present during the analysis phase and to ensure the accuracy of your perceptions. This process will take approximately 20 minutes.

Permission: You and I have both signed and dated the interview consent form certifying your participation in this interview. You have received a copy of the signed consent form for further reference. Do you have any questions or comments before we begin? Do I have your permission to begin the interview?

Conclusion: Do you have any questions or comments at the conclusion of this interview. I would like to thank you for your time and your participation of this study.

IRB Approval #: 10-24-14-0351355

Interview Questions

1. Could you please tell me what the expectations are for data based problem-solving in your school?

2. Discuss the opportunities that you have experienced as a result of being a member of a professional learning community.

3. How have these experiences helped you grow professionally?

4. Would you please share your perceptions of how data should be used within a PLC?

5. How are you currently using data within your PLC?

6. How has data-driven PLC's helped you to be prepared for classroom instruction?

7. Describe what you know about professional learning communities (PLCs) and how they compare to data teams.

8. How do you compare the ways you use data with the data team concept?

9. What are your suggestions for improving the way that data is used within your PLC? What are your recommendations for administrators who are seeking to implement data teams within the school?

10. In your opinion, what types of teacher training would be beneficial in assisting teachers to better use data effectively?

Appendix C: Example of Interview Transcript and Coding

The following is a partial transcript of an interview using an open coding system. Each line of the transcription is numbered and then I coded each line of the transcript with a concrete phrase or descriptive word. After this was done, I took the underlined phrases or words and found common themes.

Interviewee: Participant 3

Date: 11/04/2014

Time of Interview: 7:30am

Place: Library

Interviewer: William Baker

R: Could you please tell me what the expectations are for data based problem-solving in your school?

P3: I am supposed to collect data to figure out which students need re-instruction for RTI purposes to drive instruction.

R: Discuss the opportunities that you have experienced as a result of being a member of a professional learning community.

I: Honestly there has not been much change. I haven't noticed a change in my PLC.

R: How do your PLCs work?

I: I am the senior member of the PLC and everyone turns to what I say and do even though I am looking for their feedback, it looks great, awesome, and they never read what I do. So that is why I don't find them effective.

R: How have these experiences helped you grow professionally?

I: It is nice to bounce ideas off of people and get feedback here and there, but we don't do much with data in our PLC at the moment. So I don't see it helping.

R: How should data be used within a PLC?

I: I do think it would be good to look at the data to see how effective our unit was. If not everyone is doing well compared to their pre-test then maybe there is something wrong with the layout of the unit or how we present the material. So it would be good to look back at that so when you go make tweaks and changes for the following year they are effective. And they are not just fun to do.

R: So you do a pre-test and a post-test to examine student growth?

I: Yes

R: Are those common assessments?

I: Yes

R: Do you design them together in your PLC?

I: Yes, mostly. Last year they were all designed in our PLC and this year there has been a few changes to the curriculum here and there. And it hasn't been as much of a collaborative effort.

R: What are you doing with the data now within you PLC?

I: Natta, Nothing. We haven't looked at it once this year.

R: So your data is your own data?

I: Yes, I looked at it myself to see if there has been growth with students, but together as a team of teachers, grade level teachers, we have not examined the data. I don't use data within the PLC, my data is completed on my own.

R: When you see the data, how do you use the data?

I: What I just did with the data on my own and not with my PLC, I used a formative assessment to see what students to give better instruction……..(discussed her assessments)

R: Do you design formative common assessments?

I: Yes, I do, but my team members do not, but I shared it with the others.

R: Describe what you know about professional learning communities (PLCs) and how they compare to data teams. How do you know when you are supposed to be using data?

I: We don't know the difference. The professional development needed clearer expectations of what needs to occur in PLCs and that there are too many things to do in our PLCs. It (data team concept professional development) was so thrown at us that I don't think we know what to do with the stuff after we used it and when to go and look at it. I would think that tomorrow we have a paper coming in and that is a common summative assessment. I think after we graded those we should be meeting to discuss our findings, but I probably won't because we still don't have a curriculum maps so we don't know what we are teaching next.

R: So currently in your PLCs are you more working on curriculum, Rubicon Atlas?

