AN EXPLORATION OF TEACHER CONNECTEDNESS AND COMMITMENT

IN URBAN HIGH POVERTY SCHOOLS

A DISSERTATION

SUBMITTED TO THE FACULTY

OF

THE GRADUATE SCHOOL OF APPLIED AND PROFESSIONAL PSYCHOLOGY

OF

RUTGERS,

THE STATE UNIVERSITY OF NEW JERSEY

BY

SHAINDL SCHNAIDMAN

IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE DEGREE

OF

DOCTOR OF PSYCHOLOGY

NEW BRUNSWICK, NEW JERSEY   AUGUST 2020

APPROVED: _____

                    Elisa Shernoff, Ph.D

                    _____

                    Anne Gregory, Ph.D

DEAN: _____

ABSTRACT

Teacher turnover in urban, high poverty schools creates challenges that create challenges for schools as well as students. Current supports in place for teachers focus on teacher effectiveness as a mechanism for improving student outcomes. Effectiveness is necessary to teacher and student success, but it may be insufficient to stem the tide of attrition. An important but often overlooked construct related to teacher commitment and retention is connectedness, which can be critical to the success and long-term commitment of teachers. Using extant data from a federally funded study (Shernoff et al., 2011; Shernoff, Lakind, Frazier, & Jakobsons, 2015; Shernoff et al., 2016), this study examined the associations between teacher connectedness, commitment, experience of professional community, and effectiveness. Subjects included 15 early career teachers, and 64 mid/later career teachers from three urban Pre-K-8 schools. Results of multiple regression analyses revealed that teacher connectedness was a significant predictor of teacher commitment to remain in teaching, when controlling for teacher-student racial matching and years of teaching experience. Dosage of participation in professional learning communities was not a significant predictor of teacher sense of professional community when controlling for teacher-student racial matching and years of teaching experience. An exploratory correlational analysis with 15 early career teachers revealed that teacher sense of connectedness was not significantly associated with quality of teacher instruction. Implications for future research and practice are discussed.

DEDICATION

This dissertation is dedicated to Zeidy, who emerged from the ashes of the Holocaust and never stopped rebuilding. Zeidy, your life is a testament to the endurance of the Jewish spirit. Not only did you rebuild, but you rebuilt with a smile on your face, a bounce in your step, a twinkle in your eye and a joke on your lips. As somebody who saw so much hate, destruction, and negativity in your lifetime, you were determined to spread only love, warmth, compassion, and generosity to people from all walks of life. Although it's hard for me to believe you are no longer here, I know that you are cheering me on as I achieve this milestone. I hope that my life continues to be an honor to your legacy.

ACKNOWLEDGMENTS

As I reach this milestone of competing my dissertation, I would like to thank the many people who have helped me along my journey. My deepest appreciation goes to my dissertation chair, Dr. Elisa Shernoff, who has been invested in my progress since I began at GSAPP. Thank you, Elisa for all of your support, guidance, and mentorship throughout graduate school and through the dissertation process in particular. I would like to express my heartfelt gratitude to Dr. Anne Gregory for serving on my committee, and for your suggestions which enhanced the quality and rigor of this study. Thank you Dr. Timothy Cleary, my faculty mentor, for all of your encouragement and assistance along the way. I would also like to thank Dr. Jeff Segal and Dr. Agnes Golding for all of their mentorship and assistance along the way. Julie and Sylvia, I want to thank you for creating the positive, caring spirit of GSAPP and taking care of us all with a smile.

I would also like to take this opportunity to thank my family, who have stood by me throughout this journey. Thank you to my parents and my in-laws, who believe in me and provided endless support, encouragement and assistance. I could not have made it to this point without you! Thank you to my sister-in-law Bracha for all of your help along the way! Last but certainly not least, I want to thank Asher, Chaya, and Miriam for keeping me smiling these past four years! Thank you for never giving up hope and believing that this could actually be achieved. This accomplishment is not mine alone, but it is ours as a family.

TABLE OF CONTENTS

LIST OF TABLES

Introduction

Teacher turnover in urban, high poverty schools is an issue of tremendous urgency, with far reaching consequences. The risk of turnover is highest for teachers within their first five years of teaching (Johnson & Birkeland, 2003). Specifically, Smith and Ingersoll (2003) reported national statistics estimating that 14% of early career teachers left teaching within one year, 33% within three years, and 46% within five years. Papay, Bacher-Hicks, Page and Marinell (2017) examined teacher turnover rates in sixteen urban school districts across seven states, finding that teacher turnover varies substantially by district. Across the districts examined, 13% to 35% of new teachers left their district after one year, while 44% to 74% left within five years.

However, turnover is not unique to early career teachers. Although most teachers who leave the field do so early in their careers, other teacher become disillusioned with teaching over time, and leave the field later (Day, 2019; Sutcher, Darling-Hammond, & Carver-Thomas, 2016). Additionally, while some unhappy mid/later career teachers leave the field, others cannot do so because of the practical or financial difficulties associated with switching careers at a later stage (Day, 2019). Although such teachers may be physically present at their jobs, they may not be committed their students or their schools, which can result in negative educational and organizational outcomes (Johns, 2010; Day, 2019). Since early career teachers are at the greatest risk of attrition, the experiences of mid and later career teachers have not been studied as extensively as early career teachers (Rolls & Plauborg, 2009). Therefore, this study focused on connectedness as an important resource for teachers across the career spectrum, to reduce teacher burnout and turnover across the career spectrum.

Current supports in place for teachers typically focuses on building knowledge, skills, and beliefs regarding effective instruction, classroom management, and engaging learners

(Ingersoll, 2012; Ingersoll & Strong, 2011; Shernoff et al., 2011; 2015; 2016). However, there is another aspect of teacher functioning that is often overlooked but may be related to teacher resilience and retention, and ultimately, on student achievement. This domain of professional functioning can be referred to as "connectedness." The term "connectedness" in schools represents teachers' feelings of trust and care for each other, respect for one another, and teachers' ability to discuss feelings, worries and frustrations with other teachers (Bryk & Schneider, 2002; Rosenholtz & Simpson, 1990; Shernoff et al., 2016). In this study, connectedness encompasses the constructs of trust and professional community. Professional community refers to teachers' perceptions of collegiality within the school, teachers' willingness to invite other teachers to observe their lessons, and teachers' tendency to discuss instruction and discipline concerns with other teachers (Bryk & Schneider, 2002). Connectedness is also closely linked to the construct of commitment. Commitment refers to teachers' feeling of responsibility to remain teaching within their school. When individuals feel connected and valued within an organization, they feel more committed to the success of the organization as a whole and are more likely to stay (Allensworth, Ponisciak, & Maezzo, 2009; Bryk & Schneider, 2002).

In urban schools, where teaching conditions can be most challenging and rates of turnover are higher than national averages, it is important to be considering the many avenues and components of teacher support. Moreover, fostering connectedness leverages resources indigenous to schools, which is an advantage when seeking to improve outcomes for impoverished urban schools. Therefore, this study will examine whether connectedness is associated with teachers' reported commitment to remain in the teaching field. This study will also examine whether participation in Professional Learning Communities (PLCs) is associated

with an increase in teachers' feelings of connectedness. Finally, this study will explore whether connectedness is related to effectiveness in early career teachers.

The Problem of Turnover in Urban Schools

The negative consequences associated with turnover have been well documented in the attrition literature (Boyd et al., 2005; Guin, 2004; Shernoff, Lakind, Frazier, & Jakobsons, 2015). Turnover drains the financial resources of school districts, affects the functioning of schools, and is associated with poorer achievement of students. In the next section, I will review the organizational effects of turnover, as well as the effects of turnover on students.

Effect of turnover on schools. Chronic teacher turnover creates instability for schools and districts, by forcing them to repeatedly expend limited resources to recruiting and training new teachers (Guin, 2004; Shernoff, Lakind, Frazier, & Jakobsons, 2015). Of great concern is that urban high poverty schools experience higher rates of teacher turnover than suburban schools or schools serving more affluent students (Hanushek et al., 2004; Lankford, Loeb, & Wyckoff, 2002). In a study of teacher mobility in Texas, it became clear that teachers tended to prefer non- ethnic minority, high- achieving, higher income students (Hanushek, Kain and Rivkin, 2004). In a study of teachers in New York State, it was similarly found that teachers were more likely to leave poor urban schools (Lankford et al., 2002). Examining data on new public school teachers in New York State who began teaching in 1993, Lankford et al., (2002) found that five years later, less than 40% of those teachers were still at their first school. These rates varied significantly depending on the type of school. In large urban school districts, the turnover rates were much higher: 28% of teachers in the New York City region were still in the same school five years later, as compared with 46% in suburban schools (Guarino, Sanitibanez, & Daley, 2006; Lankford et al., 2002).

The existing literature on turnover suggests that difficult working conditions are associated with attrition in urban schools (Allensworth et al., 2009; Hanushek et al., 2004). These can encompass challenges such as underfunding, lack of materials and resources, and misunderstandings between parents and schools (Allensworth et al., 2009; Hanushek et al., 2004). A study commissioned by the Consortium on Chicago School Research examined the turnover rates in Chicago Public Schools (Allensworth et al., 2009). The 100 schools with the highest attrition rates, which lost about one quarter of their teaching staff every year and half over five years, were servicing nearly 100% high poverty, African American and Latinx students. Urban schools are often serving students who are disadvantaged in many ways, such as poverty, ethnic minority status, disproportionality in discipline and achievement (Gregory et al., 2016; Gregory, Skiba, & Noguera, 2010) and poor funding for education (Allensworth et al., 2009; Hanushek et al., 2004). For these needy students, it is even more critical to prevent teacher turnover, which can further reduce the quality of their schools. Therefore, in the current study I propose that a focus on connectedness can be a practical, cost-effective way to buffer some of the difficult working conditions inherent to teaching in urban schools, and thereby improve teacher commitment and retention.

Effects of turnover on students. Research on the relationship between teacher turnover and student achievement reveals that teacher turnover is negatively correlated with student achievement (Boyd et al., 2005). In one such study, Guin (2004) studied 66 elementary schools in a large urban district to examine the degree to which turnover at the school level was related to students' scores on statewide reading and math assessments. Results, revealing significant and negative correlations, indicate that schools with higher turnover have lower achievement (Guin, 2004).

A critical analysis of the attrition literature yields mixed results about the quality of the teachers who leave. Some research suggests that the teachers most likely to leave the profession or move schools are those with the highest standardized test scores, or the highest achieving teachers in the field (Guarino et al., 2006; Guin, 2004; Johnson & Birkeland, 2003; Lankford et al., 2002; Smith & Ingersoll, 2004). Contrasting research suggests that it is the weakest, most ineffective teachers in the field that leave (Hanushek, Rivkin, & Schiman, 2016). It would be reasonable to hypothesize that if the most effective teachers leave, student achievement would be adversely affected, but that if the most ineffective teachers leave, student achievement should improve. However, the literature indicates this is not consistently the case (Guarino et al., 2006; Guin, 2004; Hanushek, Rivkin, & Schiman, 2016; Johnson & Birkeland, 2003; Lankford et al., 2002; Smith & Ingersoll, 2004). Regardless of the quality of the teachers that leave, attrition is negatively related with student achievement across the board. This indicates that attrition affects student achievement via other mechanisms apart from teacher quality alone.

Ronfeldt, Loeb, and Wyckoff (2013) estimated the effects of teacher turnover on approximately 850,000 New York City fourth and fifth grade students over eight years. Results suggested that teacher turnover had a significant and negative effects on student achievement in both math and reading. They found that turnover is particularly harmful to the achievement of students in schools with large populations of low-performing and African American students. Ronfeldt, Loeb, and Wyckoff (2013) also found that turnover significantly affects the achievement of the students of teachers who did not leave the grade level or the school, suggesting that turnover causes a disruption effect in the school, no matter how qualified replacement teachers are. These results indicate that turnover may have a more far-reaching and

harmful influence on student achievement, because it can reach beyond just those students of teachers who left or of those that replaced them.

Similarly, Hanushek, Rivkin, and Schiman (2016) investigated the mechanisms of turnover that caused trouble for schools and found that even in cases where less effective teachers left, organizational disruption accounted for much of the lowered achievement. When teachers leave schools, other teachers are often eligible to move to a more desired grade level or position, causing additional shifts of experience and productivity. In general, high turnover in schools is associated with reduced school-specific human capital, disrupted school programs, and reduced teacher collaboration (Hanushek et al., 2016). Considering these findings, it was hypothesized that fostering connectedness in schools through PLCs and other interventions can help boost teacher resilience and commitment, thereby improving the schools they teach in and the students they serve.

How Connectedness Operates in Organizations Including Schools

Research from the fields of economics, social sciences, and political science highlights how connectedness relates to organizations in general. There are several themes within the literature that emerge regarding the role connectedness plays in organizations and schools. Those four themes include how connectedness plays a role in: (1) teacher functioning and productivity, (2) social connections, (3) affiliation and commitment, and (4) positive school functioning. In the following section, I will review the role connectedness plays in each of these four elements.

Teacher functioning and productivity. Putnam (1995) studied the functioning of democratic institutions. He stated that the effective functioning of democratic institutions is largely dependent on how willingly the citizens of those institutions voluntarily come together to

address common concerns. Putnam (1995) maintained that this willingness depends on the nature

of social connections between citizens, particularly their levels of interpersonal trust.

In the field of economics, Fukuyama (1995), analyzed how social trust contributes to the

effective functioning of economies. He argues that the degree of spontaneous social interactions

within a culture contributes to a nation's capacity to sustain multifaceted economic relations.

According to Fukuyama (1995), high levels of social trust are more efficient for economic

productivity than the need for reliance on direct monitoring and extensive legal procedures to

regulate economic transactions. In schools, this can mean that high levels of social trust would

eliminate the need for extensive monitoring or rules imposed by the administration. Instead, high

levels of social trust in a school could motivate school personnel to willingly maintain their

responsibilities in the context of a positive atmosphere.

Social connections. The concept of social connections in organizations can be linked to

James Coleman's theory of social capital (Bryk & Schneider, 2002). Coleman (1988) considered

social capital to be a property of the relationships among individuals within a social system.

Coleman argued that the characteristics of these relationships influence many of the social and

behavioral realities within a given social system. Coleman (1988) conceptualized social capital

as being similar to human capital in its intangibility. However, while human capital is acquired

through education, social capital develops through continuous social interaction. Similarly,

effectiveness of teachers within schools can be understood as human capital. Effectiveness is

acquired through proper training, coaching, and experience. Connectedness within schools can

be understood as social capital, cultivated through ongoing relationships.

According to Coleman (1988), social capital is an important resource required for the

development of human capital. Correspondingly, connectedness in schools should be understood

as not merely supplementary, or secondary, to effectiveness, but rather as an important resource

for the development and cultivation of overall school success, as well as individual teacher

effectiveness. According to Coleman (1988) two factors combine to create strong social capital.

The first factor is referred to as "social network closure," which means a high level of

interconnectedness among individuals. This makes it easier to communicate and also minimizes

miscommunications, which often lead to interpersonal rifts if left unaddressed. The second factor

is referred to as "trustworthiness." Coleman (1988) explained this phenomenon as a natural

consequence of strong relationships. The presence of strong relationships not only makes it

possible to share necessary information, but also allows people within an organization to convey

mutual expectations, and to ensure that individuals are actually meeting those expectations.

Thus, Coleman (1988) maintained that networks with high levels of trustworthiness can more

easily sustain socially desirable standards and restrict improper actions. This means that in

schools with high levels of trust, administrators do not have to resort to extensive monitoring and

disciplinary actions to manage their staff, but rather can rely on the socially desirable norms and

standards created by a strong network of trusting individuals.

Interconnectedness and trust may also play a role in the relationships between teachers

and students. Classrooms that have high levels of "social network closure" and "trustworthiness"

can foster positive teacher- student relationships and consequently, involved and motivated

students. The context of positive, trusting relationships can help to prevent misunderstandings or

misbehavior through fostering shared values and norms. Moreover, when students and teachers

trust one another, they have a better ability to communicate more effectively when

misunderstandings arise or misbehavior occurs (Gregory et al., 2016).

Affiliation and commitment. Bryk and Schneider (2002) proposed that social relationships in schools are a fundamental feature of how schools operate. Bryk and Schneider (2002) believe that the nature of these social exchanges defines a school's capacity to improve. Furthermore, Bryk and Schneider (2002) maintain that this social trust is especially important in disadvantaged urban schools. Bryk and Schneider (2002) point to organizational research, suggesting that the quality of social relationships within a school community can directly influence the school's effectiveness in educating its students.

Additionally, Bryk and Schneider (2002) cite research from the area of group theory to further explain the subtleties of how trust works in schools. Bryk and Schneider (2002) explain that when individuals maintain relationships with people or organizations, these long-term relationships develop a value of their own. As part of self- identification, individuals begin to define themselves through meaningful affiliations with specific people, groups, or organizations. People begin to adopt the perspectives and interests of others within their social networks, and feel committed to act based on these feelings, interests, and shared goals. In addition to material advantage, being a valued member of a social network affords individuals important social-psychological rewards.

An interesting phenomenon depicted in the attrition literature highlights the importance of connectedness in teachers' experiences. Studies have shown that new teachers of African American, Latino/a, Asian, and mixed backgrounds are more likely than European American teachers to remain committed to urban schools (Whipp & Geronime, 2017).

Similarly, Taylor and Frankenberg (2009) found that European American candidates without previous urban experiences tended to have larger declines in commitment to teaching in an urban school by the end of their year-long preparation program. Reininger (2012) confirmed

these findings with data from the National Education Longitudinal Study. Unlike other professions, teachers tend to work closely to where they grew up and in schools like the ones they attended (Reininger, 2012). In addition, cross-racial friendships, unpaid volunteer work in community organizations, and employment in multiracial settings before and adjacent to teacher preparation have been linked to commitment to continue teaching in urban schools (Dedeoglu & Lamme, 2011). Johnson and Birkeland (2003), in a longitudinal interview study of 50 new teachers in Massachusetts, said teachers reported that their work is more difficult when they and their students do not share characteristics like social expectations, race, ethnicity and language.

The role that interconnectedness and trust play in fostering affiliation and commitment within organizations highlights the importance of developing social capital within schools. Friendships and collaborative relationships within schools lead to higher levels of trust and feelings of connection among school personnel, which can foster a sense of belonging and commitment to a school. Furthermore, the data reported by Dedeoglu and Lamme (2011), Johnson and Birkeland (2003), Reininger (2012), Taylor and Frankenburg (2009), and Whipp and Geronime (2011), establish that social capital has the power to help teachers overcome the difficult hurdles inherent to urban school settings.

Positive school functioning. How can "connectedness" or "trust" or "social capital" contribute to the capacity for the successful functioning of schools, particularly in challenged urban environments? Research on organizational behavior and management suggests that trust is especially important for organizations that operate within chaotic environments, that depend heavily on information sharing, and whose activities require effective decentralized decision making. All three of these factors define the functioning of schools. In addition, organizational

research suggests that trust is especially important during times that call for major structural change (Bryk & Schneider, 2002).

Interventions to Improve Teacher Connectedness

Currently, school districts deliver several forms of support to teachers to help them build their skills and to reduce turnover. Most of these supports focus on teacher effectiveness as the targeted construct for improvement. In the section that follows I will review the elements of existing supports that could have a positive effect on connectedness among teachers at all stages of their careers.

Professional learning communities. A professional learning community (PLC) is a forum in which teachers come together to collaboratively focus on areas in student achievement that need improvement, and to enhance their own knowledge and skills in order to improve student learning and achievement (Hallam, Chou, Hite, & Hite, 2012). Hord (2004) delineates five characteristics of PLCs: (1) Supportive and shared leadership, (2) shared values and vision, (3) collective learning and application of that learning, (4) supportive conditions, and (5) shared personal practice. The literature on PLCs indicates that this method of professional development has significant and positive relationship with student achievement (Hord, 2004; Louis & Kruse, 1995; Ronfeldt, Farmer, McQueen, & Grissom, 2015). Additionally, PLCs have been found to buffer the effects of poverty on achievement (Kannapel, Clements, Taylor, & Hibpshman 2005). In the sections below, I will review the relationship between PLCs and students' achievement. I will also highlight the elements of PLCs that align with the construct of connectedness.

Ronfeldt, Farmer, McQueen, and Grissom (2015) analyzed survey data from over 9,000 teachers across 336 Miami-Dade County public schools to assess whether teacher collaboration, an essential component of PLCs, was related to student achievement. These data revealed that

teachers and schools that engaged in better quality collaboration had better achievement gains in math and reading. Ronfeldt et al. (2015) also found that teachers improved at greater rates when they worked in schools with better collaboration quality. Green and Allen (2015) studied the perceptions of teachers in high-achieving schools and low-achieving schools about the quality of their professional development (PD) and how much their PD aligned with the standards of professional learning communities. Results revealed that teachers in high-achieving schools perceived their professional development opportunities aligned with the values of professional learning communities to a greater degree than teachers in low-achieving schools, indicating that professional development designed as PLCs, supporting increased teamwork and collaboration, contributed to higher student achievement.

Kannapel, Clements, Taylor and Hibpshman (2005) surveyed teachers working in eight high-performing, high poverty schools to determine common practices that may explain the success of the schools. The study found teachers in high poverty/high-performing schools reported working more frequently in PLCs, specifically with high levels of collaboration. Similarly, Hord (2004) provides a case study of one high poverty elementary school facing high teacher turnover and academic performance far below state standards. Over several years, through restructuring the school to become a professional learning community, this school succeeded in improving its student's achievement scores, and in gaining the trust of the community as a successful institution.

The construct of connectedness represents teachers' feelings of trust for each other, care for each other, respect for one another, and ability to discuss feelings, worries and frustrations with other teachers (Rosenholtz & Simpson, 1990). Similarly, the characteristics of PLCs include supportive and shared leadership, shared values and practice, collective learning, and supportive

conditions (Hord, 2004). Teachers in schools designed as PLCs report that PLCs provide a

collegial environment and a mechanism for disseminating and implementing a shared curriculum

and mutual goals (Battersby & Verdi, 2015). Thus, it seems that in order to build effective

professional communities, schools should work on building the trust necessary to truly

collaborate and deprivatize practice. It also may be that through building professional

communities, trust and connectedness are fostered within schools. Therefore, in the current

study, I was interested in examining whether there were increases in sense of connectedness

among teachers working in urban high poverty schools who participated in PLCs.

   Other mechanisms for developing connectedness. Additional supports in schools often

include mentoring or coaching programs, which are designed to help newer teachers acclimate to

the field. Mentoring is defined as personal guidance provided, usually by more experienced

teachers, to beginning teachers in schools (Smith & Ingersoll, 2004). Coaching can be defined as

a job-embedded, sustained, classroom-based support to enhance teachers' instructional

effectiveness (Shernoff et al., 2015). Although coaching and mentoring are not the direct focus

of the current study, it is important to examine these mechanisms of existing support because of

their relevance to the construct of connectedness. The literature typically highlights how

mentoring and coaching are related to teacher effectiveness; however, fewer studies have

examined the effects of mentoring and coaching on connectedness. Additionally, although

mentoring and coaching programs are designed to benefit newer teachers, they can benefit

experienced teachers in many ways as well. In the following section, I will discuss how

mentoring and coaching programs can foster connectedness among new and experienced

teachers.

Mentoring can help to build interconnectedness and trust within schools in several ways. Mentoring creates a mutually rewarding relationship between a new teacher and a more experienced teacher. A mentoring relationship can show a new teacher that having someone observe them can be supportive, not threatening. For new and experienced teachers, inviting other teachers to observe them can help to deprivatize practice and increase professional dialogue within schools, which is an important element of connectedness. For experienced teachers, mentoring can provide an opportunity for them to feel valued by contributing to the profession in meaningful ways. Most importantly, mentoring also provides opportunities for professional and social connections for mentors and mentees. Since lack of social connections are a well-documented cause of teacher burnout cross the career spectrum, mentoring programs are an important resource to help reduce turnover in schools (Johnson, Kraft, & Papay, 2012; Sarros & Sarros, 1992).

In this section, I highlight several components of mentoring that most influenced teachers' decisions to remain teaching. I also note how these components are related to the construct of connectedness. Kapadia, Coca, and Easton (2007), as part of a project of the Consortium on Chicago School Research (CCSR), sought to learn more about the induction experiences of early career teachers within their first two years of teaching. Specifically, Kapadia et al. (2007) examined if induction supports effect new teachers' experiences and influence their decision to remain in the same school, or to remain teaching. Their analyses used data from CCSR's biannual survey given to 1,737 elementary and high school Chicago Public School teachers in their first two years of teaching. Both elementary and high school new teachers receiving strong levels of mentoring were much more likely to report a good experience, intend to continue teaching, and plan to remain in the same school.

To assess how different supports affect new teachers' experience and future teaching intentions, Kapadia et al. (2007) examined how new teachers rated the value of several supports. In both elementary and high school, the supports that new teachers rated as most helpful were receiving suggestions or advice from peers and having regularly scheduled times for collaborative preparation. The three supports that had the greatest influence on new elementary school teachers were encouragement and assistance from their principal, regularly scheduled opportunities to collaborate with peers in the same field, and participation in a network of new teachers (Kapadia et al., 2007). Similarly, new high school teachers who reported having support from their principals, participating in teacher networks, and suggestions from peers were most likely to report a good teaching experience. Principal support and collaboration with peers were supports that Kapadia et al. (2007) found most influenced high school teachers' intention to remain teaching. As indicated by organizational research, all of these are factors that can be critical not only for new teachers, but also for mid/later career teachers as well, since all teachers within a school contribute to the successful functioning of the organization as a whole (Coleman, 1988; Fukuyama, 1995; Putnam, 1995).

Smith and Ingersoll (2004) using data from the 1999–2000 Schools and Staffing Survey, examined the effects of different kinds of mentoring and other induction activities on teacher retention. Some of the components Smith and Ingersoll (2004) studied included mentorship, seminars or classes for beginning teachers, common planning time with other teachers in their subject area, participation in an external network of teachers, regular or supportive communication with the principal or other administrators, reduced teaching load, reduced preparation, and extra classroom assistance. Smith and Ingersoll (2004) found that the components of induction programs that were most related to teacher retention included having a

mentor in one's field and having common planning time with other teachers in their subject area. Additionally, Smith and Ingersoll (2004) found that the more of these supports teachers received in their induction programs, the lower their attrition rates.

The components of mentoring programs that teachers found most helpful, and that most affected retention, were components that increased their connections to others within the schools (Smith & Ingersoll, 2004). Supports such as having a mentor in one's field, having time to collaborate with other teachers, and having the support of principals are all factors that contribute to the social capital, or trust and connections, within schools. This supports the claim that focusing on effectiveness as a target for improvement is necessary, but is insufficient without targeting connectedness as well, and that connectedness can buffer the challenges inherent to teaching.

Coaching is another form of support that has historically focused on building teacher effectiveness, but that can also help new and experienced teacher connect in a mutually rewarding way. Unlike mentoring, which is directed at early career teachers specifically, coaching is a mechanism by which all teachers regardless of years of experience could receive support. Similar to mentoring, coaching can help to build interconnectedness and trust within schools in several ways. Coaching can leverage positive relationships with another experienced teacher. A coaching relationship can show a teacher that having someone observe them can be supportive, not threatening. This can help to deprivatize practice and increase professional dialogue within schools, which is an important element of connectedness (Shernoff et al., 2016). Coaching programs can also help prevent teacher burnout by providing mid/later career teachers with opportunities to use their professional expertise to help newer teachers (Day, 2019; Griffiths, 2007b; Johnson et al., 2012), and foster social connections with other teachers.

Summary

Teacher burnout and turnover in urban, high poverty schools can have negative implications for schools as organizations, as well as students as individuals (Day, 2019; Guin, 2004). Current supports in place for teachers focus on teacher effectiveness as a mechanism for improving student outcomes. Effectiveness is necessary to teacher and student success but may not be enough to help teachers remain committed to teaching. An important but often overlooked construct related to teacher commitment and retention is connectedness. Connectedness may be just as important as effectiveness is to the success and long-term commitment of teachers (Shernoff et al., 2016).

Research Questions and Predictions

Teacher turnover in urban, high poverty schools can have devastating effects on schools and students. Connectedness in an essential, yet often overlooked resource that can be leveraged to help teachers overcome the hurdles inherent to working in urban, high poverty schools (Shernoff et al., 2016). Using extant data from a federally funded study, the goal of this study was to examine whether a focus on improving connectedness was associated with teachers' commitment to remain in the teaching field. Additionally, this study explored whether connectedness was related to effectiveness among a small sample of early career teachers.

Covariates

Teacher student racial matching. In this sample, the student body was 94% African American, and 62% of teachers were African American as well. Such high percentages of racial matching between teachers and students could potentially introduce a confounding variable into

the study. As discussed previously, research suggests that teachers who are ethnically matched with their students are more likely to feel comfortable within their schools and remain teaching (Dedeoglu & Lamme, 2011; Reininger, 2012; Whipp & Geronime, 2017). Therefore, I hypothesized that African American teachers in this sample might feel more connected within their schools and more committed to remain teaching than their non- African American colleagues. In order to control for this confounding variable, I dichotomized PLC participants into an African American group and a non-African American group. This new variable was included as a covariate in research questions one and two to control for the possible effects of teacher student racial matching on teacher connectedness and commitment to teaching.

Years of teaching experience. This sample included teachers with years of experience ranging from one to 36 years. The literature on teacher turnover and commitment states that teachers within their first five years of teaching are the most at risk of leaving the field (Johnson & Birkeland, 2003; Smith and Ingersoll, 2003; Papay et al., 2017), and that teachers experience of their job changes at each career stage (Day, 2019). To control for potential relationship withon teacher sense of commitment, years of teaching experience was included as a covariate in Research Questions 1 and 2.

Research Question 1. Among all teachers in this sample, what was the relationship between connectedness and longer-term commitment to teaching, when controlling for teacher-student racial matching and years of teaching experience?

Prediction 1. Organizational research highlights the important role trust plays in contributing to an organization's success (Fukuyama, 1995; Putnam, 1995). Moreover, trust is seen as in important resource in helping people build relationships, or social capital, within any environment (Coleman, 1988). When individuals maintain relationships with people or

organizations, these long-term relationships become valuable. People begin to adopt the perspectives and interests of others within their social networks, and feel committed to act based on these feelings, interests, and shared goals. In schools, this means that high levels of trust among teachers can buffer the difficulties of the working environment and help teachers feel more committed to the school (Bryk & Schneider, 2002). *Therefore, in the current study, I predicted that there would be a positive correlation between connectedness and commitment to teaching.*

Research Question 2. Among all teachers in this sample, was amount of participation in PLCs associated with teachers' ratings of connectedness, when controlling for teacher-student racial matching and years of teaching experience?

Prediction 2. PLCs are forums where teachers collaborate to enhance their own knowledge and skills in order to improve student learning and achievement (Hallam, Chou, Hite, & Hite, 2012). The mechanisms through which professional learning communities achieve change are aligned with the construct of connectedness. *Therefore, in the current study, I predicted that there would be a positive correlation between amount of participation in PLCS and teacher ratings of connectedness.*

Research Question 3. Among early career teachers in the sample, were higher teacher ratings of connectedness associated with higher quality of teacher instruction?

Prediction 3. Connectedness within schools can be understood as social capital, cultivated through ongoing relationships. Effectiveness of teachers within schools can be understood as human capital, acquired through proper training, coaching, and experience. According to Coleman (1988), social capital is an important resource required for the development of human capital. Correspondingly, connectedness in schools should be understood as a prerequisite and facilitator of teacher effectiveness. *Therefore, in this exploratory analysis, I*

predicted that there would be a positive correlation between teacher ratings of connectedness

and teacher scores on a measure of classroom quality of instruction.

Methods

Setting and Participants

The study was conducted in three pre-kindergarten through eighth grade elementary

schools in a large Midwestern city. These schools were selected from a pool of 75 schools that

met the following eligibility criteria: 85% or more low-income students, average reading scores

below the 30th percentile ($M = 28$, $SD = 3.8$), and school population within one standard

deviation of the district mean ($M = 702$, $SD = 306$); In participating schools, 94% of students

were African American, 97% of students received free or reduced-price lunch, and teacher

mobility was 25% yearly (Shernoff et al., 2011).

PLC participants. Teachers who participated in in PLCs ($N = 79$) included all staff who

had direct contact with students across the three participating schools. Of the group, 70 were

female and 9 were male. Forty-nine were African American, 24 were European American, three

were Latinx, one was Asian American, and two self-identified as other races. Nineteen percent of

the sample were early career teachers, teaching for five or fewer years (Shernoff et al., 2016),

65% of the sample were mid/later career teachers, with teaching experience ranging from six to

31 years, and 16% of the sample were school personnel, such as paraprofessionals, reading

specialists, and school counselors. For practical and empirical reasons, school personnel were

included with the sample of teachers, a practice which has been implemented in prior research

(Johnson et al., 2012). Demographic information for PLC participants is illustrated in Table 1.

The full sample of PLC participants was used to answer research question one and research

question two.

Early career teachers. Early career teachers (ECTs; $n = 15$) were a subsample of PLC participants who were recruited to participate in PLCs in addition to other more intensive professional development. ECTs were included in the study if they had five or fewer years of experience ($M = 2.40$, $SD = 1.73$) Most ECTs were female ($n = 13$), seven identified as African American, one identified as Asian American, and seven identified as European American. Demographic information for ECTs is illustrated in Table 2. In addition to attending PLCs, ECTs participated in coaching and group seminars. The sub sample of ECTs was used to answer research question three.

PLC Meetings

PLC meetings were held monthly and included all staff who had direct contact with students across the three participating schools. Because PLCs were designed to foster connections in each school at the organizational level, it was important that ECTs as well as mid and later career teachers and other school personnel be involved. To capitalize on within school social capital, PLCs were led by teachers considered to be Key Opinion Leaders (KOLs; Atkins et al., 2008). KOLs are people who are looked up to within their environment and are therefore in a good position to be teaching and modeling new ideas. To select the KOLs in these three schools, sociometric interviews were administered to 94% of qualified instructional staff (112 of 119). All teachers in an instructional role within each school were interviewed using sociometric procedures and asked to nominate colleagues from whom they sought teaching advice and were asked how many times per month they sought advice from each colleague. Teachers who were named most frequently were selected to be KOLs, as long as they had at least five years teaching experience and were teaching at least two years at their school.

The format of the hour-long PLCs was designed to promote interaction and relationships among all teachers, as well as investment in and commitment to their schools at the organizational level. To avoid a hierarchical approach, members created PLC ground rules and selected the order in which to cover PLC topics. Please refer to Tables 9 and 10 for a summary of topics covered. During PLC meetings, teachers were exposed to the challenges their colleagues faced, which fostered discussion about strengths, weaknesses, and improving instruction, as well as managing behavior and involving students. (Bryk & Schneider). A core PLC theme was that if one teacher was struggling, other teachers were responsible to help that teacher, the same way that they were all responsible for the students. PLC meetings also promoted staff collaboration and collective school responsibility by incorporating discussions about school wide norms for behavior and academics (Shernoff et al., 2011).

Measures

All measures were completed by participants during the Fall and Spring across two school years (four time points total).

Connectedness

In the current study, connectedness was operationalized as teachers' sense of professional community and the degree to which they trusted one another. The two measures used to evaluate teacher connectedness are described next.

Professional Community Index. The Professional Community Index (PCI; Bryk, Camburn, & Louis, 1999) measures six different elements of professional community, including collaboration, reflective dialogue, deprivatized practice, focus on student learning, collective responsibility, and teacher socialization. The PCI consists of 28 items and is constructed on a 6-

point scale (1=*never* to 6 =*10 or more times*) or 4-point scale (1= *strongly disagree* to 4 = *strongly agree*).

Examples of items on the PCI include:

- Experienced teachers invite new teachers into their rooms to observe, give feedback, etc.

- This school year, how often have you had conversations with colleagues about what helps students learn best?

- Teachers at this school make a conscious effort to coordinate their teaching with instruction at other grade levels.

The PCI was developed using Rasch modeling, which generates three statistics that assess the reliability and validity of measures. The first statistic, item difficulty, is the probability that raters will respond favorably to an item on a scale. Common viewpoints, opinions, or experiences are less difficult to agree with, and less common viewpoints, opinions, or experiences are more difficult to agree with. Once item difficulty is calculated, items are arranged by difficulty in ascending order. Next, the infit means square is the degree to which raters' answers conform to the ranked order of items on a scale. If individuals agree with a certain item, they might agree with more "common" items below it, but not necessarily the less common items above it. A perfect infit mean square is approximately one, and on the PCI, infit mean squares for individual items ranged from 0.71 to 1.55. The third statistic, person separation reliability, measures the internal consistency reliability of each scale (similar to a Cronbach's alpha) On the PCI, person-separation reliabilities for each subscale ranged from .60 to .90. A principal components factor analysis indicated that the six subscales of professional community loaded onto one factor, which means that professional community can be evaluated as one concept (Bryk et al., 1999). Therefore, in this study the PCI sum score (α = .93 for this sample) was used.

Lower total scores on the PCI reflect a lower sense of professional community, while higher scores on the PCI reflect a higher sense of professional community. When scored through summing, the lowest possible PCI score is 28, and the highest possible score is 129. In this sample the mean PCI score at Time 1 was an 85.8 (SD = 16.5), the lowest PCI score was 32, and the highest PCI score was 117. The PCI was used in research question one, which assessed whether teachers sense of professional community was associated with their commitment to remain in the teaching field. The PCI was also used in research question two, which examined whether teachers' experience of being involved in a professional community was related to their feelings of connectedness within school. The PCI was also used in research question three, which assessed whether teachers' feelings of connectedness were associated with the quality of their classroom instruction.

Teacher-Teacher Trust Scale. The Teacher-Teacher Trust Scale (TTS; Bryk & Schneider, 2002) reflects teachers' feelings of trust and connection toward colleagues, such as feeling cared for, feeling respected, and feeling comfortable to discuss concerns and difficulties with other teachers. Items on the TTS are answered on a Likert scale ranging from 1 (*strongly disagree/not at all) to* 4 (*strongly agree/to a great extent*), with the exception of one item which is answered on a Likert scale ranging from 1 (*none)* to 5 (*nearly all*).

Examples of items on the scale include:

- Teachers in this school trust each other.

- It's OK in this school to discuss feelings, worries, and frustrations with other teachers.

- Teachers at this school respect those colleagues who are expert in their craft.

 Rasch analysis (explained in detail above) was used to confirm reliability and validity for the TTS. Item difficulties on the TTS were estimated, and in fit mean squares for individual items

ranged from 0.72 to 1.32. Person separation reliability was .82. Lower scores on the TTS scale

reflect lower levels of trust, while higher scores reflect higher levels of trust. In this sample,

Cronbach's alpha for the TTS is .86 in this sample. When scored through summing, the lowest

possible score on the TTS is 7 and the highest possible score is 29. This sample's mean TTS

score is 23 ($SD = 3.7$), the lowest score is 14, and the highest score is 29. The TTS was used as

the independent measure in research question one, which examined whether levels of teachers'

trust influenced teachers' sense of commitment to teaching.

Commitment to Teaching

In the current study, commitment to teaching was operationalized as teachers' feeling of

willingness and responsibility to remain teaching and to give their utmost to the job. One

measure was used to assess teacher commitment to teaching.

Teacher Commitment Scale. The Teacher Commitment Scale (TCS; Rosenholtz and

Simpson, 1990) includes items that assess teachers' passion for their job generally and for their

school specifically; how often teachers consider skipping school, leaving the school, and leaving

the profession. Items on the TCS are answered on a Likert scale ranging from 1 (*strongly

agree/almost never)* to 5 (*strongly disagree/almost always*).

Examples of items on the scale include:

- I enjoy teaching

- I think that the stress and disappointments involved in teaching at this school aren't really
  worth it.

- By the middle of the day, I can't wait for my students to go home.

On the TCS, negative and positively worded items were interspersed to prevent a careless

response style. The TCS is scored through summing, with negatively worded items reverse-

coded for scoring. Thus, the lowest possible score is 12 and the highest possible score is 70. In this sample, the mean score on the TCS was 45.7, ($SD = 7.4$) the lowest score was 29 and the highest score was 60. In this sample, Cronbach's alpha is .84. Item-to-scale correlations range from .36-.67. The TCS was the dependent measure in research question one, which examined whether levels of teachers' trust influenced teachers' sense of commitment to teaching.

Effectiveness

In the current study, teacher effectiveness was operationalized as quality of teacher instruction, which was measured using the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008)

Classroom Assessment Scoring System. The CLASS (Pianta et al., 2008) system is designed for use in pre-K to fifth-grade classrooms. Using CLASS (Pianta et al., 2008), outside observers conduct on-site classroom observations and rate teachers in several domains; including emotional support, classroom organization, and instructional support. The emotional support domain is designed to assess the general mood in a classroom, the level of teacher attunement to student needs, and the degree to which teachers include students' viewpoints in running their classroom (Pianta et al., 2008). The classroom organization domain evaluates how well teachers manage students' classroom behavior, how productively a classroom functions, and how successfully teachers actively involve students in learning (Pianta et al., 2008). The instructional support domain assesses how well teachers engage their students in higher-order thinking, how teachers use feedback as a tool for student learning, and how well teachers demonstrate quality use of language (Pianta et al., 2008). In this study, the professional development teachers received aligned with the classroom organization ($\alpha = .77$ in this sample) and emotional support ($\alpha = .83$ in this sample) domains, which are the domains included in the analysis.

The CLASS (Pianta et al., 2008) has been extensively studied and demonstrates excellent psychometric properties, as demonstrated by several confirmatory studies. For the emotional support domain, internal consistency (alpha) ranges from .85-.94, and factor loadings range from .81-.98. For the classroom organization domain, internal consistency (alpha) ranges from .76-.89, and factor loadings range from .56-.92. For the instructional support domain, internal consistency (alpha) ranges from .79-.90, and factor loadings ranged from .69-.95 (Pianta et al., 2008).

For this study, two CLASS observations were conducted per year (four total) during two-hour time blocks. The CLASS includes four rounds of observation (30 minutes each) followed by 10 minutes of scoring nine different dimensions (rated from 1 = *low quality* to 7 = *high quality*). In this study, CLASS raters participated in two days of training and reached 80% reliability before beginning observations. Reliability was confirmed yearly using master-coded DVDs. The CLASS was used as the dependent measure in research question three, which assessed whether an increase in ECT connectedness was associated with an increase in ECTs' quality of instruction.

Analyses

Research Question 1. *Does teacher connectedness predict commitment to teaching at baseline, when controlling for teacher-student racial matching and years of teaching experience?*

In the current study, it was predicted that there would be a positive relationship between connectedness and longer-term commitment to teaching. Hierarchical multiple regression was conducted to determine whether at baseline, a relationship existed between connectedness and longer-term commitment to teaching. In this analysis the independent variable (connectedness) was measured with the Teacher-Teacher Trust Scale (Time 1), and the Professional Community

Index (Time 1). The dependent variable was commitment, measured with the Teacher

Commitment Scale (Time 1). For this analysis, power was sufficient (80%) to detect medium and

large effect sizes at the α = .05 level. Power was sufficient to detect a large effect size at the α =

.01 level.

Research Question 2. Does PLC dosage predict connectedness at Time 4, when

controlling for connectedness at Time 1, teacher-student racial matching, and years of teaching

experience? In the current study, it was predicted that there would be a positive relationship

between participation in PLC meetings and experience of connectedness over time. Hierarchical

multiple regression examined whether PLC dosage was associated with an increase in teacher

connectedness from Time 1 to Time 4. In this analysis, the independent variable was total

minutes that teachers participated in PLC meetings, and the dependent variable was

connectedness, measured using the PCI (Time 4). For this analysis, power was sufficient (80%)

to detect a large effect size at the α = .05 level, and at the α =.01 level.

Research Question 3. *Is early career teacher's sense of connectedness within the school*

associated with the quality of their instruction?

Given the small sample size for this exploratory analysis and the insufficient power to

calculate a Pearson correlation, I used a non-parametric alternative, Spearman's rank-order

correlation (Gibbon, 1993). In this analysis the independent variable was connectedness

measured using the PCI (Time 4), and the dependent variable was quality of instruction,

measured using the CLASS Emotional Support Domain and Classroom Organization Domain

(Time 4).

Missing Values Analysis

Prior to running these analyses, data were screened for invalid scores, outliers, and missing data. No outliers or invalid scores were found. A missing values analysis indicated 32% to 44% missing data on six variables of interest. Further investigation revealed that teachers who had initially enrolled but never participated in the study accounted for most missing data. Thus, any cases which only had demographic data were deleted listwise prior to conducting these analyses. Following this first deletion, cases were examined individually for the extent of missing data. According to the imputation guidelines developed for the study, data could be imputed in proportion to the amount of data collected (Shernoff et al., 2016). Thus, two additional cases were deleted because they did not meet criteria for imputation. Following the deletion of all unusable cases, the final sample size was 79. A missing values analysis was once again conducted, revealing 15% to 22.5 % missing data on six variables of interest. Little's MCAR test (Little, 1988) was conducted to analyze patterns of missing data. Since data was found to be missing completely at random, multiple imputation was conducted to replace the missing data values. Multiple imputation procedures are the preferred method for handling data missing completely at random, since they account for random error and are therefore less biased than traditional estimation methods (Meyers, Gamst & Guarino, 2017; Schlomer, Bauman, & Card, 2010). The automatic imputation method in SPSS was used, and 20 imputed data sets were created, as recommended by Baraldi and Enders (2010). Hierarchical multiple regression analysis were selected since they allow the researcher to control for specific variables, and to sequence variables in the regression in accordance with theory (Meyers, Gamst & Guarino, 2017). Since SPSS does not produce pooled results for all parameters of regression analyses, the following procedures were conducted to obtain pooled results. To obtain a pooled value for adjusted R^2, the R^2 value for each imputation was combined into an average adjusted R^2 value for

each model, as recommended by van Ginkel (2019). To obtain a pooled value for standardized β, all variables were standardized prior to running the regression, so that the pooled unstandardized β produced in SPSS would be the standardized beta for this study sample (IBM, 2018).

Following the multiple imputations, descriptive statistics were examined, Pearson correlations were calculated, and hierarchical multiple regression analyses were conducted.

Results

Descriptive statistics are presented in Table 3. Analysis of frequency tables and histograms revealed that all variables were normally distributed, although the TTS and PCI Time 1 and Time 4 were slightly positively skewed. Correlations between all independent and dependent factors were conducted as measured by Pearson product-moment correlations. Pearson's correlations among all variables are shown in Tables 4 and 5. PCI scores and TTS scores were significantly correlated ($r = .45$, $p < .01$), indicating a moderate, positive linear relationship. This correlation indicates that teachers who endorsed higher levels of trust also tended to endorse a greater sense of professional community. PCI scores and TCS scores were significantly correlated ($r = .46$, $p < .01$), indicating a moderate, positive linear relationship. This correlation indicates that teachers who endorsed higher levels of professional community also tended to endorse a greater sense of commitment to remain teaching. TTS scores and TCS scores were significantly correlated ($r = .30$, $p < .05$), indicating a small, positive linear relationship. This correlation indicates that teachers who endorsed higher levels of trust also tended to endorse a greater sense of commitment to remain teaching. The correlations between these three scales supports the hypothesis that trust, professional community, and commitment, are related constructs.

PCI score was significantly correlated with teacher-student racial matching at Time 1 ($r =$ .34, $p < .01$), and Time 4 ($r = .40$, $p < .01$) indicating moderate positive linear relationships. TTS scores were also significantly correlated with teacher-student racial matching ($r = .25$, $p < .01$), indicating a small positive linear relationship. Finally, years of teaching experience was significantly correlated with the TTS ($r = .30$, $p < .05$), and TCS, ($r = .36$, $p < .01$), indicating a moderate positive linear relationship.

Does Connectedness Predict Commitment to Teaching?

A hierarchical multiple regression analysis was conducted to examine whether teachers' sense of connectedness with their colleagues was related to teachers' commitment to remain teaching, when controlling for teacher-student racial matching and years of teaching experience. In the MRA, teacher- student racial matching and years of teaching experience were entered in the first block, teacher-student racial matching, years of teaching experience, and TTS were entered in the second block. Teacher- student racial matching, years of teaching experience, TTS and PCI were entered into the third block. The hierarchical MRA revealed that the covariate (years of teaching) was a significant predictor of TCS, ($\beta = .01$, $p < .01$). The MRA also revealed that PCI score was a significant predictor of TCS, when controlling for teacher-student racial matching and years of teaching experience, ($\beta = .47$, $p < .01$), accounting for 15% of the unique variance in TCS score, as measured by semi-partial r squared. However, TTS was not a significant predictor of TCS. See Table 6 for a summary of the regression analysis.

Does PLC Dosage Predict Connectedness?

An additional hierarchical MRA was conducted to examine whether PLC dosage was associated with higher PCI scores (i.e., connectedness) at Time 4 when controlling for race, years of teaching experience, and PCI score (connectedness) at Time 1. In the MRA, teacher-student

racial matching and years of teaching experience were entered in the first block, teacher-student

racial matching, years of teaching experience, and PCI score (Time 1) were entered in the second

block, and teacher-student racial matching, years of teaching experience, and PLC dosage were

entered into the third block. The MRA revealed that the covariate teacher-student racial matching

was a significant predictor of PCI score at Time 4, ($\beta = .19$, $p < .01$), but that PLC dosage was

not a significant predictor of PCI score at Time 4, when controlling for teacher-student racial

matching, years of teaching experience, and PCI score at Time 1. See Table 7 for a summary of

the regression analysis.

Is Connectedness Related to Quality of Instruction?

This exploratory analysis included only ECTs. Descriptive statistics for ECTs' scores are

presented in Table 8. A Spearman's rank-order correlation was conducted to assess the

relationship between teachers' connectedness and quality of instruction at Time 4, after the

intervention. Connectedness was measured using the PCI and quality of instruction was

measured using the CLASS Classroom Organization and Emotional Support domains. The

correlation between connectedness and Emotional Support was non-significant r_s (15) =

.204, p = .549. The correlation between connectedness and Classroom Organization was non-

significant r_s (15) = .011, p = .975.

<div align="center">

Discussion

</div>

The purpose of this study was to analyze several aspects of teacher connections and

commitment to teaching in urban public schools. While a large body of literature exists on

teacher burnout and turnover, this study is unique because it examined teachers' sense of

connection as a potential mechanism for preventing burnout and turnover. Specifically, this study

examined the relationship between teachers' feelings of connectedness with one another and

their commitment to teaching. This study also looked at the effects of PLC dosage in increasing

sense of connectedness, and, in an exploratory analysis, examined the relationship between sense

of connectedness and quality of teacher instruction. The findings of this study suggest a

relationship between teacher connections and commitment to teaching and add important

nuances to the literature on teacher retention and success across the career spectrum.

Does Connectedness Predict Commitment to Teaching?

The results of this study revealed that teachers' sense of connectedness with one another

was significantly associated with teachers' sense of commitment to remain in the field, when

controlling for teacher-student racial matching and years of teaching experience. This finding

implies that teachers who felt connected to other teachers within their schools also felt more

committed to remain teaching, despite challenges they faced. This effect was present even when

controlling for teacher-student racial matching and years of teaching experience, which indicates

that teacher relationships were not solely explained by being of a similar race to their students, or

by being in the field for more years. It is important to note that the three scales used to evaluate

teacher connectedness and commitment were all self-report scales, which may be biased. When

individuals rate themselves, it is possible for them to answer questions in a way that reflects how

they wish to be perceived rather than how they truly feel. Therefore, these results should be

considered within the context of this limitation.

The finding that connectedness is associated with commitment is consistent with prior

research (Avalos & Valenzuela, 2016; Bryk & Schneider, 2002; Day, 2019; Day & Gu, 2010;

2014; Day & Hong, 2016; Day, Sammons, Stobart, Kingston, & Gu, 2007; Johnson et al., 2012;

Kraft, Marinell, & Yee, 2016; Scheopner, 2010) which supports the idea that teachers who feel

socially and professionally connected to other teachers in their school are more likely to remain

in teaching. Specifically, Day et al. (2007), in a sample of 300 teachers across 100 schools in England examined aspects of teachers' work, lives, and effectiveness. Among other variables, Day et al. (2007) were interested in the different factors that contributed to commitment in teachers across the career spectrum. Their findings revealed that the most influential positive factor that affected teachers' resilience and commitment across all career phases was their relationships with their colleagues (Day et al., 2007; Day & Gu, 2010; 2014; Day, 2019).

Connectedness with colleagues may also be understood as an instrumental and social resource, similar to money, supplies, or time. According to the Job Demands-Resources theory (Bakker & Demerouti, 2007; 2013), when a teacher faces a challenge, such as a difficult class, paperwork overload, or a challenging parent, the magnitude of the challenge is often perceived in relation to the resources the teacher has to deal with the challenge. If a teacher is feeling alone, unsupported, and disconnected from colleagues, they may be quicker to burn out when faced with repeated teaching challenges. However, if a teacher has colleagues to turn to for instrumental and social support, those struggles can be normalized, and the teacher can receive guidance and practical assistance. Similarly, Lambert, McCarthy, Fitchett, Lineback, and Reiser (2015) posit that a teacher experiences stress when they feel that the demands of their classroom exceed the resources available to them. In this study, connectedness to other teachers was conceptualized as a resource to help teachers feel committed to the challenges of teaching. The results of this study support the notion that when teachers feel connected to their colleagues they feel supported both practically and emotionally, and thus have a greater ability to be committed to their students and their schools.

This finding that connectedness is related to teacher commitment is important because of the implications it has for student learning and success, specifically in challenged urban

environments. Johnson et al. (2012) sought to understand why schools with high amounts of low-income and minority students have higher rates of teacher turnover than schools serving more affluent, white students. In their investigation, they examined the relationship between teachers' working conditions, teachers' effectiveness, and their students' achievement outcomes by combining a statewide survey of school working conditions with demographic information and school achievement data. Johnson et al. (2012) found that the reasons why teachers left high-poverty, high-minority schools were unrelated to student demographics, but were influenced by the social conditions of the schools. The three social conditions found to be most influential to teachers were school culture, leadership, and relationships with colleagues (Johnson et al., 2012). This body of research converges with findings from the current study and suggests that teachers' connections with their colleagues are one of the most important aspects of their job satisfaction, and ultimately, their ability to be committed teachers.

Teachers in urban schools are known to work under extremely challenging circumstances, such as poor funding, lack of materials and resources, and problems with school safety (Allensworth, et al., 2009; Boyd et al., 2011; Johnson & Birkeland, 2003; Johnson, et al., 2012). Therefore, teachers in urban schools, who have the greatest demands and the fewest resources, can experience greater stress than teachers in non- urban environments (Bakker & Demerouti, 2007; Lambert et al., 2015). Furthermore, the students in urban high-poverty schools are often disadvantaged in many ways, such as receiving poor funding for education, having ethnic minority status, living with poverty and/or difficult family situations, and experiencing disparities in achievement and discipline (Allensworth et al., 2009; Day & Hong, 2016, Gregory et al., 2010; Gregory et al., 2016; Hanushek et al., 2004). Therefore, the educational system must do its best to support teachers in urban schools, so that they feel able to meet the needs of their

students and provide them with the education they deserve. In this study, connectedness was explored as a possible resource to help improve teacher commitment to working in urban high poverty schools, through gaining the instrumental and social support provided by colleagues. The findings imply that teacher connectedness can influence teacher resilience and commitment to teaching, even in challenging contexts such as urban, high poverty schools. Thus, connectedness may be important not only as a mechanism for preventing teacher turnover, but also to boost the motivation and resilience of teachers who choose to stay and ensure that these teachers have the tools they need to serve their students.

In fact, there are many urban high poverty schools in which teacher retention and student performance are high, despite these schools having many odds against them. When looking at how these urban high poverty schools were successful despite the odds they faced, the factors that were instrumental in their success were teacher connections with one another (Bryk & Schneider, 2002; Chenoweth, 2007, 2009; Ferguson, Hackman, Hanna, & Ballantine, 2010; Johnson & Birkeland, 2003). Therefore, the results of this study indicate that not only is connectedness a tool to help individual teachers meet the challenges of teaching, but connectedness can also be leveraged to help challenged urban school systems succeed against all odds (Bryk & Schneider, 2002).

Does PLC Dosage Predict Connectedness?

Results from the current study revealed that the amount of time (in minutes) that teachers spent in PLC meetings did not predict their sense of connectedness at the end of the intervention, when controlling for teacher-student racial matching, years of teaching experience, and their sense of connectedness at the beginning of the intervention.

However, the correlation between teachers' connectedness scores for Time 1 and Time 4 was .75, indicating a strong, positive linear relationship. This correlation suggests that teachers' sense of connectedness remained relatively stable over time. This correlation also implies that connectedness may be a very difficult construct to change, and that there can be many factors that influence connectedness aside from attending PLCs. Considering the stability in sense of connectedness in this sample, it is not surprising that dosage effects of PLCs were found to be insignificant.

Given these findings, it is important to consider other factors aside from PLCs that can influence a teacher's sense of connectedness. Research on teacher connections in schools (Johnson et al., 2012; Kapadia et al., 2007) points to several key factors that teachers feel are most important. These factors include having a school culture that values mutual trust, respect, and desire to help students succeed, having supportive school leadership, having relationships with colleagues, participating in teacher networks, and receiving input and suggestions from other teachers (Johnson et al., 2012; Kapadia et al., 2007).

The current intervention included PLCs, but did not address other contextual factors, such as school culture or leadership. Therefore, although teachers may have had opportunities to connect within PLCs, it is possible that the nature of their school culture or leadership did not allow them to develop their overall sense of connectedness. For instance, if teachers began to form connections or exchange ideas at a PLC but did not have time, space, or support from leadership to implement changes or to follow up with colleagues, they may not have felt a greater sense of connectedness over time.

Additionally, in this service delivery model, PLC topics were pre-determined, and PLC members selected the order in which topics were covered. It is possible that allowing PLC

members to select the actual topics may have fostered greater discussion, openness and

opportunity for connectedness. It is also important to consider the role that personality,

confidence, and social dynamics play in creating a teacher's experience at a PLC. Some teachers

may naturally have felt more confident to share at the PLCs, and generally felt more connected

to their colleagues as a result, while other teachers were less inclined to share and felt less

connected overall.

  Finally, it is important to remember that teachers' experience of PLCs was assessed

through dosage, which is only one component of a program and therefore may not be a complete

measure of a program's effect. In fact, existing literature on implementation science in the area

of evidence-based interventions indicates the effects of dosage on a program's success are mixed

(Domitrovitch et al., 2008). For example, Gottenfred and Wilson (2003) conducted a meta-

analysis of 94 school-based alcohol and drug prevention programs to determine if duration of the

program had significant effects on program outcomes. Their results revealed that there were no

differences in program effects for longer and shorter programs, but that other aspects of

implementation, such as target age and group leaders, had a greater influence on program effects

(Gottenfred & Wilson, 2003). Conversely, Smokowsi and colleagues (2016) studied dosage

effects in Positive Action (PA), an evidence- based intervention designed to decrease problem

behaviors and increase academic achievement in schools (Bavarian et al., 2016; Beets et al.,

2009; Shmitt, Flay, & Lewis, 2014). Their findings revealed that students who received three

years of PA and more PA lessons showed significantly higher scores of self-esteem than students

who received no years of PA and no PA lessons. Students who received one year of PA also had

lower school hassle scores than students who received no years of PA. However, their findings

also revealed that program dosage, as measured by duration and number of PA lessons attended,

had no significant effects on students' aggression scores or internalizing scores (Smokowski et al., 2016). Taken together, these findings, along with the findings of the current study, suggest that there are additional aspects aside from dosage that can be related to a program's success.

Dane and Schneider (1998) examined 162 outcome studies and identified five core features of implementation fidelity. The features they identified include adherence (how well actual programs delivered align with program manuals); exposure (the amount of interventions received, measured by program duration, session frequency, or session length); quality of delivery (the success of program delivery, measures by aspects such as success of individual sessions, and eagerness and engagement of leaders); participant responsiveness (a measure of how engaged attendees were at every session); and program differentiation (ensuring that participants in the program received only the intervention being studied (Dane & Schneider, 1998). Considering this research, it seems intuitive to conclude that although dosage is one critical component of an intervention (Ennet et al., 2011), dosage alone may not capture all the dynamics that contribute to success of an intervention (Gottenfred & Wilson, 2003).

In the context of the current study, minutes spent in a PLC may not have fully captured all of the factors that influence a teacher's sense of connectedness. Some teachers may have been present but not involved, while other teachers may have attended fewer sessions but were more engaged in each session. Additionally, there may have been variability in how teachers implemented suggestions from PLCs, or how well teachers utilized the social connections cultivated at PLCs. Teachers may also have had other opportunities to receive instrumental or emotional support outside of PLCs, which were not controlled for in the current study.

Thus, future research on PLCs and connectedness should focus on other aspects of implementation that are broader than dosage alone, such as program differentiation, quality of

delivery and participant responsiveness (Dane & Schneider, 1998). Additionally, since results of

this study suggest that connectedness may be a difficult construct to change, future interventions

should consider systemic, contextual, and individual factors that can positively or negatively

influence teachers' sense of connectedness within their schools.

Is Connectedness Related to Quality of Instruction?

Results of this exploratory analysis revealed that early career teachers' sense of

connectedness and the quality of their instruction were not significantly correlated. This means

that in this sample the teachers who felt more connected with their colleagues did not

demonstrate greater quality of instruction, as measured by the Classroom Organization and

Emotional Support domains of the CLASS (Pianta et al., 2008). The results of the current study

do not converge with some prior research demonstrating a relation between teachers'

connectedness and quality of instruction (Bryk & Schneider, 2002; Chenoweth, 2007, 2009; Day,

2019; Day et al., 2007; Johnson et al., 2012; Ronfeldt et al., 2015). Bryk and Schneider (2002)

spent several years studying school reforms following the Chicago School Reform Act of 1988.

In twelve different elementary schools, they analyzed different aspects of the school reform to

discover the mechanisms of change that helped schools succeed. Bryk and Schneider's (2002)

research revealed that the quality of social relationships and attributes such as trust, respect, and

caring, predicted schools that succeeded in functioning well as organizations. Bryk and

Schneider (2002) also examined whether teacher trust was related to student achievement over

time and found that schools that improved in their levels of relational trust also improved in their

math and reading achievement scores. In schools with low relational trust, reading scores were at

the 40th percentile and math scores were at the 45th percentile, while in schools with improving

relational trust, reading scores were at the 70th percentile and math scores were at the 75th

percentile (Bryk & Schneider, 2002).

Similarly, Ronfeldt, Farmer, McQueen, and Grissom (2015) analyzed survey data from

over 9,000 teachers across 336 Miami-Dade County public schools. They sought to assess

whether teacher collaboration, which is an aspect of teachers' sense of connections (Bryk &

Schneider, 2002) had a positive effect on student achievement. Their results revealed that the

average quality of teacher collaboration was related to students' achievement. They also found

that teachers and schools that had better quality collaboration had greater progress in math and

reading achievement. Johnson et al. (2012) also examined how work conditions were related

tostudent achievement. They examined student demographic and achievement data from 1,142

schools in Massachusetts, and combined this information with a state survey of school working

conditions from 25,135 teachers from those schools. Their findings revealed that one standard

deviation of improvement in teachers' work context was associated with significant growth in

student academic achievement. When examining which aspects of school context mattered most

to teachers, they found that although aspects such as school facilities and planning time mattered

to teachers, the aspects that were most important to teachers were all related to their social

context. The three social aspects that mattered most to teachers were having collegial

relationship with their colleagues, having a supportive principal, and having a school culture that

valued mutual trust, respect, and desire to help students succeed (Johnson et al; 2012). Taken

together, the conclusions of prior research suggest that connectedness is associated with

improved quality of instruction for teachers and higher achievement for students.

In the current study, teacher sense of connectedness was not significantly associated with

teacher quality of instruction. Since this finding is not consistent with prior research, it is

important to consider factors that may have affected the ability to detect significant findings. One

limitation in this exploratory analysis was the small sample size. Future research should utilize a

larger sample size to increase likelihood of detecting significant effects. An additional limitation

of this study was that only one measure was used to assess teacher quality of instruction, while

other research in this area examined student achievement outcomes as a proxy for teacher

success (Bryk & Schneider, 2002; Day et al., 2007; Johnson et al., 2012; Ronfeldt et al., 2015).

Although student achievement scores may not be an all-encompassing measure of teacher

success (Kumashiro, 2012), achievement scores do evaluate a component of instruction that was

not measured in this study. Future research should use several methods (Flay et al., 2005) such as

teacher self-report, measures of student classroom engagement, and student achievement

measures to measure teacher effectiveness.

In an educational system that prioritizes measurable student achievement outcomes (Day,

2019), it is crucial to show policymakers how an intervention can change those achievement

outcomes. Although this specific analysis did not yield significant results, connectedness has

been shown to be an important and powerful component of teacher commitment and success

(Bryk & Schneider, 2002; Chenoweth, 2007, 2009; Day, 2019; Day et al; 2007; Johnson et al.,

2012; Ronfeldt et al., 2015), and should become a component of all school reforms that target

student achievement.

Limitations

The results of this study should be interpreted with caution due to several limitations.

One limitation is that nested data was used for this study and the statistical analyses used did not

account for the nested nature of the data (Graves & Frohwerk, 2009). This study evaluated

connectedness across three different schools and treated each teacher as a separate entity, without

accounting for the similarities shared by teachers within each school. In this study, teachers within the same schools were also in the same PLCs, which means that they had many opportunities to reciprocally influence each other. Regression analyses treat each observation as independent, and do not account for the shared characteristics of teachers within the same school or PLC. The shared nature of the school environment violates the independence assumption of a regression analyses, making it not an optimal technique to use for school research (Graves & Frohwerk, 2009). When using regression analyses for nested data, it is possible to overestimate or underestimate main effects, which can lead to erroneously concluding that an intervention is effective or is not effective, both of which are detrimental. Therefore, although the results of this study yield some promising information, this work should be replicated using multilevel techniques to account for the nesting inherent to school settings.

An additional limitation is the lack of a control group in this study. Without a control group it is difficult to infer causal results, since there are many other plausible mechanisms of change that cannot be assessed without a comparison group (Shadish, Cook, & Campbell, 2002). Specifically, history and maturation may account for some of the change which appears to be due to the intervention especially since PLCs occurred across two school years. Additionally, teachers may have received other professional development inside and outside of school, which makes it difficult to determine whether PLCs were the sole contributor to teachers' sense of connectedness (Shadish, Cook, & Campbell, 2002).

Another limitation of this study was the method of measurement used. All the three scales used to evaluate teacher connectedness and commitment were self-report scales, which may be biased. When individuals rate themselves, it is possible for them to answer questions in a way that reflects how they wish to be perceived rather than how they truly feel. Future research

should use several methods of measurement, such as observation along with self-report, as well as several informants, such as principals or administrators, to increase the validity of the constructs being measured (Flay et al., 2005).

The small sample size of this study is an additional limitation. A sample of this size did not afford adequate power to detect all possible significant results. Future research in this area should use a larger sample size to increase the likelihood of significant and conclusive findings (Cohen, 1992).

Finally, it is important to consider that this study was conducted in one urban school district, which is not representative of the entire spectrum of national school districts. This urban district had a high percentage of African American students (94%), and 97% of students qualified for received free and reduced lunch. This district also had a high percentage of teacher-student racial matching (61%), a variable that is known to be related to connectedness (Reininger, 2012, Whipp & Geronime, 2017). Future studies in this area should include a more diverse sample in terms of locale, socioeconomic statuses, and teacher and student ethnicity to make findings more generalizable to the population at large.

Implications for Research and Practice

The results of this study add to a growing body of literature on the importance of social connections in teachers' workplaces (Avalos & Valenzuela, 2016; Bryk & Schneider, 2002; Day, 2019; Day & Gu, 2010; 2014; Day & Hong, 2016; Day, et al; 2007; Johnson et al., 2012; Kraft, Marinell, & Yee, 2016; Scheopner, 2010). Specifically, social connections are related to on teachers' resilience and ability to deal with the difficulties of the workplace (Bakker & Demerouti, 2007; Lambert et al., 2015). Connectedness can also affect student achievement (Johnson et al., 2012; Ronfeldt et al., 2015), and connectedness can be a buffer against the

organizational challenges of urban, high poverty schools (Bryk & Schneider, 2002; Chenoweth, 2007, 2009). Therefore, it is imperative for school administrators and policymakers to prioritize the cultivation of connectedness amongst their staff.

School psychologists have a unique training that encompasses areas such as teacher consultation, group and organizational dynamics, and evidence-based practices (Kratochwill, 2007; Shernoff et al., 2016), and are therefore in a good position to help teachers develop trusting connections with their colleagues. Additionally, with their training in ecological perspectives (Burns, 2013), school psychologists have the background necessary to focus on prevention efforts rather than intervention efforts alone. A focus on prevention efforts could allow school psychologists to address the needs of more students through supporting teachers, which can help students succeed before they require intensive interventions (Burns, 2013; Kratochwill, 2007). Additionally, although the role of school psychologists has traditionally focused on assessment and determination of eligibility, school psychologists report that they prefer a broader role than focusing on assessment alone (Hosp & Reschly, 2002).Therefore, school psychologists can be advocates for school connectedness by trying to foster policies, practices, and culture that value connectedness in schools. School psychologists can use their unique organizational role to ensure that teachers feel connected and supported in their workplaces, so that they can be more effective instructors. It is important to realize that cultivating connections often does not require additional funding or outside resources. Rather, maximizing opportunities for teachers to connect can be achieved through reallocating time, personnel, and resources that schools already have. This aspect is especially important for underfunded schools, where changes that require funds are often impractical.

Teachers today are operating in an environment that appraises teacher quality through measurable results, such as student achievement scores (Kumashiro, 2012). While student achievement data is an important indicator of teacher success, a focus on achievement data alone does not account for the many factors and the complex environment within which teachers operate (Day, 2019). Therefore, it is critical to convince policymakers and school administrators that allocating resources toward supporting teacher connectedness is in fact important, and can also boost students' achievement scores, as demonstrated by a considerable body of literature (Bryk & Schneider, 2002; Chenoweth, 2007, 2009; Day et al., 2007; Day, 2019; Johnson et al., 2012; Ronfeldt et al., 2015).

Conclusions

Teachers in urban high poverty schools face significant challenges, which result in high rates of burnout and turnover. Connectedness is an important organizational resource that has been proven to help teachers be more successful at their jobs, feel more committed to their students, and be more willing to remain at their jobs. Unlike other interventions, cultivating teacher connections does not require ample funding or considerable outside resources, but can be achieved through restructuring of a school's value system and reallocation of professional development and preparation timing. School psychologists have the necessary training and positions within schools to help cultivate connectedness amongst staff. School administrators and policymakers should understand the importance of cultivating connectedness in schools, to be used as a resource to boost teacher resilience, teacher retention, organizational success, and student achievement.

References

Allensworth, E., Ponisciak, S., & Masseo, C. (2009). *The schools teachers leave: Teacher mobility in Chicago public schools.* Chicago: Consortium on Chicago School Research. Retrieved from https://consortium.uchicago.edu/sites/default/files/publications/CCSR_Teacher_Mobility.pdf

Aloe, A. M., Amo, L. C., & Shanahan, M. E. (2014). Classroom management self-efficacy and burnout: A multivariate meta-analysis. *Educational Psychology Review, 26*(1), 101-126. doi:10.1007/s10648-013-9244-0

Atkins, M., Frazier, S., Leathers, S., Graczyk, P., Talbott,E., Adil, J., . . . Gibbons, R. (2008). Teacher key opinion leaders and mental health consultation in urban low-income schools. *Journal of Consulting and Clinical Psychology, 76*, 905–908. doi:10.1037/a0013036

Atkins, M. S., Hoagwood, K. E., Kutash, K., & Seidman, E. (2010). Toward the integration of education and mental health in schools. *Administration and Policy in Mental Health, 37*(1-2), 40-47. doi:10.1007/s10488-010-0299-7

Ávalos, B., & Valenzuela, J. P. (2016). Education for all and attrition/retention of new teachers: A trajectory study in Chile. *International Journal of Educational Development, 49*, 279–290.

Baraldi, A. N., & Enders, C. K. (2010). An introduction to modern missing data analyses. *Journal of School Psychology, 48*, 5–37.

Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: state of the art. *Journal of Managerial Psychology*, 22(3), 309e328.

Bakker, A.B, & Demerouti, E. (2013). Job demands-resources model. *Revista de Psicologia del Trabajo y de las Organizaciones,* 29(3), 107–115. doi:10.5093/tr2013a16

Battersby, S. L., & Verdi, B. (2015). The culture of professional learning communities and

 connections to improve teacher efficacy and support student learning. *Arts Education*

 Policy Review, 116(1), 22ff. doi:10.1080/10632913.2015.970096

Bavarian, N., Lewis, K., Acock, A., DuBois, D., Yan, Z., Vuchinich, S., Flay, B. (2016). Effects

 of a School-Based Social–Emotional and Character Development Program on Health

 Behaviors: A Matched-Pair, Cluster-Randomized Controlled Trial. *The Journal of*

 Primary Prevention, *37*(1), 87–105. https://doi.org/10.1007/s10935-016-0417-8

Becker, K., Bradshaw, C., Domitrovich, C., & Ialongo, N. (2013). Coaching teachers to improve

 implementation of the good behavior game. *Administration and Policy in Mental Health*

 and Mental Health Services Research, 40(6), 482-493. doi:10.1007/s10488-013-0482-8

Beets, M., Flay, B., Vuchinich, S., Snyder, F., Acock, A., Li, K., Beets, M. (2009). Use of a

 social and character development program to prevent substance use, violent behaviors,

 and sexual activity among elementary-school students in Hawaii. *American Journal of*

 Public Health, *99*(8), 1438–1445. https://doi.org/10.2105/AJPH.2008.142919

Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and

 narrative review of the research. *Review of Educational Research, 78*, 367–409.

Boyd, D., Grossman, P., Ing, M., Lankford, H., Loeb, S., & Wyckoff, J. (2011). The influence of

 school administrators on teacher retention decisions. *American Educational Research*

 Journal, 48(2), 303-333. doi:10.3102/0002831210380788

Braun, H., Jenkins, F., & Grigg, W. (2006). *Comparing private schools and public schools using*

 hierarchical linear modeling (NCES 2006-461). U.S. Department of Education, National

 Center for Education Statistics, Institute of Education Sciences. Washington, DC: U.S.

 Government Printing Office.

Bryk, A., Camburn, E., & Louis, K. S. (1999). Professional community in Chicago elementary schools: Facilitating factors and organizational consequences. *Educational Administration Quarterly, 35*(5), 751-781. doi:10.1177/0013161X99355004

Bryk, A. S., & Schneider, B. (2002). Trust in schools: A core resource for improvement. New York: Russell Sage Foundation.

Burns, M. K. (2013). Contextualizing school psychology practice: Introducing featured research commentaries. *School Psychology Review, 42*, 334–342.

Cappella, E., Hamre, B. K., Kim, H. Y., Henry, D. B., Frazier, S. L., Atkins, M. S., & Schoenwald, S. K. (2012). Teacher consultation and coaching within mental health practice: Classroom and child effects in urban elementary schools. *Journal of Consulting and Clinical Psychology, 80*(4), 597-610. doi:10.1037/a0027725

Chenoweth, K. (2007). "It's being done": Academic success in unexpected schools. Cambridge, MA: Harvard Education Press.

Chenoweth, K. (2009). How it's being done: Urgent lessons from unexpected schools. Cambridge, MA: Harvard Education Press.

Cohen, J. (1992). A Power Primer. *Psychological Bulletin*, *112*(1), 155–159. https://doi.org/10.1037/0033-2909.112.1.155

Coleman, J.S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94,* 95-120. Retrieved from https://www.jstor.org

Dane, A. V., & Schneider, B. H. (1998). *Program integrity in primary and early secondary prevention: Are implementation effects out of control? Clinical Psychology Review*, *18*(1), 23–45. https://doi.org/10.1016/S0272-7358(97)00043-3

Day, C., (2019). Quality Retention and Resilience in the Middle and Later Years. In A. Sullivan,

  B. Johnson, & M. Simons (Eds.), in *Attracting and Keeping the Best Teachers Issues and*

  Opportunities (pp 193-210). https://doi.org/10.1007/978-981-13-8621-3

Day, C., & Gu, Q. (2010). *The new lives of teachers*. London: Routledge.

Day, C., & Gu, Q. (2014). *Resilient teachers, resilient schools: Building and sustaining quality*

  in testing times. London: Routledge.

Day, C., Sammons, P., Stobart, G., Kington, A., & Gu, Q. (2007). *Teachers matter: Connecting*

  lives, work and effectiveness. Maidenhead: Open University Press.

Dedeoglu, H., & Lamme, L. L. (2011). Selected demographics, attitudes, and beliefs about

  diversity of preservice teachers. *Education and Urban Society*, *43*, 468-485.

  doi:10.1177/0013124510380718

Domitrovich, C. E., Bradshaw, C. P., Poduska, J. M., Hoagwood, K., Buckley, J. A., Olin, S.,

  & Ialongo, N. (2008). Maximizing the implementation quality of evidence-based

  preventive interventions in schools: A conceptual framework. *Advances in School Mental*

  Health Promotion, *1*(3), 6–28.

DuFour, R. (2004). What is a "professional learning community"; *Educational*

  Leadership, 61(8), 6-11. Retrieved from http://www.ascd.org/publications/educational-

  leadership/may04/vol61/num08/What-Is-a-Professional-Learning-

  Community%C2%A2.aspx

Ennett, S. T., Haws, S., Ringwalt, C. L., Vincus, A. A., Hanley, S.,Bowling, J. M., & Rohrbach,

  L. A. (2011). Evidence-based practice in school substance use prevention: Fidelity of

  implementation under real world conditions. *Health Education Research, 26,* 361–371.

  http://dx.doi.org/10.1093/her/cyr013

Ferguson R., Hackman, S., Hanna, R., & Ballantine, A. (2010). How high schools become

    exemplary: Ways that leadership raises achievement and narrows gaps by improving

    instruction in 15 public high schools. Achievement Gap Initiative at Harvard University,

    Cambridge, MA.

Flay, B. R. et al., (2005). Standards of evidence: Criteria for efficacy, effectiveness, and

    dissemination. *Prevention Science. 6*, 151-178.

Fukuyama, F. (1995). *Trust: Social virtues and the creation of prosperity*. New York: Free Press.

Gibbons, J. (1993). *Nonparametric measures of association*. Newbury Park: Sage Publications

Gottfredson, D., & Wilson, D. (2003). Characteristics of Effective School-Based Substance

    Abuse Prevention. *Prevention Science*, *4*(1), 27–38.

    https://doi.org/10.1023/A:1021782710278

Graves, S. L., & Frohwerk, A. (2009), *Multilevel modeling and school psychology*. School

    psychology quarterly, 24, 84-94.

Green, T. R., Allen, M. (2015). Professional development urban schools: What do teachers

    say? *Journal of Inquiry in Action and Education, 6*(2), 53-79.

    doi:10.1177/0042085913478623

Gregory, A., Hafen, C. A., Ruzek, E., Mikami, A. Y., Allen, J. P., & Pianta, R. C. (2016).

    Closing the racial discipline gap in classrooms by changing teacher practice. *School*

    Psychology Review, 45(2), 171-191. doi:10.17105/SPR45-2.171-191

Gregory, A., Skiba, R. J., & Noguera, P. A. (2010). The achievement gap and the discipline gap:

    Two sides of the same coin? New Perspectives on School Safety and Violence

    Prevention, 39(1), 59-68. doi:10.3102/0013189X09357621

Griffiths, A. (2007b). Improving with age. *Safety and Health Practitioner, 25*(4), 53–55.

Guarino, C. M., Santibañez, L., & Daley, G. A. (2006). Teacher recruitment and retention: A

 review of the recent empirical literature. *Review of Educational Research, 76*(2), 173-208.

 doi:10.3102/00346543076002173

Guin, K. (2004). Chronic teacher turnover in urban elementary schools. *Education Policy*

 Analysis Archives, 12, 1-30. Retrieved from https://epaa.asu.edu

Hallam, P. R., Chou, P. N. Hite, J. M., & Hite, S. J. (2012). Two contrasting models for

 mentoring as they affect retention of beginning teachers. *NASSP Bulletin, 96*(3), 243-278.

 doi:10.1177/0192636512447132

Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade

 classroom make a difference for children at risk of school failure? *Child*

 Development, 76(5), 949-967. doi:10.1111/j.1467-8624.2005.00889.x

Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2004). Why public schools lose teachers. *Journal*

 of Human Resources, 39(2), 326-354. doi:10.2307/3559017

Hanushek, E. A., Rivkin, S. G., & Schiman, J. C. (2016). Dynamic effects of teacher turnover on

 the quality of instruction. *Economics of Education Review, 55*, 132-148.

 doi:10.1016/j.econedurev.2016.08.004

Hord, S. M. (2008). The evolution of the professional learning community. *Journal of Staff*

 Development, 29(3), 10-13. Retrieved from https://search.proquest.com

Hosp, J. L., & Reschly, D. J. (2002). Regional differences in school psychology practice. *School*

 Psychology Review, 31, 11–29.

IBM (2018, June 16). Pooled results not produced for standardized regression coefficients with

 multiple imputation. Retrieved from https://www.ibm.com/support/pages/pooled-results-

 not-produced-standardized-regression-coefficients-multiple-imputation.

Ingersoll, R. M. (2012). Beginning teacher induction what the data tell us. *Phi Delta Kappan Magazine, 93*(8), 47-51. doi:10.1177/003172171209300811

Ingersoll, R.M. & Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers: A critical review of the research. *Review of Educational Research, 81*(2), 201-233. doi:10.3102/0034654311403323

Johns, G. (2010). Presenteeism in the workplace: A review and research agenda. *Journal of Organizational Behavior, 31*, 519–542.

Johnson, S. M., Kraft, M. A., & Papay, J. P. (2012). How context matters in high-need schools: The effects of teachers' working conditions on their professional satisfaction and their students' achievement. *Teachers College Record, 114*(10), 1–39.

Johnson, S. M., & Birkeland, S. E. (2003). Pursuing a "Sense of success": New teachers explain their career decisions. *American Educational Research Journal, 40*(3), 581-617. doi:10.3102/00028312040003581

Kannapel, P. J., Clements, S. K., Taylor, D., & Hibpshman, T. (2005). *Inside the black box of high-performing, high-poverty schools.* Lexington, Kentucky: Prichard Committee for Academic Excellence. Retrieved from http://www.prichardcommittee.org/wp-content/uploads/2013/02/Inside-the-Black-Box.pdf

Kapadia, K., Coca, V., & Easton, J.Q. (2007). *Keeping new teachers: A first look at the influences of induction in the Chicago public schools.* Chicago, IL: Consortium on Chicago School Research. Retrieved from https://consortium.uchicago.edu/sites/default/files/publications/keeping_new_teachers012407.pdf

Kraft, M. A., Blazar, D., & Hogan, D. (2018). The effect of teacher coaching on instruction and

achievement: A meta-analysis of the causal evidence. *Review of Educational*

Research, 88(4), 547-588. doi:10.3102/0034654318759268

Kraft, M. A., Marinell, W. H., & Yee, D. S.-W. (2016). School organizational contexts, teacher

turnover, and student achievement: Evidence from panel data. *American Educational*

Research Journal, 53(5), 1411–1449

Kratochwill, T. R. (2007). Preparing psychologists for evidence- based school practice: Lessons

learned and challenges ahead. *American Psychologist, 62*, 826–843.

Kumashiro, K. (2012). When Billionaires Become Educational Experts. *Academe*, *98*(3), 10–16.

Lambert, Richard G. Mccarthy, Christopher J. Fitchett, Paul G. Lineback, Sally & Reiser. Jenson

(2015). Identification of Elementary Teachers' Risk for Stress and Vocational Concerns

Using the National Schools and Staffing Survey. *Education Policy Analysis Archives*, *23*.

https://doi.org/10.14507/epaa.v23.1792

Lankford, H., Loeb, S., Wyckoff, J. (2002). Teacher sorting and the plight of urban schools: A

descriptive analysis. *Educational Evaluation and Policy Analysis, 24*(1), 37-62.

doi:10.3102/01623737024001037

Little, Roderick J. A. (1988) A Test of missing completely at random for multivariate data with

missing values. *Journal of the American Statistical Association*. 1988;83(404):1198-

1202. doi:10.1080/01621459.1988.10478722

Louis, K. S., & Kruse, S. D. (1995). *Professionalism and community: Perspectives on reforming*

urban schools. SAGE Publications Ltd.

Meyers, L. A., Gamst, G.C., & Guarino, A. J. (2016). *Applied Multivariate Research: Design*

and Interpretation (3rd ed.). LA: Sage Publications.

Montero-Marín, J., García-Campayo, J. A newer and broader definition of burnout: Validation of

the "Burnout Clinical Subtype Questionnaire (BCSQ-36)". *BMC Public Health* 10**,** 302

(2010) doi:10.1186/1471-2458-10-302

National Registry of Evidence-Based Programs and Practices. (2014).Positive Action. Retrieved

from http://www.nrepp.samhsa.gov/ViewIntervention.aspx?id_400

Papay, J. P., Bacher-Hicks, A., Page, L. C., & Marinell, W. H. (2017). The challenge of teacher

retention in urban schools: Evidence of variation from a cross-site analysis. *Educational*

Researcher, 46(8), 434-448. doi:10.3102/0013189X17735812

Penuel, W. R., Fishman, B. J., & Yamaguchi, R. (2007). What makes professional development

effective? Strategies that foster curriculum implementation. *American Educational*

Research Journal, 44(4), 921-958. doi:10.3102/0002831207308221

Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2008).*CLASS.* Baltimore, MD: Brookes.

Putnam, R. D. (1995). Bowling alone: America's declining social capital. *Journal of*

Democracy, 6(1), 65-78. doi:10.1353/jod.1995.0002

Reininger, M. (2012). Hometown Disadvantage? It Depends on Where You're From: Teachers'

Location Preferences and the Implications for Staffing Schools. *Educational Evaluation*

and Policy Analysis, *34*(2), 127–145. https://doi.org/10.3102/0162373711420864

Reinke, W. M., Herman, K. C., Darney, D., Pitchford, J., Becker, K., Domitrovich, C., &

Ialongo, N. (2012). Using the classroom check-up model to support implementation of

PATHS to PAX. *Advances in School Mental Health Promotion, 5*(3), 220-232.

doi:10.1080/1754730X.2012.707441

Rolls, S., & Plauborg, H. (2009). Teachers' career trajectories: An examination of research. In

C. Day & J. Sachs (Eds.), *Professional learning and development in schools and higher education* (pp. 9–28). New York: Springer.

Ronfeldt, M., Farmer, S. O., McQueen, K., & Grissom, J. A. (2015). Teacher collaboration in instructional teams and student achievement. *American Educational Research Journal, 52*(3), 475-514. doi:10.3102/0002831215585562

Ronfeldt, M., Loeb, S., & Wyckoff, J. (2013). How teacher turnover harms student achievement. *American Educational Research Journal, 50*(1), 4-36. doi:10.3102/0002831212463813

Rosenholtz S. J., & Simpson, C. (1990). Workplace conditions and the rise and fall of teachers' commitment. *Sociology of Education, 63*(4), 241-257. doi:10.2307/2112873

Salas, E., Tannenbaum, S. I., Kraiger, K., & Smith-Jentsch, K. A. (2012). The science of training and development in organizations: What matters in practice. *Psychological Science in the Public Interest, 13(2),* 74–101. doi:10.1177/1529100612436661

Schlomer, G. L., Bauman, S., & Card, N. A. (2010). Best practices for missing data management in counseling psychology. *Journal of Counseling Psychology, 57*(1), 1-10.

Scheopner, A. J. (2010). Irreconcilable differences: Teacher attrition in public and Catholic schools. *Educational Research Review, 5*(3), 261–277.

Schmitt, S. A., Flay, B. R., & Lewis, K. (2014). A pilot evaluation of the Positive Action prekindergarten lessons. *Early Child Development and Care*, *184*(12), 1978-1991. doi:10.1080/03004430.2014.903942

Sebring, P. B., Allensworth, E., Bryk, A.S., Easton, J.Q., and Luppescu. S. (2006). *The essential supports for school improvement.* Chicago, IL: Consortium on Chicago School Research.

Retrieved from

https://consortium.uchicago.edu/sites/default/files/publications/EssentialSupports.pdf

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental*

designs for generalized causal inference. Boston, MA: Houghton Mifflin.

Shernoff, E. S., Frazier, S. L., Maríñez-Lora, A. M., Lakind, D., Atkins, M. S., Jakobsons, L., . . .

Patel, D. A. (2016). Expanding the role of school psychologists to support early career

teachers: A mixed-method study. *School Psychology Review, 45*(2), 226-249.

doi:10.17105/SPR45-2.226-249

Shernoff, E., Lakind, D., Frazier, S., & Jakobsons, L. (2015). Coaching early career teachers in

urban elementary schools: A mixed-method study. *School Mental Health; A*

Multidisciplinary Research and Practice Journal, 7(1), 6-20. doi:10.1007/s12310-014-

9136-6

Shernoff, E. S., Maríñez-Lora, A.,M., Frazier, S. L., Jakobsons, L. J., Atkins, M. S., & Bonner,

D. (2011). Teachers supporting teachers in urban schools: What iterative research designs

can teach us. *School Psychology Review, 40*(4),465.

Smokowski, P., Guo, S., Wu, Q., Evans, C., Cotter, K., & Bacallao, M. (2016). Evaluating

Dosage Effects for the Positive Action Program: How Implementation Impacts Internalizing

Symptoms, Aggression, School Hassles, and Self-Esteem. *American Journal of*

Orthopsychiatry, *86*(3), 310–322. https://doi.org/10.1037/ort0000167

Smith, T. M., & Ingersoll, R. M. (2004). What are the effects of induction and mentoring on

beginning teacher turnover? *American Educational Research Journal, 41*(3), 681-714.

doi:10.3102/00028312041003681

Sutcher, L., Darling-Hammond, L., & Carver-Thomas, D. (2016). *A coming crisis in teaching?*

    Teacher supply, demand, and shortages in the U.S.. Palo Alto, CA: Learning Policy

    Institute.

Taylor, A., & Frankenberg, E. (2009). Exploring urban commitment of graduates from an urban-

    focused teacher education program. *Equity and Excellence in Education*, *42*(3), 327-346.

    DOI: 10.1080/10665680903032344

van Ginkel, J. R. (2019). Significance tests and estimates for R2 for multiple regression in

    multiply imputed datasets: A cautionary note on earlier findings, and alternative

    solutions. *Multivariate Behavioral Research*, *54*(4), 514–

    529. doi:10.1080/00273171.2018.1540967

Whipp, J. L., & Geronime, L. (2017). Experiences that predict early career teacher commitment

    to and retention in high-poverty urban schools. *Urban Education, 52*(7), 799-828.

    doi:10.1177/0042085915574531

Appendix

Table 1

Demographic Data for PLC Participants

Variable	*%*	*N*
African American	61	49
Non-African American	39	30
European American	30	24
Latinx	4	3
Asian American	1	1
Other	2	2
Years Teaching: Early Career	18	15
Years Teaching: Mid/Late Career	64	51
School Personnel	16	13

Note: $N = 79$. Years Teaching is not applicable for 13 PLC participants who were categorized as other school personnel.

Table 2

Demographic Data for Early Career Teachers

Variable	*N*
African American	7
Non-African American	8
Asian	1
White	7
Years Teaching: Less Than One Year	3
One Year	1
Two Years	3
Three Years	4
Four Years	2
Five Years	2

Note: N = 15

Table 3

Descriptive Statistics of PLC Participants

Variable	*M*	*SD*	Range
Professional Community Index (Time 1)	85.6	16.5	32-117
Professional Community Index (Time 4)	96.6	18.6	51-129
Teacher-Teacher Trust Scale (Time 1)	23.2	3.7	14-29
Teacher Commitment Scale (Time 1)	45.9	7.4	29-60
PLC Dosage (minutes)	436.3	251.8	6-900

Note. N = 79.

Table 4

Correlations for Research Question 1

Scale	1	2	3	4	5
1. PCI Time 1	-	.449**	.464**	.341**	.127
2. TTS Time 1		-	.304*	.251*	.307*
3. TCS Time 1			-	.200	.360**
4. Racial Matching				-	.164
5. Years Teaching					-

Note: N = 79. *p* < .05, two tailed. **p* < .01, two tailed. PCI= Professional Community Index. TTS= Teacher-Teacher Trust Scale. TCS= Teacher Commitment Scale

Table 5

Correlations for Research Question 2

Scale	1	2	3	4	5
1. PCI Time 1	-	.753**	.083	.341**	.127
2. PCI Time 4		-	.084	.404**	.096
3. PLC Dosage			-	-.062	-.102
4. Racial Matching				-	.164
5. Years Teaching					-

Note: N = 79. *p* < .05, two tailed. **p* < .01, two tailed. PCI = Professional Community Index. PLC = Professional Learning Communities

Table 6

Regression Analysis for TTS and PCI as a Predictor of Time 1 TCS Scores

Variable	Model 1	Model 2	Model 3
Standardized β			
Racial Matching	.251	.260	.248
Years Teaching	.012**	.012*	.011**
TTS Score (Time 1)	.	.135	.137
PCI Score (Time 1)	.		.135**
R^2	.110*	.107	.245**

Note: N = 79. **p* < .05, two tailed. ***p* < .01, two tailed.

Table 7

Regression Analysis for PLC Dosage as a Predictor of Time 4 PCI Scores

Variable	Model 1	Model 2	Model 3
Standardized β			
Racial Matching	.243**	.192**	.193*
Years Teaching	.011	.009	.009
PCI Score (Time 1)		.097**	.106**
PLC Dosage			.123
R^2	.174**	.629**	.632

Note: $N = 79$. *$p < .05$, two tailed. **$p < .01$, two tailed.

Table 8

Descriptive Statistics for Early Career Teachers

Variable	Mean	SD	Range
CLASS Classroom Organization Domain (Time 4)	5	1.43	3.00-6.78
CLASS Emotional Support Domain (Time 4)	5.05	1.13	3.31-6.56

Note: N = 15

Table 9

Sample PLC Topics Year 1

PLC	Topic
1	Introductory PLC: Developing Shared Norms for Behavior
2	Developing/Revising your Classroom Behavior Management System
3	Building Positive Relationships in Classrooms
4	CLASS overview
5	Promoting Student Engagement
6	Conferencing with Families In Preparation for Report Card Pick Up
7	Good Behavior Game

Note: In order to foster autonomy schools selected the order in which they covered these topics.

Table 10

Sample PLC Topics Year 2

PLC	Topic
1	Introductory PLC: Developing Shared Norms for Behavior
2	Calming Down an Angry Student 101
3	Stress Management for Teachers
4	Work-life Balance
5	Conferencing with Families In Preparation for Report Card Pick Up
6	Good Behavior Game
7	Peer Tutoring to Promote Positive Social Interactions Among Students
	Building Home-School Partnerships

Note: In order to foster autonomy schools selected the order in which they covered these topics.