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AND STUDENT ACHIEVEMENT

A DISSERTATION APPROVED FOR THE
COLLEGE OF EDUCATION

BY

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Dedication

This dissertation is dedicated to my mother, Ruth Edna Casper. Mom got an associate's degree from Monett Junior College and taught in one room school houses in rural Missouri until she married my father. She took about 25 years off to be a housewife and raise two children. She began a private kindergarten and returned to school following my father's death. She completed her bachelor's degree from Drury College and taught elementary school for a number of years until she retired in the early 1980s.

It appears the apple did not fall far from the tree after all.

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Abstract

The relationship between collective student trust and student achievement was tested in a sample of 1,748 5th grade students in 34 Title I elementary schools in an urban and urban fringe district. Trust was defined, the conditions of trust described, and the facets of trust discussed. Collective trust was distinguished from relational trust and evidence on the effects of other trust was reviewed. Multi-level modeling was utilized to analyze nested data. Results indicate that collective student trust was associated with higher mathematics and reading achievement in schools. When controlling for SES, school size, and school identification, collective student trust had the largest unique effect on mathematics and reading achievement. Collective student trust was the only significant school level factor for achievement differences. A post hoc analysis indicated that high poverty schools with high collective student trust had higher achievement than high poverty schools with low trust. Results are discussed through the lens of self-determination theory.

Chapter 1

Introduction

The Viet Nam War generated deep domestic division within the country that took long to heal. The Johnson administration's Great Society programs had not produced the promised solutions to urban and economic problems. The 1973 OPEC crisis contributed to runaway inflation and the reduction of real income for many Americans. President Richard Nixon's landslide victory in 1972 gave way to an ignominious resignation caused by the Watergate scandal. President Gerald Ford's attempt to restore public confidence in government was negated by his pardon of President Nixon. President Jimmy Carter's inability to combat the continuing stagnant economy and inflation coupled with the Iranian hostage crisis further eroded confidence in government and public institutions. Such was the genesis of the trust deficit in public institutions and reasons for the proliferation of studies on trust by psychologists, sociologists, and economists during the middle to late 20th century (Vinovskis, 1999).

Public education also came under scrutiny during the mid to late 20th century. Head Start and the Elementary and Secondary Education Act (ESEA) of 1965 that were passed with great expectations did not produce their expected outcomes. Research suggested that the lauded gains in IQ shown by Head Start students were not persistent (Vinovskis, 1999). While modest gains in closing the achievement gaps of lower socio-economic status students addressed by Title I funds were attained, the anticipated corrections were not realized (Vinovskis, 1999; Standerfer, 2006).

The beginning of the 1980s saw the National Commission on Excellence in Education's report *A Nation at Risk* convince the American public and policy makers that

the country was threatened by an unprecedented crisis in public education. The United States no longer held its preeminent place in educational achievement in the world. The report concluded that if appropriate corrective action was not initiated, the nation would not remain economically competitive in the global market. Southern states were perceived to be particularly vulnerable when trend data from the National Assessment of Educational Progress (NAEP) and other tests indicated scores from this region lagged behind the rest of the country. Southern governors took the lead and the National Governor's Association called for the first Education Summit at the University of Virginia in Charlottesville in 1989. The commitment to develop national content standards in all subject areas generated at this summit led to President Bill Clinton's Goals 2000 legislation and the reauthorization of the Elementary and Secondary Schools Act as the Improving America's Schools Act of 1994, which mandated that states create state content standards and standardized examinations in core areas (Standerfer, 2006; Vinovskis, 1999).

The 2001 reauthorization of the Elementary and Secondary Education Act, popularly known as the No Child Left Behind (NCLB) Act, sent shockwaves through American public education. The act mandated increased accountability for states, districts, and schools while affording increased educational choices for parents and students, particularly in school selection. These mandates have resulted in increased pressure on school leaders to improve student achievement with specific emphasis directed toward closing the achievement gaps between students of different ethnicities, races, socio-economic status, disabilities, or with limited English proficiency. The ultimate goal is for every school to become what currently is thought of as a "high-

achieving" school (i.e., a school making adequate yearly progress through closing all achievement gaps and meeting other NCLB requirements). (Executive summary of the No Child Left Behind Act, 2001).

Beginning with the Elementary and Secondary Schools Act of 1965, educators have attempted to identify and close student achievement gaps attributed to student backgrounds. Public monies have funded a wide variety of programs, some efficacious, some not. Some schools have been successful utilizing these programs; some have been successful in the absence of these programs. Research seems to suggest that a common denominator of successful schools is an effective teacher in the classroom (Goe, 2007). But what enables effective teachers to foster achievement in their students? Is it simply a function of good pedagogy? Or, are relational factors that characterize student-teacher interactions and influence student motivation also important contributors to achievement? This research will focus on the latter condition; that is, how a culture of student trust in teachers shapes achievement.

Research Problem

Trust has been described as the "lubricant" which greases interpersonal interaction when individuals have confidence in other's actions and words (Arrow, 1974). Baier (1986) wrote: "Most of us notice a given form of trust most easily after its sudden demise or severe injury. We inhabit a climate of trust as we inhabit an atmosphere and notice it as we notice air, only when it becomes scarce or polluted" (p. 549). Trust is a social condition that facilitates quality performance in organizations (Bryk & Schneider, 2002). Lewicki and Bunker (1996) cite Limerick and Cunnington's (1993) description of positive effects of trust in the organizational setting averring that:

> High levels of trust help reduce transaction costs . . . Trust reduces uncertainty about the future and the necessity for continually making provisions for the possibility of opportunistic behavior among participants . . . Trust lubricates the smooth, harmonious function of the organization by eliminating friction and minimizing the need for bureaucratic structures that specify the behavior of participants who do not trust each other. (pp. 95-96)

Former Secretary of State George Shultz testifying before a Congressional committee investigating the Iran-Contra affair succinctly summarized the effect of trust in an organization noting that to be truly effective you must conduct yourself in a basically honest way so people will have confidence in you and trust you. He describes trust as the "coin of the realm" (Shultz, 1993). In other words, trust is a prerequisite for effective and efficient interpersonal actions.

Many forms of trust found in school environments have been studied extensively. Hoy and colleagues, first at Rutgers University and later at The Ohio State University, have studied faculty trust in principal, faculty trust in colleagues, and faculty trust in clients (students and parents). Studies have shown that these three forms of collective faculty trust are strongly related to a healthy school and organizational climate (as examples see Hoy, Sabo, & Barnes, 1996; Smith, Hoy, & Sweetland, 2001). Bryk and Schneider (2002) argue that while trust does not directly affect student achievement, it does engender organizational conditions that do affect student learning. More recently, Forsyth and colleagues have examined principal, student, and parent trust in addition to faculty trust. Among their findings, parent trust in school has been positively related to

parent school involvement, and an internal (faculty) and external (parent) trust environment predicted academic performance (see Forsyth, 2008).

Even with the proliferation of trust studies in schools, student trust has received relatively little attention. Adams (2010) studied the formation of student trust in teachers and found that student home environments and interactions with teachers were determinants. A recent dissertation by Romero (2010) using NELS data found a relationship between student trust and achievement. The Romero study, however, did not measure collective student trust and survey items were not written to match the facets of trust, leaving the relationship between student trust in teachers and student academic performance unknown. This study sought to bridge the gap in the literature by examining the effect of a culture of student trust in teachers on academic achievement.

Definitions of Terms

Collective Student Trust

Collective student trust of teachers is a stable group property grounded in shared perceptions and affect concerning the trustworthiness of the teacher occasioned by multiple social exchanges over time (Forsyth, Adams, & Hoy, 2011). Collective student trust in teachers is based on students' shared beliefs that their teacher(s) are perceived as open, honest, reliable, competent, and benevolent (Tschannen-Moran & Hoy, 2000).

School Identification

School identification is a student's sense of belonging to a school and valuing school-related outcomes. School identification was measured using the Student Identification Scale (Voelkl, 1996, 1997).

Student Achievement

Scores of mathematics and reading achievement on standardized tests have extensive empirical use as measures of student achievement (Goddard, Hoy, & Woolfolk Hoy, 2000; Goddard, Salloum, & Berebitsky, 2009; Hoy, Tarter, & Woolfolk Hoy, 2006). This study defined student achievement as the mathematics and reading scores attained on state mandated examinations given at the end of the 5th grade year.

Student Poverty/Socio-Economic Status

Student poverty was defined and measured by qualification for the federal free/reduced lunch program.

Limitations

Limitations plague all research and this study was no exception. First, data were limited to a cross-section of students in Title I elementary schools in an urban and urban fringe district. Longitudinal data would be better to test causal relationships. Second, schools do not represent suburban or rural schools, only the urban context. Finally, data came from elementary schools and should not be generalized to secondary schools.

Assumptions

Hierarchical Linear Modeling (HLM) is designed to correct for the ecological fallacy of drawing inferences at the individual level from group level data or the atomistic fallacy of making group level generalizations from individual level data (Diez Roux, 2002; Raudenbush & Bryk, 2002). Like all parametric statistics, HLM analysis in this study is based on several assumptions:

1. Student-level data were collected and measured without error.

2. Level-1 errors are independently and normally distributed with a common variance.

3. Residuals are uncorrelated and have constant variance.

Summary

Chapter 1 provided a brief review of school reform efforts since the mid-60s and established how this study is relevant to the No Child Left Behind Act of 2001. The statement of problem examined the significance of trust in interpersonal actions and introduced the need for an examination of the trust relationship between student and teachers. A definition of terms, limitations of the study, and assumptions were also presented.

Chapter 2 provides a review of the trust literature. Trust is defined, the conditions of trust described, and the facets of trust discussed. Collective trust is distinguished from relational trust and evidence on the effects of other trust forms is reviewed.

Chapter 3 presents the conceptual framework, hypothesis, and rationale. Self-determination theory (SDT) is used as the lens to explain the hypothesized relationship between collective student trust and achievement.

Chapter 4 describes the research design and methods. The data source and measures are described. Analytical techniques are explained and justification for their use is provided.

Chapter 5 presents results of the study. Descriptive data and estimates from the multi-level models are presented.

Chapter 6 discusses findings through the lens of self-determination theory. The chapter concludes with implications for practice and recommendations for further research.

Chapter 2

Review of the Literature

Focusing on trust within schools, Tschannen-Moran and Hoy (2000) note that schools have become avenues to equal opportunity for all students including those with disabilities or from lower socio-economic conditions. Yet, disagreeing with and distrusting the values espoused in public schools, an ever-growing segment of society has elected to educate their children at home, suggesting a growing sense of distrust in public education. Feelings of distrust cause people to be anxious and uncomfortable, watching and examining each other's behavior to determine motivation. As a result, "people are increasingly unwilling to take risks, demand greater protections against the possibility of betrayal, and increasingly insist on costly sanctioning mechanisms to defend their interests" (Tyler & Kramer, 1996, pp. 3-4). Tschannen-Moran and Hoy state "In short, in every facet of our lives, we are dependent on other people to behave in accordance with our expectations. It is imperative that we have confidence that our expectations of other people will be met" (p. 549).

This review of trust literature begins with a definition of trust, specifically, the conditions required for the formation of trust, followed by a discussion of the elements or facets of trust. Evidence on the foundations and formation of collective trust is also examined in order to describe the type of interactions and conditions associated with a high trust environment. The literature review concludes with a synthesis of evidence on the consequences of collective trust for school effectiveness and evidence on the relationship between student motivation and achievement.

Definition of Trust

Trust is a difficult construct to define. While everyone "knows" what trust is, until recently, it has been difficult to get scholars to agree on a precise definition. Hosmer (1995) stated, "There appears to be widespread agreement on the importance of trust in human conduct, but unfortunately there appears to be an equally widespread lack of agreement on a suitable definition of the construct" (p. 380). Golembiewski and McConkie (1975) expressed their belief that the study of trust was essentially "a paradox [where] [d]iverse conceptualizations of interpersonal trust coexist with intense convictions that the various somethings described are central in all human life" (p.130). Hosmer noted that Luhmann (1980) decries the lack of trust literature in sociology and that Barber (1983) agrees saying "in both serious social thought and everyday discourse it is assumed that the meaning of trust, and of its many apparent synonyms, is so well known that it can be left undefined or to contextual implications" (p. 7).

Tschannen-Moran and Hoy (2000) conducted a multidisciplinary review of the literature on the nature, meaning, and measurement of trust in school relationships. Drawing on seventeen studies from psychology, sociology, philosophy, economics, organizational science, and education, their review covered four decades of theoretical and empirical literature. They defined trust as "one party's willingness to be vulnerable to another party based on the confidence that the latter party is (a) benevolent, (b) reliable, (c) competent, (d) honest, and (e) open" (p. 556). This definition is now commonly used in educational contexts and is the definition that will be used for this study. Inherent in the definition are conditions that need to exist for trust to manifest, as

well as the facets of trustworthy behaviors that shape trust beliefs. These properties are described next.

Conditions of Trust

For trust to exist, certain conditions must define social exchanges. Tschannen-Moran and Hoy (2000) posit that necessary conditions for trust include vulnerability, interdependence, and confidence. Without these conditions there would be no need for trust since individuals would either not be dependent on others or outcomes of an exchange will already be predetermined, thus eliminating risk. The conditions of trust are described in more detail.

Vulnerability. Zand (1972) states that trusting behavior consists of actions increasing one's vulnerability to another whose behavior is not under one's control in circumstances where the penalty suffered if that vulnerability is abused is more than the benefit gained if it is not abused. Golembiewski and McConkie (1975) argue that trust "implies reliance on, or confidence in, some event, process or person" (p. 133). The probability that a person will act in a way beneficial or at least not detrimental to one's interest must be great enough to consider engaging in some form of cooperation with him (Gambetta, 1988). Trust becomes the predilection to allow oneself and others to become vulnerable in the interest of some greater good (Michalos, 1990). Trust, in this first approximation, is accepted vulnerability to possible ill will or lack of good will and a willingness to risk this vulnerability by engaging in a relationship (Baier, 1986).

Vulnerability and risk are inherent conditions of student-teacher interactions. In the formal context of a classroom, teachers have what Bolman and Deal (2003) define as positional authority over students. Teachers control the formal system of rewards

(grades) and the day-to-day informal perks in their classes. Students, by their position to teachers, are vulnerable and must be willing to risk this vulnerability by engaging in the academic tasks of the class.

Interdependence. Rousseau, Sitkin, Burt, and Camerer (1998) affirm that interdependence is a necessary condition for trust. Interdependence describes the mutual dependencies that exist between two or more people for a shared outcome to occur. For example, teachers rely on their students to be attentive and assimilate concepts within their classrooms; their professional reputations and, in some cases, remuneration depend on students' performance on mandated testing. Likewise, students rely on teachers to deliver appropriate instruction by addressing a variety of learning styles, to present concepts required for successfully completing mandated testing, and to form the basis for more advanced learning. Thus, neither teacher nor student interests could be achieved without reliance on each other. Tschannen-Moran and Hoy (2000) further underscore the importance of interdependence, maintaining that without interdependence there is no need for trust.

Confidence. An individual's attitude or behavior toward trust when placed in a situation of vulnerability is the hallmark of his confidence (Tschannen-Moran & Hoy, 2000). Deutsch (1958, 1960) describes this reaction as an individual's supposition that a desired outcome rather than a feared outcome will be the product of an action. The individual is cognizant that the product of an action could be helpful or harmful; that the product is contingent on the actions of another; and that he would suffer greater harm if trust were violated than benefit if trust were fulfilled. Mayer, Davis, and Schoorman (1995) cite Cook and Wall's (1980) definition of trust as ascribing good intentions and

having confidence in the words and actions of others. Rousseau et al. (1998) posit that trust has a bandwidth that varies within relationships depending on the degree of confidence an individual feels regarding the intentions of others.

Different forms of trust lie within this trust bandwidth and are based on actions or mechanisms to increase confidence in a desired outcome. *Deterrence-based trust* exists when measures are taken to minimize the costly sanctions resulting from a breach of trust. *Calculus-based trust* exists when credible evidence exists that the trustor believes that the trustee will perform a beneficial act. Given confidence in a positive calculus, an individual will risk vulnerability. Barber (1983) indicated that credible evidence to form a perception of another's trustworthiness could include one's reputation or documentation such as a diploma or teaching certification. Unlike deterrence or calculus based trust, *relational trust* develops from repeated interactions between individuals over time that lead to confidence that the trustee will act according to expected behavior (Bryk & Schneider, 2002; Rousseau et al., 1998). Situating forms of trust identified by Rousseau and colleagues (1998) in an educational context, a student's confidence in a teacher could stem, in part, from how his or her parents view the district and the school's reputation within the district. Or, it could result from interactions between students and teachers as well as from exchanges among students about teachers.

Facets of Trust

In their review of the trust literature, Tschannen-Moran and Hoy (2000) identified elements of trustworthiness that led individuals to risk vulnerability. These elements, or as they term them facets, are benevolence, reliability, competence, honesty, and openness. Facets of trust reflect the behaviors and actions of the trustee that leads

another person to risk vulnerability or protect from potential harmful consequences. A better understanding of the nature of trust requires a brief examination of the facets.

Benevolence. Benevolence is the facet of trust appearing most often in Tschannen-Moran and Hoy's (2000) review of trust definitions. Benevolence has been described as behavior that expresses care and compassion for another (Meyer, Davis, & Schoorman, 1995). Or, stated differently, that an individual's well-being or something an individual cares about will be protected by the trusted party (Baier, 1986; Butler & Cantrell, 1984; Cummings & Bromily, 1996; Deutsch, 1958; Gambetta, 1988; Hosmer, 1995; Hoy, 2002; Hoy & Kupersmith, 1985; Hoy & Tschannen-Moran, 1999; Mishra, 1996; Tschannen-Moran & Hoy, 2000; Zand, 1972).

Benevolent teachers are an important factor in the formation of student trust (Adams, 2010). Over time, students come to perceive whether or not a teacher genuinely cares about them and has their best interest at heart. As Adams and Forsyth (2009) noted, "[w]hen students perceive teachers as caring and willing to help them succeed, students are more likely to trust the intentions of their teachers" (p. 265).

Reliability. Reliability is the facet of trust describing predictability or consistency of behavior; that is, knowing what to expect from others (Butler & Cantrell, 1984; Hosmer, 1995; Hoy, 2002). Reliability is linked with benevolence as an individual relies on another to consider his/her well-being or best interests (Hoy, 2002; Hoy & Tschannen-Moran, 1999; Tschannen-Moran & Hoy, 2000) or to use good judgment in handling situations (Butler & Cantrell).

Just as teachers rely on their colleagues and principals upon their faculty, students rely on their teachers, individually and collectively, to meet an expected standard of

behavior. Perceived teacher reliability is often formed through consistent teacher actions (Adams & Forsyth, 2009). Students look for consistency in how teachers treat and interact with students. The degree to which teachers act reliably and predictably increases trust perceptions of students. Teachers who have changing standards, or who enforce rules and regulations differently depending on the student, are likely to diminish student trust (Adams & Forsyth).

Competence. Competence connects dependence on another with the level of skill that person possesses. Mayer, Davis, and Schoorman (1995) note that a highly competent trustee affords an individual trust in related tasks. Butler and Cantrell (1984) relate competence to "technical and interpersonal knowledge and skills required to do one's job" (p. 19). Baier (1986) posits that trust includes reliance on others' competence and willingness to not harm the trusting individual's interests. In a dependent relationship when a level of skill is required, an individual who means well may not be trusted if the individual is not viewed as being competent (Hoy & Tschannen-Moran, 1999).

Teacher competence is often necessary for student trust. How students assess the competence of teachers likely varies from how the general public may assess teacher competence. Adams and Forsyth (2009) observe that empirical evidence indicates students do not use test scores as a metric to evaluate teacher competence, rather, they rely on day-to-day instructional practices of teachers. The student-teacher relationship is the summation of interaction over time, and evidence derived from these interactions in an instructional context shape student perceptions of teacher competence.

Honesty. Tschannen-Moran and Hoy (2000) relate honesty to character, integrity, and authenticity. Butler and Cantrell (1984) indicate that trust must include the

dimensions of integrity, honesty, and truthfulness. Rotter (1967, 1980) describes trust as the expectancy that the word, promise, or oral and written communications of other individuals can be relied on. Hosmer (1995) indicates that trust incorporates "morally correct decisions and actions based on ethical principles of analysis" (p. 399).

Even young students are adept at detecting disingenuous or misleading statements or attempts to deflect blame/criticism. Unethical behavior fosters distrust and, as Rotter (1980) argues, as distrust increases the social fabric of relationships deteriorate. A positive student-teacher relationship will not develop in the presence of insincerity or perceived inequitable behavior on the part of teachers (Adams & Forsyth, 2009).

Openness. Openness is the degree to which relevant information will not be withheld. Butler and Cantrell (1984) include mental accessibility and willingness to freely share ideas and information as a dimension of trust. Mishra (1996) states that trust increases with communication that is undistorted, truthful, or candid. Additionally, the extent to which an individual engages in undistorted communication reinforces trust in terms of openness. Hoy and Tarter (2004) note that individuals who are guarded in their interactions provoke suspicion that they have something to hide. Further, there is reciprocity in trust and openness; one contributes to the other and vice versa. Adams and Forsyth (2009) emphasize the importance of emotional connections for social exchanges in the classroom. Teachers perceived as not listening or inattentive to student concerns are less likely to be trusted.

In summary, Tschannen-Moran and Hoy's trust definition has been used by other scholars to conceptualize and measure different forms of trust. Forsyth and colleagues used the definition to conceptualize and measure parent trust (Forsyth, 2008) and student

trust (Adams & Forsyth, 2009). Brewster and Railsback (2003) used the definition to examine trust within the context of school improvement through observation of teacher-teacher and teacher-principal relationships. Goddard and colleagues (2001) used the definition to study the relationship between faculty trust in clients and student achievement. The definition accounts for the theoretical properties of trust and the conditions under which trust grows. The conditions and facets of trust are as important for student-teacher interactions as they are for teacher-teacher, teacher-principal, and parent-teacher interactions. Thus, student trust is defined as students' willingness to be vulnerable to teachers based on their confidence that teachers are open, benevolent, honest, competent, and reliable.

Collective Trust

Trust does not just occur; like a plant it must be nurtured to grow and flourish. Actions, both conscious and unconscious, contribute to the formation of trust. These behaviors are a direct reflection of the facets of trust and conditions that support it. Even though Tschannen-Moran and Hoy's (2000) definition of trust has been used extensively in the literature, conceptualizations of the nature of trust in school organizations have been lacking. Because this research is based on the collective trust of students in teachers, it is necessary to differentiate collective trust from more psychological and interpersonal orientations of trust, and to review literature on the formation of collective trust.

Foundation of Collective Trust

Lewis and Weigert (1985) describe trust as a property of *collective* units and not that of isolated individuals. They argue the primary function of trust is sociological

rather than psychological since individuals have no reason or need to trust separate from social relationships. Thoughts and feelings are part of the formation process, but without interactions and mutual dependencies, trust would not be necessary. Lewis and Weigert suggest trust formation involves three dimensions. First, it is a cognitive process discriminating between entities that are trustworthy, distrusted, or unknown. The cognitive dimension is characterized by a "cognitive leap" at the point when social actors require no further evidence in their decision to trust. The emotional dimension compliments the cognitive. The affective component is the emotional bond existing between those participating in the social relationship; it is particularly intense in interpersonal trust. The third dimension of trust is its behavioral enactment. That is, it refers to the expectation that individuals embarking on a risky course of action confidently expect that others will act competently and dutifully.

Recognizing the social nature of trust in schools, Bryk and Schneider (2002) refer to trust as relational trust and base their construct on sociological concepts rather than cognitive dimensions. They conceptualize relational trust as a three-level theory founded on both beliefs and observed behavior. The intrapersonal level is the complex cognitive activity of determining other's intentions. These determinations occur within a set of role relationships at the interpersonal level, and, in an educational setting, are defined by that setting and the specifics of that school community. Bryk and Schneider state that these trust relations have significant consequences at the organizational level, ". . . including more effective decision making, enhanced social support for innovation, more efficient social control of adults' work, and an expanded moral authority to "go the extra mile" for the children" (p. 220). Relational trust is an organizational property whose ". . .

constitutive elements are socially defined in the reciprocal exchanges among participants in the school community" (p. 220). As such, relational trust is the aggregation of individual trust beliefs, or as Forsyth, Adams, and Hoy (2011) characterize it, "a joining together of individual discernments" (p. 21).

The type of trust that is the basis for this study is collective trust; that is, the shared understanding and normative belief of a school group (Forsyth, Adams, & Hoy, 2011). It has its basis in the individual student-teacher-relationships previously described but, rather than being a cognitive belief of an individual, it is a norm that exists among students. Collective trust, unlike relational trust, is not the aggregation of individual trust beliefs. Lewis and Weigert (1985) were unequivocal in their description of trust as a property of collective units and not of isolated individuals. Collective trust is a shared condition that regulates the beliefs and behaviors of group members. Forsyth, Adams, and Hoy define collective trust "as a stable group property rooted in the shared perceptions and affect about the trustworthiness of another group or individual that emerges over time out of multiple social exchanges within the group" (p. 22). Students and their collective trust belief of teachers is the form of trust for this study.

Formation of Collective Trust

Tschannen-Moran (2000) provides an overview of trust in schools and why it is required for effective school performance. While reiterating the definition of trust, she also discusses building trust.

> [P]rincipals and teachers must demonstrate benevolence through showing consideration and sensitivity for subordinates' need and interests, acting in a way that protects subordinates' rights and interests, and refraining from exploiting

> others for the benefit of one's own interests. Trust is also enhanced by a willingness to apologize for unpleasant consequences. . . . Students and teachers will feel greater confidence when they feel they can predict the behavior of their superior and when they feel their superior is honest. (p. 2)

In effect, Tschannen-Moran argues that greater trustworthiness is perceived by subordinates when superiors share control. Adams (2008), in his synthesis of the school trust literature, argues that trust forms from behavioral, affective, and cognitive mechanisms. Evidence on these mechanisms is reviewed to portray a social environment with high trust.

Behavioral mechanisms of collective trust. Adams (2008) reviewed the empirical evidence concerning trust formation in the trust literature to identify the different forms of trust and their antecedent conditions. Based on his review of 31 studies he posited a generalized model of trust formation hypothesizing trust to be a function of social mechanisms and cognitive discernments of the facets of trust. He states that behavioral mechanisms, individually and collectively, are a powerful source of trust. Evidence from research indicates that supportive, authentic, and cooperative behaviors shape trust formation in individuals and groups.

Hoy and Kupersmith (1984) examined principal authenticity as it related to faculty trust. Principal authenticity was defined as having three aspects: accountability, that is, accepting responsibility and admitting errors, non-manipulation of subordinates, and subordinating role to self. Nine hundred forty four teachers from 46 suburban and rural elementary schools were surveyed using either a Trust Scale developed by Hoy and Kupersmith (development of this instrument is detailed in Hoy & Kupersmith, 1985) or a

shortened version of Hoy and Henderson's Leader Authenticity Scale. Results showed moderate to significant correlations between faculty trust in principal and faculty trust in colleagues, faculty trust in principal and faculty trust in the organization, and faculty trust in colleagues and faculty trust in the organization. Further, principal authenticity significantly correlated with each aspect of faculty trust—principal, colleagues, and organization.

Reitzug (1994) conducted a case study on empowering principal behavior. He noted that empowerment literature was long on concept and theory, but short on field-based practical examples of behavior informing practice. His subject was a 37 year-old Caucasian male in his fourth year as principal of an elementary school with 800 students located in a rural area of a large, urban district of approximately 100,000 students. His staff was predominantly Caucasian female; the school was 72% Caucasian, 25% African-American, and 3% Hispanic. Forty-five percent of the students qualified for free or reduced lunch. Data were collected via direct observation, interviews, current documents, and archival records. Reitzug's observational stance was that of an outsider although he noted taking a more participatory role when appropriate. Data analysis via category-development process identified three types of empowering behavior that supported trust: support, facilitation, and possibility. Reitzug stated that:

> [e]ssential in creating a supportive environment for critique and encouraging teachers to give voice to their beliefs is trust. Providing individuals with autonomy to make professional decisions but then showing a lack of trust in their decisions by overturning them when they do not agree with the leader's viewpoint is disempowering. (p. 293)

One of the teachers in the study provided an example concerning the school's last principal who would never allow his teachers to control anything, and was always over the shoulder watching teachers. But in regards to the current principal, he stated "he *trusts* [emphasis added] you" (p. 294).

Tschannen-Moran and Hoy (1998) note that "teachers' trust in their colleagues as well as their principal are important elements of the trust in a school setting" (p. 341). They link trust in both colleagues and principal to school effectiveness, positive school climate, and principal authenticity. These linkages were measured via questionnaire in an empirical study of 2,741 teachers in a sample of 86 middle schools in a northeastern state spread relatively evenly across socio-economic status and urban, suburban, and rural locales. Their results, in part, indicate that collegial leadership made a strong and significant contribution to faculty trust in the principal while teacher professionalism, which they defined as commitment to students, respect for each other's competence, and taking their work seriously, made a smaller but still significant contribution. Tschannen-Moran and Hoy assert that the most powerful determinant of trust in the principal is the behavior of the principal; that is, the principal is in control of his own destiny through actions to engender trust or distrust. They relate teacher professionalism and the influence of collegial leadership by the principal to the generation of strong trust in the leader.

Brewster and Railsback (2003) continued the discussion of teacher-teacher and teacher-principal trust beyond developing the components of trustworthiness. They identified several specific roadblocks to building and maintaining trust. Those included:

> [t]op-down decision making that is perceived as arbitrary, misinformed, or not in the best interests of the school, ineffective communication, lack of follow-through on or support for school improvement efforts and other projects, unstable or inadequate school funding, failure to remove teachers or principals who are widely viewed to be ineffective, frequent turnover in school leadership, high teacher turnover, and teacher isolation. (p. 10)

Some general suggestions advanced by Brewster and Railsback to build and maintain trust between teachers include:

1. Demonstrate personal integrity,
2. Show that you care,
3. Be accessible,
4. Facilitate and model effective communication,
5. Involve staff in decision making,
6. Celebrate experimentation and support risk,
7. Express value for dissenting views,
8. Reduce teachers' sense of vulnerability,
9. Ensure that teachers have basic resources, and
10. Be prepared to replace ineffective teachers. (pp. 13-14)

These suggestions are an expression of the many behavioral mechanisms cited in the research of Hoy and Kupersmith (1984), Reitzug (1994), and Tschannen-Moran and Hoy (1998). Again, authentic, supportive, and caring behaviors are the key to trust.

Affective and cognitive mechanisms of collective trust. While Adams (2008) suggests that behavioral mechanisms may play the primary role as a source of trust,

affective and cognitive mechanisms also matter. In general, affective mechanisms relate to feelings and emotions such as a student's sense of belonging or a teacher's sense of positive faculty morale. Cognitive mechanisms reference an individual's perceptions and the strength of identification with an organization (Adams, 2008).

Tarter, Bliss, and Hoy (1989) examined faculty trust in principal and faculty trust in colleagues. One thousand eighty three teachers in 72 secondary schools in New Jersey were surveyed using the Organizational Climate Description Questionnaire, Rutgers Secondary (OCDQ-RS), and the faculty trust in principal and faculty trust in colleagues instruments developed by Hoy and Kupersmith (1985). They averred that openness of the school climate would reflect harmony in the instrumental and expressive activities of school life. Data supported the affective discernment in their hypotheses that openness in the organizational climate of a secondary school was significantly correlated with trust in principal as was trust in colleagues.

In a study examining the effects of formalized and centralized school structures on parents, Adams and Forsyth (2007) surveyed 580 parents and 545 teachers drawn from 79 schools in one quadrant of a Midwestern state. Hierarchical multiple regressions were used to study the effects of enabling school structure on parent-school trust, parent-principal trust, and parent collaboration. Hoy and Sweetland's (2000) short version of the Enabling School Structure Scale was used to capture teacher's perceptions of bureaucratic features while Tschannen-Moran's (2001) Collaboration Instrument was used to measure parent collaboration. As this was a meso-level study, parent and teacher responses were aggregated at the school level. The authors concluded that parents and school personnel are more likely to work together when trust and collaboration are

present. Strict and rigid structures to regulate behavior can undermine the formation of parent trust, and an enabling structure improves parent perceptions of their involvement and influence.

Effects of Collective Trust

Tschannen-Moran and Hoy (1998) cite Cunningham and Gresso (1993) terming trust "the foundation of school effectiveness." This claim is supported by extensive research that shows faculty trust is positively associated with school effectiveness (Hoy, Tarter, & Wiskowskie, 1992; Tarter, Sabo, & Hoy, 1995), positive school climate (Tschannen-Moran & Hoy, 1998), principal authenticity (Hoy & Kupersmith, 1984), and student achievement (Bryk & Schneider, 2002; Goddard, Tschannen-Moran, & Hoy, 2001). Trust appears to be a requisite condition if schools are to function well. In the absence of evidence on the consequences of student trust, it is necessary to turn to the general effects of collective trust to understand how trust influences student and school performance. Evidence of the trust effect is divided by evidence on school effectiveness and student achievement.

School Effectiveness

School effectiveness as a construct is based on the theoretical work of Talcott Parsons (1960) as empirically developed by Paul Mott (1972) and Cecil Miskel and colleagues (Miskel, Fevurly, & Stewart, 1979; Miskel, McDonald, & Bloom, 1983). Parsons advanced four functional imperatives that form the foundation for a multidimensional definition of effectiveness. To survive and be effective, organizations must accommodate their environments, attain their goals, maintain cohesion among their parts, and create and sustain a successful motivational system. Mott (1972) developed a

measure of organizational effectiveness which Miskel and colleagues adapted to schools. Other constructs have been used as proxies of school effectiveness including, but not limited to, collective trust of the faculty (Hoy et al., 1992; Tarter et al., 1995), collective trust in clients (students and parents) (Goddard, Tschannen-Moran, & Hoy, 2001), social capital (Forsyth, Adams, & Hoy, 2011), and academic optimism (Hoy, Tarter, & Woolfolk Hoy, 2006). Daly (2009) and Chughtai and Buckley (2009) provide further evidence of the relationship between faculty trust in the principal and school effectiveness.

Daly (2009) examined the mediating effect of trust in corrective action schools on threat-rigid responses to mandates. He conjectured that a threat-rigid response to improvement could constrain educators from initiating flexible, responsive, and adaptive school improvement strategies that would enhance student performance. His two-fold purpose was to compare the reactions of teachers and principals in corrective action and non-corrective action schools to threat-rigid response and to determine if, as he states, "leadership behaviors of principals (e.g., shared decision making, empowerment, and involvement), coupled with within-school trust, are predictive of lower levels of a threat–rigid response" (p. 170).

Daly's definition of trust represented an aggregate of the work of Mishra (1996), Tschannen-Moran and Hoy (2000), and Bryk and Schneider (2002). His purposeful sample included 252 teachers in four elementary and four middle schools in year two of school improvement (termed program improvement (PI) sites), 201 teachers in three elementary and three middle schools not under school improvement, and 53 site administrators (principals and assistant principals) from PI schools from four districts in

central and southern California. Daly's study was a two-phase mixed methods design with the first stage consisting of threat-rigidity, trust, and leadership surveys followed by phase two focus groups and interviews. In part, the study found that teachers at PI sites perceived a higher threat-rigidity response and less school and district level trust than teachers at non-PI sites. Further, the higher the perceived trust level in PI sites regardless of the school or district level, the lower the threat-rigid response. Similarly for administrators, the higher perceived leadership behaviors predicted lower threat-rigid responses (p. 204).

Chughtai and Buckley (2009) examined the relationship between faculty trust in the principal and in-role job performance, organizational citizenship behavior, and learning goal orientation. Data were collected by survey of 130 high school teachers selected from six schools in a large eastern city in Pakistan. The sample was 77 percent female and 23 percent male with about 80 percent holding a Master's degree. In-role job performance was defined as activities directly related to the teacher's formal job requirements. Organizational citizenship behavior refers to teacher's willingness to perform activities that are not part of formal requirements, but necessary to the efficiency and effectiveness of the school. Learning goal orientation is the teacher's disposition toward developing or validating his or her ability in an achievement setting. Faculty trust in the school principal was positively and significantly correlated with in-role performance, organizational citizenship behavior, and learning goal orientation. When mediating control variables of organizational identification and work engagement were introduced, trust in principal was found to be significantly and positively related to in-role performance (Chughtai & Buckley, 2009).

Forsyth (2008) summarized the empirical research on consequences of trust. He separated the research into three clusters: Hoy and colleagues, first at Rutgers and, later Ohio State; the University of Chicago cluster; and the Oklahoma State cluster. Some of the research accomplished by the first two clusters has been described supra. Forsyth noted that research by the Oklahoma State cluster was conducted "[c]onsciously intending to make its work compatible with the Hoy clusters . . . us[ing] the identical conceptual approach to trust that Hoy and Tschannen-Moran used" (p. 15). Forsyth enumerates 47 empirical findings from studies conducted over the last 20 plus years. Selected conclusions include that "Teacher trust of colleagues is positively related to school effectiveness," "Teacher trust of clients is positively related to math/English achievement," and "Teacher trust of colleagues is positively related to academic performance" (pp. 20-22). However, only two findings address the area of student trust: "Student trust of principal is positively related to student identification" and "Student trust of principal is negatively related to school level (grade)" (p. 22).

The research conducted at Rutgers and Ohio State concentrates almost exclusively on aspects of teacher trust, that is, trust in principal, trust in colleagues, and trust in clients (parents and students). The affected variables include trust in the school organization, principal authenticity, school climate, school effectiveness, and student achievement. The Chicago research studied the relationship of relational trust to innovation and responsibility, parent outreach, and high academic standards and expectations. The more recent Oklahoma State studies have related teacher, parent, or student trust to enabling school structures, collective teacher efficacy, academic performance, and parental involvement. Forsyth (2008) generalizes these findings as

teacher trust varies according to its target (affected variable), teacher trust of clients is a better predictor of student achievement than SES, and multidimensional trust (perceptions of multiple school groups) predicts school outcomes more powerfully than a single role group.

In short, empirical evidence seems to indicate that a trusting environment is necessary for schools to operate effectively. Forsyth's synthesis also indicated a linkage between school effectiveness and student achievement as teacher trust of colleagues was related to both. Evidence on the achievement effect attributed to trust also reinforces the importance of this school condition.

Student Achievement

In the context of NCLB, public education succeeds or fails based on standardized test scores which measure student achievement of specified target groups. Trust may assist educators as they struggle to increase achievement. Indeed, Tschannen-Moran (2004) is blunt in her assessment of the effects of trust. She states:

> Students who don't feel safe will invest their energy in self-preservation rather than learning. Safety comes at the expense of student achievement, and the result is disengagement from the educational process. Students who do not trust their teachers and administrators to keep them safe and to tell them the truth will be disadvantaged when it comes to learning. (p. 1)

Tschannen-Moran (2004) examined the effects of faculty and principal trust in clients (students and parents) on student achievement. She surveyed 66 principals and teachers from urban, suburban and rural Virginia middle schools using the Principal Trust Scales and Faculty Trust Scales, respectively. The Principal Trust Scales measure

principal trust in teachers, parents, and students while the Faculty Trust Scales similarly measure trust in the principal, colleagues, and clients (parents and students). Student achievement data were drawn from the Virginia Standards of Learning examinations for 8th grade students. She found faculty trust in students and parents strongly predicted student achievement both in English and math. Faculty trust in colleagues was moderately related to achievement. And, principal trust in students and parents exhibited only a slight correlation to student achievement. Tschannen-Moran's findings relating student achievement to faculty trust in clients and the faculty's trust of their colleagues identifies a direct link to increasing student achievement and, possibly, narrowing achievement gaps.

Goddard, Salloum, and Berebitsky (2009) examined the degree to which organizational features (socioeconomic status, racial composition, and school size) predicted the level of trust in schools and whether that trust level was related to school achievement on state-mandated NCLB accountability tests of reading and mathematics. From 1659 eligible public elementary schools in Michigan, a sample of 150 schools were selected and divided into 15 groups of 10. Thirteen of the 15 groups were contacted to participate in the study and 80 schools completed surveys. Two of these schools were eliminated due to insufficient survey responses. A 14 item Likert type trust instrument, a subset of the instrument developed by Goddard et al. (2001), was used. Other school data including SES, location, size, and school achievement data was provided by the state department of education. The authors specified four linear regression models and utilized hierarchical linear modeling in their analysis. They noted that "[c]onsistent with our hypotheses, the results indicated a strong, positive, statistically significant relationship

between trust and school achievement in mathematics and a marginally significant relationship between trust and school achievement in reading" (p. 303). They also noted that "achievement was lower in disadvantaged schools because these schools tended to have lower levels of trust. This positions trust as a mediator of the relationship between school disadvantage (SES and the proportion of students of color) and academic achievement" (p. 306).

Student trust has been studied at the post-secondary level as it relates to the interpersonal communicative relationship between teacher and student. Wooten and McCroskey (1996) asked 139 students of a large eastern university to complete a questionnaire immediately prior to the class in which data were collected. Researchers used several surveys: the Wheeless and Grotz Individualized Trust Scale (ITS) consisting of 15, seven point, bipolar items; the Socio-Communicative Style consisting of 20 items evenly divided between assertiveness and responsiveness measure; and Socio-Communicative Orientation instrument which consisted of the same 20 items just described with directions to answer "as you see yourself." Analysis was via Pearson correlation and a two-way analysis of variance for assertiveness and responsiveness scores. Results indicated that both increased teacher assertiveness and responsiveness were correlated with increased student trust ($r = .59$, $p < .0001$, 35% variance and $r = .27$, $p < .001$, respectively). Further, highly assertive teachers produced more trust in highly assertive students; this was not true with less assertive students.

Gregory and Ripski (2008) researched the implications of adolescent trust for classroom behavior. Their study involved 32 high school students, including 22 from the 9th and 10th grades, from a large urban high school placed in in-school suspension for

teacher defiance behaviors. Thirty-two teachers with a mean of 12 years experience were included in the study. Teachers completed structured interviews and a survey consisting of an eight item defiance subscale of the Swanson, Nolan, and Pelham measure (SNAP-IV) wherein teachers rated the frequency with which items occurred. Teachers also completed a 10 item, four point student cooperation measure. Students completed eight items from Tyler and Degoey's scale measuring beliefs in government authority. Students also rated their own behavior on a five item scale and a 10 item cooperation scale devised by Skinner and Belmont. (Gregory & Ripski, 2008, pp. 341-343) Results of Pearson's correlations indicated that higher cooperation was associated with lower defiance in both teacher and students, ($r = –.47$, $p < .01$ and $r = –.71$, $p < .001$) respectively. Regression analysis indicated that the association between a teacher's relational approach to discipline and low student defiance was mediated by the student trust in teacher authority for both teachers and students.

In a qualitative study, Ennis and McCauley (2002) examined strategies employed by teachers at an urban high school to encourage hard-to-teach students to comply with school and class rules and to learn in school. They interviewed 98 students ranging from 14 to 18 years old identified by administrators as disruptive, hard-to-teach, or disengaged. The students were African-American and male. Sixty percent qualified for free or reduced lunches. From these interviews, Ennis and McCauley identified and interviewed 18 teachers based on the hard-to-teach students' statements that they 'liked' them and they could 'teach me;' four of their classes were subsequently observed for four months. The teachers described how they developed and used strategies to encourage these students to engage in meaningful learning experiences and how they used shared

experiences to foster trusting relationships with these difficult students. The strategies they developed involved the use of "second chances, positive interactions and student ownership to create a stable foundation of trust predicated on the development of four essential elements: shared expectations, persistence, commitment, and voice" (p. 166).

In a recently published dissertation, Romero (2010) examined the relationship between trust and high school outcomes. Using data from the Educational Longitudinal Study of 2002, she sampled over 14,000 students from more than 750 public, private, and Catholic high schools who were sophomores in 2002. Follow-up studies from 2004 and 2006 were also available. Data were analyzed by Structural Equation Modeling (SEM). Her analysis indicated student trust had a significant measureable effect on high school outcomes. High trust levels were related to more positive outcomes than low trust levels. High trust level students were more likely to graduate, have higher post secondary goals, and have higher grade point averages. Other analysis demonstrated that benevolence was the most important facet she studied with competence and integrity (honesty) following with equal but lower significance levels.

Collectively, these studies suggest that trusting relationships may be a significant resource in increasing student achievement and reducing the effects of what Goddard, Salloum, and Berebitsky (2009) term school disadvantage. Specifically, Romero (2010) provides evidence linking individual student trust to student outcomes and student goals. Her findings are limited by how trust was measured, but they do provide insight into the relationship between student perceptions of teachers and achievement. The above findings are uniformly positive and reflect the general tenor of the research Forsyth

(2008) synthesized. In short, collective trust held by teachers and parents has positive consequences for school effectiveness and student achievement.

Student Motivation and Achievement

Because evidence on the relationship between student trust and achievement is lacking, it is helpful to review evidence on the importance of motivation for achievement. Trust is a motivator in that it elicits one's willingness to risk vulnerability, an action that is necessary when goal attainment is partly dependent on another person or group. Research supports the premise that trust develops over time and through social interactions. Social interactions and relationships that have favorable outcomes engender trust between the parties (Lewicki & Bunker, 1996). Evidence linking motivation to achievement helps to establish empirical support for why student trust, a motivational factor, would influence achievement. As previously noted, Romero's (2010) finding that benevolence was rated the most significant facet of trust for positive outcomes underscores the importance of warm, caring, and supportive relationships between student and teacher.

Voelkl (1995) examined the relationship between school warmth and student participation in class activities, and academic achievement. Using data from the U.S. Department of Education's National Educational Longitudinal Study of 1988, her sample consisted of 13,121 eighth grade students from approximately 800 public schools. Student warmth was a composite variable created from six ratings between teachers and students about whether there was school spirit, teachers interest in students, teacher praise for students, whether teachers listen to students, and whether teachers put-down students in class. Participation was a composite variable measured by attendance, preparation,

behavior, tardiness, and student engagement. Achievement was measured by student scores on NELS:88 achievement tests in reading comprehension, mathematics, science, and history/citizenship. A multivariate analysis of covariance indicated a statistically significant relationship between school warmth and the four measures of student achievement. Voelkl found similar relationships between school warmth and participation measures and participation and achievement. However, when participation was held constant, the relationship between warmth and achievement was *not* significant. She did note that a "warm and supportive climate in school would encourage students to participate and become academically involved; this increased academic involvement would in turn be accompanied by higher achievement" (p. 136).

Garza (2009) studied Latino and white high school students' perceptions of a caring teacher and the culturally related similarities and differences reflected by those perceptions. His qualitative study examined 49 Latino and 44 white students from a large, suburban central Texas high school. The students aged 14 to 18 and were 36 female/13 male and 22 female/22 male, respectively. Data were gathered and triangulated via interview, observation, and questionnaire. Observations were conducted at several times during the day, both in and outside the classroom environment in formal and informal settings. Data were coded to identify themes, grouped into categories and refined by constant comparative analysis and axial coding (Charmaz, 2006; Glaser & Strauss, 1967; Strauss & Corbin, 1990). Garza's study generated five dominant themes. He noted that "[c]aring teachers (a) provide scaffolding during a teaching episode, (b) reflect a kind disposition through actions, (c) are always available to the student, (d) show a personal interest in the student's well-being inside and outside the classroom, (e) and

provide affective academic support in the classroom setting" (p. 310). The themes represent a one-way relationship with the teacher as the caregiver and the student as the receiver. These "perceptions of caring behaviors provide an opportunity for educators to examine the personal lens and reflect on how their actions and disposition influence student learning and success" (p 316).

It is apparent that increased teacher attention and responsiveness are related to increased student assertiveness and reduced disciplinary infractions. Further, enhanced relationships with students tended to generate more meaningful learning experiences. Teachers perceived as warm, caring, and interested in students as individuals create a classroom climate conducive to student learning needs. Such an environment is characteristic of high trust and has consequences for positive student performance.

In summary, research is supportive of the premise that collective trust is a social mechanism that can facilitate student motivation and enhance student learning. Trusting relationships between students and teachers are characterized by social interactions perceived as open, benevolent, honest, competent, and reliable. Given existing evidence on the effects of trust or quality performance, as well as the importance of supportive teachers for student behaviors, it is likely that a culture of student trust in teachers has consequences for student achievement.

Chapter 3

Conceptual Framework

Self-determination theory (Deci & Ryan, 1985, 2000; Ryan & Deci, 2000c) will be used to establish a theoretical explanation for the perceived relationship between collective student trust and achievement. Self-determination theory integrates principles of self-regulation, motivation, and psychological needs to explain quality performance. Its usefulness for understanding the student trust-achievement relationship lies in the behavioral consequences of meeting a student's psychological needs. Properties of self-determination are described first, then the theory is situated in the context of the student trust and achievement relationship.

Self-Determination Theory

Self-determination theory (SDT) is a theory of human motivation and personality that focuses on the degree to which human behaviors are volitional (Ryan & Deci, 2000b). Stated differently, SDT explains how the inherent growth tendencies and psychological needs of people affect self-regulated behavior. Self-determination differentiates among levels of self-regulated behavior by integrating organismic integration theory, cognitive evaluation theory, and psychological needs theory within a larger conceptual model (Reeve, Deci, & Ryan, 2004; Reeve, Ryan, Deci, & Jang, 2008; Ryan & Deci, 2000c).

A basic premise of SDT is that an individual's motivation for any specific activity can range from extrinsic to intrinsic to amotivational (Deci & Ryan, 1985). *Extrinsic motivation* originates in the social environment and occurs when the individual does something for a separable outcome. An example of extrinsic motivation is the

achievement of a specific letter grade in exchange for a tangible reward, such as money. In this example, the external reward is the stimulant for behavior. *Intrinsic motivation* occurs when an individual accomplishes a task because it is inherently interesting or enjoyable. Intrinsically motivated individuals complete projects, solve mathematical problems, and gain knowledge and experience for enjoyment or for the satisfaction associated with the activity. *Amotivation* is exhibited when desired outcomes are believed not to be related to behavior or the individual lacks the ability to master the given task (Gagné & Deci, 2005; La Guardia & Patrick, 2008; Niemiec & Ryan, 2009; Ryan & Deci, 2000a, 2000b).

Cognitive Evaluation Theory and Intrinsic Motivation

Deci and Ryan (1985) use cognitive evaluation theory to explain the interaction of external and internal motivators on human behavior. External factors can lead to self-regulated action under certain conditions. Ryan and Deci (2000c) suggest that self-regulation flourishes when external factors meet basic physiological and psychological needs. They advance three propositions for how external motivators lead to internal motivation. The first proposition addresses the influence of the perceived locus of causality. Events or activities promoting an internal locus of causality will increase intrinsic motivation; those that promote a more external locus of causality will undermine intrinsic motivation (Carton, 1996). The second proposition addresses the relationship between consequences and competence. Events or activities that promote perceived competence enhance intrinsic motivation while those that diminish perceived competence decrease intrinsic motivation (Carton, 1996).

The third proposition posits that individuals have organismic needs relating to self-determination and competence. Deci and Ryan (1985) stated:

> The informational aspect facilitates an internal perceived locus of causality and perceived competence, thus enhancing intrinsic motivation. The controlling aspect facilitates an external perceived locus of causality, thus undermining intrinsic motivation and promoting extrinsic compliance or defiance. The amotivating aspect facilitates perceived incompetence, thus undermining intrinsic motivation and promoting amotivation. (p. 64)

It is essential to remember that individuals can be intrinsically motivated by external factors as long as those factors have some internal value and are unique, challenging, and align with one's beliefs (Ryan & Deci, 2000c).

Organismic Integration Theory

Organismic integration theory explains how external motivators affect self-regulated and self-determined behaviors. Reeve et al. (2008) state organismic integration theory "investigates the phenomena of internalization and integration" (p. 226). That is, it is the process by which an individual transforms an externally generated regulation into self-regulation. Integration occurs when the internalized regulation has been fully assimilated into one's sense of self (Ryan & Deci, 2000a, 2000c). Organismic integration theory identifies four types of regulation that are influenced by external factors. The least desirable type, *external regulation,* implies that regulation is a function of "explicit external contingencies" (Reeve et al., 2008, p. 227). For example, students completing an assignment solely to gain a reward or to avoid punishment are dependent on external regulation (Xie, DeBaker, & Ferguson, 2006). External regulation is closer to

amotivation and can lead to harmful future consequences on behavior if more internal value is not fostered. *Introjected regulation* manifests as an individual partially internalizes the activity, however, the primary reason for behavior is to avoid guilt or to experience pride, not because the activity is valued (Reeve et al., 2008; Xie et al., 2006).

Identified regulation begins when individuals perceive behavior as serving a personal value or goal. At this state, individuals begin to feel their behavior is internally controlled, and they accept some personal responsibility for its regulation (La Guardia & Patrick, 2008; Reeve et al., 2008; Xie et al., 2006). *Integrated regulation* occurs when the value of an activity aligns with one's own values and identity. For example, when students feel that the learning task is coherent with their other values and goals they have integrated the learning with their sense of self and sense of purpose. It is at this level of regulation where self-regulation is aligned with intrinsic motivation (La Guardia & Patrick, 2008; Reeve et al., 2008; Xie et al., 2006). Integrated regulation is the most autonomous form of extrinsic motivation (Xie et al., 2006).

Basic Psychological Needs Theory

La Guardia and Patrick (2008) identify psychological needs theory as the central organizing concept of SDT. They argue that growth, development, and autonomous self-regulation depend on the fulfillment of three basic psychological needs—autonomy, competence, and relatedness (Deci & Ryan, 2000; Reeve et al., 2008; Ryan & Deci, 2000a, 2000b). Reeve et al. posit that the basic psychological needs are innate and universal; all humans need to satisfy these needs for quality performance. *Autonomy* or *autonomous* behavior occurs when interests and values are the reason for action (Reeve et al., 2008) or for self-initiation, volition, and willing endorsement of one's behavior (de

Charms, 1968; Deci, 1975). Véronneau, Koestner, and Abela (2005) describe *competence* as "having a sense of mastery over one's capacity to act in the environment" and *relatedness* as "feelings of closeness and connectedness to significant others" (p. 281). Assor, Kaplan, and Roth (2002) group these basic psychological needs into behavior clusters which they term "*autonomy-support*, *competence-support* (structure) and *relational-support* (interpersonal involvement) [italics added] according to the basic need they are assumed to support" (p. 262). La Guardia and Patrick (2008) conjecture that:

> When need supportive partners actively attempt to understand the person's interests, preferences, and perspectives (autonomy), provide clear, consistent, and reasonable expectations and structure (competence), get involved with, show interest in, direct energy toward the person, and convey that the person is significant and cared for noncontingently (relatedness), need support is evident and optimal functioning is promoted. (p. 202)

Soenens and Vansteenkiste (2005) stress that acting autonomously or in a self-regulated manner implies being self-governing or acting on one's own volition. These actions are freely endorsed and based on an individual's values and interests; therefore, the perceived locus of causality for these actions is internal (de Charms, 1968). Further, controlled self-regulation implies that the individual feels pressured to participate in an activity. The pressure felt may come from agencies external to the individual, such as rewards for participation. Such controlled behaviors are characterized by a perceived external locus of causality. The locus of causality determines the motivational basis for individual actions. In short, the external environment influences the psychological states

that motivate self-determined behavior. When the environment addresses innate psychological needs, self-regulation and self-determination will have more control over behavior.

Rationale and Hypothesis

Ryan, Stiller, and Lynch (1994) examined the representations of relationships to parents, teachers, and friends in relation to each other and to measures of motivation, school adjustment, and self-esteem. Representations refer to the organized schemata resulting from interactions with significant others which can be applied to current interpersonal relationships. The relational dimensions studied included felt security, emotional and school utilization, and emulation of each target figure. Their subjects were 660 7th and 8th grade public middle school students from the suburbs of Rochester, New York. The 7th grade sample was comprised of 154 boys and 156 girls; the 8th grade 164 boys and 132 girls. The researchers predicted that parent and teacher representations would be significantly related and both would predict school relevant outcomes. Results indicated that there was a meaningful correlation between parent and teacher representations. The quality of teacher and parent relationships with students appeared to uniquely contribute to school functioning; students who felt more secure with and able to rely on adults reported more positive attitudes and motivation in school. These feelings were associated with a greater sense of control, autonomy, and engagement in school. Ryan et al. identified two possible interpretations of these results for teachers. First, teachers play a significant role in facilitating positive performance when they provide supportive relationships. Further, students who are already secure and well adjusted are more inclined to perceive teachers positively and to obtain greater relational support.

Harter (1996) reported in a 1981 study that 3rd through 9th graders demonstrated a systematic shift from predominantly intrinsic motivation in the 3rd grade to more extrinsic motivation by the 9th grade. On a four point scale with 4 being most intrinsic and 1 most extrinsic, 3rd graders scored 3.10. The junior high average was 2.25 with the largest drop coming between 6th (2.60) and 7th (2.30) grades. Intrinsic interest in subject matter in primary grades was replaced by the extrinsic motivation to score well, win teacher approval, or to avoid censure in secondary grades. In a follow up study, elementary school 6th graders were surveyed in the spring and again in December as 7th graders to measure motivation, self-esteem, and student voice (the ability of students to express their opinions). Of particular relevance were findings on self-esteem that indicated teacher support to be critical in assessments of student self-worth. Harter notes that the measure questioned students about support from teachers in general and, as a result of using a general measure, correlations between teacher approval and self-esteem may not fully explain the influence of a given teacher in a child's life. Further, low parent support may be counterbalanced by teacher support. "Students with low parent and low teacher support scored 2.57. However, students with low parent support who reported high teacher support had self-esteem scores of 2.80, a significant difference" (Harter, 1996, p. 28).

Davis (2001) examined motivational and interpersonal variables believed to guide development of the student/teacher relationship and classroom achievement. In a study of 82 children, 45 girls and 37 boys aged 8 to 10, Davis measured non-verbal facial decoding skill by asking students to complete a questionnaire concerning social-self concept beliefs about teacher relationships, the value of those relationships, and the

quality of their relationship with their primary teacher. Data were analyzed by correlation and regression analysis of three dimensions. Correlations suggested that elementary students held beliefs concerning interacting with teachers. Davis explained,

> Students who believe they are good at interacting with their teachers are more likely to report having a *warm relationship* [italics added] with their current teacher (r = .33), turning to their teacher when they need emotional or academic support (r =.28), and modeling themselves after their current teacher (r =.23). (p. 441)

Students beliefs about relationships with teachers apparently translated to their interpersonal skills; those who felt competent in their relationships with their teacher tended to be more adept at reading adults' facial expressions (r = .24). A regression analysis of the quality of the students' relationship with their teacher across all dimensions of the relationship supported the findings. Students' social self-concept beliefs were related to their discernment of the quality of their relationship with their teacher. As Davis (2001) noted, "The more competent students perceived themselves in their interactions with their teachers, the more likely they were to report utilizing their teachers as a source of support, identifying with their teachers' values, and having a *supportive and trustworthy relationship* [italics added] with their teachers" (p.443).

Reeve et al. (2008) argue that students who are autonomous in their self-regulation tend to initiate and be more persistent when they feel their tasks are more interesting or important to them. Positive feedback via verbal rewards tends to enhance intrinsic motivation; tangible rewards may have the same effect if used to communicate competence or improvement (Deci, Koester, & Ryan, 1999). Cognitive evaluation

theory's external factors, specifically broad classroom climate factors, also have this effect (Deci, Schwartz, Scheinman, & Ryan, 1981). SDT holds that all students regardless of background, ability, or starting point possess the inner motivational resources to engage constructively and proactively in learning. Greater autonomy and positive functioning flourish when the context is supportive. Excessive controls that hinder autonomy, diminish competence, and thwart relatedness block authentic and open relationships between students and teachers (Reeve et al., 2008).

La Guardia (2009) reviewed literature relating SDT and commitment to a coherent set of values, goals, and behaviors. She argues that need support from relationship partners may facilitate education related outcomes such as academic interest, engagement, and achievement. Studies have shown that effects of parents and teachers need support include children's internalization of school tasks, enhanced student achievement, and higher school functioning (Grolnick, Ryan, & Deci, 1991; Soenens & Vansteenkiste, 2005). Teacher and parent warmth or relatedness are significant factors for learning and development; greater relatedness is linked with more autonomous orientation for school tasks (Connell & Wellborn, 1991; Ryan, Stiller, & Lynch, 1994) and more positive school outcomes (Furrer & Skinner, 2003; Grolnick & Slowiaczek, 1994; Klem & Connell, 2004; Wentzel, 1997). La Guardia (2009) notes:

> we see that need support clearly impacts the pursuit of intrinsic interests and the adoption of more deeply self-valued motives, and results in fuller engagement of important tasks of academic identity development. It is evident that parent and *teacher warmth and involvement* [italics added], structure, and autonomy support are necessary for children to optimally internalize regulations for academic tasks.

> Parents and teachers who are *need supportive* [italics added] afford opportunities and experiences to explore and develop interests, and they socialize other important behaviors to be personally valued, rather than merely complied with. Failure to provide these supports results in poorer school achievement. (p. 96)

The orientation of motivation is pivotal in self-determination theory. A supportive environment lends itself to increased learning because students are able to identify with the teacher and the purpose of the teaching. Students tend to 'bond' with teachers over time and most will wish to please teachers by not only doing what is asked but by doing it well so to gain affirmation from teachers. In essence, when teachers meet students' psychological needs, students become willing to risk vulnerability. Because the teacher is open to questions concerning the subject matter, students feel teachers have their interests at heart and teachers will consistently and honestly respond to their needs. Collective student trust is that stable group property grounded in shared perceptions and affect concerning the trustworthiness of the teacher occasioned by multiple social exchanges over time (see Forsyth, Adams, & Hoy, 2011). Collective student trust in teachers translates directly to thoughts, feelings, and behaviors that are associated with self-determination. And, self-determination is a critical source of quality performance. For this reason it was hypothesized that:

Hypothesis

H1: Collective student trust in teachers is positively related to student achievement.

Chapter 4

Research Method

Research Design

The focus of the study was on the relationship between a shared trust perception among students and individual student achievement. While the primary unit of analysis was the school, data were multi-level with individual students being nested in schools. Since all variables were continuous, a multivariate correlation design was used to test the hypothesized relationship between collective student trust in teachers and achievement. The data were ex post facto and taken from a cross-section of urban elementary schools. Multi-level models tested the unique effect of collective student trust on individual student achievement.

Data Source

Data for the study came from 2008-09 evaluation data collected by the Tulsa Area Community Schools Initiative (TACSI). Evaluators used a purposeful sample of 1,748 fifth grade students in 34 urban elementary schools from two contiguous districts within the Tulsa metropolitan area. The larger of the two districts had a student population of -41,180, of which 3,079 were 5th graders. The ethnic composition of this district was 33.6% Caucasian, 33.7% African-American, 20.4% Hispanic, 10.9% Native American, and 1.4% Asian. The district had a 77% free/reduced lunch rate. The second district had a student population of 14,658 with 1,104 5th grade students and an ethnic composition of 51% Caucasian, 14.3% African-American, 18% Hispanic, 9.9% Native American, and 6.8% Asian. The district had a 41% free/reduced lunch rate. Student data were collected on school sites by evaluators of TACSI.

Approximately one-half of the fifth grade students present at each school completed a survey measuring the perceived trustworthiness of teachers using the Adams-Forsyth Student Trust scale and the other half of the students completed a survey on school identification and other school conditions. Students were randomly assigned to one of two surveys. Students returned completed surveys directly to the evaluator. The data collection process yielded a return rate of 95%.

Measures

Student Trust

Student trust was measured using a subset of the Adams-Forsyth Student Trust scale (Adams & Forsyth, 2009). The Adams-Forsyth Student Trust Scale is a 4-point, Likert like scale ranging from Strongly Disagree coded as 1 to Strongly Agree coded as 4. With data from the scale development, bivariate correlations and tests of concurrent validity indicated a moderate correlation between student trust and academic efficacy (r = .29, $p < .001$) and stronger correlation with school identification (r = .53, $p < .001$). During tests of predictive validity, student trust explained much of the between-student variance in achievement growth ($\beta 01 = 2.5$, $p < .01$). Ten items were selected for the survey instrument including, for example, "students are well cared for at this school" and "teachers at this school are always honest with me." Factor loadings for these items ranged from .76 to .85 with a Cronbach alpha of .90 suggesting good internal structure and item consistency (Adams & Forsyth, 2009, p. 271).

A principal factor analysis was performed on student trust data procured from the TACSI evaluation to further test the validity and reliability of the student trust measure. Results (see Appendix B) support earlier evidence on the strength of the measure. Factor

loadings ranged from .58 to .75 and reliability of the items was strong with an alpha of .87.

School Identification

Student identification with school was measured using the Student Identification Scale (Voelkl, 1996). This scale is a 4-point Likert like scale with responses ranging from Strongly Disagree coded as 1 to Strongly Agree coded as 4. Ten items were selected including, "I feel proud of being a part of my school" and "most of the time I would like to be any place other than in school." Factor loadings ranged from .40 to .70, indicating strong internal structural validity. Reliability, as measured by Cronbach's alpha, was .84 indicating strong internal consistency. This scale has been extensively used in empirical studies (Voelkl, 1996, 1997).

Demographics and Student Achievement Data

Student achievement data in mathematics and reading were operationalized from state mandated test scores for all 5th grade students in schools that were part of the TACSI evaluation. State examinations are criterion referenced, scored on a standard scale, and aligned with state curricular standards. A slight difference in the number of students completing reading and math exams exists because the examinations were given on different days. Students qualifying for free and reduced lunch status were coded as "1," non-eligible students as "0" and will be used as a proxy variable for students living in poverty. School district demographic data were used for other school level variables such as school socio-economic status (SES) and school size. School size was based on average daily attendance (ADA).

Analytical Technique

Multi-level modeling of the nested data (i.e., students nested in schools) was the primary analytical technique used in the study. Multi-level modeling is appropriate when variables at a higher level of analysis influence variables at a lower level. Constructs are defined at each level and hypothesized relationships operate across different levels. Hierarchical linear modeling (HLM) is a multi-level tool suitable for proper analysis of these relationships (Luke, 2004). In particular, four models were tested.

1. A random effects ANOVA to partition variance in student achievement to student and school factors.
2. A random intercepts with achievement means as outcomes at level II.
3. A random coefficient model to assess the influence of student background characteristics on student achievement.
4. A random coefficient intercepts and slopes as outcome model to assess the effect of collective student trust on achievement as well as its effect on distributive effects (e.g., SES).

Below are the equations for the models following the convention of Luke (2004) and Raudenbush and Bryk (2002):

Random Effects ANOVA

Level I: Math Achievement = $\beta_{0j} + r_{ij}$

Level II: $\beta_{0j} = \gamma_{00} + u_{0j}$

Random Intercepts – Means as Outcomes

Level I: Math Achievement = $\beta_{0j} + r_{ij}$

Level II: $\beta_{0j} = \gamma_{00} + \gamma_{01}$(Collective Student Trust) + u_{0j}

Level I: Math Achievement = $\beta_{0j} + r_{ij}$

Level II: $\beta_{0j} = \gamma_{00} + \gamma_{01}$(School SES) + γ_{02}(School Size) + γ_{03}(Collective Student Trust) + γ_{04}(School Identification) + u_{0j}

Random Coefficient Regression

Level I: Math Achievement = $\beta_{0j} + \beta_{1j}$(Free/Reduced Lunch) + r_{ij}

Level II: $\beta_{0j} = \gamma_{00} + u_{0j}$

$\beta_{1j} = \gamma_{10} + u_{1j}$

Random Intercepts and Slopes as Outcomes

Level I: Math Achievement = $\beta_{0j} + \beta_{1j}$(Free/Reduced Lunch) + r_{ij}

Level II: $\beta_{0j} = \gamma_{00} + u_{0j}$

$\beta_{1j} = \gamma_{10} + \gamma_{11}$(Collective Student Trust) + u_{1j}

i = Individual students (case)

j = Schools (unit)

r = Level I random effect

u = Level II random effect

β = Level I coefficient

β_{0j} = School mean for math achievement

β_{1j} = Distributed math achievement effect for free/reduced lunch

γ = Level II coefficient

γ_{00} = Grand mean for math achievement

γ_{01} = Effect of school SES on math achievement controlling for individual free/reduced lunch status

γ_{02} = Effect of school size on math achievement controlling for individual free/reduced lunch status

γ_{03} = Effect of student trust on math achievement controlling for individual free/reduced lunch status

γ_{04} = Effect of school identification on math achievement controlling for individual free/reduced lunch status

γ_{10}= Average math achievement controlling for free/reduced lunch status

γ_{11}= Effect of school collective student trust on free/reduced lunch achievement gap

Chapter 5

Findings

The purpose of this research was to examine the relationship between collective student trust and individual student achievement. Student achievement was measured based on the scaled scores attained on state-mandated, norm referenced examinations of mathematics and reading administered at the end of the 5th grade. It was hypothesized that a positive relationship existed between collective student trust in teachers and student achievement. Individual and school level descriptive statistics of student and school demographics are presented first. Next, results of the models to test the hypothesis are described. The chapter concludes with results of a post hoc that tested the collective student trust effect on the poverty achievement gap.

Descriptive Statistics

Descriptive statistics (Table 5.1) show the mean and standard deviation for free/reduced lunch and student achievement. A mean of .77 for free/reduced lunch indicated that 77 percent of students in the sample qualified for federal lunch subsidy and is representative of the urban district's free/reduced value of 76 percent reported in district demographic data. The average math scale score for the sample was 708 with a standard deviation of 90. The average reading scale score was 705 with a standard deviation of 83. The state sets the cut score for proficiency at 700 so both average math and reading achievement were slightly above the threshold for proficiency.

Table 5.1

Descriptive Statistics

Variable Name	N	Mean	SD	Minimum	Maximum
LEVEL I – Student Level					
Free/Reduced Lunch Math	1748	.77	.42	0.00	1.00
Scaled Score Math	1748	708.07	90.48	400.00	990.00
Free/Reduced Lunch Reading	1712	.77	.42	0.00	1.00
Scaled Score Reading	1712	705.71	83.30	400.00	990.00
LEVEL II – School Level					
Socio-Economic Status (SES)	34	.23	.86	−1.87	1.34
School Size	34	−.11	1.03	−1.72	3.00
Collective Student Trust (CST)	34	−.13	.98	−2.89	1.99
School Identification	34	−.04	1.04	−2.06	2.46

Hierarchical Linear Modeling (HLM) Results

Multi-level modeling employing HLM 6.4 was used as the analytical technique. School-level variability of collective student trust, math achievement, and reading achievement was assessed with a random effects ANOVA. A random effects ANOVA partitions variance to within and between factors and is used to calculate the Intraclass Correlation Coefficient (ICC). ICC reports variance attributed to school membership. ICC's for math achievement and reading achievement were 11 and 10 percent respectively, indicating a significant school-level variance across both variables (Tables 5.2 and 5.3). ICC was also calculated for collective student trust to assess its school level

value. Results suggest that collective student trust varied significantly across the sample with 13 percent variance at the school level (Table 5.4)

Table 5.2

Random Effects ANOVA Math Achievement

Random Effect	SD	Variance Component	df	Chi-square	P-value
INTRCPT1, u_{0j}	30.40	924.07	33	241.76	0.00**
LEVEL-1, r_{ij}	85.51	7312.57			
ICC = .11					

Note: n = 34 schools

Table 5.3

Random Effects ANOVA Reading Achievement

Random Effect	SD	Variance Component	df	Chi-square	P-value
INTRCPT1, u_{0j}	26.32	692.90	33	216.67	0.00**
LEVEL-1, r_{ij}	79.17	6267.38			
ICC = .10					

Note: n = 34 schools

Table 5.4

Random Effects ANOVA Collective Student Trust

Random Effect	SD	Variance Component	df	Chi-square	P-value
INTRCPT1, u_{0j}	2.60	6.77	33	177.59	0.00**
LEVEL-1, r_{ij}	6.73	45.27			
ICC = .13					

Note: n = 34 schools

The means as outcomes model tested the hypothesis that collective student trust in teachers is related to individual student achievement. Results for both math and reading achievement indicate that student trust was positively related to average student math achievement (γ_{01} = 11.28; p <.01) and reading achievement (γ_{01} = 12.24; p <.01). Because trust was standardized to a mean of 0 and a standard deviation of 1, the parameter estimates indicate that a one standard deviation increase in collective student trust was associated with an increase in average school mathematics and reading achievement of 11.3 and 12.2 scale points respectively (Tables 5.5 and 5.7.) For math, collective student trust accounted for approximately 10 percent of achievement variation, and for reading, about 17 percent of achievement differences. A significant χ^2 for both math and reading achievement (χ^2 = 209.93, p <.01; χ^2 = 183.40, p <.01) indicates that school level achievement variance remained after including trust in the model.

Table 5.5

Random Intercepts – Means as Outcomes Math Achievement – Final Estimation Fixed Effects

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. df	P-value
For INTRCTP1, β_{0j}					
INTRCPT2, γ_{00}	707.36	5.20	136.11	32	0.00**
Collective Student Trust, γ_{01}	11.28	4.31	2.62	32	0.01*

Table 5.6

Random Intercepts – Means as Outcomes Math Achievement – Final Estimation of Variance Components

Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
INTRCTP1, u_{0j}	28.80	829.71	32	209.93	0.00**
Level-1, r_{ij}	85.52	7313.34			

Table 5.7

Random Intercepts – Means as Outcomes Reading Achievement – Final Estimation Fixed Effects

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. df	P-value
For INTRCTP1, β_{0j}					
INTRCPT2, γ_{00}	704.27	4.43	159.10	32	0.00**
Collective Student Trust, γ_{01}	12.24	3.73	3.28	32	0.00**

Table 5.8

Random Intercepts – Means as Outcomes Reading Achievement – Final Estimation of Variance Components

Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
INTRCTP1, u_{0j}	24.01	576.63	32	183.40	0.00**
Level-1, r_{ij}	79.16	6267.02			

A means as outcomes analysis controlling for the effects of school level variables was conducted to determine the unique effect of collective student trust on mathematics and reading achievement when accounting for the social composition of the school. When controlling for school SES, school size, and school identification, collective student trust had the largest unique effect on both mathematics (γ_{03} = 11.40; p <.05) and reading (γ_{03} = 10.31; p <.05) achievement. Additionally, it was the only significant school level factor for achievement differences. A one standard deviation increase in collective student trust was associated with an increase in average school mathematics and reading achievement of 11.4 and 10.3 scale points after accounting for other school conditions (Tables 5.9 and 5.10). The relationship between mathematics or reading achievement and collective student trust is illustrated in Figures 5.1 and 5.2.

Table 5.9

Random Intercepts – Means as Outcomes Math Achievement – Final Estimation Fixed Effects

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. df	P-value
For INTRCTP2, β_{0j}					
INTRCPT2, γ_{00}	707.66	4.95	143.08	29	0.00**
School SES, γ_{01}	−7.40	7.89	−0.94	29	0.36
School Size, γ_{02}	−5.08	4.91	−1.04	29	0.31
Collective Student Trust, γ_{03}	11.40	4.97	2.29	29	0.03*
School Identification, γ_{04}	3.28	5.47	.60	29	0.55

Table 5.10

Random Intercepts – Means as Outcomes Reading Achievement – Final Estimation Fixed Effects

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. df	P-value
For INTRCTP2, β_{0j}					
INTRCPT2, γ_{00}	704.45	4.18	168.62	29	0.00**
School SES, γ_{01}	−10.24	6.69	−1.53	29	0.14
School Size, γ_{02}	−.78	3.08	−.26	29	0.80
Collective Student Trust, γ_{03}	10.31	3.60	2.86	29	0.01*
School Identification, γ_{04}	1.94	4.00	.49	29	0.63

Table 5.11

Random Intercepts – Means as Outcomes Math Achievement – Final Estimation of Variance Components

Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
INTRCTP1, u_{0j}	28.44	808.74	29	177.94	0.00**
Level-1, r_{ij}	85.53	7315.69			

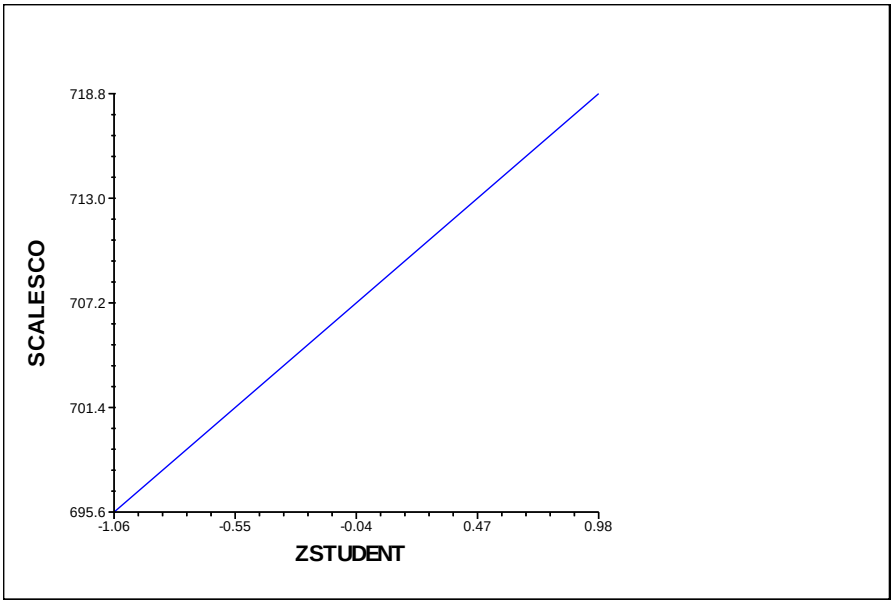
Table 5.12

Random Intercepts – Means as Outcomes Reading Achievement – Final Estimation of Variance Components

Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
INTRCTP1, u_{0j}	23.33	544.44	29	153.37	0.00**
Level-1, r_{ij}	79.18	6269.07			

Figure 5.1

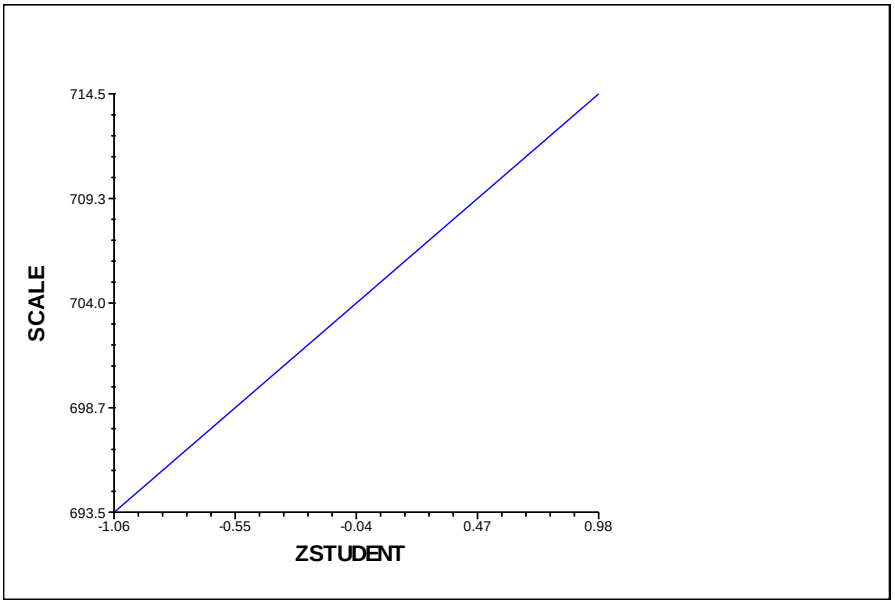
Collective Student Trust and School Math Achievement



Note: SCALESCO represents the scaled score on the state mandated mathematics examination. ZSTUDENT represents collective student trust.

Figure 5.2

Collective Student Trust and School Reading Achievement



Note: SCALE represents the scaled score on the state mandated reading examination. ZSTUDENT represents collective student trust.

Post Hoc Analysis

With evidence of a collective student trust effect on achievement established, a post hoc test was conducted to examine the effect of student trust on the achievement gap attributed to poverty. A random coefficient regression with free/reduced lunch status entered as a level-1 predictor was tested. Free/reduced lunch had a negative effect on math achievement ($\gamma_{10} = -24.75$; $p < .01$) and reading achievement ($\gamma_{10} = -24.89$; $p < .01$). Students who qualified for the lunch subsidy scored approximately 24 scale points lower in both math and reading than non-free/reduced lunch students (Tables 5.13 and 5.15).

Variance components for mathematics and reading achievement indicate a significant difference in the distributive achievement effect of poverty across the samples

schools ($\chi^2 = 70.93$, $p < .01$; $\chi^2 = 63.31$, $p < .01$). That is, the students identified as poverty students in some of the sampled schools had higher reading and mathematics scaled scores than poverty students in other schools. For this reason, the poverty gap was treated as the outcome variable at the school level in a random intercepts-slopes as outcome model.

Table 5.13

Math Achievement – Final Estimation of Fixed Effects Controlling for Student Poverty

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. df	P-value
For INTRCTP1, β_{0j}					
INTRCPT2, γ_{00}	726.36	7.94	91.52	33	0.00**
For Free Lunch slope, β_{1j}					
INTRCPT2, γ_{10}	−24.75	7.96	−3.11	33	0.00**

Table 5.14

Math Achievement – Final Estimation of Variance Components Controlling for Student Poverty

Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
INTRCTP1, u_{0j}	34.01	1156.58	30	105.98	0.00**
Free Lunch slope, u_{1j}	30.91	955.60	30	70.93	0.00**
Level-1, r_{ij}	84.16	7082.87			

Table 5.15

Reading Achievement – Final Estimation of Fixed Effects Controlling for Student Poverty

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. df	P-value
For INTRCTP1, β_{0j}					
INTRCPT2, γ_{00}	722.79	7.34	98.50	33	0.00**
For Free Lunch slope, β_{1j}					
INTRCPT2, γ_{10}	−24.89	7.86	−3.17	33	0.00**

Table 5.16

Reading Achievement – Final Estimation of Variance Components Controlling for Student Poverty

Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
INTRCTP1, u_{0j}	30.51	930.69	29	102.91	0.00**
Free Lunch slope, u_{1j}	32.04	1026.73	29	63.31	0.00**
Level-1, r_{ij}	77.81	6053.84			

The random intercepts and slopes as outcomes tested the effect of collective student trust on math and reading achievement gaps attributed to free/reduced lunch status. Results indicate that collective student trust was significantly related to a positive increase in mathematics (γ_{11} = 11.33; $p < .05$) and reading achievement for free/reduced students (γ_{11} = 10.89; $p < .01$). Poverty students in a school with high collective student trust had on average higher achievement than students in low trust schools. A one standard deviation increase in collective student trust was associated with an increase in

average school mathematics and reading achievement of 11.3 and 10.9 scale points, respectively (Tables 5.17 and 5.19). The relationship between mathematics or reading achievement and collective student trust for students in poverty is illustrated in Figures 5.3 and 5.4.

Table 5.17

Random Intercepts and Slopes as Outcomes Math Achievement – Final Estimation Fixed Effects

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. df	P-value
For INTRCTP1, β_{0j}					
INTRCPT2, γ_{00}	727.04	8.09	89.85	33	0.00**
For Free Lunch slope, β_{1j}					
INTRCPT2, γ_{10}	−25.55	7.89	−3.24	32	0.00**
Collective Student Trust, γ_{11}	11.33	4.15	2.73	32	0.01*

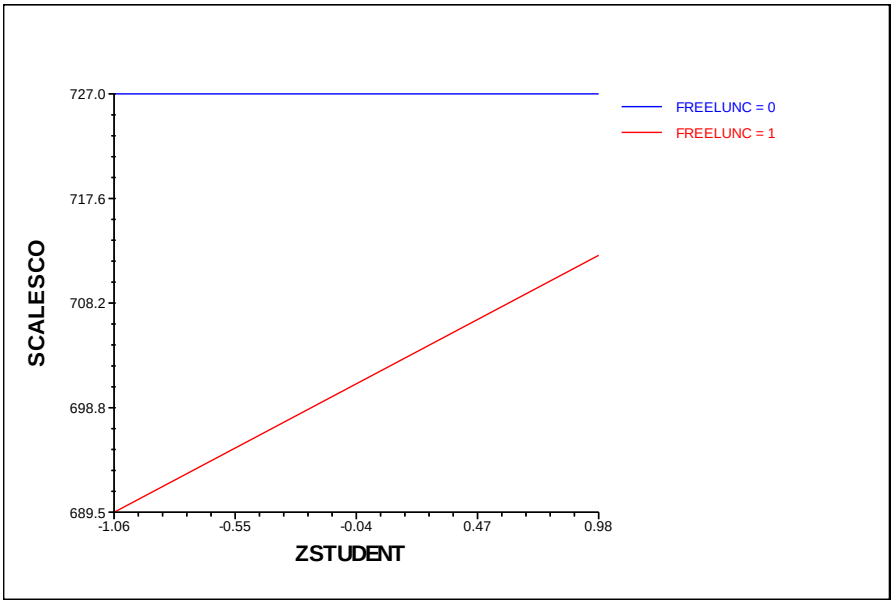
Table 5.18

Random Intercepts and Slopes as Outcomes Math Achievement – Final Estimation of Variance Components

Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
INTRCTP1, u_{0j}	34.63	1198.92	30	105.39	0.00**
Free Lunch slope, u_{1j}	31.64	938.71	29	69.53	0.00**
Level-1, r_{ij}	84.13	7078.68			

Figure 5.3

Collective Student Trust and Average Math Achievement of Free/Reduced Lunch Students



Note: SCALESCO represents the scaled score on the state mandated mathematics examination.

ZSTUDENT represents collective student trust.

Table 5.19

Random Intercepts and Slopes as Outcomes Reading Achievement – Final Estimation

Fixed Effects

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. df	P-value
For INTRCTP1, β_{0j}					
INTRCPT2, γ_{00}	723.19	7.36	98.30	33	0.00**
For Free Lunch slope, β_{1j}					
INTRCPT2, γ_{10}	−25.45	7.84	−3.25	32	0.00**
Collective Student Trust, γ_{11}	10.89	3.44	3.16	32	0.00**

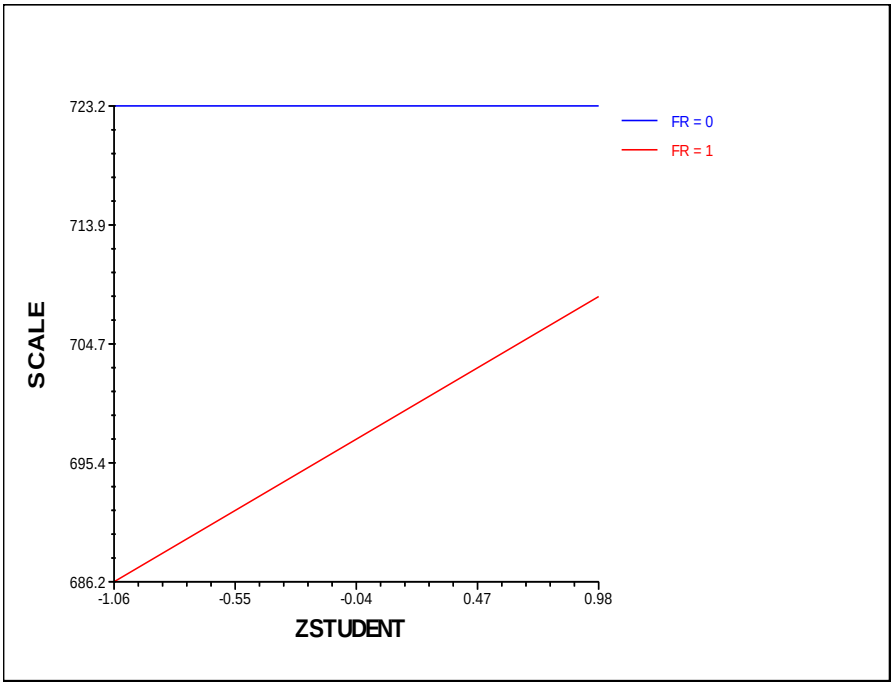
Table 5.20

Random Intercepts and Slopes as Outcomes Reading Achievement – Final Estimation of Variance Components

Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
INTRCTP1, u_{0j}	30.36	921.61	29	102.41	0.00**
Free Lunch slope, u_{1j}	31.81	1011.76	28	62.87	0.00**
Level-1, r_{ij}	77.80	6053.33			

Figure 5.4

Collective Student Trust and Average Reading Achievement of Free/Reduced Lunch Students



Note: SCALE represents the scaled score on the state mandated reading examination. ZSTUDENT represents collective student trust.

In summary, results of the multi-level models confirm the hypothesis that collective student trust is related to student achievement. Collective student trust had the largest effect on student achievement when controlling for school SES, school size, and school identification. Indeed, it was the only significant school level predictor of student achievement. While free/reduced lunch status had a negative effect on student achievement, collective student trust moderated the effect. In other words, free/reduced lunch students in high trust schools scored higher than free/reduced lunch students in lower trust schools.

Chapter 6

Discussion

This study contributes to the literature by establishing a relationship between collective student trust in teachers and student achievement. Collective trust is the normative and sanctioned behavior of a school group. Shared values, attitudes, and beliefs shaped by intra- and inter-group interactions provide informal conventions by which group members interact with other individuals in schools (Forsyth, Adams, & Hoy, 2011). Collective student trust in teachers is based on shared student beliefs that their teachers are perceived as open, honest, reliable, competent, and benevolent (Tschannen-Moran & Hoy, 2000). This shared belief is partly a function of an instructional climate that supports students' psychological needs. Results of this study confirmed the hypothesis that collective student trust is positively related to student achievement after accounting for other school conditions that are known to influence student performance (e.g. school size, school identification, and student poverty). The purpose of this chapter is to discuss the findings through the lens of self-determination theory as well as to provide implications for practice and recommendations for further research.

Explanation of Findings

Recall from the conceptual framework that self-determination theory explains human motivation and behavior as being a function of psychological needs, internal and external motivators, and self-regulation (Ryan & Deci, 2000c). An explanation for the trust effect on student achievement comes largely from the importance of a social environment that satisfies psychological needs of students. Collective student trust appears to be a conduit for the social development and need fulfillment of students. This

section provides a theoretical explanation for the achievement effects attributed to a culture of collective student trust and why the trust effect was larger for poverty students.

Achievement Effects of Collective Student Trust

Both practitioners and researchers have associated trust with effective school performance. Bryk and Schneider (2002) found relational trust to be a powerful discriminator among schools showing improved academic productivity and schools stuck in dysfunctional performance patterns. Tschannen-Moran (2000) argues that trust is a prerequisite for effective school performance. Forsyth and colleagues (2011) state that trust is a social resource that improves the capacity of professionals in schools to deliver quality learning. While it is well accepted that collective trust fuels effective performance, it is less clear why trust is such a strong mediating condition for student achievement. Self-determination theory suggests a plausible explanation. Self-determination theory coalesces evidence on motivation, regulation and psychological needs to explain how social factors either support or impede optimal behavior and social development of individuals (Ryan & Deci, 2000c).

Ryan and Deci (2000a) claim that there are two elements to motivation: the level and degree of motivation and the orientation or type. Students may be highly motivated to complete their work because they are fascinated by the material or because they wish to please their teacher. Motivation stemming from curiosity and interest or for affirmation typifies the spectrum of self-regulated behavior and identifies various sources of motivation that can be aided or hindered by parent or teacher practices (Ryan & Stiller, 1991). Intrinsic motivation yields high quality learning and creativity. Extrinsic motivation occurs when behavior flows from a separable outcome. External motivators

can lead to internal motivation if the external environment supports students' needs for relatedness, competence, and autonomy. For example, this could occur when students chose to complete work because they see value in the outcome even if the task is not particularly enjoyable. In this case, motivation comes from students relating to the learning task and purpose of the activity. Neither intrinsic nor extrinsic motivation occurs in the absence of a supportive environment where students' psychological needs are unmet.

Basic psychological needs theory identifies fulfillment of autonomy, competence, and relatedness as prerequisite for enhancing human agency and supporting personal wellbeing. Evidence indicates that when basic needs are left unsatisfied by the social environment, student self-regulation and achievement diminish (Reeve, Ryan, Deci & Jang, 2008; Ryan & Deci, 2000c). Evidence from this study supports the above claims by Reeve, Ryan, Deci, and Jang as well as by Ryan and Deci. Achievement was stronger in school environments characterized by high collective student trust. In fact, collective student trust was a much stronger predictor of achievement than free/reduced lunch rate, school size, and school identification. The findings suggest that student-teacher relationships within high poverty elementary schools function as a social mechanism to stimulate internal motivation and regulation. Relationships characterized by trust have more potential to affect achievement behavior than weak social ties between students and teachers.

Davis (2001) notes that relationships with teachers influence student learning and achievement in several ways. Students who seek to gain approval from their teacher may participate in achievement related behaviors to gain teacher affirmation (Urdan & Maehr,

1995) while other students may become more motivated by the relationship with the teacher and participate more actively in academic tasks. Davis found that students' sense of competency in their interactions with teachers was associated with having a supportive and trustworthy relationship with teachers. Positive student-teacher attachments that foster internal motivation cannot exist without trust. Low trust restricts feelings of belonging, competence, and autonomy.

Collective student trust in teachers is an indication that the learning environment in a school supports students' motivational needs. An instructional climate that is conducive to internal motivation and self-regulation uses engagement, persuasion, and commitment to shape student confidence and behavior (Ryan & Deci, 2000c). Teachers who consistently interact openly, honestly, reliably, competently, and benevolently with students are perceived as trustworthy. In contrast, teachers who regulate student learning with impersonal mechanisms or appear distant, disinterested, and rule-bound are not as likely to connect with students. Trustworthy teachers provoke risk taking, engagement, responsibility, and cooperative behaviors from students, actions that maximize learning experiences. Further, as Carton (1996) noted, activities that promote competence, relatedness, and internal control increase intrinsic motivation by supporting basic psychological needs.

Psychological needs are dynamic and constantly changing during childhood (Ryan & Deci, 2000c). A culture of collective student trust does not mean that every child's needs are met all the time, but it does indicate an environment where children generally feel supported, listened to, encouraged, affirmed, and secure. Instructional environments that attempt to control student behavior through external motives like

threats and incentives alone are less effective at building the internal agency students need to set and attain high achievement goals. Additionally, externally regulated environments are prone to more conflict, alienation, and disengagement (Deci & Ryan, 1991), whereas conditions supportive of internal regulation create hope, optimism, happiness, and overall well being (Ryan, Deci, & Grolnick, 1995). Collective trust is associated with the latter type of school culture. Hope, optimism, and wellbeing cannot exist separate from trust. Similarly, trust cannot exist where hope and optimism are low (Hoy & Tarter, 2011).

Collective Student Trust and High Poverty Students

Goddard, Tschannen-Moran, and Hoy (2001) assert that trust is at the center of strong relationships which help children, particularly disadvantaged children, learn. They support their claim by citing Stanton-Salazar's (1997) description of teachers as the principal agents guiding disadvantaged students to academic success through instructional activities and by helping them understand the mainstream culture. Stanton-Salazar described middle-class social networks, similar to those found in schools, as social freeways that allow people to move freely about a complex mainstream social landscape. Goddard, Tschannen-Moran, and Hoy claim that disadvantaged children "are not prepared to take advantage of the opportunities schools present because they lack the ability to successfully navigate the mainstream" (p. 6). Given tenuous social networks and social capital in high poverty communities (Leana & Pil, 2006) disadvantaged students depend on their teachers for assistance in decoding the dominant culture and satisfying their psychological needs. Educational opportunities provided by schools cannot be leveraged for future achievement if children do not have their social and

psychological needs met. Research points to teachers as a critical source of need fulfillment for poor children.

In a study on concentrated poverty in Chicago schools, Wilson (1987) found evidence that a quality teacher-student relationship had an appreciable effect on poverty student's performance. Further, he discovered that poverty students experiencing social isolation and limited relationships lacked the characteristics contributing to resilient behavior. Coleman (1987) posits that requisite emotional and social reinforcement compensating for these deficits in poverty students is appropriately provided in a school setting. Ryan and Deci (2000a) indicate that basic need satisfaction accrues, in part, from engaging in interesting activities. A trustworthy teacher providing the requisite emotional and social supports is fulfilling the relational-support component of the poverty students' basic psychological needs. With basic psychological needs met, self-regulation and self-determination can motivate students to engage in risk taking behaviors that can lead to student achievement (Goddard, Tschannen-Moran, & Hoy, 2001).

Ryan and Deci (2000a) indicate that basic need satisfaction also accrues from engaging in interesting activities. Students are more likely to complete tasks that are valued by significant others to which they feel or would like to feel connected. Research by La Guardia, Ryan, Couchman, and Deci (2000) shows that when individuals feel securely attached to others they feel a sense of autonomy, competence, and relatedness to those others. Indeed, this relationship is bidirectional; the more basic psychological needs are met, the more secure the attachment. Collective student trust in teachers is necessary for students to identify with schools. Often the social environment in high

poverty communities does not reinforce values and expectations associated with school identification leaving these students more dependent on teachers for need fulfillment. A trusting classroom climate that fosters self-regulation takes on greater importance as the external environment yields less internalization and, subsequently, less achievement.

The effects of a supportive, caring teacher cannot be overemphasized. While poverty students did score lower than non-poverty students in this study, poverty students attending schools with high collective student trust outscored poverty students in mathematics and reading achievement at schools with lower collective student trust. Stated simply, teachers in high trust schools are better able to meet the basic psychological needs of high poverty students. Low trust, in contrast, creates relational gaps that can have negative consequences for student performance.

Implications

The main thrust of NCLB and other school improvement policies has centered on punitive consequences to hold schools accountable for results. Failure to make adequate yearly progress for two consecutive years results in sanctions for the school. As a consequence, NCLB has focused educators' attention largely on outcomes and not the processes or conditions associated with quality learning. Policies have also not targeted sources of performance problems opting instead for remedies that include transferring students to schools not designated as needing improvement, free tutoring (supplemental educational services), and creation of "school improvement plans." The response to NCLB mandates has been to pour an ever increasing number of programs, services, and funds into schools. Collectively, these administrative strictures have as yet not proven sufficient to preclude an ever increasing number of the country's public schools from

being labeled as "needing improvement." Results from this study support calls to align improvement policies and administrative practices to conditions supportive of effective teaching and learning.

Improvement Policies

Forsyth and colleagues (2011) characterize efforts at school improvement coming from the state and federal governments as attaching federal funds to innovative programs or the creation of educational policies designed to advance control mechanisms which strengthen the existing organizational structure and culture. School improvement initiatives are typically imposed from the top down with little, if any, input from school districts or sites. Spillane, Gomez, and Mesler (2009) posit that the principle source of school improvement will be enhancements in the culture of teaching and learning. Spillane (2004) states that within the context of the local environment, genuine change evolves from the actions and interactions of individuals tasked with implementing policy. Meaningful change does not happen overnight. Resistance is likely to be encountered when change is accompanied by hard controls, rigid regulation, coercion, and punitive sanctions (Das & Teng, 1998). Individuals, such as teachers, who embody a high commitment to the mission of their organizations, are unlikely to respond favorably to policies with hard controls designed to compel change (Eztioni, 1964). Ryan and Deci (2000c) caution against the use of hard controls which diminish motivation and remove meaningful incentives such as professional autonomy and responsibility. Eztioni notes that social controls induce commitment, influence, identification, and persuasion, all natural properties of collective trust.

Application of school improvement policies centered about collective trust stands in stark contrast to accountability measures applied in an autocratic manner. Adams and Forsyth (under review) state that schools are social systems characterized by relational networks, supporting structures, interdependencies, vulnerabilities, and role specific expectations. Lewis and Weigert (1985) argued that trust is a sociological function. According to Hanushek (1992), the difference in student achievement in a single academic year between having a good teacher as opposed to a bad teacher can translate into more than one full year's growth on standardized tests. Further, Sanders and Rivers (1996) research indicates that the impact of a teacher, whether effective or ineffective, is enduring and cumulative in subsequent years. Within this social framework, it is imperative that poverty students establish a supportive relationship with a caring and trustworthy teacher for their basic psychological needs to be met, that is to say, to achieve academic success. Research is replete with examples of the efficacy of collective trust as a lubricant for achievement and improvement (see Adams, 2008 and Forsyth, 2008). Perhaps a shift in focus to consider schools first as social entities in creation and implementation of education policy merits more consideration.

Administrative Practices

Results of this study also support calls to base administrative practices on positive psychology. Hoy and Tarter (2011) define positive psychology as "the scientific study of ordinary human strengths and what goes right in life" (p. 428). They advocate an examination of what works in schools centered about "research on nurturing, resilience, trust, hope, achievement, affiliation, commitment, and positive normative behavior" to determine what leads ". . . . to healthy, engaging, meaningful, and thriving schools where

students flourish, learn, and are happy" (p. 429). In essence, research and practice should focus on conditions and practices in school social systems that maximize human behavior and performance rather than looking to attribute blame to individuals, policies, or programs.

Extant research in collective trust has provided some insights into the behaviors comprising positive psychology. Research has shown that the principal's relationship with the faculty will set the tone for the type of relationships prevalent in the building. A building with a principal perceived as supporting of faculty will engender similar behaviors in faculty relationships. Further, a supportive principal creates a climate conducive to teacher trust (Adams, 2008); particularly at the elementary school level (Mitchell & Forsyth, 2004). Hoy and Tschannen-Moran (1999) argue that teacher trust in the principal is primarily determined by the principal's behavior and how the principal manipulates structures to coordinate teaching and learning. Trust is high when the principal is seen to be benevolent, competent, reliable, honest, and open (Hoy & Tschannen-Moran) and, as noted by Bryk and Schneider (2002), the principal's behavior reflects respect, personal regard, competence, and integrity. Additionally, Davis (2001) notes a warm and supporting relationship between teacher and students will lead to those interactions creating the sense of relatedness that is the genesis of collective student trust in the teacher. District administrators appointing principals and principals staffing their schools should be mindful of trust research findings and factor those considerations into all staffing selections, both instructional and support staff.

Administrative practices supporting of collective trust are ones that enable shared responsibility, collective problem solving, and cooperative relationships. Professional

cultures that enable teachers to study teaching and learning allow teachers to adapt practices to changing student needs (Tschannen-Moran, 2009). Quality instruction is found in schools where teachers maintain a strong and collective focus on the learning needs of students. Student trust is one indicator to assess the compatibility between the learning environment and self-regulation. Where student trust is low, the classroom and school environments are not positive sources of relatedness, autonomy, and competence. High trust, in contrast, is an indicator of supportive learning environments that address student psychological needs.

In summary, top down autocratic educational policies directed at school improvement have not worked. Current school improvement approaches characterized by the NCLB grant program, Race to the Top, mandate, among other requirements, adoption of one of four improvement models and require teacher evaluation based on student scores attained on mandated student testing (U.S. Department of Education, 2010). Implementation relies on administrative sanctions, ignores that schools are social entities, and fails to harness the power inherent in school social networks. Extant research vouches for the efficacy of collective trust in enhancing student achievement and serving as vehicle for measured and meaningful school improvement.

Recommendations for Future Research

This study provides modest evidence on the relationship between collective student trust and achievement in Title I elementary schools. To build on this evidence, future research can address limitations of this study. First, data were limited to 34 Title I elementary schools in one area. Future studies can test the relationship with a larger, more representative sample of schools that includes suburban and rural schools as well as

middle and high schools. Harter's (1996) research indicated a shift from intrinsic to extrinsic motivation as students moved from 3rd to 9th grade with the largest drop occurring between 6th and 7th grades. Extending research to these grade levels offers the opportunity to determine if collective student trust mediates this motivational shift and continues to have a significant effect on student achievement. By design, the TACSI sample was devoid of personal identifiers. While race and ethnicity were self-reported, gender was not. Future research could relate data collected with gender to determine if gender is related to a significant variance in collective student trust.

Second, most trust research is based on cross-sectional data at one time point. Cross-sectional data limits causal assertions about the power of collective trust to cause student achievement. Longitudinal designs would be one way to test the causal effects of trust on performance. Future research could track collective trust in students and achievement over time to assess co-variation in these phenomena.

Third, this study did not address the formation of student trust. Given the initial evidence on the achievement effect attributed to cultures of high student trust, it would be helpful to know how schools and teachers build trust. What structure, processes, and practices shape student shared trust beliefs? Although Adams (2008) notes that principals have an indirect effect on student achievement, research into the impact of collective student trust in the principal would close this gap in the literature. While the impact is presumed to be secondary to that of a teacher, determination of its significance to student achievement would provide a more through look at the role of collective student trust in schools.

In conclusion, as governments, districts, and schools continue to design improvement strategies, it is important to view social conditions like collective trust as valuable resources for enhancing student learning. Schools will be better able to attain desired goals if we begin to see and treat schools as the social systems that they are. Collective student trust is a significant part of the lubricant that facilitates school and classroom interactions that engender student achievement. Policies and administrative practices that target trust formation in high poverty schools are likely to see a better return on achievement than are policies and practices that seek to control behavior from positions outside schools.

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Appendix A

Student Trust Instrument

Directions: Place an "X" in the blank next to how you feel or what you think.

1. Teachers are always ready to help at this school.
____ *Strongly Agree* ___*Agree* ____ *Disagree*____ *Strongly Disagree*

2. Teachers at this school are easy to talk to.
____ *Strongly Agree* ___*Agree* ____ *Disagree*____ *Strongly Disagree*

3. Students are well cared for at this school.
____ *Strongly Agree* ___*Agree* ____ *Disagree*____ *Strongly Disagree*

4. Teachers at this school always do what they are suppose to.
____ *Strongly Agree* ___*Agree* ____ *Disagree*____ *Strongly Disagree*

5. Teachers at this school really listen to students.
____ *Strongly Agree* ___*Agree* ____ *Disagree*____ *Strongly Disagree*

6. Teachers at this school are always honest with me.
____ *Strongly Agree* ___*Agree* ____ *Disagree*____ *Strongly Disagree*

7. Teachers at this school do a terrific job.
____ *Strongly Agree* ___*Agree* ____ *Disagree*____ *Strongly Disagree*

8. Teachers at this school are good at teaching.
____ *Strongly Agree* ___*Agree* ____ *Disagree*____ *Strongly Disagree*

9. Students learn a lot from teachers in this school.
____ *Strongly Agree* ___*Agree* ____ *Disagree*____ *Strongly Disagree*

10. Students at this school can depend on teachers for help.
____ *Strongly Agree* ___*Agree* ____ *Disagree*____ *Strongly Disagree*

Appendix B

Factor Analysis

	Factor 1
Collective Student Trust 1	.66
Collective Student Trust 2	.65
Collective Student Trust 3	.58
Collective Student Trust 4	.65
Collective Student Trust 5	.69
Collective Student Trust 6	.62
Collective Student Trust 7	.75
Collective Student Trust 8	.62
Collective Student Trust 9	.58
Collective Student Trust 10	.69

Appendix C

TACSI Approval to do Research



Tulsa Area **Community Schools** Initiative

November, 7, 2011

Office for Human Research Participant Protection
1816 W. Lindsey St., Suite 150
Norman OK, 73069

Dear Ms. Layne:

David Casper and his doctoral advisor Curt Adams have requested performance data collected as part of the evaluation of the Tulsa Area Schools Initiative (TACSI). Their study involves the use of data on collective trust and student achievement. TACSI gives them permission to use these data. All data are de-identified. No names, personal information, or identifiable descriptors are included in the data. Attitudinal and achievement data are linked to schools by a code that does not identify the schools.

Professor Adams has informed us that the use of data is for scholarly purposes and that our district's name and the names of the schools where data were collected will not be identified in his research. Should you have any questions, please contact me by phone at 918-585-5551 x 4245.

Sincerely,

Jan Creveling

Jan Creveling
Sr. Planner – Community Service Council
Tulsa Area Community Schools Initiative, Director

Appendix D

IRB Approval



The University of Oklahoma®

OFFICE OF HUMAN RESEARCH PARTICIPANT PROTECTION - IRB

Review Date: November 9, 2011

November 10, 2011

David C. Casper
College of Education
3755 East 48th Street
Tulsa, OK. 74135-1930

RE: Determination of Human Research Worksheet: *"The Relationship between Collective Trust and Student Achievement"*

Dear Mr. Casper,

I have reviewed your submission and have determined this type of research does not meet the criteria for Human Subjects Research. The proposed activity involves the collection of de-identified existing data. Therefore, IRB approval is not necessary so you may proceed with your project.

If you have any questions, please contact the IRB office at (405) 325-8110 or irb@ou.edu.

Cordially,

E. Laurette Taylor

E. Laurette Taylor, Ph.D.
Chair, Institutional Review Board

1816 West Lindsey, Suite 150 Norman, Oklahoma 73069 PHONE: (405) 325-8110