I: Yes, we have been doing that stuff. With all the stuff that we have to do in our PLCs and other duties, it is difficult to be able to work on data too. And then we have been working on realigning everything with Common Core that we implemented two years ago. But with new people entering they have come with new ideas. So the past two years we have had new people come and go with their ideas. Not to their fault, but to the fault of our department head says he likes the new ideas. But now it's a matter if we add this we can't keep it all something has to go. So once again it has been working on the curriculum for the third year. And then designing all the common assessments we don't have time to look at the data.

R: What are your suggestions for improving the way that data is used within your PLC?

I: Well, I guess the first step is to actually use it, look at it, and collect it collaboratively. And then see what we did, compare everyone's data and if it is all similar and what areas went down.

R: What are your recommendations for administrators who are seeking to implement data teams within the school?

I: Being more involved to make sure we know what we are doing and give us a timetable of more clear cut and how. This is the process and this is how you use it and how frequently should it be gone over and used in your PLC. Every time you finished with a unit, or every other time, or I don't know. This year we have to turn in two data forms, but it's like wiggle room. Limit everything else that we are doing. With all the stuff that we have to do in our PLCs and other duties, it is difficult to be able to work on data too.

The professional development needed clearer expectations of what needs to occur in PLCs and that there are too many things to do in our PLCs, we have been doing curriculum mapping and realigning everything with Common Core…all we have done in the past three years is redesigned the curriculum and with all the assessments we are designing, we don't have time to look at the data.

R: Did you turn in your two last year?

I: But we were told by our department head that we don't turn anything in.

R: In your opinion, what types of teacher training would be beneficial in assisting teachers to better use data effectively?

I: Well I guess, like models of what schools use it, how do they use it, and what do they do with it. And how has it improved their school. We did the mock walking through of how to use it, so I guess I understand the process, but now what. I think that they just threw it together at the last minute because it was poorly designed. Then what and how has it benefited other schools I think would shed more light on why we are doing this. We are getting a bunch of research driven stuff, but I actually want to see real schools that use it and not just researcher's statistics.

Appendix D: Observation Protocol

Doctoral Study: Middle School Teachers' Perceptions of the Use of Data within Professional Learning Communities

PLC Group: _____

Date: _____

Time of Observation: _____

Place: _____

Observer: William Baker

Greeting/Introduction: I would like to thank you for agreeing to participate in this study and for allowing me to observe this PLC meeting.

Purpose: The purpose of this study is to examine teachers' perceptions of how data are used within PLCs and teachers' perceptions of their needs to use data more effectively to improve teacher capability and raise student achievement.

Ethics/Confidentiality: Thank you for reviewing and signing the consent form. Participation in the observation will not affect your professional position. At any time during the study if you would like to withdraw from participation, you can do so without consequence. The data collected will be kept confidential throughout the study as each participant will be assigned an identification number to replace your name on all documents. All data will be kept confidential by storing it at my home in a locked cabinet and password protected computer and will be permanently destroyed five years after the study's completion.

Member Checking: At a later date you will also be asked to participate as a member checker to review the data transcription of this PLC meeting and review my analysis and findings from the data of your PLC meeting. Member checking is a way to ensure that my personal biases were not present during the analysis phase to ensure the accuracy of your perspectives. This process will take approximately 20 minutes.

Permission: You and I have both signed and dated the observation consent form certifying your participation in this observation. You have received a copy of the signed consent form for further reference. Do you have any questions or comments before you begin your PLC meeting?

Conclusion: I would like to thank you for allowing me to observe this PLC meeting and if you have any questions or comments, please feel free to contact me.

IRB Approval #: 10-24-14-0351355

Appendix E: Observation Template

Doctoral Study: Middle School Teachers' Perceptions of the Use of Data within Professional Learning Communities

PLC Group: _____

Date: _____

Time of Observation: _____

Place: _____

Observer: William Baker

Objectives of Meeting:

Members Present:

Members Absent:

Discussion/Old:

Discussion/New:

Data Brought Forth:

Conclusions Drawn by Team:

Next Steps:

Artifacts or ongoing activities were observed:

Data	
Y N	Agenda for meeting
Y N	Minutes being taken
Y N	Working on common assessments whether formative, summative, etc.
Y N	Rubrics being designed
Y N	Analysis of student assessments
Structure	
Y N	Started on time
Y N	Attendance taken
Y N	Established roles
Y N	Opening/Closing
Y N	Agenda for following session
Y N	Using state and district standards and power objectives
Instructional	
Y N	Pacing guides/Curriculum maps
Y N	Learning Targets
Y N	Using state and district standards and power objectives
Y N	Discussing individual students strengths and weaknesses
Y N	Discussing instructional strategies
Y N	Discussing differentiated lessons
Collaboration	
Y N	Members listen and value the opinions of others
Y N	Criticism is constructive
Y N	All members are participating
Y N	Time management is present
Y N	Focus on student achievement
Y N	Team members share ideas of what works and has not worked
Y N	Connections are made from current and past goals

Other Observations:

Appendix F: Example Observation Template

Doctoral Study: Middle School Teachers' Perceptions on the Use of Data within Professional Learning Communities

PLC Group: A

Date: 10/27/2014

Time of Observation: 10:30am – 11:10am

Place: Classroom of one of the participants

Observer: William Baker

Objectives of Meeting: Design common assessment on unit test.

Members Present: All present

Members Absent: None

Discussion/Old: The members of the PLC did not discuss old business; they just started on designing the common assessment.

Discussion/New: Discussed last year's test and this year's test. (Length, time needed to complete, questions too vague).

Data Brought Forth: The members of the PLC did not bring up any student data. They discussed how long it took the students last year to finish a test and the questions that students were questioning.

Conclusions Drawn by Team: The PLC finished designing the test and discussed when they were able to give the test to their students.

Next Steps: No next steps were discussed except for when they were going to give the test.

Artifacts or ongoing activities were observed:

Data		
Y	N	Agenda for meeting
Y	N	Minutes being taken
Y	N	Working on common assessments whether formative, summative, etc.
Y	N	Rubrics being designed
Y	N	Analysis of student assessments
Structure		
Y	N	Started on time
Y	N	Attendance taken
Y	N	Established roles
Y	N	Opening/Closing
Y	N	Agenda for following session
Y	N	Using state and district standards and power objectives
Instructional		
Y	N	Pacing guides/Curriculum maps
Y	N	Learning Targets
Y	N	Using state and district standards and power objectives
Y	N	Discussing individual students strengths and weaknesses
Y	N	Discussing instructional strategies
Y	N	Discussing differentiated lessons
Collaboration		
Y	N	Members listen and value the opinions of others
Y	N	Criticism is constructive
Y	N	All members are participating
Y	N	Time management is present
Y	N	Focus on student achievement
Y	N	Team members share ideas of what works and has not worked
Y	N	Connections are made from current and past goals

Other Observations: During the PLC, one member often left the room and was on her cell phone throughout the meeting. There was no leader of the group, all were

participating as equals. During the meeting, although she was participating, one of the teachers was grading student work throughout the entire meeting. No formal agenda was used, only discussed the one topic of designing a common assessment.

Appendix G: Document Review Protocol

Purpose: The purpose of this study is to examine teachers' perceptions of how data are used within PLCs and teachers' perceptions of their needs to use data more effectively to improve teacher capability and raise student achievement.

The documents that I will be observing include teacher field-notes taken while in a PLC and the minutes from previous PLCs. These documents are found in the school's PLC folder that is kept in the office for teacher review. I will photo copy only the documents that will be used in the study.

The data collected from the review of the above mentioned documents will be used to examine common themes or ideas on how teachers are using data within PLCs.

Ethics/Confidentiality: The documents that will be used will be scanned in the office and the PLC notebook will not leave the office. The data collected from the document reviews will be kept confidential as each participant will be assigned an identification number to replace your name on all documents. All data will be kept confidential by storing it electronically and will be permanently destroyed five years after the study's completion.

Permission: Permission to review the documents will be given by the principal of the Eastside Middle School prior to the examination of the documents.

IRB Approval #: 10-24-14-0351355

Document: _____

Date of Document: _____

Date of Review: _____

Time of Review: _____

Place: _____

Reviewer: William Baker

Objective of Meeting:

Topics Discussed:

Data Discussed/Common Assessments Designed:

How Were the Data Used?

How the Data Informed Instruction:

Instructional Strategies Discussed from Data Analysis:

Conclusion Drawn by Team:

Appendix H: Example Document Review Protocol

Purpose: The purpose of this study is to examine teachers' perceptions of how data are used within PLCs and teachers' perceptions of their needs to use data more effectively to improve teacher capability and raise student achievement.

The documents that I will be observing include teacher field-notes taken while in a PLC and the minutes from previous PLCs. These documents are found in the school's PLC folder that is kept in the office for teacher review. I will photo copy only the documents that will be used in the study.

The data collected from the review of the above mentioned documents will be used to examine common themes or ideas on how teachers are using data within PLCs.

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Permission: Permission to review the documents will be given by the principal of the Eastside Middle School prior to the examination of the documents.

Document: Prior minutes of a PLC from PLC C

Date of Document: 10/23/2014

Date of Review: 11/10/2014

Time of Review: 7:45am

Place: Teacher room located in the main office

Reviewer: William Baker

Objective of Meeting: Curriculum Mapping

Topics Discussed: The members were designing a unit using Rubicon Atlas. They were able to complete the goals, objectives, what students will learn, and essential questions. Discussed what still needs to be completed in finishing up the unit, designing common assessments.

Data Discussed/Common Assessments Designed: Teachers did not mention using any student data while completing their curriculum mapping unit.

How Were the Data Used? I cannot say for certain that data was or was not used according to the minutes.

How the Data Informed Instruction: I cannot say for certain that data was or was not used according to the minutes.

Instructional Strategies Discussed from Data Analysis: I cannot say for certain that data was or was not used according to the minutes.

Conclusion Drawn by Team: According to the minutes, the PLC group had almost completed the curriculum mapping unit. They stated that the only item left to complete was designing common assessments and uploading them to Rubicon Atlas.

Appendix I: Member Check Protocol

Member Check:
Member checks provide the participants of this study an opportunity to evaluate the adequacy of my findings from the data I collected. The member checks will also help to ensure that my personal biases are excluded from my findings and prevent incorrect information from becoming part of the study. The most important aspect of member checks is that you as a participant may corroborate that these findings reflect your personal perceptions and experiences, or the findings do not reflect your perceptions and experiences.

Purpose of Study:

The sole purpose of this study was to answer the research questions to get a better understanding of how the teachers within the Eastside Middle School are using data to drive instruction. This was done by examining the teacher perceptions on using data while in their PLCs.

Data Analysis:

I used an open coding system during the analysis phases, to help determine any common phenomenon or themes discovered throughout the interview transcripts, observation field notes, and document review. I focused on the data segments that are relative to my research questions discovering common themes and categories.

Findings:

The analysis of the data discovered four common themes and two sub-themes.

Themes:

1. Teachers felt "forced" to use data. According to the analysis, being forced to use data to make instructional decisions takes away from the teacher's individual judgments in informing their practice.

2. Teachers believe that they have too many initiatives to perform during PLCs.

3. Teachers believe that they have too many new district and school initiatives occurring at the same time. Therefore the teachers believed they did not have enough time to use data.

4. Teachers believe that they are unprepared to use data effectively, mostly due to the "lack" or "improper" training on implementing data teams.

Sub-Themes:

1. Teachers were either ineffectively using data while in PLCs or not at all. Common formative assessments were not being used to continually analyze student progress.

2. Teachers did not understand that their PLCs and data teams were supposed to be intertwined. Most believe that the two are separate categories and that data is supposed to only be used two or four times during their PLCs.

My Interpretations:

After analyzing all of the data, I believe that the reason teachers at the Eastside Middle School are not using data while in their PLCs is due to the lack of training. All participants stated that the training that they received on implementing data teams was inadequate and did not provide them the information needed to be successful data users. The one-time professional development session was overwhelming and did not contain all the information needed to become effective data users. Teachers are open and willing to use data, but many believe that they have too much to do while in the PLCs and do not have the time to use data. There are no clear directions on what to do while in a PLC and when to use data. There is also a misunderstanding of how data teams and PLCs are supposed to be intertwined.

My Recommendations:

It is my recommendation to provide a five-day professional development series on implementing effective data teams. The professional development sessions will be spread out throughout the school year, therefore, providing adequate time to cover all the material in a manner that will not feel overwhelming. The sessions include: designing common formative assessments, collecting data, analyzing data, designing SMART goals and action plans, and reflecting and evaluating the data team process.

Your Thoughts About the Findings: