

Educational Resilience: The Relationship Between School
Protective Factors and Student Achievement

by

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Educational Resilience: The Relationship Between School

Protective Factors and Student Achievement

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DEDICATION

To my life partner, best friend, and most beautiful spirit I know, Andrea Most.

I am in you and you in me, mutual in divine love.

—William Blake (1757-1827)

ABSTRACT

Educators are increasingly pressured to raise standardized test scores under the No Child Left Behind (NCLB) Act of 2001, which has resulted in increased instructional time in tested subjects and test-focused school leaders who neglect school climate factors which have been associated with positive student development and increased student achievement. The theoretical framework of resilience, applied to the school setting, along with associated school climate data, may offer keys to improved school organization, instructional delivery, data analysis, and teacher training, resulting in improved student outcomes. The California Healthy Kids Survey (CHKS) and its Resilience Youth Development Module (RYDM) represent a research-based, psychometrically-sound instrument that measures school climate elements, such as external school protective factors, internal student assets, and school connectedness.

The independent variables of this study included external school protective factors, such as: caring adults, high expectations, and opportunities for meaningful participation; internal student assets, such as: problem-solving, self-efficacy, empathy, and self-awareness; demographic control variables, such as percent number of students: African-American, Hispanic/Latino, participating in free/reduced meals, and English language learners; and a school connectedness variable. Aggregated school-level scores were drawn from 1.5 million student cases ($n = 1143, 987, \text{ and } 836$ schools in 2004, 2006, and 2008, respectively). The dependent variables were school Academic Performance Index (API) scores. This study investigated the relationship between select-CHKS items and subscales to a student achievement measure; school API score, a figure calculated by California Department of Education's general accountability system based

on standardized test performance. This correlational study with replicated procedures across three sets of data examined matching 7th grade CHKS data and school API scores through descriptive and inferential statistical analyses in school years 2003-2004, 2005-2006, and 2007-2008. A three-part statistical procedure for data analysis included a zero-ordered simple correlation to school API, then two forced-entry hierarchical multiple regression analyses that accounted for the effects of all variables, and the tested effect of the mediator variable, school connectedness.

Study findings indicated that the school meaningful participation and school connectedness variables demonstrated statistically significant positive correlations to school API scores through three study replications, after accounting for the effect of all other study variables, such that the higher the reports of school meaningful participation and school connectedness, the higher the school API score. School connectedness, however, was three to four times a more powerful predictor of school API scores than school meaningful participation. The study findings support educational leadership approaches and policy development efforts that purposefully bolster school connectedness and school meaningful participation to more positively impact student learning and school reform efforts.

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CHAPTER 1—INTRODUCTION

School accountability measures of the No Child Left Behind (NCLB) Act of 2001 (U.S. Department of Education [USDOE], 2002) aim to improve student performance by mandating incremental yearly performance goals of schools, so that all students perform at grade-level standards by 2014. Schools that fail to meet their annual goals face a series of government sanctions. Consequently, educators are increasingly pressured to provide academic interventions to address student-learning needs. Federal mandates concentrate school reform efforts on learning standards and standardized test achievement. School leaders, however, must also address student social-emotional needs, ensure that all students are ready to learn, and provide student preventions and interventions that will assist with keeping students engaged and poised to tackle rigorous curriculum and reach higher levels of student achievement.

Statement of the Problem

Too often educators narrow their curricular focus to test-driven concerns directing their attention to specific courses and singular standards in order to meet NCLB expectations. When this is done at the expense of the affective domain, the students' readiness to learn and their receptivity to learning may be overlooked.

Current educational practice undermines an asset-based model. An assets model builds on student strengths and engages learning by connecting students to individualized interests and talents, whereas an NCLB standardized-test-focus prepares students for a life of tests rather than the tests of life (Elias, 2001; Lepper, Sethi, Daldin, & Drake, 1997). Too often, educators' and policymakers' focus on standardized tests and a standard curriculum effectively narrow the curriculum, increase instructional pace, create

less engaging classrooms, and ignore student preferences for authentic, hands-on learning (Certo, Cauley, & Moxley, 2008). In addition, student remediation efforts focus on student deficits. Students receive test performance labels. In California, for example, students performing below grade level are referred to as “far below basic” students. The consequence to poor test performance is often more instructional minutes in core (tested) classes for struggling students. Often, low-achieving students are separated from peers resulting in tracking and a labeling of students despite scientific studies that document the negative effects of segregation, especially for nondominant linguistic and cultural groups (Nieto, 1992; Oakes, 1985).

Support classes eliminate elective opportunities from a student’s schedule where the student may encounter feelings of success, creativity, imagination, and school connectedness (Benard, 2004). High-stakes testing appears to be particularly detrimental to resilience and youth development (Kohn, 2000; Meier, 2000; Popham, 2001).

Purpose of the Study

This study plans to explore the relationship of external school protective factors (caring relationships, high expectation messages, and meaningful participation) and internal student assets (problem-solving, self-efficacy, empathy, and self-awareness) with student academic achievement. Study findings may address whether a statistically significant relationship exists between student perceptions of school protective factors and internal assets with student performance

Research Questions

This study will utilize both descriptive and inferential statistics. Applied quantitative methodology will explore statewide survey data of the Resilient Youth

Development Module (RYDM) of the California Healthy Kids Survey (CHKS). The CHKS is a repeated cross-sectional, self-report survey that the California Department of Education (CDE) has made available to all of California's school districts as part of the CDE's accountability system. Most California schools administer the CHKS biennially. This study will utilize extant data from the annual administration of the CHKS, to evaluate the relationship of school protective factors with its component dimensions of high expectations, a nurturing adult, and meaningful opportunities to participate, in relation to California's student achievement composite score for schools, the Academic Performance Index (API; CDE, 2009). A Resilience Youth Development Module (RYDM), a component within the CHKS, measures the extent to which students possess internal resilience assets such as problem-solving, self-efficacy, empathy, and self-awareness. In addition, a school connectedness variable will be tested as a mediating variable to examine its effect on other variables (Figure 1).

The following research questions will guide this study:

1. Is there a significant statistical correlation between school protective factors of caring relationships, high expectations, and meaningful participation to student achievement?
2. Is there a predictive relationship between student internal assets of problem-solving, self-efficacy, empathy, and self-awareness with student achievement?
3. Which protective factors and internal assets exhibit the most powerful correlation with student achievement?

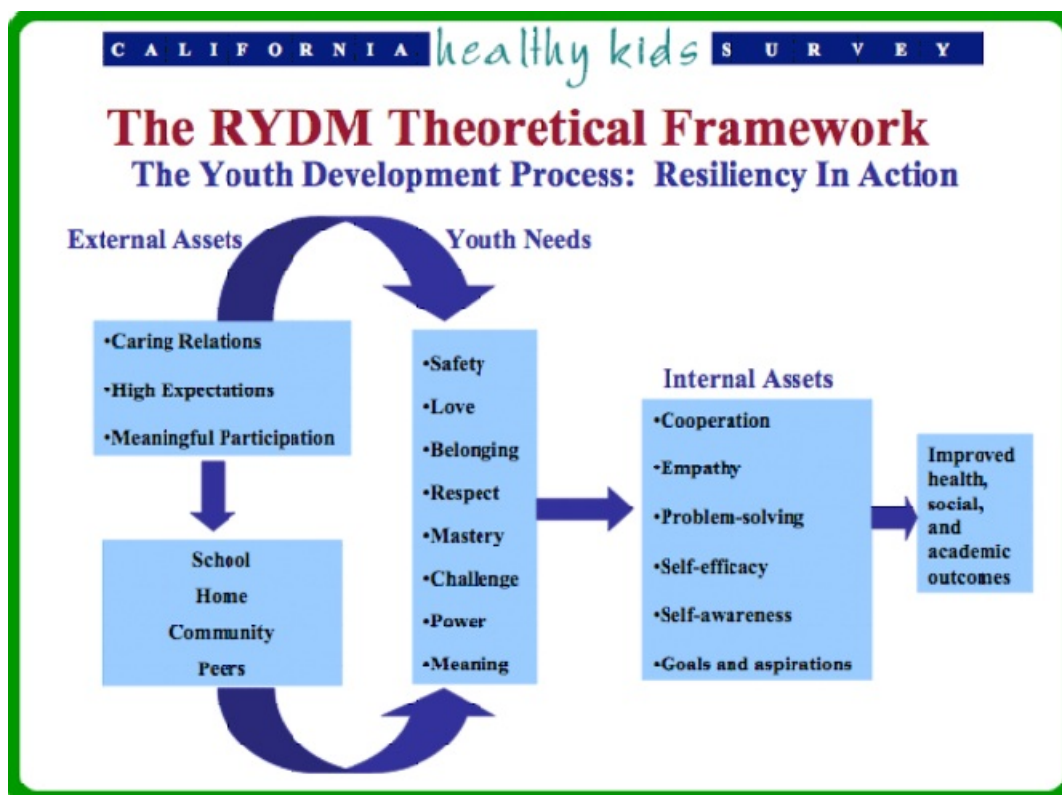


Figure 1. The resilience and youth development theoretical framework. Adapted from *Resilience & Youth Development* (para. 18), by WestEd, 2011. Retrieved from http://chks.wested.org/using_results/resilience.

Summary of the Literature

Resilience is defined as the dynamic process whereby individuals exhibit positive behavioral adaptations despite significant adversity or trauma. Challenges may include a combination of emotional, physical, or social stressors. Such stressors, also known as risk factors, are thought to endanger a child's ability to develop in a healthy, well-adjusted way, preventing them from productively contributing to society (Luthar & Burak, 2000; Masten, 1994; Rutter, 1989).

Empirical studies of educational resilience cut across race, ethnicity, socioeconomics, age, international borders, and gender. Studies have established that

caring teachers and schools that provide curriculum and instruction that engage students in active participation and learning, while maintaining high expectations develop students who demonstrate resilient characteristics (Rutter, Maughn, Mortimore, & Ouston, 1979; Solomon, Battistich, Kim, & Watson, 1997; Solomon, Battistich, Watson, Schaps, & Lewis, 2000; Solomon, Watson, Battistich, Schaps, & Delucchi, 1997). Studies where students reported caring adults and high expectations in their school reflected high student motivation and positive attitudes toward school, leading to student engagement. Studies also concluded that positive student behaviors are related to higher achievement (Freiberg, Stein, & Huang, 1995; Hawkins, Catalano, Kosterman, Abbot, & Hill, 1999; Wang, Haertel, & Wahlberg, 1993; Waxman, Huang, & Padron, 1997; Waxman, Huang, & Wang, 1997). Finally, students who expressed strong social bonds with adults, and with peers, were less likely to disengage from school and more likely to participate in the life of the school and to achieve (Resnick et al., 1997; Wehlage, Rutter, Smith, Lesko, & Fernandez, 1989).

This summary of literature describes the theoretical underpinnings of resilience across several disciplines. Beginning with the history of the study of risk and resilience and an acknowledgment of common misconceptions in the field, the review establishes the context for educational resilience. Using Benard's (1991) broad theoretical framework of resilience as a construct, the review will consolidate, and define key terms of resilience. Further, the exhaustive review suggests three protective factors, including caring relationships, high expectations, and meaningful ways to participate, which together promote resilience in students. Benard's model suggests that as these protective factors reside within families, schools, and communities, such people and places provide

for developmental needs of safety, love and belonging, respect, power, challenge, mastery, and meaning. When resilience is fostered and engaged, students' internal assets, such as social competence, problem solving, autonomy, and sense of purpose, emerge. These personal strengths reflect resilience on the part of youth (Benard, 2004). Specifically, this review will concentrate on the school setting as the arena for bolstering student educational resilience.

Empirical studies in the growing area of educational resilience research illustrate the importance of school climate along with student perceptions of their learning environment and their relationship to student performance. The relatively recent, expanding body of work in the field of educational resilience recognizes the need for further study to better define the terms and measurement of resilience in the school context.

Rutter and colleagues (1979) established the notion that schools play a key role in youth resilience after conducting an epidemiological study over a 10-year period in 12 Inner London comprehensive schools. Interviewed children, whose parents had been diagnosed with a mental illness, revealed differences regarding how they recovered from adverse conditions. Rutter was one of the first to suggest that both individual characteristics and the children's environment were important protective factors. He concluded that students coming from disadvantaged families were more likely to demonstrate resilient characteristics if they attended schools that provided a source of external protective factors, such as fostering a sense of achievement, academic pressure and high expectations, attentive and caring teachers, and good-teacher student relationships (Waxman, Gray, & Padron, 2003).

As one of the first scientists to define resilience, Werner (1986) studied a cohort of nearly 700 children from birth through adulthood on the island of Kauai, Hawaii, beginning in the 1970s. These children were raised in families with adverse living conditions including poverty, alcoholism, and mental illness. Findings from her seminal work determined that while two-thirds of the children exhibited destructive behaviors in their later teen years, one-third of the children did not. The productive and successful children were referred to as “resilient” children (Werner, 1986; Werner & Smith, 2001). Other studies have examined high schools that exhibited effectiveness in dealing with at-risk student graduation rates, attendance, and increased literacy. The mixed methodology study led researchers to conclude that students who identified themselves in the mainstream of school culture, having established positive relationships with peers and adults in the school, were less likely to disengage and drop-out of school (Wehlage et al., 1989).

Another classic work in the field of resilience, Project Competence, studied the impact of life stressors on the competency levels of elementary school children in two urban Minneapolis schools (Garmezy, Masten, & Tellegen, 1984). The study findings led researchers to question why some children did not succumb to adversity, nor develop negative adaptations. Fundamental understandings about the differences in life experiences of children from adverse backgrounds, and a general framework for conceptualizing the study of resilience, spawned from this body of work (Luthar, 2003; Waxman et al., 2003).

Further studies used academic grades to determine student resilience. Gonzalez and Padilla (1997) examined factors that contributed to the academic resilience and

achievement of resilient versus nonresilient Mexican-American high school students from three high schools in California. The study findings suggested that a school's purposeful fostering of the resilience construct, specifically caring relationships and meaningful opportunities to participate at school, may lead to higher grades and greater academic achievement among its students.

Nettles, Mucherah, and Jones (2000), along with findings from The Center for Research on the Education of Student Placed at Risk (CRESPAR), examined the influence of parent, teacher, and school support on students' resilience. They found that caring parents, participation in extracurricular activities, and supportive teachers were beneficial to student academic achievement.

Waxman and Huang (1996) utilized motivation and classroom learning environment survey data and found that resilient students reported a significantly higher social self-concept, achievement motivation, and academic self-concept than nonresilient students (Waxman & Huang, 1996). This study established the relationship between student perceptions of school, student motivation, and academic performance.

Despite the research that presents' resilience as a phenomenon that can be bolstered by schools, school-based programs, strategies, or policies designed to enhance resilience are relatively new. Bosworth and Earthman (2002) suggested that school administrator perceptions of resilience impacted the decision-making of school leaders to pursue resilience-oriented programs and efforts. School leaders recognized the concept of resiliency as a relevant organizing point for designing school programs and school environments. Coincidentally, the principles and theoretical frameworks of educational

resilience overlap with widely accepted frameworks and theories of educational leadership (Theoharis, 2009; Wagner et al., 2006).

One emerging educational leadership theory that draws parallels to theories of educational resilience is social justice leadership (S JL). Theoharis (2009) suggested a construct to improve student achievement: increased access to core learning, improved core learning, and the creation of a climate of belonging. The S JL construct presents a powerful means to understanding and creating meaningful, equitable, and just school reform reflecting principles similar to those advanced in resilience construct.

Additional research in educational reform from Fullan (2000) and Wagner et al. (2006) describe the dynamic process of school change and school improvement. To underscore the complexity of school change, the review of literature also highlights research in educational policy and school culture (Deal & Peterson, 2009; Fowler, 2009). Presently, the United States' educational system emphasizes testing and accountability (Zhao, 2009). Given this educational climate and culture, the review of literature attempts to illustrate the effects of testing by including research that investigates The People's Republic of China, a historically test-oriented educational system. After providing a historical perspective on testing and accountability, along with present American school reform initiatives, the literature then points to other means of assessing school climates and student readiness to learn (Benard, 2004; Deal & Peterson, 2009).

Method

This study utilized both descriptive and inferential statistics. Applied quantitative methodology explored statewide survey data of the Resilient Youth Development Module (RYDM) of the California Healthy Kids Survey (CHKS). Most California schools

administer the CHKS to meet the requirements of the federal Safe and Drug Free Schools Communities Act (SDFSCA). Select-item CHKS survey items were utilized to evaluate the relationship between the external school protective factors of a caring, nurturing adult; high expectations; and meaningful participation, along with student internal assets of problem solving, self-efficacy, empathy, and self-awareness to California's Academic Performance Index (API) school-composite score. The study tested the school connectedness as a mediator variable and controlled for demographic differences.

Statistical analyses replicated over three time points will strengthen the findings of the relationship between external school protective factors, student internal assets, school connectedness, and school API. A three-step statistical procedure beginning with simple correlations, then forced-entry hierarchical multiple regressions models, with and without the school connectedness variable, will allow for an examination of descriptive statistics which were supported by appropriate inferential statistical tests, to address each research question.

Sample

This study used the 2003-2004, 2005-2006, and 2007-2008 RYDM data of the CHKS for all California schools in Grade 7. In addition, this study used 2004, 2006, and 2008 CDE-calculated API scores for all corresponding California schools. Schools with complete 2004, 2006, and 2008 CHKS data and API scores participated in the study.

Research Design

The study examined extant data and incorporated a correlational quantitative design that utilized hierarchical multiple regression analysis to illustrate the relationship

between survey data and achievement scores. Regression analysis controlled for student socioeconomic status, ethnicity, and other demographic information (Huck, 2008).

Limitations

Analysis of relationships using inferential analysis does not determine truths. Statistical sampling and statistical analysis illustrate significant relationships between events and the likelihood of occurring phenomena, but cannot with complete certainty directly attribute the occurrence of one event to another seemingly related occurrence. Stated simply, the evidence of a correlation between variables does not prove a causal relationship. The potential affect of another phenomenon, not explored as part of this study, may certainly exist (Huck, 2008; Popham, 1993).

In addition, the study is limited by its design in that data are accumulated through student self-reports. Self-reports were based on perception. One student may have interpreted a survey question differently from another student and may, therefore, have responded with a different answer. Variance in responses is expected.

Further, the study is limited to a study of seventh grade student responses in school years 2003-2004, 2005-2006, and 2007-2008. Mean scores and correlations are generalizable for the surveyed population with the schools serving as the unit of measurement. Scores cannot be generalized to individual scores.

Variables of Interest

The independent (predictor) variables of this study are the school external protective factors of caring, nurturing adults; high expectations; and meaningful participation, and internal student assets: problem-solving, self-efficacy, empathy, and self-awareness. In addition, demographic variables, along with school connectedness

were accounted for. The dependent (outcome) variable are school API score. The score is calculated by the CDE, after accounting for schoolwide test performance of students on state-mandated examinations.

Data Analysis Procedures

The one dependent variable (API scores) and the multiple independent variables (RYDM of CHKS) were analyzed through hierarchical multiple regression modeling using the Statistical Package for the Social Sciences (SPSS) version 17.0.

Quantitative data analysis accounted for effect size and observed power (.80) to strengthen the evaluation of analysis and to decrease the chances of a Type II error (Huck, 2008).

Research Significance

This study's findings will provide evidence for the relationship between school resilience scores and school connectedness variables on student achievement.

Statistically significant relationships between the resilience measures and school connectedness to student achievement may assist educators with decisions in matters such as curricular offerings, instructional delivery, and professional development. Recognition of the impact that external school protective factors have on student achievement may compel school leaders to rethink how to engage, motivate, and create opportunities for students to learn.

Academic achievement, when measured only by standardized test performance, may offer limited insights regarding positive student growth and youth development.

This investigation seeks to utilize student perceptions, collected through a widely administered survey, in the hope that the research can inform future reform efforts that

emphasize bolstered levels of protective factors within the school community, thereby positively impacting school cultures and student achievement.

Conclusion

No Child Left Behind mandates that all students reach proficiency in tested subjects like language arts and mathematics by 2014. Our nation, however, faces challenges. Educational leaders are searching for keys to improved student learning since the learning needs of all students are not being met. Whether the constructs of educational resilience and school connectedness are related to student outcomes remains unclear.

Definition of Terms

Academic Performance Index (API): the cornerstone of California's *Public Schools Accountability Act of 1999*; measures the academic performance and growth of schools on a variety of tested academic measures through standardized tests (Hanson & Austin, 2003).

California Healthy Kids Survey (CHKS): California Department of Education (CDE) approved survey instrument to help schools monitor its goals to maintain a safe and drug free school to meet the requirements of the federal Safe and Drug Free Schools Communities Act (SDFSCA; Hanson & Austin, 2003).

Caring, Nurturing Relationships: considered one of three external protective factors that protects students from risk in Benard's (1991) conceptual framework of resilience; the term conveys unconditional loving support.

Change Leadership: a transformational improvement process that requires schools and districts to sharpen their capacities of reflection and encourages leaders to see

more deeply as to why it has been difficult for organizations and individuals to change. Effective teaching is described with 3R's: rigorous, relevant, and based on respectful, trusting relationships (Wagner et al., 2006).

Climate of Belonging: component of the Social Justice Leadership framework that creates a warm and welcoming school culture that encourages collaborative communities within each classroom, incorporating social responsibility into the school curriculum (Theoharis, 2009).

Developmental ecological models: recognition that youth, families, peers, neighborhoods, schools, communities, organizations, and larger cultural values are linked and simultaneously shape child development (Whitlock, 2006).

Educational resilience: a subset within the field of resilience research focused on the domain and context of schools and schooling (Wang, Haertel, & Wahlberg, 1994).

External Protective Factors, also environmental protective factors: resilience model supports potentially received by students from adults at school, home, or the community, such as: caring relationships, high expectation messages, and opportunities to participate and contribute (Benard, 1991).

Hierarchical Multiple Regression Model: statistical analysis technique that allows the researcher to determine the order that variables are entered into the regression equation to control for one or more variables. Comparison of a set of regression models with slightly different variables allows the researcher to examine the contribution of independent variables entered into the equation first (Huck, 2008).

High expectation messages: considered one of three external protective factors that protects students from risk in Benard's (1991) conceptual framework of resilience;

the term refers to the sense of structure and safety through the application of consistent student-centered rules, perceived as fair, by children. Messages convey a sense of belief in the achievement of children (Benard, 1991).

High-stakes testing: in education, refers to implications of standardized test performance. For a student, pass/fail performance on a test may mean the attainment of a high school diploma. For a school, schoolwide test score performance consequences may mean sanctions and penalties.

Internal Student Assets: manifested developmental outcomes when resilience is engaged, such as: problem-solving skills, autonomy, social competence, and sense of purpose. The personal strengths contribute to the student's ability to avoid health-risk behaviors such as alcohol, tobacco, and other drug abuse; teen pregnancy; and violence (Benard, 1991).

Meaningful Opportunities to Participate (Meaningful Participation): considered one of three external protective factors that protects students from risk in Benard's (1994) conceptual framework of resilience; the term refers to opportunities that develop autonomy, self-control, and leadership. Opportunities for contribution allow students to be active contributors to their classrooms, their schools, their family, and in their school community (Benard, 2004).

No Child Left Behind (NCLB) Act (2001): educational reform initiative, signed into law by President George W. Bush, characterized by increased accountability, choice, and performance mandates (Ravitch, 2010).

Resilience Youth Development Module (RYDM): component of the CHKS survey instrument with scales intended to measure student perceptions of protective factors

found in school, home, and the community. Also includes measures of internal student assets, traits thought to reflect resilience (Hanson & Austin, 2003).

School climate: theorized to be composed of five domains: order, safety, and discipline; academic outcomes; social relationships; school facilities; and school connectedness. Also commonly referred to a *school culture* (Zullig, Koopman, Patton, & Ubbes, 2010).

School connectedness: construct related to school climate and improved school performance characterized by excited, enthusiastic, and engaged learners; where students felt valued for their input; and where students had feelings about school. Associated with, and also referred to as, as *school culture*, *school climate*, *school attachment*, *school membership*, *school sense of belonging*, *school bonding*, *school participation*, and *student engagement* (Hoy & Hannum, 1997; Osterman, 2000; Witherspoon, Schotland, Way, & Hughes, 2009; Zullig et al., 2010).

School culture: deeper organizational structure reflected and transmitted through symbolic language and expressive action (Deal & Peterson, 2009).

School protective factors: resilience model supports received by students from adults at school, such as caring relationships, high expectation messages, and opportunities to participate and contribute (Benard, 1991).

Social Capital Theory: describes trust, norms, and exchange as critical reciprocal elements to the development of communities and to the interconnectedness between youth and adults (Whitlock, 2006).

Social Justice Leadership (S JL): educational leadership approach intended to improve student achievement through a three-legged approach to social justice and school

reform, which includes: increased access to core learning, improved core learning, and the creation of a climate of belonging (Theoharis, 2009).

Student achievement: considered to be a measurable indicator of student success and student attainment of grade level standards expressed in grades, standardized test scores, and/or student performance measures.

Support Classes: term used synonymously with remediation classes and intervention programs to improve student acquisition of grade-level standards and performance on standardized tests.

Testing orientation: an inclination towards measuring and monitoring the success of students, schools, districts, and systems primarily through standardized tests (Zhao, 2009).

Youth Development theory: emphasizes the importance of understanding that contexts have profound impact on how young people thrive and that young people are dynamic, not passive actors in the world they inhabit (Whitlock, 2006).

CHAPTER 2—REVIEW OF LITERATURE

Introduction

The No Child Left Behind Act of 2001 (NCLB) aims to improve student performance by designing school accountability measures that monitor continual academic performance of all students (USDOE, 2002). Schools who fail to meet their goals face a series of government sanctions. Consequently, educators are increasingly pressured to provide academic interventions to address student-learning needs. Federal mandates concentrate school reform efforts on learning standards and standardized test achievement. School leaders, however, must also address student social-emotional needs, ensure that all students are ready to learn, and provide student interventions that will assist with keeping students engaged and poised to tackle rigorous curriculum and reach higher levels of student achievement.

This review summarizes the multidisciplinary concept and theoretical underpinnings of resilience research. More specifically, the review explores the utility of resilience theory in the social context of schools. A growing body of educational resilience research provides positive evidence of resilience theory applications that supports all students, especially those who have been traditionally considered at-risk of low academic achievement. The literature also includes empirical studies of successful resiliency-based school reform efforts that empower students by providing protective factors associated with student success and educational resiliency.

Too often, educators narrow their curricular focus to test-driven concerns, directing their attention to specific courses and singular standards in order to meet NCLB expectations. When this is done at the expense of the affective domain, the students'

readiness to learn and their receptivity to learning may be overlooked (Zins, Elias, Greenberg, & Weissberg, 2000). This review explores student intervention and prevention strategies for students identified to be at-risk of poor academic performance. Moreover, the review identifies unintended negative consequences of stringent NCLB standards, intending to examine the educational needs of the whole child, such as school connectedness; and thus, encouraging a broader perspective, necessary within the current high stakes policy climate. To illustrate a historical, international perspective, the review examines outcomes from China's test-oriented educational system. As a final consideration, the review challenges educational leaders to reexamine the types of academic interventions provided to children, and points to the need for further empirical study especially in the applications of resilience theory to the practice of educational leadership.

Comparatively, there are few empirical studies of resilience and its relationship to school leadership. However, several parallels exist between aspects of resilience theory constructs and the empirical and theoretical research of educational leadership.

Risk and Resilience

Throughout a lifetime, humans confront a variety of life challenges. During childhood and adolescence, threats to student well-being may be temporal or more pervasive. Challenges may include a combination of emotional, physical, or social stressors. Such stressors, also known as risk factors, are thought to endanger a child's ability to develop in a healthy, well-adjusted way, preventing them from productively contributing to society. Risk factors may include sexual abuse, gang affiliation, poverty, discrimination, dysfunctional family dynamics, drug abuse, and teen pregnancy, to name a

few. Resilience is defined as the dynamic process whereby individuals exhibit positive behavioral adaptations despite significant adversity or trauma (Luthar & Burak, 2000; Masten, 1994; Rutter, 1989).

The study of risk and resilience has its roots in psychology. One of the first scientists to refer to resilience was Werner (1986). Her seminal work beginning in the 1970s on the island of Kauai, Hawaii, studied a cohort of nearly 700 children from birth through adulthood, raised in families with adverse living conditions including poverty, alcoholism, and mental illness. While two-thirds of the children exhibited destructive behaviors, such as substance abuse and teen pregnancy in their later teen years, one-third of the children did not. The productive and successful children were referred to as “resilient” children (Werner, 1986; Werner & Smith, 2001).

As risk and resilience research continued, and as various “at-risk” cohorts in their youth aged into adulthood, researchers found that many of their risk-exposed subjects had stable jobs and marriages, were satisfied with their spouses and children, and were responsible citizens in their communities. Longitudinal studies concluded that 70-75% of those who are challenged by adverse conditions in their youth will be successful by midlife (Rhodes & Brown, 1991; Rutter, 1987, 2000; Werner, 1986; Werner & Smith, 2001). Resilience research developed a shift in focus from risk factors to “protective” factors, describing how populations at-risk were able to buffer themselves from failure and harm.

Werner and Smith (1992) matched their findings with other American and European investigators who applied a life-span perspective and suggested that protective factors “make a more profound impact on the life course of children who grow up under

adverse conditions than do specific risk factors or stressful life events. They [also] appear to transcend ethnic, social class, geographical, and historical boundaries” (p. 202).

Masten (2001) goes on to say, “Resilience does not come from rare special qualities, but from the everyday magic of ordinary, normative human resources in the minds, brains, and bodies of children, in their families and relationships, and in their communities” (p. 9).

The growing body of resilience research has illustrated how severe environmental risk factors do not predetermine the quality and contributions of one’s life. The concept and nature of resilience, however, is often misunderstood.

Risk and Resilience Misconceptions

Several misconceptions regarding risk and resilience exist. Some researchers have viewed resilience as a personality trait that some children have and some do not (Work, Cowen, Parker, & Wyman, 1990). Others maintain that if most children have the capacity to overcome hardship, social and political advocacy to promote resilience is unwarranted. Collected stories about “invincible kids” popularize and distort the notion of resilience (Brownlee, 1996).

Another related and pervasive misconception of resilience research is that its findings are applicable to only “at-risk,” or “high-risk,” youth. Therefore, an orientation towards a focus on risks persists. Risk-focused researchers have identified personal attributes, family situations, and community features as factors that correlated to drug use, dropping out of school, or criminal activity (Blum et al., 2000; Brown, 2004; Criss, Petit, Bates, Dodge, & Lapp, 2002). Although resilience research has noted that risk factors were only predictive for 20-49% of a high-risk population (Rutter, 1987, 2000; Werner &

Smith, 2001), school and community efforts across the United States concentrate on addressing risk factors. The United States Government Accountability Office (1997) estimated that “billions” of dollars were spent on programs for at-risk youth from 1996 to 1998 (Brown, 2004). How did American schools come to concentrate on risk factors?

Student-Deficits Versus Student-Assets Orientation

In 1983, the National Commission on Excellence in Education released its report titled *A Nation at Risk: The Imperative for Educational Reform*. The document noted poor student performance on standardized tests and identified risk factors for student failure (Brown, 2004). The term “at-risk” entered the vernacular of social scientists and voluminous evidence correlating risk factors to negative outcomes suggested that some risky behaviors were thought to predict negative outcomes and life failure (Benard, 2004). This practice evolved into the notion that our youth are “at-risk” for some type of failure (Brown, 2004).

Researchers consulting with policymakers created and implemented policies and programs to assist at-risk and high-risk youth across the nation. State and federal funding mechanisms compelled school officials to identify the number of risk-factors and at-risk students present in school communities. The more students and risk factors were identified, the more much-needed discretionary money schools and school districts received. This funding dynamic cemented a deficit perception of young people (Brown, 2004).

Two prominent branches of risk and resilience theory have emerged: the generalist and specifist approaches. The specifist approach is focused on risk-behaviors

and applies a deficit-based, risk-orientation outlook on children (Hawkins, Catalano, & Miller, 1992).

Hawkins et al. (1992) identified 17 risk factors associated with alcohol, tobacco, and other substance abuse among adolescents. The researchers concluded that when more risk factors are present, the greater the likelihood of young people engaging in alcohol, tobacco, and substance use. Subsequently, identification of risky environments, or groups of adolescents possessing risk factors, became a focus to prevent life failures, such as dropping out of school. Risk factors included demographic, family, and individual personality traits. Exposure to more risk factors meant a greater need for more protective factors to offset the stressors. As a result, research has focused on eliminating the factors related to substance use (Farmer et al., 2003; Hawkins et al., 1992).

In recent years, the risk model has come under scrutiny. School and teacher expectations for an entire group, thought to be at-risk, may be lowered. Standardized test scores, reported and disaggregated by income level, race, ethnic origin, or language skill perpetuates the potential that students may be grouped and labeled as disadvantaged (Calabrese, Hummel, & San Martin, 2007; Catterall, 1998). In addition, since individuals react differently in different contexts, what may be an obstacle or challenge for one child may be an opportunity to rise to the challenge for another (Liddle, 1994).

Generalist Approach

Conversely, a generalist approach, a more positive, asset-based orientation, suggests that resilience is inherent within all human beings and can be deliberately fostered to create a healthier, well-adjusted, productive person (Luthar, Cicchetti, & Becker, 2000; Waxman, Brown, & Chang, 2004). Through this generalist approach, the

focus on student resilience shifted from deficit and disadvantage to growth and strength development. Cefai (2008) described the shift as “[asking] ‘What makes children in difficulty achieve and be successful?’ rather than ‘What prevents children in difficulty from succeeding?’” (p. 21).

Currently, the most prevalent and widely implemented school intervention strategies attempt to assist students beyond the inevitable risk factors they will encounter, thus advancing a deficits-based approach that presupposes all students are at-risk. This more negative approach undermines efforts to support our students towards wellness and higher levels of student achievement. These risk-based programs apply social influence on students. The programs utilize fear arousal, coercion, and rewards to direct students away from risky behavior. Each of these strategies, however, proves to be ineffective in the long term (Brown, D’Emidio-Caston, & Pollard, 1997).

The generalist branch of risk and resilience research advocates an asset-based approach. Among proponents of a more positive approach to resilience, Benard (1991) asserted “the development of human resiliency is none other than the process of healthy human development” (p. 18). Adverse conditions did not create a special attribute like resilience, rather it is a quality developed in favorable and unfavorable conditions that benefits all humans (Masten, 2001; Masten & Coatsworth, 1998). Benard (1991) advocated an asset-based approach, in moving from a model of risk to resilience. In *Fostering Resiliency in Kids: Protective Factors in the Family, School, and Community*, she identified the three “environmental protective factors” of caring relationships, high expectation messages, and opportunities for participation and contribution, as the key elements in families, schools, and communities to prevent student exposure to risk.

Further, the field of resilience research has expanded the applicability of its strengths-based, generalist perspective to all children. A universal, generalist approach suggests that the same factors that benefit children in adversity (caring adults, high expectation messages, and meaningful opportunities to participate) benefit normally developing, already motivated children, as well (Solomon et al., 2000; Solomon, Watson, et al., 1997). With this in mind, it is important to note that throughout this review of literature, references made to bolster student resiliency, benefit all students, including those thought to be at risk of lower academic performance.

Bolstering Resilience

The theoretical framework developed and proposed by Benard (2004) after an exhaustive review of literature suggested three protective factors: caring relationships, high expectations, and meaningful ways to participate. She applied the protective factors to three areas: families, schools, and communities. These venues serve as places of support where youth receive support related to their developmental needs of safety, love and belonging, respect, power, challenge, mastery, and meaning (Benard, 1991; Benard, 2004).

Caring Relationships

This term conveys unconditional loving support. It is delivered through kindness, trust, and gestures such as a smile (Higgins, 1994). Caring adults interact with compassion and a respect of youth, validating the child's identity. An attentive and supportive adult models, reinforces, and provides constructive feedback to children to promote healthy intellectual, psychological, and social growth (Eccles & Gootman, 2002). Schools convey caring relationships when every student has a nurturing

relationship with at least one adult at school. In addition, schools and classrooms feel like learning communities where classroom practices make use of a number of small-group processes like collaborative learning, peer helping, and peer support.

High Expectations

This term refers to the sense of structure and safety through the application of consistent rules, perceived as fair, by children. At schools, high expectation messages are positive and student-centered. The messages convey a sense of belief in the hopes, dreams, interests, and achievement of children. When adults deliver high expectation messages, they allow youth to see themselves as capable, with a sense of purpose, and a bright future (Benard, 1991). A characteristic of schools that are closing the achievement gap is a refusal to dumb down or limit opportunities for lower achieving students (Wang & Reynolds, 1995). Schools exhibiting high expectations provide a rich, rigorous, and equitable curriculum that accommodates a broad range of students, and where learning opportunities are structured so that success is possible.

Meaningful Opportunities for Participation

This protective factor is a natural by-product of fostered relationships based on care and high expectations (Benard, 2004). Opportunities for participation in group-focused, or cooperative activities, address a child's psychological need for belonging. Meaningful participation may also include a student's opportunity to discuss topics important to them, such as sexuality and drug use. Adolescents identify a need to voice their realities in school, family, and in their communities (Brown & D'Emidio-Caston, 1995; Whitlock, 2006). Opportunities for discussion foster critical thinking skills and empower youth towards sound decision-making. In addition, opportunities for

participation include opportunities to problem-solve and to make school decisions. These types of opportunities develop autonomy, self-control, and leadership (Benard, 2004). Finally, opportunities for contribution allow students to be active contributors to their classrooms, their schools, their family, and in their school community. Students can reframe their role from being a problem, or receiver of support, to being a provider of services if given the training and opportunity to serve as a peer helper, for example. Personal strengths of social competence, problem-solving, a positive sense of self, and a positive outlook on the future develop from meaningful opportunities to contribute and participate (Benard, 2004). Students benefit from having voice and choice in their daily life at school, participating in many relevant experiential learning opportunities, and pursuing opportunities of community service learning.

Schools provide students with a social setting where they can develop protective, nurturing supports, especially in the absence of positive family relationships (Rutter et al., 1979). Schools that provide students with caring relationships, high expectations, and meaningful ways to participate engage student developmental needs and enhance personal resilience strengths. These individual traits are also called internal assets or personal competencies. The internal assets do not cause resilience, but rather, are illustrative of the positive developmental outcomes of resilience (Benard, 2004).

Internal Student Assets

When students are nurtured in their environments, encouraged and allowed to develop their basic human needs, these experiences promote individual resilience strengths, namely: problem-solving skills, autonomy, social competence, and sense of purpose. They are the manifested developmental outcomes when resilience is engaged.

Development of resilience strengths improves student social interactions, health, and academic outcomes. Furthermore, the personal strengths contribute to the student's ability to avoid health-risk behaviors such as alcohol, tobacco, and other drug abuse; teen pregnancy; and violence (Benard, 1991).

Problem-Solving Skills

This personal strength in resilience research is often referred to as “good intellectual functioning” (Masten & Coatsworth, 1998). Other traits are encompassed within problem-solving skills, including: planning, flexibility, resourcefulness, critical thinking, and insight. Critical thinking and insight are especially important because they instill a consciousness that structures of oppression (an abusive parent, insensitive school, or experiences with racism) can be overcome. These abilities prevent internalized oppression and a sense of victimhood (Freire, 1993). Insight allows children to realize that not all fathers are abusive, that a parent's erratic moods are not normal, and that other children have different adverse circumstances (Wolin & Wolin, 1993).

Autonomy

This personal strength underlies intrinsic motivation and has profound impacts on teaching and learning. Autonomy is associated with positive health, a sense of well-being, a true sense of self and identity, and one's feeling of power (Deci, 1995). Autonomy also includes several psychological functions such as: positive identity, internal locus of control, initiative, self-efficacy, mastery, adaptive distancing, resistance, self-awareness, and mindfulness.

Positive identity is often used synonymously with positive self-evaluation or self-esteem. It is consistently used to describe resilient children who have overcome great

odds (Masten & Coatsworth, 1998; Werner & Smith, 1992). Strong positive ethnic identity is associated with high self-esteem, a strong commitment to do well in school, a strong sense of purpose in life, and high academic achievement (Eccles & Gootman, 2002). A student's positive outlook of self fosters a pride in learning and promotes positive growth and development in school (Benard, 2004). A school, for example, may promote autonomy when a student's learning may be personalized to suit her academic interests and career goals. In addition, a student may decide how she would like to fulfill a community service project by selecting and supporting her own area of interest.

Autonomy includes a generalized sense of feeling in control or having personal power, also known as having an internal locus of control (Werner & Smith, 1992). Resilient students must also recognize what is *not* in their control, or out of their "sphere of influence" (Stohlberg & Mahler, 1994). For example, abused children, or students who are discriminated against at school must not feel as if their mistreatment was their fault, rather, that it was beyond their sphere of control. Initiative aligns with a locus of control. It is associated with motivation from within to direct effort and attention towards a challenging goal (Larson, 2000; Miller, 1990). Larson (2000) sees initiative at the heart of other strengths such as creativity, leadership, altruism, and civic engagement.

Self-efficacy and mastery is also included within Benard's review of the construct of autonomy. Self-efficacy is the belief in one's power to determine personal outcomes (Bandura, 1995). Mastery, the feeling of doing something well or feeling competent, is associated with self-efficacy. Mastery experiences help to develop a sense of efficacy (Benard, 2004). When people experience feelings of success, they believe that they have

the skills to succeed and will be more ready to bounce back from setbacks or failure (Bandura, 1995).

Adaptive distancing refers to the power of children to separate themselves from negative situations or conditions, realizing that they are not at fault for the situation, and that their life will be different. For example, if a parent is an alcoholic, abusive, or mentally ill, a child can emotionally detach him or herself from the dysfunction.

Resistance is a form of adaptive distancing (Beardslee, 1997). It is the refusal to accept negative messages about one's self, gender, race, or culture. It is another powerful construct within autonomy.

Self-awareness and mindfulness includes observing one's thinking, feelings, moods, and strength with the ability to step back from one's emotions. Resilience researchers refer to this attribute as a transformative, reframing power that is the essence of resilience (Beardslee, 1997; Benard & Marshall, 1997; Wolin & Wolin, 1993).

Social Competence

This personal strength "includes the characteristics, skills, and attitudes essential to forming relationships and positive attachments to others" (Benard, 2004, p. 14).

Attainment of social competence also includes exhibiting responsiveness, social communication skill, empathy, caring, compassion, altruism, and forgiveness (Benard, 1991). Goleman (1995) refers to social competence as one of the five components of emotional intelligence, while Gardner (1993) refers to it as "interpersonal intelligence" among his original multiple intelligences.

Sense of Purpose and Bright Future

This strength is related to the deep belief that one's life has meaning. Werner and Smith (1982, 1992) describe one's sense of purpose as the most powerful asset to propel young people toward healthy outcomes despite life's challenges. Combined with positive self-identity, a strong, positive future-focus is associated with academic success and fewer health-risk behaviors (Masten & Coatsworth, 1998; Wyman, Cowen, Work, & Kerley, 1993).

Goal direction, achievement motivation, and educational aspirations, associated assets categorized within a sense of purpose, are attributed to student success in school (Anderman, Austin, & Johnson, 2002). In addition, these assets are attributed to those who do not abuse alcohol and other drugs, and do not drop out of school despite multiple risks (Masten, 1994; Watt, David, Ladd, & Shamos, 1995; Werner & Smith, 1992; Wigfield & Eccles, 2002). Achievement motivation is linked to academic success, such as, higher rates of high school completion, increased college enrollment, increased math and reading achievement scores, and higher grades (Scales & Leffert, 1999).

Other sense of purpose attributes includes having a special interest or hobby, creativity, and imagination (Werner & Smith, 1982, 1992). Engaging in a special interest to activate one's creativity and imagination can result in "flow." Csikszentmihalyi (1990) describes flow experience as such intense concentration and engagement in a task that one transcends current challenges, and stresses become distant. Flow theory suggests that the activity is so gratifying that it creates happiness, life satisfaction, and intrinsic motivation. Schools, for example, may offer classes through a curriculum of relevant learning experiences that deeply engage students.

In summary, when resilience is fostered and engaged, personal strengths such as problem-solving, autonomy, social competence, and sense of purpose emerge. In short, these personal strengths comprise resilience in youth (Benard, 2004).

External Protective Factors

Benard's (1991) theoretical framework suggested that when schools, families, and communities create caring relationships with children, provide opportunities for participation and contribution, and maintain high expectations, youth flourish into healthy, happy, and productive persons. Healthy students acquire personal strengths and exhibit resilience. When students are resilient they are receptive to learning, notice the care and encouragement modeled by adults, and develop better relationships for themselves and for those around them. These students will not only be ready for higher levels of student success, they will also be less likely to engage in health-risk conditions (Benard, 1991, 2004).

School as a Protective Factor

School environments can bolster student resilience. Schools, especially teachers, have a major responsibility and lifelong impact on the future of students. Especially when students do not have a nurturing home life, schools provide caring and nurturing supports that can change a child's life of risk to resilience (Masten & Coatsworth, 1998; Rutter et al., 1979; Werner & Smith, 1982, 1992).

Emerging Field of Educational Resilience

Given that children can manifest resilience, competence, and high levels of functioning within one domain while not in another, the study of educational resilience, a subset within the field of resilience research has emerged (Luthar et al., 2000; Wang

et al., 1994). For example, Kaufman, Cook, Arny, Jones, and Pittinsky (1994) studied students with histories of maltreatment. Almost two-thirds of the students were academically resilient, while only 21% manifested resilience in the domain of social competence. Over the last several decades, multidisciplinary empirical resilience research from the fields of developmental psychopathology, psychology, sociology, and anthropology has addressed the utility of resilience as a scientific construct. There are comparatively few, however, conceptual and empirical studies in educational resilience. Nonetheless, studies of educational resilience have earned recognition as a framework for examining why some students are successful in school, while other students from the same socially- and economically-disadvantaged backgrounds are not (Hupfeld, 2007; Luthar et al., 2000; Waxman et al., 2003).

The following section briefly outlines classic empirical studies of educational resilience that underscore the school's impact on youth development. The research begs why some students are able to overcome adversity, while others do not? Further, a more complete presentation of recent empirical studies in educational resiliency, focused on the differences between resilient and nonresilient students and their perceptions of the classroom and school environments, will follow.

Studies in Educational Resilience

Empirical studies of student resilience cut across race, ethnicity, socioeconomics, age, international borders, and gender. Studies have established that when caring teachers and schools provide curriculum and instruction that engage students in active participation and learning while maintaining high expectations, their students are more apt to demonstrate resilient characteristics (Padron, Waxman, & Huang, 1999; Rutter

et al., 1979; Solomon, Battistich, et al., 1997; Solomon et al., 2000; Soloman, Watson, et al., 1997). Where students reported caring adults and high expectations in their school, they also demonstrated motivation and positive attitudes, leading to high levels of engagement in learning. Studies also concluded that more positive student behaviors are related to higher achievement (Freiberg et al., 1995; Hawkins et al., 1999; Wang et al., 1993; Waxman, Huang, & Padron, 1997; Waxman, Huang, & Wang, 1997). Further, students who expressed strong social bonds to adults, and with peers, proved less likely to disengage from school and more likely to participate in the life of the school and to achieve (Resnick et al., 1997; Wehlage et al., 1989).

Rutter et al. (1979) conducted an epidemiological study over a 10-year period in 12 Inner London comprehensive schools. Through extensive interviews, he studied children whose parents had been diagnosed with a mental illness and concentrated on the differences of individuals in recovery to the adverse conditions. They found that the children escaped relatively unharmed and did not exhibit maladaptive behaviors, nor were they mentally ill themselves. Rutter et al. were some of the first to suggest that both individual characteristics and the children's environment constituted important protective factors. They further concluded that students coming from disadvantaged families were more likely to demonstrate resilient characteristics if they attended schools that provided a source of external protective factors, such as fostering a sense of achievement, academic pressure and high expectations, attentive and caring teachers, and good teacher-student relationships (Waxman et al., 2003). Rutter et al. established the notion that schools play a key role in youth resilience.

Wehlage and colleagues (1989) studied 14 alternative high schools that exhibited effectiveness in dealing with at-risk student graduation rates, attendance, and increased literacy. The mixed methodology study led Wehlage and his team to construct a theoretical framework of school membership (Hagborg, 1994). They found that students who identified themselves in the mainstream of school culture, and had established positive relationships with peers and adults in the school, were less likely to disengage and drop out of school. The study suggested that students were more likely to achieve and participate at school when positive social bonds with those at school were present. Further, the study characterized teacher culture at the successful schools by a moral obligation to serve young people (Cefai, 2008). Together, the studies of Rutter et al. (1979) and Wehlage et al. (1989) suggest that schools, and the social constructs within them, profoundly affect the success, or failure, of students.

Another classic work in the field of resilience is the Project Competence study (Garmezy et al., 1984). The work began by examining the impact of life stressors on the competency levels of 612 elementary school children in Grades 3-6 in two urban Minneapolis schools. The longitudinal study did not involve a high-risk sample. Rather, it was designed to examine competence among a normative school cohort with various kinds and levels of adversity. In collaboration with researchers, the school superintendent and principals selected the sample to reflect the diversity of socioeconomic status (SES) and ethnic minorities within the public school district at the time. Garmezy and colleagues (1984) directed their attention towards the relationship between competence, adversity, internal functioning, and a collection of individual and family attributes. In sum, 205 children and families participated in the follow-up studies at 7, 10, and 20 years

to provide longitudinal data on competence and what later became known as resilience (Luthar, 2003). During school age years, teacher ratings, peer assessments, and school record data assessed competence, while stress exposure was measured by a life event questionnaire. Researchers also interviewed parents about the social structure of the family and their perspective of their child. Using an exploratory multiple regression correlation analysis, Garmezy and colleagues discovered that disadvantaged children with lower IQs and SES, and less positive family qualities, were generally less competent and more likely to be disruptive in school. However, the researchers found that some of the disadvantaged children were competent, were doing well, and did not display behavioral problems. This finding led researchers to question why some children did not succumb to adversity and did not develop negative adaptations. Key understandings about the difference in the lives of children from adverse backgrounds, as well as a general framework for conceptualizing and operationalizing the study of resilience, resulted from this body of work (Luthar, 2003; Waxman et al., 2003).

It is important to note that these aforementioned classic studies of resilience illustrate the substantial variation in operationalization and measurement of key constructs in the field of resilience. For example, when the students of the Project Competence study (Garmezy et al., 1984) matured beyond school-age years, researchers developed new criteria to measure whether or not a person was functioning well. As individuals grow older, new domains of competence become more salient and the diagnostic criteria to measure one's success (competence) change. Similarly, identifying resilience from explicit, or implicit, diagnostic criteria does not describe a person in totality, nor define their lives at all times. An appropriate indicator of resilience in a

school-age child might be academic success, whereas, an adult-age indicator might be steady employment. Resilience, therefore, is not a trait of an individual; rather, individuals manifest resilience in their behavior and life patterns through a dynamic process (Luthar & Burak, 2000; Luthar et al., 2000). Further, the Garnezy et al. (1984) study worked with students from uniquely varied, multiple, stressful life conditions. This, too, illustrates the variety in resilience research and reflects the lack of consensus about definitions, with variations in operationalization and measurement of key constructs. The recently expanding field of educational resilience lends greater precision to the terminology and to the many multidisciplinary spheres of resilience by concentrating on the particular domain of schools (Luthar & Burak, 2000).

In a study that used academic grades as criteria for resiliency, Gonzalez and Padilla (1997) examined factors that contributed to the academic resilience and achievement of 133 resilient and 81 nonresilient Mexican-American high school students from three high schools in California. High- and low-achieving Mexican American students were characterized as resilient and nonresilient students, respectively. Participants completed a questionnaire. Responses formed the study independent variables while grade point average (GPA) represented the dependent variable. The selected resilient students reported that their grades so far in high school were “mostly A’s.” The identified nonresilient students described their grades in high school were “mostly D’s” or “mostly below D’s.” An ANOVA revealed that resilient students had significantly higher perceptions of family/peer supports, teacher feedback, positive ties to school, value placed on school, and peer belonging than did nonresilient students. In addition, through regression analysis researchers concluded that students’ sense of

belonging to school was the only significant predictor of academic resilience. The study findings suggest that a school's purposeful fostering of the resilience construct, specifically caring relationships and meaningful opportunities to participate at school, may lead to higher grades and greater academic achievement among its students. A limitation to this study is the use of grades as a measurement of resilience. Grades of "mostly A's" do not equate to resilience, just as poor s do not equate to nonresilience. Rather, s may more accurately reflect proficiency in an area of study. Further, limiting the scales of resilience to "mostly A's" excludes satisfactory s of B and C. In general, the study's findings may more accurately reflect the reasons why some students received better s than others, not resilience.

The Center for Research on the Education of Student Placed at Risk (CRESPAR) has participated in several studies of educational resilience. An example of a CRESPAR study involved a longitudinal mixed methodology study of Chicago student transitioning from the smaller setting of elementary school to high school (Roderick et al., 1997). Nettles and colleagues (2000) reviewed this and other recent CRESPAR studies that examined the influence of parent, teacher, and school support on students' resilience. They found that caring parents, participation in extracurricular activities, and supportive teachers were beneficial to student academic achievement. Developing their own research, Nettles and colleagues studied 75 African American fourth and fifth graders. The researchers found that students' perceived exposure to violence had a significant relationship on mathematics and reading achievement, while teacher support had a positive impact on mathematics achievement. These findings supported, and were consistent with, the previous findings of CRESPAR research. The impact of external

protective factors leading to student resilience and increased academic achievement continued as a valid scientific construct. A criticism of this study, however, centers on the fact that the relationship between student achievement and teacher support did not apply to reading achievement as it did for mathematics. This finding indicates that another factor for improved mathematics performance, such as teacher expertise, may be more at work than the protective factors of resilience. Otherwise, gains would have been generalized to reading achievement as well.

In a series of studies conducted by the U.S. Department of Education National Research Centers; the Center for Education in the Inner Cities (CEIC); and the Center for Research on Education, Diversity & Excellence (CREDE), researchers examined differences between resilient and nonresilient elementary and middle school students. Students were from several culturally and linguistically diverse urban school districts and lived in low socioeconomic circumstances. In an initial study, Waxman and Huang (1996) compared the motivation and classroom learning environment of 75 resilient versus 75 nonresilient sixth-, seventh-, and eighth- students from an inner-city middle school located in the south central region of the United States. Educationally resilient students were defined as students who scored at, or above, the 19th-percentile on standardized achievement mathematics tests over a 2-year period. Nonresilient students were defined as students who scored at the 10th-percentile, or lower, on standardized achievement tests over a 2-year period. Three standardized, student self-report instruments were used to examine students' perceptions of their classroom learning environment: the Multidimensional Motivation Instrument (MMI), the Classroom Environment Scale, and the Instructional Learning Environment Questionnaire.

Multivariate analysis and univariate post hoc tests revealed that resilient students were found to have significantly higher perceptions of involvement, task orientation, rule clarity, satisfaction, pacing, and feedback than nonresilient students. Resilient students also reported a significantly higher social self-concept, achievement motivation, and academic self-concept than nonresilient students (Waxman & Huang, 1996). This study fortified an attempt to examine the construct of resilience over time based on consecutive years' performance on standardized test achievement data (Iowa Test of Basic Skills), while correlating performance data to student survey perceptions of their learning environment and students' motivation (Waxman & Huang, 1996). Once again, however, researcher constructs of scales at 19th-percentile and above, versus 10th-percentile or lower to define resilient and nonresilient students disregards the scores of students in between. A sampling of students at the extreme ends of an achievement test's performance scale does not accurately capture the dynamic process of resilience.

The studies described above illustrate the growing body of research on educational resilience. Most of the research has been descriptive, comparative, or correlational. There have been few experimental studies in this area. Padron, Waxman, Powers, and Brown (2002), however, developed, implemented, and tested a teacher development program designed to improve resiliency of low-achieving English Language Learners (ELLs). The Pedagogy for Improving Resiliency Program (PIRP) was implemented in six fourth- and fifth- classrooms in an urban elementary school serving predominately Hispanic ELLs from low socioeconomic backgrounds. Yearlong PIRP training incorporated several components designed to help classroom teachers improve

their instruction and the learning of resilient and nonresilient ELLs (Waxman et al., 2003).

The findings from the study revealed that the treatment teachers' classroom instruction exceeded that of the comparison teachers on some important aspects, such as providing explanations, encouraging extended student responses, encouraging student successes, and focusing on the task's learning processes. Students in the treatment classes reported a more positive classroom-learning environment than students in the comparison classes, and they had significantly higher reading achievement gains than students in the comparison classrooms. Results seemed suppressed, and PIRP implemented with less fidelity, especially in school districts with a high-stakes testing focus (Waxman et al., 2003). These experimental findings illustrated the benefits of purposefully implementing a resiliency-based program to help diverse learners, and also illustrated that schools with a testing orientation may disregard the benefits of a youth development approach.

Another quasi-experimental study by McClendon, Nettles, and Wigfield (2000) examined the effects of Promoting Achievement in School Through Sport (PASS), a yearlong, elective course in high school, implemented with 900 students from 16 high schools in the West and Midwest. The PASS classrooms promote protective or resilience characteristics such as a caring and support, high expectations, and encouragement of student engagement and involvement. At the end of the school year, students in PASS were found to have significantly higher scores than the comparison group. Classroom observations revealed that PASS had more indicators of authentic instruction (i.e., instructional practices that connect students to meaningful, real-life experiences) than

non-PASS classrooms. Again, PASS illustrates the effect of implementing resiliency-based programs to improve student s. However, it would be worthwhile to investigate the program's effect on standardized achievement scores, as well.

Empirical studies in resilience exemplify the positive effects of s and achievement scores when students are described as resilient and when resilience-based programs are implemented in classroom and schools. Few resiliency-based and resiliency-promoting programs are implemented in our schools (Waxman et al., 2003). However, the principles and theoretical framework of resilience as it applies to students in school (providing caring adults, high expectations, and meaningful opportunities to participate) overlap with widely accepted frameworks for school leadership.

Educational Leadership Practices Aimed at Changing School Culture

Despite the research that presents resilience as a phenomenon that can be bolstered by schools, school-based programs, strategies, or policies designed to enhance resilience are relatively new. Bosworth and Earthman (2002) suggested that school administrator perceptions of resilience impact the decision-making of school leaders to pursue resilience-oriented programs and efforts.

Bosworth and Earthman's (2002) study presented the Henderson and Millstein (1992) model of resilience to 10 administrators in a large, southwestern United States city. The 10 participants voluntarily agreed to attend the 90-minute orientation about a resiliency initiative being implemented by the city. After the orientation, researchers conducted a semi-structured interview with all participants. The administrators were encouraged to provide their own definition of resiliency and to provide examples of

resiliency-based approaches they were currently using. Interviewee definitions and operationalization of resilience were just as varied and vague as the operationalization and definitions of the resilience research already presented in this review of literature.

Subsequently, five participants agreed to continue with the initiative and with additional trainings in the Henderson and Millstein (1992) model. A later analysis of interview transcripts identified common themes across those participants who continued with the resilience initiative, as compared with those who chose to abstain. Participants who chose to continue with the resilience training and resilience initiative defined resilience within an environmental focus with responses such as, “kids need to feel a part of the community”; “the school should be an environment where kids enjoy coming”; and “the school should provide meaningful participation.” Conversely, interviewees who opted-out of the resilience training and resilience initiative described resilience with an individual focus and as something that resided within the students by suggesting, “resiliency comes from within” and “resiliency is a spark, a gift” (Bosworth & Earthman, 2002).

The Bosworth and Earthman (2002) study illustrated those individuals who believed resiliency to be a component of the school environment, tended to continue with the training; whereas those who believed resilience to be innate opted out. The school leaders who continued with the training recognized student resiliency to be an environmental phenomenon that could be promoted within a school’s culture. Thus, these school leaders recognized the concept of resiliency as a relevant organizing construct for re-envisioning a school’s culture and designing resilience-focused school programs and school environments. School leaders with a resilience-focus and

orientation towards providing a positive school environment enhance a positive school culture. In fact, the principles and theoretical frameworks of educational resilience overlap with widely accepted frameworks and theories of educational leadership and organizational change. One particular emerging educational leadership model draws parallels to theories of educational resilience, namely, social justice leadership (SJL).

Social Justice Leadership

Incorporating, a purposeful and snowball sampling identifying 18 principals, and with a combination of qualitative methodology along with principles of autoethnography, Theoharis (2009) utilized principal interviews, a review of documents, site visits, and focus groups. The 18 principals were identified as having advanced, with success, equity and justice in their schools. In addition, four criteria were used: they each (a) led a public school; (b) possessed a belief that promoting social justice was the compelling notion that brought them to their leadership position; (c) led, kept, and advocated for issues of race, class, gender, language, disability, sexual orientation, and other marginalizing conditions at the center of his or her vision; and (d) had evidence to show his or her work had produced a more just school (Theoharis, 2009). Theoharis operationalized an SJL construct to improve student achievement and developed a grounded SJL framework with a three-legged approach to social justice and school reform, which included: increased access to core learning, improved core learning, and the creation of a climate of belonging.

The SJL principle of increased access to core learning advances the notion of student inclusion and opportunity for all. Comparatively, this notion coincides with the resilience protective factor of high expectations. A school leader, working to increase

access to core learning eliminates pullout and separate programs that work to segregate students by ability. Rather, an SJL school leader works to increase academic rigor and access to learning opportunities by increasing learning time. In addition, SJL principals increase accountability for the achievement of all students (Theoharis, 2009).

Similarly, the SJL principle of improving core learning speaks to the resilience protective factor of high expectations. Undergirding the SJL principle of improving core learning is the notion of equity and the belief that all students can achieve. Social justice leadership describes improvements to core learning in ways that address teaching and the curriculum. Social justice leadership leaders facilitate teacher development and focus on equity by addressing issues of race and providing ongoing staff development focused on building equity. Schools led by SJL leaders adopt common research-based curricular approaches that empower staff. Theoharis (2009) further described that when SJL leaders operate through an equity lens, a climate of belonging develops throughout the school campus. As SJL leaders and teachers strive for equity, students feel that teachers care and accordingly have high expectations for student success. Comparatively, Benard (2004) described the resilience protective factor of opportunities for participation and contribution to be an outgrowth of a school's caring relationships with high expectations.

Finally, the third component of the SJL approach addresses the creation of a climate of belonging and is predicated upon connecting and respecting students. Here, Theoharis' (2009) model echoes the resilience protective factor of providing meaningful opportunities for participation and contribution. Social justice leadership leaders create a warm and welcoming school culture encouraging collaborative communities within each classroom, in addition to incorporating social responsibility into the school curriculum.

Further, SJL leaders reach out to marginalized families and see community members as partners to improving student achievement and performance.

To summarize, the SJL construct presents a powerful means to understanding and creating meaningful, equitable, and just school reform. The model reflects principles similar to those included within the resilience construct. Social justice leadership principals keep issues of race, class, gender, disability, sexual orientation, and other historically marginalizing factors at the center of their practice and vision. Their leadership necessitates inclusive school practices for students with disabilities, ELLs, and other students traditionally segregated in schools.

Socially-just leaders eliminate pull-out and self-contained programs for diverse learners and create inclusive and integrated services whereby children are taught in heterogeneous groups and receive services from collaborative teams of professionals within the general education classroom. Thus, SJL challenges the inequity of segregation and tracking (Theoharis, 2009).

Benard's (2004) resilience construct depicts how within positive school environments, students may acquire feelings of caring adult relationships, high expectations, and meaningful participation. The presence of these environmental assets can be promoted by school leaders who are aware of how the school's organizational constructs and systems affect school culture. Social justice leadership decisions such as implementing inclusive classrooms, desegregating classes, and eliminating student labels promote a climate of belonging and build a positive school culture. Successful school leaders with a holistic, systems-approach to school organization, like SJL, make leadership decisions that positively impact school culture and build capacity for

successful school change, similar to how a resilience-focused leader acknowledges the school culture.

Systems Orientation

Fullan (2000) suggested achievement of successful change in elementary school takes about 3 years. Meanwhile, successful change in secondary schools may take up to 6 years. He further recognized that successful change is happening in only a relatively small number of schools. Fullan asserted that initial, successful change may be short-lived. In order to sustain school improvement and successful change, school leaders must account for the school's surrounding infrastructure as elements that are critical to successful change efforts. He provided a metaphor to the bottom-up/top-down combinations of school organizational change by describing "the three stories of reform." The "inside story" describes what is known about how schools change as it applies to internal dynamics: professional learning communities, a focus on student work through investigations of assessments, changed instructional practices to yield better learning, and change to school organization and culture. The "inside-out story" can be described as a school embracing external forces and pressures to effect changes for the better. The external forces on schools include: parents and community, technology, corporate connections, government policy, and the widening teaching profession. The inside-out belief argues that schools cannot wholly affect school change without embracing these outside forces. By embracing these threats, a school organization mobilizes resources and makes its mission coherent. The "outside-in story" describes the school system, or district, role. The central office role supports the schools by providing autonomy and decentralizing operations, while at the same time provides encouragement, expertise, and

accountability measures (policy, training, professional development, on-going support) to allow the schools to develop their local capacity which stimulates innovation. Finally, Fullan suggested school leaders must recognize the delicate balance between the “three stories” in order to create cohesion and a unified sense of purpose towards successful change. Fullan describes a broad, positive school culture, systems-approach to successful change; much like a resilience-focused leader and socially just leader would approach school improvement.

Change Leadership

Wagner et al. (2006) presented a similar approach to organizational change. He described leaders simultaneously sharpening their outward and inward attentions. After over 5 years of collaboration and study with school and district leaders from all over the United States, representing urban and rural; large and small school districts; and fiscally sound and impoverished school districts, Wagner et al. presented a *Change Leadership* framework to re-invent and reform American educational practice. They described a transformational improvement process that requires schools and districts to sharpen their capacities of reflection and encourages leaders to see more deeply as to why it has been difficult for organizations and individuals to change. As leaders reflect and inquire more deeply, they identify the actions necessary to change organizations and individuals.

A *Change Leadership* approach challenges leaders to create a system for continuous improvement of instruction and supervision rooted in an organization’s common vision of effective teaching that is rigorous, relevant, and based on respectful, trusting relationships. Conceptually, these *Change Leadership* tenets, also known as the 3 R’s, align to Benard’s (2004) resilience construct that suggests school environments can

promote student resilience by providing students with caring nurturing adults (respectful, trusting relationships), high expectations (rigor), and meaningful opportunities to participate (relevance). Building positive school cultures as an avenue to school improvement cannot succeed without the support of school policies aligned to the educational mission (Cohen, McCabe, Michelli, & Pickeral, 2009).

Educational Policy

Educational policy can constrain schools and district leader decision-making. Fowler's (2009) research on policy implementation considerations cites, "In his influential book *The Culture of the School and the Problem of Change*, first published in 1971 and reissued in 1996, Seymour Sarason argued that most education reforms fail because reformers do not take school culture into account" (p. 272).

Fowler's (2009) discussion regarding the difficulty of policy implementation bluntly explains why most reform efforts fail. In this era of accountability and NCLB mandates, school boards and districts are attempting to discover new ways and best practices in order to fulfill federal mandates. With this pressure, schools are more apt to adopt programs designed to meet mandated performance measures in tested subjects, without weighing the potential effects on school culture (Cohen et al., 2009; Osterman, 2000).

Fowler's (2009) research underscores the notion that school leaders are key creators of a school and district's culture. The establishment of a positive and innovative organizational culture that is receptive to change and long-term implementation, however, is often overlooked as an aspect of school reform (Deal & Peterson, 2009).

Proactive leaders, wanting to sustain policy development and implementation, are wise to consider: Is this the culture we want in our schools? School leaders concentrated on student achievement through improved standardized test scores, base their organizational decisions on external forces and the outside mandates of NCLB. Too little attention has been paid to how schools can be shaped from within (Deal & Peterson, 2009). Similarly, when school leaders limit their attention to student outcomes and high-stakes testing, they neglect the whole child and the student's developmental assets which optimize their readiness to learn. The most successful school leaders consider the school environment, a positive school culture, and a student's developmental needs to maximize student success—the elements of the resilience construct (Benard, 2004; Fullan, 2000; Wagner et al., 2006).

School Culture

While reformers press for new structures and more rational assessments, it is important to remember that deep changes cannot succeed without cultural support from within. Deal and Peterson (2009) describe positive school cultures as places where shared sets of values support professional development, where a shared sense of responsibility of student learning pervades, and where a caring atmosphere radiates. Positive school cultures believe that all students can learn. In addition, positive school cultures create policies and procedures and adopt policies that support their belief in the ability of every student (Deal & Peterson, 2009, Fullan, 2001).

In contrast, Deal and Peterson (2009) describe a toxic school culture as one where teachers are at odds in their belief of every student's ability to succeed and where a negative attitude prevails. Educators in toxic cultures see student success based upon the

extent to which students are attentive, concerned, and willing to comply with school procedures. The policies and procedures of a toxic school support the belief in the impossibility of school wide student achievement (Deal & Peterson, 2009). For example, a school master schedule with more remediation classes than college preparatory classes may signal an institutional belief of low expectations and an obstacle to rigorous coursework.

Culture Change

Educators focused on the prevailing beliefs and assumptions held by members of the school organization can better affect cultural change and create positive school cultures. A distinction must be drawn between technical change and cultural change. Technical changes refer to changes in school structures, policies, or teaching tools. Technical changes support professionals and help them do their jobs more effectively. On the other hand, cultural change is more difficult to accomplish. For example, a school may implement and adopt a new bell schedule and configure block schedules so that students can learn. Although the technical change may be necessary, the technical change produces few positive results when used by people who do not believe in the intended outcome of the change. Cultural change must precede technical change. Leaders must address existing assumptions, beliefs, expectations, and habits of the organization if cultural change is to support the sustainability and success of technical change efforts (Deal & Peterson, 2009; Muhammad, 2009).

No Child Left Behind Impact

No Child Left Behind reformed education in the areas of standards, accountability, and choice. A standards-focus ensured a viable curriculum for all

students. In addition, accountability measures through testing and the disaggregation of student data, focused educators on student subgroup performances and issues of equity in ways that American educational reform had not done in the past. Public reports put a spotlight on school performance. Parents were given the choice to move their child from a low-performing school to a higher performing school, or parents could enroll their student in a charter school—another outcome from NCLB choice initiatives. Despite NCLB sanctions and penalties, data show that the achievement gap between African-American and Latino students compared to White and Asian American students still exist. Further, only one out of every five charter schools has been shown to outperform public schools (Ravitch, 2010).

Among the unintended outcomes of federal accountability sanctions is the narrowing of the taught curriculum and the diversion of students into intervention programs due to low-test scores. These programs, in essence, separate our lowest achieving students. The apparent achievement gap between our African-American and Latino student compared to White and Asian American students, then, perpetuates tracking and segregation especially since our lowest achieving students become the focus of pullout and remediation programs (Deal & Peterson, 2009; Muhammad, 2009; Theoharis, 2009; Zhao, 2009). Leaders with a resilience-focus on students, acknowledge youths' need to feel a sense of belonging and care from adults. School leaders too focused on increasing test results through a separate remediation course limit a student's sense of belonging with other students at school and inhibit feelings of success.

Testing Orientation

Current American educational practice emphasizes testing and accountability. Lessons can be learned, however, from other nations with historic test-oriented educational systems. The People's Republic of China is one such educational system that has historically stressed testing. Early evidence of an Imperial Exam, or Civil Exam, called *keju* dates back to 605 AD and the Sui dynasty (AD 581-618). In use for more than 1,300 years to select government officials throughout the whole nation, it was the Emperor's tool to identify and recruit talented individuals to join the ruling class. Although *keju* was not part of an educational system, rather a political system, it determined education in China for centuries because of its high-stakes implications and power to move an individual, and his family, from one class of society to the next (Zhao, 2009).

Presently, China's National College Entrance Exam (*gaokao*) has become as powerful as the *keju*. The *gaokao* acts as a gatekeeper for college and university admissions and screens Chinese citizens for the opportunity of social and geographic mobility. Illustrating its continued emphasis towards a test-oriented social and educational system, a common Chinese expression states, "One exam determines your whole life" (Zhao, 2009, p. 80).

Keju's concentration on memorization of the classics came at the sacrifice of studies in science and technology. By 1905, the emperor issued an order to stop all forms of the *keju* exams (Zhao, 2009).

Similarly in 1997, the Chinese Ministry of Education—then the Chinese National Education Commission—issued a policy against a test-oriented education claiming it

ignored real needs of the student and society; neglected the majority; neglected moral, physical, aesthetic education; ignored psychological and emotional development; and relied on rote memorization and mechanical drills.

Contrastingly in the United States, NCLB (USDOE, 2002) mandated an extensive accountability system involving the state and local education agency. No Child Left Behind promoted a test-oriented educational system. Specific responsibilities are assigned to the various agencies, including the local education agency: the school district. Punitive consequences are explicitly spelled out if agencies fail to fulfill their responsibilities. States and school districts have developed elaborate systems to collect, analyze, and report data that are then published in the media, and in other mandated public documents, such as a school accountability report card (SARC). As NCLB emerged, parents and community members absorbed the data regarding a waning American education system in the face of global competition (Zhao, 2009).

Peters and Oliver (2009) asserted that countries implementing high stakes assessment policies communicate that a productive citizenry is achieved through wide scale proficiency in reading and mathematics. Moreover, Peters and Oliver (2009) stated that high stakes testing (a) assumes all students must meet the same standards, (b) fails to recognize individual differences, talents, and achievements, (c) promotes a culture that blames, stigmatizes, and excludes students and their teachers, and (d) establishes mechanisms that all but guarantee segregation, retention, or dropping out of school. The exclusion and segregation of students is apparent under a system of high-stakes testing. High stakes assessment in market-driven economies has increased exclusionary practices (Peters & Oliver, 2009).

Assessment Policy

Further, significant evidence from research studies points to a narrowing of the curriculum and teachers who are abandoning effective instructional practices to teach to the test (Peters & Oliver, 2009). Through extensive data collection during classroom observations, Cuban (2007) found that teacher decisions about textbooks, worksheets, projects, and many other activities accommodate state tests and accountability regulations.

A narrowed curriculum eliminates the development of talent in a country. Richard Florida “documented the increasing importance of creativity and talent for economic growth” (as cited in Zhao, 2009, p. 51). According to Florida (2005) economic productivity requires a multitude of talents. Talent diversity breeds innovation and encourages innovators (Zhao, 2009).

As China takes steps to move beyond a test-oriented educational system, attempting to avoid negative impacts to creativity and innovation, the United States is implementing more national control within its educational system aiming to improve the United States’ world-rank in education (Zhao, 2009). Reform policies of China’s Ministry of Education reflect a purposeful attempt to provide more local control and autonomy to schools within each province.

Similarly, the United States has engaged in a series of educational reforms. However, a perusal of *A Blueprint for Reform: The Reauthorization of the Elementary and Secondary Education Act* (USDOE, 2010) does not provide much hope that the American education system will focus on talent and creativity. In fact, *A Blueprint for Reform* sounds eerily similar to No Child Left Behind.

At first glance, *A Blueprint for Reform* seems to focus on an accountability system based on rewards. However, the *Blueprint* construct requires State accountability systems to recognize progress and growth, and reward success, rather than only identifying failure (USDOE, 2010). Moreover, districts and states must provide their schools, principals, and teachers the support they need to succeed.

This sounds like a significant change from the punitive pressure cooker educators experienced under NCLB (USDOE, 2002). However, close scrutiny reveals that while rewards for successful schools, districts, and states certainly take a prominent position, the *Blueprint* offers an extremely prescriptive solution; some call it a punishment, for *challenge* schools that do not succeed immediately.

The first category of *challenge* schools will be the lowest-performing 5% of schools in each state, based on student academic achievement, student growth, and graduation rates. Deriding any flexibility or innovation for improvement, states and districts will be required to implement one of four school turnaround models (USDOE, 2010).

Schools that are not closing significant, persistent achievement gaps will constitute another category of *challenge* schools. In those schools, districts will be required to implement data-driven interventions to support those students who are farthest behind and close the achievement gap. For all *challenge* schools, districts may implement strategies such as expanded learning time, supplemental educational services, public school choice, or other strategies to help students succeed (USDOE, 2010). These phrases appear almost verbatim from NCLB (USDOE, 2002).

Although *A Blueprint for Reform* (USDOE, 2010) appears heavily laden with references to standardized tests, accountability, and prescriptive models for low-performing schools, two areas of the Blueprint provide hope for the American education system. One section of the Blueprint addresses the *successful, safe, and healthy student*. Within that section, the Blueprint does mention the need to provide children with cultural enrichment. Another section describes a *complete education*, including: literacy, science, technology, engineering, mathematics, history, civics, foreign languages, the arts, financial literacy, environmental education, and other subjects (USDOE, 2010). A broadening of the taught curriculum allows for more opportunities where students may encounter feelings of success, connect to the school, and bolster their educational resilience.

Present School Reform Initiatives

Current educational practice undermines an asset-based model and presupposes change through mandates with no consideration of the negative impacts of a test-oriented system. Educators and policymakers narrowly focused only on standardized tests and a standard curriculum narrow the curriculum, increase instructional pace, create less engaging classrooms, and ignore student preferences for authentic, hands-on learning (Certo et al., 2008; Peters & Oliver, 2009; Zhao, 2009). Most student remediation efforts focus on student deficits, increase instructional minutes in core (tested) classes, and thereby separate low-achieving students from peers, resulting in tracking, labeling, and segregating of students despite scientific studies that document the negative effects, especially for nondominant linguistic and cultural groups (Nieto, 1992; Oakes, 1985).

A popular reform strategy to raise achievement scores involves support classes that eliminate elective opportunities from a student's schedule where the student may encounter feelings of success, creativity, imagination, and school connectedness (Benard, 2004). High-stakes testing appears to be particularly detrimental to resilience and youth development (Kohn, 2000; Meier, 2000; Popham, 2001). A limited focus on the results of high-stakes testing might ignore another valuable instrument to school reform, the California Healthy Kids Survey.

California Healthy Kids Survey

Schools administered the first California Healthy Kids Survey (CHKS) in 1998. The CHKS is a repeated cross-sectional, self-report survey that the California Department of Education (CDE) has made available to all of California's school districts as part of the CDE's accountability system, with the recommendation that it be administered biennially. An advisory committee of researchers, teachers, school prevention and health program practitioners, and public agency representatives developed the instrument (Hanson & Austin, 2003).

Most California schools administer the CHKS to meet the requirements of the federal Safe and Drug Free Schools Communities Act (SDFSCA). The CDE identified performance indicators that schools must monitor in meeting the SDFSCA's goals, as required by NCLB. The CHKS instrument helps schools monitor its goals to keep a safe and drug free school. In addition, the Resilience Youth Development Module (RYDM) of the CHKS surveys student perceptions regarding levels of external supports, such as caring relationships, high expectations, and opportunities for meaningful participation, within a school, home, and community—also known as protective factors within the

resiliency model. Further, the RYDM attempts to assess internal student assets of problem-solving, self-efficacy, empathy, self-awareness, cooperation, and goals/aspirations. The survey provides a common statewide set of comprehensive health risk and resilience data to guide local program decision-making. The large CHKS database has the potential to provide critical data needed to examine student learning outcomes (Hanson, Austin, & Lee-Bayha, 2004).

Assessing Resilience and Youth Development in Schools

Administered to students anonymously, the CHKS and the RYDM provide school-level data. However, the developing literature surrounding the RYDM and its normative properties, as they relate to ethnicity, gender, s, and level of family assets, provide researchers the potential of administering the RYDM's validated and reliable subscales to individuals. Research has provided evidence that schoolwide RYDM subscale responses are correlated to schoolwide student achievement. The potential of applying the RYDM subscales to individuals in order to assess their potential for academic success continues to develop (Furlong, Ritchey, & O'Brennan, 2009; Hanson & Austin, 2003; Hanson & Kim, 2007; Sharkey, You, & Schnoebelen, 2008).

Resilience, Youth Development, and Academic Performance

Concurrent (cross-section) relationship and longitudinal empirical analyses reveal a relationship between schoolwide RYDM subscales and schoolwide academic achievement. Researchers collected data and examined the relationship between CHKS data from 1998-2002 with API research files (calculated from SAT -9, national percentile rank scores) from 1999-2001. Data were examined two ways: through a cross-sectional (single time point) analysis and a longitudinal analysis. Stepwise regression models

controlled for demographic differences, such as, socioeconomic status, racial/ethnic composition, parent education level, free/reduced lunch participation rates, percentage of English learners, and low or high performing school baseline performance (Hanson & Austin, 2003; Hanson et al., 2004).

Participants included a total of 800,000 students from s 7, 9, and 11. At the time of the analyses, schools administered the CHKS voluntarily and the RYDM portion functioned as an additional voluntary supplemental module. At this time, 1,700 schools administered the CHKS core module compared to 600 schools who administered the RYDM module. For the purposes of this discussion, the relationship between the RYDM module and the CHKS school connectedness scale to student achievement is most pertinent.

Cross-sectional analyses revealed that API scores were related to school protective factors. Low-performing schools generally have more students exposed to health risks and fewer school supports than other schools. In addition, longitudinal analyses revealed that test score gains were larger in schools with high levels of caring relationships at school, high expectations at school, and participation in meaningful activities in the community (Hanson & Austin, 2003; Hanson et al., 2004).

Limitations to the Hanson et al. (2004) study include CHKS data collected prior to the state mandate in 2004 requiring biennial administration of the CHKS core and RYDM. Since requiring the RYDM portion of the CHKS, three times as much RYDM data have been collected per year (Furlong et al., 2009). Other limitations or changes since the Hanson et al. (2004) study relate to the construct of API scores. Whereas, the SAT-9 national percentile rank constituted achievement measures at the time of the study,

presently California's assessment system includes the scaled scores of the criterion-referenced California Standards test (CST's). Finally, recent research of RYDM's psychometric properties highlights another limitation to Hanson et al.'s study related to reliability and validity of certain RYDM subscales. Statistical analyses revealed subscales intending to be conceptually different aspects of resilience measuring to be the same when verified by a secondary analysis. Therefore, some survey items have been deemed to be invalid.

To summarize, future research investigating the relationship between RYDM and API scores should be updated with a larger longitudinal investigation and sampling of schools that are now mandated to administer the RYDM. In addition, future investigations should adjust the dependent variables to criterion-referenced scaled scores versus the norm-referenced national percentile ranks. Finally, future investigations should utilize psychometrically valid and reliable RYDM subscales.

School Connectedness

Educational research has come to recognize school connectedness as a construct related to improved school performance. School connectedness has been associated with, and also referred to as, school culture, school climate, school attachment, school membership, school sense of belonging, school bonding, school participation, and student engagement (Hoy & Hannum, 1997; Osterman, 2000; Witherspoon et al., 2009; Zullig et al., 2010). Much like the field of educational resilience, despite a growing body of research to support the role of school connectedness and its relationship to school improvement efforts, the field lacks a universally-accepted definition of school connectedness, a commonly-accepted instrument to measure it, and widely-employed

strategies to foster it (Cohen et al., 2009; Hoy & Hannum, 1997). Perhaps, because studies of school connectedness and school climate are derived from several disciplines, such as: education, psychology, medicine, anthropology, and sociology; terms overlap, used inconsistently, and fail to define a clear empirical base of school climate and connectedness literature (Blum, 2005; Whitlock, 2006).

Studies have attempted to define school connectedness and to construct a reliable and valid instrument to measure school connectedness. The School Connectedness scale of the CHKS, for example, has been utilized in hundreds of studies (Whitlock, 2006). There are several other surveys, too, that seem to measure related constructs, but each attempts to measure slightly different domains, asks different questions, and thusly, utilizes different terminology. In addition, several school connectedness measures are administered without psychometric reliability and consistency studies to validate the instrument. The absence of a widely accepted, psychometrically-sound instrument has characterized school climate and school connectedness education research (Zullig et al., 2010).

Acknowledging that a growing body of research shows school connectedness to be a powerful predictor of adolescent health and development outcomes, Whitlock (2006) sought to advance a theoretically grounded definition of school connectedness through a mixed methods approach that examined the relationship of school connectedness to four developmental supports: meaningful roles at school, safety, creative engagement, and academic engagement. The four developmental supports were drawn from developmental ecological models, social capital theory, and youth development theories.

The theoretical overlap between the theories provided the contextual correlates for the developmental supports (Whitlock, 2006).

Further, Whitlock (2006) reviewed five surveys, including the CHKS school connectedness scale, to construct a survey measure that was inclusive of questions meant to measure: meaningful roles, safety, academic engagement, and creative engagement. The study utilized the resulting 110-item survey. The survey, however, was not normed on a larger sample for reliability or validity. The survey findings were drawn from a sampling of 305 students in the northeastern United States, 83% of whom were European American. In addition, 3.1% of survey respondents were identified as low socioeconomic status. Further studies of school connectedness would benefit from the use of a validated and reliable tool administered to a more diverse population. In order to address reliability and validity concerns, Whitlock (2006) subsequently assembled focus groups with 108 students, stratified by 8th, 10th, and 12th grades to triangulate survey data and offer concurrent validity with the quantitative findings of the surveys (Whitlock, 2006).

Whitlock's (2006) study findings demonstrated that the "meaningful roles at school" variable most strongly correlated to school connectedness ($\alpha = .732, p < .01$). In addition, focus group responses corroborated that "meaningful input into school policies and practices in and outside of the classroom," along with "engaging and relevant classroom class material," most strongly affected perceived levels of school connectedness. Considered together, the study findings help to broaden the conceptualized definition of school connectedness as a mental state of belonging where youth perceive that they *and* other youth are cared for, trusted, and respected by adults whom they believe hold the power to make institutional and policy decisions. In

addition, connectedness is conceptualized as something received and reciprocated. It is also important to note that study findings suggested that students of all ages struggled with the relevance of school approaches and curricula in relationship to their interests and futures (Whitlock, 2006).

Zullig and colleagues (2010) combined findings from several exhaustive literature reviews of school climate dating back 100 years to reveal at least five important school climate domains to offer a definition of school climate: order, safety, and discipline; academic outcomes; social relationships; school facilities; and school connectedness. Here, school connectedness is a domain within the larger construct of school climate. The school connectedness domain was characterized by excited, enthusiastic, and engaged learners; where students felt valued for their input; and where students had feelings about school (Zullig et al., 2010).

Further, Zullig and colleagues (2010) examined five widely, historically cited school climate measurement tools. The instruments were matched to the five domains identified in the literature. The purpose of matching the instruments to the domains apparent in the literature was to establish validity and reliability measures of the constructs, and to combine matching survey items to refine a self-report survey from existing school climate measures with psychometrically tested properties to create a new survey. A series of exploratory and confirmatory factor analyses tests administered with several test groups produced an eight-factor model that subdivided social relationships into three distinct areas: social environment, positive student-teacher relationships, and perceived exclusion/privilege. The researchers concluded that further development of their scales would be needed before use as a clinical tool. Although the domains

positively correlated, some of the correlations were negative and very weak. For example, the range of alpha levels for the perceived exclusion/privilege variable, appeared to be weak ($\alpha = .04, -.10, .04, .04, .02, \text{ and } .05$). In addition, tests with a more diverse population would further validate the instrument since the tests were conducted with an 84% sampling of White/non-Hispanic students (Zullig et al., 2010).

Unfortunately, a lack of consistency in terminology may be contributing to a continued lack of focus toward school connectedness (Whitlock, 2006). In addition, despite studies suggesting that most local school leaders believe school culture contributes to increased student performance, state and federal policies fixed on tested academic performance outcomes increase demands on local leaders to meet student proficiency mandates, further hampering developmental efforts to establish local policy that measures and promotes positive school climate and connectedness (Cohen et al., 2009; Osterman, 2000).

School climate policy. Cohen and colleagues (2009) conducted an investigation of the relationship between school climate-related findings and educational policy, school improvement, and teacher education. A historical analysis, a review of literature, a national State Department of Education scan, and a national survey of school leaders revealed that despite a growing body of empirical research that indicates the predictive relationship between positive school climate and academic achievement, there is a gap between research findings and educational policy and practice (Cohen, 2006; Cohen et al., 2009).

A review of literature suggests four major areas shape school climate: safety, teaching and learning, relationships, and the external environment. These four major

areas are composed of several subcomponents that overlap with resilience and social justice leadership constructs. Namely, the teaching and learning domain is characterized by elements such as quality of instruction that includes high expectations, real-life learning, and opportunities to participate. Further, the relationships domain is characterized by respect for diversity, collaborative learning, and connectedness (Cohen et al., 2009).

A scan of state departments of education revealed that despite NCLB efforts to improve schools, and despite the compelling research that suggests school climate is directly linked to student achievement, many states have left the notion of school climate out of their general accountability systems. Study findings indicate that 22 states have integrated school climate into their school improvement and accountability systems; another 6 did so, as well, but only partially. The other 22 states considered school climate as a health, special education, or school safety issue. The latter evidence suggests that despite the research citing school climate to be an integral part of achievement, 22 states do not relate whole school improvement and academic achievement to school climate. In fact, only one state department of education, Rhode Island, has formally endorsed or mandated the use of a research-proven climate assessment; the others are relying on scientifically unsound assessment tools (Cohen et al., 2009).

Cohen and his team (2009) suggest that the startling gap between the evidence from school climate empirical findings and current educational practice is socially unjust, especially since research-based guidelines regarding positive youth development and student learning have been established. Further, the researchers call for the need to close the gap between school climate and school policy and practice to better support student

development and capacities for learning (Cohen et al., 2009; “Student-Centered High Schools,” 2001).

Further school connectedness. Several exhaustive, multidisciplinary reviews on the topic of school connectedness have attempted to adequately define school connectedness and accurately measure the construct. The reviews revealed that the variability of measures and the limited sampling of other studies calls for more research to better establish the normative properties of a school connectedness measurement tool. In addition, research would benefit from a wider, more diverse population of participants to address sampling and reliability concerns (Cohen et al., 2009; Osterman, 2000; Whitlock, 2006; Zullig et al., 2010).

Previous studies demonstrate that a connected school environment is related to higher levels of student achievement. School connectedness, however, has been shown to decrease through secondary school grade levels (Klem & Connell, 2004). Therefore, an investigation of the relationship between the CHKS school connectedness variable and its relationship to student achievement scores, especially at the seventh grade, may assist educators with continued data-driven decisions related to school reform efforts and illuminate the importance of school connectedness in order to sustain and support school improvement efforts at the earliest secondary school grade (Zullig et al., 2010). The use of the CHKS school connectedness scale as a survey instrument to explore the effects of school connectedness as a mediating variable on the relationship between school resilience measures, and the school academic achievement measure of API, would be the first study of its kind.

Middle School Research

EdSource (2010) conducted a large-scale study of California's middle grades, which educates one of every eight students in Grades 6 through 8 in the United States, meant to explore the relationship between school and district practices and policies and the relationship to student achievement. The study cited the importance of middle grade outcomes where research has shown that middle grades' math performance is lower than elementary grades. According to CDE data, two-thirds of fourth graders in California scored proficient or advanced in mathematics in 2009, compared to only 43% of seventh graders (Alspaugh, 1998; Anderman & Maehr, 1994; Picucci, Brownson, & Kahlert, 2002; Rich, 2005; Roesner & Eccles, 1998; Williams et al., 2010).

A review of middle grades literature from the past 20 years suggested that Positive, Safe, and Engaging School Environments to be one of 10 important domains for middle school study (Williams et al, 2010). The EdSource study concentrated on the relationship between middle grades' organizational practices and policies related to improved CST outcomes in Language Arts and mathematics.

The study findings suggested that school environment was not associated with improved student outcomes. This finding may perhaps be best explained by the fact that California has no formal policy to encourage or mandate a research-based positive school environment program in its general accountability system (Cohen et al., 2009). Thus, the study did not find a strong association between California's high-performing middle school student outcomes and school environment policy. Other research, however, has cited middle school climate as an important predictor of academic performance even after controlling for student socioeconomic status (Hoy & Hannum, 1997). The findings

warrant continued middle school research and an investigation of the relationship between school factors and student achievement.

Conclusion

The universal, generalist approach to resilience prepares students for school success by enhancing environmental supports that address student health, development, and well being. Further investigation regarding the relationship between school protective factors (caring relationships, high expectation messages, and opportunities to participate and contribute) and academic achievement should be explored.

Academic achievement as measured by standardized exams may offer limited insights regarding positive school culture and youth development. Further investigation may include an assessment of the underlying dimensions of school effectiveness: instrumental and expressive functions (Eisner, 2001; Uline, Miller, & Tschannen-Moran, 1998).

CHAPTER 3—METHODOLOGY

Introduction

The purpose of this study was to investigate the relationship between student resilience and academic achievement. This chapter presents the methodological framework for the study, the research questions, instrumentation, the research design, population, variables, and data analysis procedures.

This correlational study, with replicated procedures over three time points, examined two data sets from multiple years. The Resilience Youth Development Module (RYDM) of the California Healthy Kids Survey (CHKS) represents the first data set. The second set of data is derived from the California Department of Education's (CDE) Academic Performance Index (API).

Most California schools administer the CHKS to meet the requirements of the federal Safe and Drug Free Schools Communities Act (SDFSCA). Additionally, the CDE identifies performance indicators that schools must monitor in meeting the SDFSCA's goals, under NCLB. The CHKS instrument helps schools monitor their goals to maintain a safe and drug free school. An elementary school and secondary school versions of the CHKS exists. This study concentrated specifically on the secondary school, seventh grade responses.

The CHKS included a mandatory module administered to all students that focuses on health behaviors and experiences (WestEd, 2006). Included within the CHKS measure is the Resilience Youth Development Module (RYDM). The full RYDM contains 56 items that were designed to measure internal student assets (personal

strengths) and external school resources (protective factors), all of which have been linked to positive developmental outcomes (Benard & Slade, 2009).

The CHKS is an instrument that assesses school climate and culture. Research suggests that bolstering student resilience positively impacts student achievement (Benard, 1991). The API represents an aggregate school-wide score of student achievement results. With this in mind, cross-sectional data sets of the CHKS and API provided a base for the exploration of the notion that student resilience may be related to student academic success. The following research questions directed this investigation:

Research Questions

1. Is there a significant statistical correlation between school protective factors of caring relationships, high expectations, and meaningful participation to student achievement?
2. Is there a predictive relationship between student internal assets of problem-solving, self-efficacy, empathy, and self-awareness with student achievement?
3. Which protective factors and internal assets exhibit the most powerful correlation with student achievement?

Instrumentation

External protective factors in school, such as caring relationships with teachers and opportunities to participate, are recognized as protective factors; however, research in this area is lacking (Sharkey et al., 2008). The absence of a psychometrically sound instrument that reliably and validly measures the characteristics theorized to contribute to student resilience in schools has limited the field of research (Jimerson, Sharkey, Nyborg, & Furlong, 2004; Libby, 2004).

Despite several modifications to the RYDM, since its creation and initial validation in 2000, the module lacked a thorough analysis of reliability and validity (Furlong et al., 2009; Hanson & Kim, 2007). Recent empirical studies now support the internal consistency and reliability of the psychometric properties of the RYDM. Hanson and Kim (2007) conducted a detailed analysis of the RYDM's survey items and found that the number of items could be reduced, due to differential item functioning, inconsistent factor loading patterns, or cross-loading across factors. Factor analyses revealed that the survey items could generally be reduced from school Caring Relationships and school High Expectation categories into one category: School Support. The RYDM intended to measure student perceptions of school Caring Relationships and school High Expectations as separate subscales. However, several factor analyses found that the items from the two subscales could be combined into one scale, called School Supports. School Meaningful Participation survey items, however, held together as a separate factor (Hanson & Kim, 2007).

Hanson and Kim (2007) further suggested that certain items of the RYDM should be dropped. Their research provided a rationale for dropping the items, ranging from inconsistent functioning for certain ethnic populations, insufficient and invalid questions, inconsistent functioning between genders, and cross loading in factor analyses (Furlong et al., 2009). For example, a survey item related to "goals and plan for the future" and "I plan to go to college or some other school after high school" functioned differently for Chinese-American populations as compared to African American, Mexican American, or White European American students. This difference suggested a survey item ethnic bias. Therefore, the "goals and aspiration" and "cooperation" internal asset subscales were

deemed invalid leaving the constructs of self-efficacy, empathy, problem solving, and self-awareness to be valid subscales.

Finally, Hanson and Kim (2007) examined RYDM item bias. They verified that the factor structure of the scales held across racial-ethnic groups. Similarly, Furlong et al. (2009) utilized Hanson and Kim's factor structure to determine that the variance attributable to grade (0.3%), ethnicity (0.8%), and gender (2.3%) were small. This study provided normative data based on responses of 141,000 California students (Furlong et al., 2009).

Lastly, further studies utilizing RYDM data provided empirical evidence that reports of school assets and its relationship to individual resilience did not have a differential relation when grouped by high- or low- self-reported levels of family (CFI = 0.980, NNFI = 0.977, and RMSEA = 0.033). That is, multigroup structural equation modeling revealed that low family asset groups compared to high family asset groups equally benefit from school assets (Sharkey et al., 2008).

The developing literature surrounding the RYDM and its normative properties, as it related to ethnicity, gender, grade, and level of family assets, provides researchers the potential of exploring the RYDM's validated and reliable subscales and data. The potential of applying the RYDM subscales to individuals in order to assess their potential for academic success continues to develop (Furlong et al., 2009; Hanson & Austin, 2003; Hanson & Kim, 2007; Sharkey et al., 2008). However, the validity of RYDM's ability to measure school-wide levels of resilience is substantiated. Given the research supporting RYDM's reliability and validity, and its widespread administration throughout the state

of California, the RYDM represents a psychometrically sound instrument that can measure levels of student resilience in California schools.

This study utilized select-item CHKS RYDM items and subscales shown to be reliable and valid in past studies (Appendix A).

Population

In 2004, the CDE mandated administration of the CHKS in all California schools. This study used the 2004, 2006, and 2008 RYDM data from Grade 7 in all California schools. In addition, this study used 2004, 2006, and 2008 CDE-calculated API scores for all corresponding California schools. Schools with matched 2004, 2006, and 2008 CHKS data and API scores were collected, analyzed, and interpreted.

Research Design

The study examines extant data and incorporates a cross-sectional correlation design that utilized a three-step statistical procedure for data analyses replicated over three time periods: zero-order simple correlation; hierarchical multiple regression, excluding the school connectedness variable; then, hierarchical multiple regression with the school connectedness variable to test its effect as a mediator variable.

Individual CHKS survey-item responses ($n = 1.5$ million pupil cases) were aggregated to produce school level responses. In turn, each school-level item response was averaged, per resilience construct, to produce a composite score for each independent variable related to resilience.

Schools with composite resilience scores, along with composite academic achievement scores (API), were included in the study. In sum, 2004 data included 1,144 schools; 2006 data included 988 schools; and 2008 data included 837 schools.

Hierarchical multiple regression analysis illustrated the relationship between survey data and achievement scores. Statistical analysis determined if a significant statistical relationship between student survey data and student achievement existed. Regression analysis controlled for student socioeconomic status, ethnicity, and other demographic information. Further, hierarchical multiple regression analysis provided evidence of the strength of the relationship between student perceptions and achievement scores after other variables were accounted for. Standardized correlation coefficients illustrated the relative strength of each resilience construct as it relates to student achievement (Huck, 2008).

Limitations

Analysis of relationships using inferential analysis does not determine truths. Statistical sampling and statistical analysis point to significant relationships between events and the likelihood of occurring phenomena, but it cannot, with complete certainty, directly attribute the occurrence of one event to another seemingly related occurrence (Huck, 2008; Popham, 1993). Stated simply, the evidence of a correlation between variables does not prove a causal relationship, nor does it indicate directionality. The potential effect of another phenomenon, not explored as part of this study, may certainly exist.

In addition, this study was limited by the sample, its measures, and its design. The study was limited to 3 years of data in California seventh grade schools. Further, the two measures utilized in this study (CHKS self-report survey and API) limited the investigation of the resilience construct and its relationship to academic achievement.

Finally, the study was limited by a cross-sectional, 3-year correlational design that does not utilize multiple measures, experimental manipulation, or random effects.

Variables

The independent variables of this study were the mean, composite scores of each school's student perceptions of nurturing adults, high expectations, meaningful opportunities in school, as well as student self-reports of self-efficacy, empathy, problem solving, and self-awareness. The external protective factors of nurturing adults and high expectations were combined to a school support variable as suggested by previous reliability and validity studies of the RYDM. In addition, the study included a school connectedness variable from CHKS survey items to test its effect as a mediator variable. The dependent variable is each school's composite API score as calculated by the CDE. The API factors schoolwide student achievement proficiencies in state-mandated examinations.

Demographic predictor variables accounted for in the regression model included: percentage of African-American students per school, percentage of Hispanic/Latino children per school, percentage of English Language learners per school, and percentage of students that were participants in the free or reduced price meal program per school.

Data Analysis Procedures

This study utilized both descriptive and inferential statistics. The one dependent variable (API scores) and the multiple independent variables (RYDM of CHKS), along with demographic variables, were analyzed through Hierarchical Multiple Regression Analysis using the Statistical Package for the Social Sciences (SPSS), version 17.0.

Standardized correlation coefficients indicated the relative strength of the relationship between the independent variables (resilience scores) and the dependent variable (API scores). The probability of “F,” or the alpha-level, for each independent variable to enter into the regression equation was set at .05.

A Hierarchical Multiple Regression Analysis revealed the predictive nature of the RYDM survey responses in relation to API scores while testing the effects of school connectedness as a mediator variable. The Multiple Regression also revealed which independent variables most greatly affected API scores while accounting for the effects of all other variables.

Finally, quantitative data analysis examined standardized and unstandardized beta-weights to illustrate the relative strength of the relationship between the tested variables (Huck, 2008).

Ethical Issues

This study posed no threat to teachers, students, or groups of students. Data collected as part of this study are extant and already exist as aggregated school scores and reports. All schools were coded to preserve the anonymity of school sites. Only the relationship between schoolwide survey data and schoolwide academic performance are reported. All data were kept secure according to the university’s Institutional Review Board (IRB) guidelines.

CHAPTER 4—RESULTS

Introduction

The present study examined the relationship of school protective factors to student achievement by utilizing composite select-item survey data from the California Healthy Kids Survey (CHKS) and school composite scores from California's Department of Education, the Academic Performance Index (API). The chapter begins with a statistical description of the data and the demographics. Then, a series of zero-order, simple correlations presented by external school protective factors variables; student internal assets variables; and school demographic variables follows. In addition, a school connectedness variable was tested as a potential mediating variable; its findings conclude the presentation of simple correlations. Next, a forced-entry, hierarchical regression model tested the school connectedness variable as a potential mediator between other variables; its findings present further correlation data after accounting for the effect of each variable on the relationship to school API. Results of the multiple regression models are presented by external school protective factors variables; student internal assets variables; school demographic variables; and school connectedness variables. Finally, the chapter concludes with a summary of results and findings to answer the three research questions:

1. Is there a significant statistical correlation between school protective factors of caring relationships, high expectations, and meaningful participation to student achievement?
2. Is there a predictive relationship between student internal assets of problem-solving, self-efficacy, empathy, and self-awareness with student achievement?

3. Which protective factors and internal assets exhibit the most powerful correlation with student achievement?

Descriptive Statistics

The correlational, replication study utilized seventh grade CHKS data from 2003-2004, 2005-2006, and 2007-2008 school years, along with corresponding school API scores to illustrate the relationship between CHKS scores and API scores. Statistical procedures were replicated in each of the three time periods. Each CHKS variable was aggregated to a composite score. In each time period, schools with complete CHKS data and an API score for the same year were included for study ($n = 1,143$ in 2004; $n = 987$ in 2006; $n = 836$ in 2008).

Academic Performance Index

The 2004 API mean score was 675.5 ($SD = 119.7$; range 281-953), the 2006 API mean score was 687.7 ($SD = 113.7$; range 283-987), and the 2008 API mean score was 714.6 ($SD = 113.1$; range 332-982; Table 1).

Table 1

Academic Performance Index Descriptives by Year

X variable	2004		2006		2008	
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>
API	675.49	119.70	687.74	113.62	714.59	113.14

External School Protective Factor Variables

External School Protective Factor Variables included School Support and Meaningful Participation.

School Support. The 2004 School Support mean score was 2.9 ($SD = .23$; range 1.7-4.6), the 2006 School Support mean score was 2.8 ($SD = .23$; range 2.1-4.0), the 2008 School Support mean score was 3.0 ($SD = .19$; range 1.7-3.7; Table 2).

Table 2

External School Protective Factor Variables Descriptives by Year

X variable	2004		2006		2008	
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>
Support	2.87	.23	2.83	.23	2.97	.19
Participation	2.28	.24	2.25	.23	2.26	.21

Meaningful Participation. The 2004 School Meaningful Participation mean score was 2.3 ($SD = .24$; range 1.3-3.4), the 2006 School Meaningful Participation mean score was 2.3 ($SD = .23$; range 1.3- 4.0), and the 2008 School Meaningful Participation mean score was 2.3 ($SD = .21$; range 1.4-3.2; Table 2).

Internal Student Asset Variables

Internal student asset variables included Problem-Solving, Self-Efficacy, Empathy, and Self-Awareness.

Problem-Solving. The 2004 Problem-Solving mean score was 2.8 ($SD = .41$; range 1.0-4.0), the 2006 Problem-Solving mean score was 2.6 ($SD = .55$; range 1.0-4.0), and the 2008 Problem-Solving mean score was 2.7 ($SD = .57$; range 1.0-4.0; Table 3).

Self-Efficacy. The 2004 Self-Efficacy mean score was 3.1 ($SD = .51$; range 1.0-4.0), the 2006 Self-Efficacy mean score was 2.8 ($SD = .67$; range 1.0-4.0), and the 2008 Self-Efficacy mean score was 2.9 ($SD = .70$; range 1.0- 4.0; Table 3).

Table 3

Internal Student Asset Variables Descriptives by Year

X variable	2004		2006		2008	
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>
Prob.-Solving	2.80	.41	2.59	.55	2.67	.57
Self-Efficacy	3.07	.51	2.79	.67	2.92	.70
Empathy	3.03	.48	2.76	.66	2.86	.68
Awareness	3.12	.46	2.85	.66	2.98	.68

Empathy. The 2004 Empathy mean score was 3.0 ($SD = .48$; range 1.0-4.0), the 2006 Empathy mean score was 2.8 ($SD = .66$; range 1.0-4.0), and the 2008 Empathy mean score was 2.9 ($SD = .68$; range 1.0-4.0; Table 3).

Self-Awareness. The 2004 Self-Awareness mean score was 3.1 ($SD = .46$; range 1.0-4.0), the 2006 Self-Awareness mean score was 2.9 ($SD = .66$; range 1.0-4.0), and the Self-Awareness 2008 mean score was 3.0 ($SD = .68$; range 1.0-4.0; Table 3).

Demographic Variables

Demographics included percent African-American students, percent Hispanic/Latino students, percent of students receiving free/reduced meals, and percent English-learner students.

Percent African American. The 2004 mean percentage of African-American students was 7.5 ($SD = 11.6$; range 0-87), 2006 mean percentage of African-American students was 7.8 ($SD = 11.3$; range 0-83) and the 2008 mean percentage of African-American students was 8.1 ($SD = 10.8$; range 0-81; Table 4).

Table 4

Demographic Variable Descriptives by Year

X variable	2004		2006		2008	
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>
% African American	7.45	11.58	7.76	11.32	8.14	10.81
% Hispanic	36.63	26.90	43.31	28.46	42.90	27.47
% meals	39.83	26.67	45.09	28.02	45.82	28.10
% English-learners	16.24	16.03	18.79	16.55	18.71	15.45

Percent Hispanic/Latino. The 2004 mean percentage of Hispanic/Latino students was 36.6 (*SD* = 26.9; range 0-99), 2006 mean percentage of Hispanic/Latino students was 43.3 (*SD* = 28.5; range 0-100), and the 2008 mean percentage of Hispanic/Latino students was 42.9 (*SD* = 27.4; range 0-100; Table 4).

Percent receiving meals. The 2004 mean percentage of students receiving free/reduced school meals was 39.8 (*SD* = 26.7; range 0-100), the 2006 mean percentage of students receiving free/reduced school meals was 45.1 (*SD* = 28.0; range 0-100), and the 2008 mean percentage of students receiving free/reduced school meals was 45.8 (*SD* = 28.1; range 0-100; Table 4).

Percent English-learners. The 2004 mean percentage of English-learner students was 16.4 (*SD* = 16.0; range 0-94), the 2006 mean percentage of English-learner students was 18.8 (*SD* = 16.6; range 0-98), and the 2006 mean percentage of English-learner students was 18.7 (*SD* = 15.4; range 0-100; Table 4).

School Connectedness Variable

The 2004 School Connectedness mean score was 3.3 ($SD = .31$; range 1.7-4.6), the 2006 School Connectedness mean score was 3.3 ($SD = .32$; range 1.8-5.0), and the 2008 School Connectedness mean score was 3.5 ($SD = .29$; range 2.2-4.5; Table 5).

Table 5

School Connectedness Descriptives by Year

X variable	2004		2006		2008	
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>
Connectedness	3.32	.31	3.30	.32	3.49	.29

Simple Correlations With Academic Performance Index

The following section presents part 1 of a three-part statistical procedure for data analysis. Mean scores of external school protective factors, internal student assets, school demographic, and school connectedness variables were entered into a zero-ordered simple correlation to school API scores for school years 2004, 2006, and 2008.

External School Protective Factor Variables

School Supports (caring relationships and high expectations) significantly correlated with API in 2004 ($r = +.28, p < .001$), in 2006 ($r = +.32, p < .001$), and in 2008 ($r = +.37, p < .001$). These correlations were positive in direction, such that the higher the support the higher the API scores (Table 6).

School Meaningful Participation significantly correlated with API in 2004 ($r = +.43, p < .001$), in 2006 ($r = +.38, p < .001$), and in 2008 ($r = +.47, p < .001$). These correlations were positive in direction, such that the higher the participation, the higher the API scores (Table 6).

Table 6

Correlations: External School Protective Factors and API by Year

Year	Statistic	School Support	Meaningful Participation
AP104	<i>r</i>	.28	.43
	<i>p</i>	<.001	<.001
	<i>N</i>	1,143	1,143
AP106	<i>r</i>	.32	.38
	<i>p</i>	<.001	<.001
	<i>N</i>	987	987
AP108	<i>r</i>	.37	.47
	<i>p</i>	<.001	<.001
	<i>N</i>	836	836

These findings indicate that the external school protective factors of resilience, School Supports (caring relationships and high expectations) and School Meaningful Participation, are significantly correlated with student achievement scores, as represented by API scores (Table 6).

Internal Student Asset Variables

Student problem-solving correlated with API in 2004 ($r = +.22, p < .001$), in 2006 ($r = +.08, p = .012$), and in 2008 ($r = +.14, p < .001$). These correlations were positive in direction, such that the higher the levels of student problem-solving reports, the higher the API score (Table 7).

Student self-efficacy significantly correlated with API in 2004 ($r = +.19, p < .001$), in 2006 ($r = +.08, p = .011$), and in 2008 ($r = +.11, p < .001$). These correlations

Table 7

Correlations: Internal Student Assets and API by Year

Year	Statistic	Problem-Solving	Self-Efficacy	Empathy	Awareness
AP104	<i>r</i>	.22	.19	.22	.19
	<i>p</i>	<.001	<.001	<.001	<.001
	<i>N</i>	1,143	1,143	1,143	1,143
AP106	<i>r</i>	.08	.08	.07	.04
	<i>p</i>	.012	.011	<.019	<.241
	<i>N</i>	987	987	987	987
AP108	<i>r</i>	.14	.11	.14	.08
	<i>p</i>	<.001	.001	<.001	.026
	<i>N</i>	836	836	836	836

were positive in direction, such that the higher the levels of student self-efficacy, the higher the API score (Table 7).

Student empathy significantly correlated with API in 2004 ($r = +.22, p < .001$), in 2006 ($r = +.08, p = .019$), and in 2008 ($r = +.14, p < .001$). These correlations were positive in direction, such that the higher the levels of student empathy, the higher the API score (Table 7).

Student self-awareness significantly correlated with API in 2004 ($r = +.19, p < .001$) and in 2008 ($r = +.08, p = .026$). These correlations were positive in direction, such that the higher the support, the higher the API scores. Student self-awareness in 2006 ($r = +.04, p = .241$), however, did not correlate with API score (Table 7).

Overall, these findings indicate that student internal assets of problem-solving, self-efficacy, empathy, and self-awareness are significantly correlated with API scores.

School Demographic Variables

School percentages of African American students significantly correlated with API in 2004 ($r = -.33, p < .001$), in 2006 ($r = -.37, p < .001$), and in 2008 ($r = -.40, p < .001$). These correlations were negative in direction, such that the higher school percentages of African American students, the lower the API scores (Table 8).

Table 8

Correlations: School Demographics and API by Year

Year	Statistic	% African American	% Hispanic	% Reduced meals	% English learners
AP104	<i>r</i>	-.33	-.50	-.51	-.40
	<i>p</i>	<.001	<.001	<.001	<.001
	<i>N</i>	1,143	1,143	1,143	1,143
AP106	<i>r</i>	-.36	-.49	-.56	-.43
	<i>p</i>	<.001	<.001	<.001	<.001
	<i>N</i>	987	987	987	987
AP108	<i>r</i>	-.40	-.51	-.56	-.44
	<i>p</i>	<.001	.001	<.001	<.001
	<i>N</i>	836	836	836	836

School percentages of Hispanic/Latino students significantly correlated with API in 2004 ($r = -.50, p < .001$), in 2006 ($r = -.49, p < .001$), and in 2008 ($r = -.52, p < .001$). These correlations were negative in direction, such that the higher school percentages of Hispanic/Latino students, the lower the API scores (Table 8).

School percentages of students qualifying for free/reduced meals significantly correlated with API in 2004 ($r = -.51, p < .001$), in 2006 ($r = -.56, p < .001$), and in 2008 ($r = -.56, p < .001$). These correlations were negative in direction, suggesting that the

higher school percentages of students qualifying for free/reduced meals, the lower the API score (Table 8).

School percentages of English-language learners significantly correlated with API in 2004 ($r = -.40, p < .001$), in 2006 ($r = -.43, p < .001$), and in 2008 ($r = -.44, p < .001$). These correlations were negative in direction, suggesting that the higher school percentages of English-language learners, the lower the API score (Table 8).

Overall, these findings indicate that school demographics, such as: percentage of African-American students, percentage of Hispanic/Latino students, percentage of students receiving free/reduced meals, and percentage of English-language learners have a significant inverse relationship with API scores. In other words, data indicate that higher percentages of these student populations significantly correlate with lower API scores (Table 8).

School Connectedness Variables

School Connectedness significantly correlated with API in 2004 ($r = +.48, p < .001$), in 2006 ($r = +.55, p < .001$), and in 2008 ($r = +.59, p < .001$). These correlations were positive in direction, such that the higher the levels of School Connectedness, the higher the API score (Table 9).

Correlation Summary

A significant statistical correlation between external school protective factors of school supports (caring relationships and high expectations) and school meaningful participation with school API scores in 2004, 2006, and 2008 existed. Similarly, a statistically significant, predictive relationship between levels of student internal assets, such as: problem-solving, self-efficacy, empathy, and self-awareness with school API

Table 9

Correlations: School Connectedness and API by Year

Year	Statistic	School Connectedness
AP104	<i>r</i>	.48
	<i>p</i>	<.001
	<i>N</i>	1,143
AP106	<i>r</i>	.55
	<i>p</i>	<.001
	<i>N</i>	987
AP108	<i>r</i>	.59
	<i>p</i>	<.001
	<i>N</i>	836

scores existed in 2004, 2006, and 2008. In addition, the school connectedness variable also significantly correlated with school API scores. In fact, school connectedness exhibited the most positive predictive relationship with school API scores in 2004 ($r = +.48, p < .001$), in 2006 ($r = +.55, p < .001$), and in 2008 ($r = +.59, p < .001$; Table 9). Further, each school demographic variable: percentage of African-American students, percentage of Hispanic/Latino students, percentage of students receiving free/reduced meals, and percentage of English-language learners had a significantly negative inverse relationship with API scores in 2004, 2006, and 2008 (Table 8).

Hierarchical Multiple Regression

The following section presents parts 2 and 3 of a three-part statistical procedure for data analysis. Correlation scores between external school protective factors, internal student assets, and school demographic data variables to school API scores for school

years 2004, 2006, and 2008, were simultaneously entered into a regression equation to account for the effect of all other variables in the relationship to school API. Then, a forced-entry of the school connectedness variable into a second regression equation accounting for all other variables tested its effect as a mediator variable.

External School Protective Factor Variables

School support was significantly predictive of API in 2004 (beta = -136.4, $p < .001$), 2006 (beta = -90.8, $p < .001$), and 2008 (beta = -142.4, $p < .001$; Appendices B-D) when school meaningful participation, problem-solving, self-efficacy, empathy, self-awareness, percentage of African American students, percentage of Hispanic/Latino students, percentage of students receiving free/reduced meals, percentage of English- language learners, and school connectedness were accounted for. The relationship was negative, such that the higher the support, the lower the API. School support standardized betas for 2004 (beta = -0.257), 2006 (beta = -0.180), and 2008 (beta = -0.236) indicate that each standard deviation increase in school support is related to a decrease of roughly one-fifth of a standard deviation in API (Table 10). Combined, these findings are not consistent with support as a positive predictor of API. Rather, support was a significant negative predictor of API.

School meaningful participation was significantly predictive of API in 2004 (beta = +129.0, $p < .001$), 2006 (beta = +49.4, $p = .003$), and 2008 (beta = +84.1, $p < .001$) when school supports, problem-solving, self-efficacy, empathy, self-awareness, percentage of African American students, percentage of Hispanic/Latino students, percentage of students receiving free/reduced meals, percentage of English-language learners, and school connectedness were accounted for (Appendices B-D). The positive

Table 10

Coefficients With School Connectedness by Year

X variable	2004		2006		2008	
	Standard beta	<i>P</i>	Standard beta	<i>P</i>	Standard beta	<i>P</i>
Support	-.257	<.001	-.180	<.001	-.236	<.001
Participation	.254	<.001	.102	.003	.154	<.001
Problem solving	.044	.274	.008	.850	.128	.027
Self-efficacy	-.021	.677	.083	.118	-.195	.005
Empathy	-.040	.424	.018	.728	.177	.015
Awareness	.125	.005	-.136	.003	-.070	.230
% African-American	-.163	<.001	-.191	<.001	-.203	<.001
% Hispanic/Latino	-.338	<.001	-.211	<.001	-.271	<.001
% meals	-.261	<.001	-.277	<.001	-.176	<.001
% English-learners	.092	.013	.006	.871	.009	.822
Connectedness	.258	<.001	.404	<.001	.440	<.001

relationship indicated that the higher the school meaningful participation, the higher the API. School meaningful participation standardized betas for 2004 (beta = +0.254), 2006 (beta = +0.102), and 2008 (beta = +0.154) indicate that each standard deviation increase in school support is related to an increase of roughly one-sixth of a standard deviation in API (Table 10). Combined, these findings are consistent with school meaningful participation as a positive predictor of API.

Internal Student Asset Variables

Student problem-solving was not significantly predictive of API in 2004 (beta = +12.9, $p = .274$) and 2006 (beta = +1.5, $p = .850$) when school supports, school meaningful participation, self-efficacy, empathy, self-awareness, percentage of African American students, percentage of Hispanic/Latino students, percentage of students receiving free/reduced meals, percentage of English-language learners, and school connectedness were accounted for (Appendices B and C). In 2008, however, problem-solving (beta = +25.4, $p = .027$) was significantly predictive of API score after accounting for the same variables listed above (Appendix D). The positive relationship indicated that the higher the levels of student problem-solving, the higher the API. Student problem-solving standardized betas for 2008 (beta = +0.128) indicate that each standard deviation increase in school support is related to an increase of roughly one-tenth of a standard deviation in API (Table 10). Combined, these findings do not consistently illustrate that student problem-solving is a positive predictor of API.

Student self-efficacy was not significantly predictive of API in 2004 (beta = -4.9, $p = .677$) and 2006 (beta = +14.1, $p = .118$) when school supports, school meaningful participation, problem-solving, empathy, self-awareness, percentage of African American students, percentage of Hispanic/Latino students, percentage of students receiving free/reduced meals, percentage of English-language learners, and school connectedness were accounted for (Appendices B and C). In 2008, however, self-efficacy (beta = -31.3, $p = .005$) was significantly predictive of API score after accounting for the same variables listed above (Appendix D). The relationship was negative, such that the higher the levels of student self-efficacy, the lower the API. Student self-efficacy standardized betas for

2008 (beta = -0.195) indicate that each standard deviation increase in student self-efficacy is related to a decrease of nearly one-fifth of a standard deviation in API (Table 10).

Combined, these findings are not consistent with student self-efficacy as a positive predictor of API. Rather, student self-efficacy was a significant negative predictor of API in 2008.

Student empathy was not significantly predictive of API in 2004 (beta = -10.0, $p = .424$) and 2006 (beta = +3.0, $p = .728$) when school supports, school meaningful participation, problem-solving, self-efficacy, self-awareness, percentage of African American students, percentage of Hispanic/Latino students, percentage of students receiving free/reduced meals, percentage of English-language learners, and school connectedness were accounted for (Appendices B and C). In 2008, however, student empathy (beta = +29.2, $p = .015$) was significantly predictive of API score after accounting for the same variables listed above (Appendix D). The relationship was positive, such that the higher the levels of student empathy, the higher the API. Student empathy standardized beta for 2008 (beta = +0.177) indicate that each standard deviation increase in student empathy is related to an increase of nearly one-fifth of a standard deviation in API (Table 10). Combined, these findings illustrate that student empathy is an inconsistent positive predictor of API.

Self-awareness (beta = -11.8, $p = .230$) was not significantly predictive of API score in 2008, after accounting for school supports, school meaningful participation, problem-solving, self-efficacy, empathy, percentage of African American students, percentage of Hispanic/Latino students, percentage of students receiving free/reduced meals, percentage of English-language learners, and school connectedness (Appendix D).

Student self-awareness, however, was significantly predictive of API in 2004 (beta = +32.4, $p = .005$) and 2006 (beta = -23.6, $p = .003$) after accounting for the same variables listed above (Appendix B and C). The positive relationship in 2004 indicated that the higher the levels of student self-awareness, the higher the API. The negative relationship in 2006 is such that the higher the levels of student self-awareness, the lower the API. Student self-awareness standardized betas for 2004 (beta = +0.125) and 2006 (beta = -0.136) contradictingly illustrate that a standard deviation increase in school support is related to either an increase of roughly one-tenth of a standard deviation in API (2004) or a decrease of roughly one-tenth of a standard deviation in API (2006) (Table 10). Combined, these findings do not consistently illustrate that student self-awareness is as a positive predictor of API.

School Demographic Variables

School percentage of African American students was significantly predictive of API in 2004 (beta = -1.7, $p < .001$), 2006 (beta = -1.9, $p < .001$), and 2008 (beta = -2.1, $p < .001$) when school support, school meaningful participation, problem-solving, self-efficacy, empathy, self-awareness, percentage of Hispanic/Latino students, percentage of students receiving free/reduced meals, percentage of English-language learners, and school connectedness were accounted for (Appendices B–D). The relationship was negative, such that the higher the percentage of African American students, the lower the API. School percentage of African American students standardized betas for 2004 (beta = -0.163), 2006 (beta = -0.191), and 2008 (beta = -0.203) indicate that each standard deviation increase in percentage of African American students is related to a decrease of roughly one-fifth of a standard deviation in API (Table 10). Combined, these findings

suggest that percentage of African American students is a significant negative predictor of API.

School percentage of Hispanic/Latino students was significantly predictive of API in 2004 (beta = -1.5, $p < .001$), 2006 (beta = -0.8, $p < .001$), and 2008 (beta = -1.1, $p < .001$) when school support, school meaningful participation, problem-solving, self-efficacy, empathy, self-awareness, percentage of African American students, percentage of students receiving free/reduced meals, percentage of English-language learners, and school connectedness were accounted for (Appendices B–D). The relationship was negative, such that the higher the percentage of Hispanic/Latino students, the lower the API. School percentage of Hispanic/Latino students standardized betas for 2004 (beta = -0.338), 2006 (beta = -0.211), and 2008 (beta = -0.271) indicate that each standard deviation increase in percentage of Hispanic/Latino students is related to a decrease of roughly one-fourth of a standard deviation in API (Table 10). Combined, these findings suggest that percentage of Hispanic/Latino students is a significant negative predictor of API.

School percentage of students receiving free/reduced meals was significantly predictive of API in 2004 (beta = -1.2, $p < .001$), 2006 (beta = -1.1, $p < .001$), and 2008 (beta = -0.7, $p < .001$) when school support, school meaningful participation, problem-solving, self-efficacy, empathy, self-awareness, percentage of African American students, percentage of Hispanic/Latino students, percentage of English-language learners, and school connectedness were accounted for (Appendices B–D). The relationship was negative, such that the higher the percentage of students receiving free/reduced meals, the lower the API. School percentage of students receiving free/reduced meals standardized

betas for 2004 (beta = -0.261), 2006 (beta = -0.277), and 2008 (beta = -0.176) indicate that each standard deviation increase in percentage of students receiving free/reduced meals is related to a decrease of roughly one-fifth of a standard deviation in API (Table 10). Combined, these findings suggest that percentage of students receiving free/reduced meals is a significant negative predictor of API.

School percentage of English-language learners was not significantly predictive of API in 2006 (beta = +.043, $p = .871$) and 2008 (beta = +.064, $p = .822$) when school supports, school meaningful participation, problem-solving, self-efficacy, empathy, self-awareness, percentage of African American students, percentage of Hispanic/Latino students, percentage of students receiving free/reduced meals, and school connectedness were accounted for (Appendices C and D). In 2004, however, school percentage of English-language learners (beta = +0.7, $p = .013$) was significantly predictive of API score after accounting for the same variables listed above (Appendix B). The positive relationship indicated that the higher the levels of school percentage of English-language learners, the higher the API. School percentage of English-language learners standardized betas for 2004 (beta = +0.092) indicate that each standard deviation increase in school percentage of English-language learners is related to an increase of roughly one-tenth of a standard deviation in API (Table 10). Combined, these findings do not consistently illustrate that school percentage of English-language learners is as a positive predictor of API.

School Connectedness Variable

School connectedness was significantly predictive of API in 2004 (beta = +100.0, $p < .001$), 2006 (beta = +142.6, $p = .001$), and 2008 (beta = +173.0, $p < .001$) when

school supports, school meaningful participation, problem-solving, self-efficacy, empathy, self-awareness, percentage of African American students, percentage of Hispanic/Latino students, percentage of students receiving free/reduced meals, and percentage of English-language learners were accounted for (Appendices B–D). The positive relationship indicated that the higher the levels of school connectedness, the higher the API. School connectedness standardized betas for 2004 (beta = +0.258), 2006 (beta = +0.404), and 2008 (beta = +0.440) indicate that each standard deviation increase in school connectedness is related to an increase of roughly more than one-third of a standard deviation in API (Table 10). Combined, these findings are consistent with school connectedness as a positive predictor of API.

Hierarchical Multiple Regression Summary

The hierarchical multiple regression equation model accounted for variables, such as: school supports, school meaningful participation, problem-solving, self-efficacy, empathy, self-awareness, percentage of African American students, percentage of Hispanic/Latino students, percentage of students receiving free/reduced meals, percentage of English-language learners, and school connectedness.

After accounting for all other variables, the external school protective factor of school supports was shown to be a significant negative predictor of school API, whereas the external school protective factor of school meaningful participation was shown to be a significant positive predictor of school API after accounting for the same variables. An examination of internal student assets illustrated that each variable of problem-solving, self-efficacy, empathy, and self-awareness do not consistently exhibit a significant correlation to school API.

In contrast, demographic variables such as school percentage of African American students, percentage of Hispanic/Latino students, and percentage of students receiving free/reduced meals were shown to significantly, negatively correlate to school API after accounting for all other variables. On the other hand, school percentage of English-language learners did not consistently correlate to a predictive school API.

The most powerful correlation, positive or negative, after accounting for all other variables is exhibited by the school connectedness variable. School connectedness had the highest standardized betas for 2004 (beta = +0.258), 2006 (beta = +0.404), and 2008 (beta = +0.440) indicating that each standard deviation increase in school connectedness is related to an increase of roughly more than one-third of a standard deviation in API (Table 10). These findings illustrate that the school connectedness variable is the most powerful predictor of school API.

School Connectedness Mediator Model

Simple correlation illustrated a statistically significant relationship between school connectedness and school API (Table 9). However, when school connectedness was added to the hierarchical multiple regression models, statistical analyses show that school connectedness did not mediate the relationship between school protective factors and school API, nor did it mediate the relationship between school internal assets and school API. In other words, when the school connectedness variable was added to the regression model, it did not significantly affect the relationship between the predictor variables and the outcome variable; thus, it did not behave as a mediator variable (Appendices B–D).

Conclusion

The data from simple correlations and hierarchical multiple regressions between the California Healthy Kids Survey (CHKS), in relation to California's student achievement composite score for schools, the Academic Performance Index (API), allowed for the exploration of the relationship between school protective factors, student internal assets, school demographics, and school connectedness to schoolwide student achievement. Specifically, this study answered the following research questions:

1. Is there a significant statistical correlation between school protective factors of caring relationships, high expectations, and meaningful participation to student achievement?

Simple correlation data indicated a significant statistical correlation between caring relationships and high expectations (school supports) along with school meaningful participation to student achievement in 2004, 2006, and 2008. School supports, however, did not significantly correlate consistently to student achievement when exposed to other variables in multiple regression equations. On the other hand, school meaningful participation consistently, positively correlated with student achievement through 2004, 2006, and 2008, after all other variables were accounted for.

2. Is there a predictive relationship between student internal assets of problem-solving, self-efficacy, empathy, and self-awareness with student achievement?

Overall, simple correlation data illustrated a consistently predictive positive relationship between problem-solving, self-efficacy, empathy, and self-awareness with student achievement in 2004, 2006, and 2008. However, when student internal asset variables of problem-solving, self-efficacy, empathy, and self-awareness were entered

into a regression equation to account for the effect of other variables, none of the student internal asset variables consistently exhibited a predictive relationship with student achievement (API scores).

3. Which school protective factors and student internal assets exhibit the most powerful correlation with student achievement?

After accounting for the effect of all school protective factor variables (school supports and school meaningful participation) and student internal assets variables (problem-solving, self-efficacy, empathy, and self-awareness) by entering them into the equation that accounts for student demographic variables and a school connectedness variable, school meaningful participation was shown to be one of the most consistent positive predictors of student achievement. Even more powerful a predictor, however, data indicated that the most powerful, positive predictor of student achievement was shown to be the school connectedness variable. The school connectedness variable was most predictive of the relationship with student achievement, not excluding the negative, inverse relationship of student demographic data. As a point of comparison, the school connectedness variable was nearly four times more powerful a predictor than school meaningful participation in 2006 (Table 10), and nearly three-times more powerful a positive predictor of student achievement scores than meaningful participation, the only other consistently positive predictor variable of school API scores in 2008 (Table 10).

CHAPTER 5—SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

Academic success is more likely when teachers and administrators develop a school culture that matches the developmental needs of adolescents (Comer, 2005). Federal accountability measures and mandates, however, concentrate school reform efforts on academic content standards measured in standardized tests. Unintended consequences of NCLB legislation have resulted in a school leader test-focused orientation and schools that have narrowed the curriculum, increased instructional pace, created less engaging classrooms, and ignored student preferences for authentic, hands-on learning, while attempting to raise test-score performance in order to avoid federal sanctions (Certo et al., 2008). School leaders with a resilience-focus and orientation towards providing a positive school environment, built upon positive school relationships, can enhance a positive school culture, and thereby increase the potential of improved academic outcomes (Bosworth & Earthman, 2002).

The purpose of this study was to explore the relationship between school protective factors thought to promote student resilience and student academic achievement. The study employed a correlational, three-step statistical procedure replicated over three time periods utilizing extant select-item, self-report survey data from seventh grade CHKS data in 2004, 2006, and 2008. The CHKS independent (predictor) variables related to resilience were aggregated to school level scores, whereas the dependent (outcome) variables were drawn from school level composite scores of school API for the same years. The independent variables included the external school

protective factors of school supports and school meaningful participation, and the internal student assets of problem-solving, self-efficacy, empathy, and self-awareness.

Statistical procedures for data analyses included simple correlation and hierarchical multiple regressions, with and without school connectedness as a tested mediator variable. The regression models accounted for school demographic variables such as: percentage of African-American students per school, percentage of Hispanic/Latino students per school, percentage of students receiving free/reduced school meals per school, and percentage of English language learners per school.

The study answered the following research questions:

1. Is there a significant statistical correlation between school protective factors of caring relationships, high expectations, and meaningful participation to student achievement?
2. Is there a predictive relationship between student internal assets of problem-solving, self-efficacy, empathy, and self-awareness with student achievement?
3. Which protective factors and internal assets exhibit the most powerful correlation with student achievement?

This chapter discusses this study's findings in relationship to empirical findings and educational theory from previous studies. In the context of previous findings in relationship to this study, the chapter goes further to discuss the study's implications to educational reform and leadership practice, and makes suggestions regarding how this research may factor into educational decision-making. Finally, the chapter concludes with a discussion of what limits this study and makes recommendations for areas of

educational leadership practice and for future research in order to promote and enhance student academic achievement efforts.

Extension of Previous Research

The mixed results of this study did not provide any clear pattern to unambiguously support all parts of the resilience construct and its relationship to improved academic outcomes. This study, however, extends previous research in that a much larger sampling of RYDM data was utilized over each of the three time periods when compared to the previous studies and previous data sets (Hanson & Austin, 2003; Hanson et al. 2004). The inclusion of the RYDM module to all CHKS administrations, beginning in 2004, allowed for this study's larger data set when compared to previous explorations.

In addition, previous studies that explored the relationship between CHKS and RYDM survey data to academic outcomes utilized the results of the Standard Achievement Test (SAT-9) standardized tests. The SAT-9 was the norm-referenced standardized test used in California at the time of the previous studies (Hanson & Austin, 2003; Hanson et al., 2004). This study, however, updated the relationship between the presently-used California standardized achievement tests, the criterion-referenced California Standards Tests (CSTs), and select-item, psychometrically-sound CHKS school resilience measures.

Further, the study drew parallels between the field of educational resilience and educational leadership. The resilience construct suggested by the CHKS and RYDM was derived from youth developmental models (Hanson & Austin, 2003), whereas the Social Justice Leadership Theoretical Framework suggested by Theoharis (2009) stemmed from educational leadership practice. Consequently, the study incorporated a unique

cross-discipline theoretical approach. Moreover, the study is the first to empirically test the climate of the belonging component of the SJL framework by means of the school connectedness variable of the CHKS, against an academic outcome.

Finally, this study contributed to school connectedness research in significant ways. Previous school connectedness studies linked to academic outcome have been limited to narrow populations lacking ethnic and economic diversity (Zullig et al., 2010). The CHKS' large data set of California seventh graders allowed for study of school connectedness across a highly diverse, statewide sample of middle school students.

Summary of Findings

The following section summarizes the study's findings regarding the relationship between the external school protective factor variables, internal student assets variables, and school connectedness variable to school API scores. The section concludes with an explanation of how this empirical study extends previous research.

External School Protective Factors

Simple correlations between caring relationships and high expectations (school supports) and school meaningful participation to school academic achievement were shown to be statistically significant. This finding was consistent with past research (Freiberg et al., 1995; Hanson & Austin, 2003; Hanson et al., 2004; Hawkins et al., 1999; Wang et al., 1993; Waxman, Huang, & Padron, 1997; Waxman, Huang, & Wang, 1997).

Caring relationships with adults and high expectation messages, however, did not consistently correlate to student achievement when entered into a regression equation that accounted for other variables. This finding runs counter to other descriptive, correlational studies that have explored the role of schools and its relationship to student achievement

which have suggested a correlation between caring adults and high expectations to student achievement outcomes (Hanson & Austin, 2002, 2003; Hanson et al., 2004).

On the other hand, school meaningful participation was shown to be predictive of increased academic outcome even after being exposed to other variables. Consistently shown through three replicated procedures over three time periods, school meaningful participation significantly correlated with higher API scores.

The CHKS RYDM construct suggesting that schools with caring adults, high expectation messages, and meaningful participation positively correlates to increased academic outcomes cannot be wholly validated by this study. The relationship between external school protective factors and student academic outcome continues to prove to be complex.

Internal Student Assets

The relationship between problem-solving, self-efficacy, empathy, and self-awareness was shown to be statistically significant and predictive of outcome when examined with simple correlations. Problem-solving, self-efficacy, empathy, and self-awareness, however, were not predictive of student achievement when entered into a regression equation that accounts for the effect of other variables.

The study findings do not support the CHKS RYDM model that suggests higher levels of internal student assets are predictive of improved academic outcomes. The CHKS RYDM resilience construct and its relationship to academic outcome cannot be validated by this study.

School Connectedness

The school connectedness variable proved to exhibit the most powerful correlation to student achievement. Simple correlations and hierarchical multiple regressions consistently illustrated that school connectedness was a powerful predictor of higher API scores even after all other variables were accounted for.

By comparison, school connectedness was three-to-four times more powerful a predictor than school meaningful participation, the only other tested variable that was shown to be statistically significant after simple correlations and multiple regressions through 3 years of replicated statistical procedures.

The school connectedness variable is not part of the resilience construct. The data, however, suggest a strong relationship between the constructs of school connectedness, school meaningful participation, and student academic achievement. Further resilience models may wish to consider the inclusion of the school connectedness variable as part of the overall resilience construct.

Surprising Findings

School meaningful participation and school connectedness may be working in tandem as variables that positively impact student achievement. These variables subsumed the effects and contributions of other variables initially thought to have a statistically significant relationship to student achievement. When exposed to the regression equation with all other variables accounted for, all but school meaningful participation and school connectedness demonstrated a weak correlation to student achievement. A surprising finding of the study suggested that the caring, nurturing adult

and high expectation message variables were less-than-significant in relationship to student achievement when all other variables were accounted for.

To add to unexpected findings, data from this study demonstrated no significant relationship between student internal assets, thought to reflect student resilience, with increased academic outcomes. These data may suggest a need to obtain other measures of when and where students feel cared for, how and from whom they receive high expectation messages, and of student internal assets of self-efficacy, empathy, problem-solving, and self-awareness.

To examine the variables of caring adults and high expectations, for example, aspects to consider may be the extent to which schools offer classes like band, music, health, web design, the arts, peer counseling, leadership training, or other classes where students feel as if they are positively contributing to the school, receiving a relevant curriculum, and interacting with peers and teachers in classes that are interesting to them and where they may receive feelings of success.

The test of school connectedness as a mediator variable gleaned unexpected results. First, there was no evidence to suggest that school connectedness behaved as a mediator variable. To determine if school connectedness functioned as a mediator variable, two regression models were tested. The first regression model determined the relationship between predictor variables and the outcome variables, without the inclusion of the school connectedness variable. The second regression model examined the same predictor variables and outcome variables, but included a school connectedness variable within the regression model.

A comparison of the two regression models illustrated those relationships shown to be statistically significant in the first model continued to be statistically significant when the school connectedness variable was accounted for in the second regression model. This finding suggests that school connectedness did not mediate the relationship between predictor and outcome variables.

The power of the school connectedness variable, however, is noteworthy. Consider the two hierarchical multiple regression models: one did not include the school connectedness variable, while the other model included the school connectedness variable. The difference between the models' coefficients of determination illustrates the power of the school connectedness variable. In 2004, 2006, and 2008, the school connectedness variable, alone, accounted for respectively, 2%, 4%, and 6% ($R^2 = .501$, $.527$, and $.570$, respectively) of the variance accounted for when determining the variables' relationship to student achievement.

Finally, the inclusion of the school connectedness variable in the multiple regression equation resulted in a statistically significant relationship between school supports and school API in 2006 and 2008. Initially, the relationship between school supports and school API in 2006 and 2008 were not statistically significant. After adding the school connectedness variable to the statistical model, a statistically significant relationship between the school supports variable and school API was discovered. The relationship, however, was negative in direction (2006 beta = -0.180 and 2008 beta = -0.236) such that the higher the support, the lower the API.

The standardized betas indicated that each standard deviation increase in school support is related to a decrease of roughly one-fifth of a standard deviation in school API.

This finding runs counter to the findings of previous resilience studies, and counter to the notion of school supports relating to an increase of student academic outcomes (Freiberg et al., 1995; Hanson & Austin, 2003; Hanson et al. 2004; Hawkins et al., 1999; Wang et al., 1993; Waxman, Huang, & Padron, 1997; Waxman, Huang, & Wang, 1997).

The counter-intuitive finding begs the question of: why did the caring, nurturing adults and high expectation messages variables result in a statistically significant negative relationship, only after accounting for the school connectedness variable? The negative relationship can perhaps be explained by the fact that schools with lower API scores may treat students with higher levels of care and high expectations, but neglect to provide a substantive curriculum that positively effects student outcome because the school is more concentrated on the feelings and affect of the student, rather than providing an engaging curriculum that enriches learning, school connectedness, or school meaningful participation.

School leaders intent on optimizing school conditions for increased student learning and achievement must foster teacher and student relationships grounded in learning outcomes that promote school connectedness and school meaningful participation. Efforts to nurture students and create caring relationships may inadvertently excuse high expectations for teaching and learning by coddling students and excluding them from a rigorous core curricula and relevant learning opportunities because of poor test performance.

An examination of school master schedules may reveal institutionalized low expectations when weighing the number of core courses versus remediation courses, for example. In addition, rigor and high expectations imply more than just memorization and

test performance. Rigor implies measuring student abilities to demonstrate reasoning and to apply the knowledge, relating to relevant learning (Wagner et al., 2006).

Educational change leadership theory would suggest that an effective teaching model would include 3R's: respectful relationships, rigorous core curricula, and relevant curricula through real-world applications (Wagner et al., 2006). The 3R's parallel the external school protective factors of the resilience model, namely: caring relationships, high expectations, and meaningful school participation.

General Discussion of Findings

The study findings revealed that there is a statistically significant, positive relationship between external school protective factors of school meaningful participation and school connectedness to student academic achievement. The data suggest that schools with higher reports of school meaningful participation and higher reports of school connectedness demonstrated higher student achievement scores. These current findings support previous resilience study findings that demonstrate a relationship between school environments that support and nurture student developmental needs and increased student achievement outcomes (Freiberg et al., 1995; Hawkins et al., 1999; Resnick et al., 1997; Rutter et al., 1979; Solomon, Battistich, et al., 1997; Solomon et al., 2000; Solomon, Watson, et al., 1997; Wang et al., 1993; Waxman, Huang, & Wang, 1997; Wehlage et al., 1989).

Simple Correlations and Multiple Regressions

The presence of a significant relationship between student achievement and other resilience construct variables of the resilience construct, such as: caring adults and high expectation messages at school, along with student internal assets of self-efficacy,

empathy, problem-solving, and self-awareness were not verified by this study when all variables were accounted for. In isolation, however, through simple correlations, the resilience construct variables of caring adults and high expectation messages at school, and student internal assets of self-efficacy, empathy, problem-solving, and self-awareness were shown to be statistically significant and exhibited a relationship to student achievement. Examining the correlational data in regression models, though, implied that the effect and the contribution of the caring adult, high expectations, self-efficacy, empathy, problem-solving, and self-awareness variables were subsumed by other variables when all other variables were accounted for.

This finding demonstrated that simple and singular correlations of a set of variables, alone, can be important, but may no longer prove to be statistically significant when multiple variables are accounted for simultaneously. Examining the effects of multiple variables, together, is particularly potent, and necessary, since the effect of certain variables can be subsumed by other variables. In this study, for example, the school connectedness and school meaningful participation variables subsumed the contribution of other variables that were initially statistically significant.

This finding can also be explained by returning to the fundamental tenets of the resilience model tested within this study. Recall that the model maintains students develop internal assets of resilience to the degree their developmental needs are met (Benard, 2004). According to study findings, the school meaningful participation mean scores for students in 2004, 2006, and 2008 was 2.3 on a 4-point scale. This relatively low mean score suggests that the average seventh grade survey participant in California perceived that the presence of opportunities to: “do interesting activities in school, help

decide things like class activities or rules at school, and do things at school that make a difference” was only “a little true.”

This study tested a model that included school meaningful participation as a key developmental need that must be fulfilled if students are to build internal assets of student resilience. Thus, it seems appropriate, to infer that since the existence of opportunities to participate in meaningful ways was only “a little true” for the average student, subsequent internal assets did not correlate with student achievement because the internal asset variables, themselves, were underdeveloped (Benard, 2004).

To further explain why the internal student assets contribution was subsumed by other variables, an examination of simple correlation data revealed that the magnitude of the correlation between student internal assets and API scores to be very small and insubstantial even before entering the regression models, and before being exposed to a regression equation that accounts for all variables. Although the relationships were shown to be statistically significant in 2008, for example, the correlation coefficients of problem-solving, self-efficacy, empathy, and self-awareness with API were 0.14, 0.11, 0.14, and 0.08, respectively. The magnitudes of these correlation coefficients are considered low and trivial, although statistically significant. The sheer number of cases examined in this study contributed to the statistically significant relationship, but the magnitudes of the correlations were weak (Huck, 2008; Popham, 1993). This finding illustrates the need for educators to examine more than just statistically significant simple correlations.

An examination of regression models, with multiple variables accounted for, may provide educators with more telling data to better understand the relationship between

school variables and student achievement measures. Even more importantly, this finding underscores how schools and school leaders should concentrate on the school protective factors of meaningful school participation and school connectedness, shown to demonstrate a moderate-to-major correlations to student achievement, even after all other variables were accounted for.

Further Resilience Investigations

More exploration regarding resilience construct variables and its predictive relationship to student achievement should be explored. Study findings suggest that further investigation regarding the types of questions and instrumentation used to measure the resilience construct may be needed. The anonymous nature of CHKS survey collection prevents individual student-level resilience score correlations to student achievement measures. Aggregated school-level resilience score correlations are limited to generalized statistical inferences of the data. The entire field of educational resilience would benefit from the continued use of a psychometrically sound school culture measure, like the CHKS scales, to more broadly establish the normative properties of an instrument.

In addition, this descriptive, correlation study explored a one-to-one relationship between predictor variables and the outcome variable of API. Two or more variables may be working together to affect the strength of other variables. A statistical analysis, such as path analyses, may assist with identifying if a group of variables, in concert, demonstrate a statistically significant relationship to student achievement.

It also seems plausible that other unknown factors and variables, not explored as part of this study, are contributing to student performance outcomes. Students' families,

communities, and peers, for example, are variables that are part of the resilience construct, but not explored as part of this investigation. Further studies of the resilience construct and its relationship to student achievement might include family, community, and peers as other external protective factors.

Finally, the resilience model may benefit from the inclusion of a school connectedness variable since findings from this study, other resilience studies, school culture investigations, and educational leadership theories identify the close relationship between school meaningful participation, school connectedness, and student achievement (Whitlock, 2006). In sum, educational leaders with a resilience-focus, who consider factors beyond test scores alone, account for the developmental needs of children while monitoring school culture.

Implications for Educational Reform and Leadership Practice

In an age of *NCLB*, *Blueprint for Reform*, and *Race to the Top* accountability, California educators continue to collect and use data to assess student needs and to evaluate educational program efficacy and impact. The CHKS and RYDM measures are often employed to stay within compliance of federal funding guidelines, but the resulting data may be underutilized.

Educators and school leaders keen on creating optimized learning environments may wish to aggregate CHKS school-level data to assess the extent to which students feel as though their school provides meaningful ways to participate, and the extent to which their students feel a sense of school connectedness since study findings suggested a strong relationship to higher school API scores. An examination of the 2008 regression model including school connectedness, utilizing standardized beta weights, for example, reveals

that a .29 increase to the school connectedness mean score of 3.49 is correlated to a 50-point increase in school API.

The study findings contribute to the field of educational leadership and school reform inasmuch that it validates the use of the CHKS school connectedness and school meaningful participation scales as measurements that positively correlate to school API. The demonstration of a statistically significant relationship between the school connectedness and school meaningful participation variables to school API points to the strong relationship between school connectedness and student achievement, such that higher reports of school connectedness, the higher school API. The findings provide school leaders with compelling evidence that purposeful development of a school culture that emphasizes school connectedness may positively impact schoolwide student achievement.

Although only recently addressed through a growing number of school connectedness studies, past studies illustrate that school connectedness levels can be formally addressed to increase levels of school connectedness (Solomon, Battistich et al., 1997). Despite the evidence that school connectedness can be fostered, and despite investigations that demonstrate school connectedness has a relationship to student academic outcomes, little educational policy exists to encourage the formal adoption of programs that develop school levels of school connectedness (Osterman, 2000).

The study findings encourage school leaders to pursue formalized school connectedness efforts, and administer CHKS surveys to a wide sampling of students in order to measure levels of school connectedness through a diverse group of students with varied experiences at school. Not only can the CHKS survey data be used formatively, to

identify levels of school connectedness that may be a key to improved school performance, but summatively as well, to measure the extent to which adopted efforts aimed at increasing school connectedness may be impacting levels of school connectedness (Zullig et al., 2010).

School leaders that examine school connectedness and school meaningful participation data may discover keys to increasing standardized test performance. Further, the notion of the relationship between school connectedness and school meaningful participation to increased student performance outcomes, may reasonably be extended to potential increases in other standardized, criterion-referenced tests with high-stakes implications, such as the California High School Exit Exam (CAHSEE), or to other global measures of student performance, such as grades.

The findings from this study also suggest that, beyond looking at student performance in state-tested core classes of math, English, the sciences, and social science, school leaders should examine the data derived from school meaningful participation and school connectedness in CHKS scores. The scores may be an effective measure to examine the extent to which a school provides opportunities for meaningful school participation and school connectedness in its curriculum, instruction, assessment, and course offerings. For example, a school may concentrate on and purposefully attempt to deliver an engaging, relevant curriculum with real-world applications while designing a collaborative-team setting that enhances civic mindedness, social justice, equity, and positive relationships. Successfully employed school connectedness and school meaningful participation efforts would be reflected in higher reports of school connectedness in CHKS data.

Study findings suggest delivering the curriculum within a learning context that enhances school meaningful participation and school connectedness relate to a more positive school culture and improved student achievement. The study suggests that a focus on how instruction and curricula are delivered may be more important than increased time-on-task in English or math, especially when attempting to spark student learning, generate motivation, and sustain school engagement.

Limitations

The limitations of this study include limits to sample, measurement, and design. Further, the study illustrates the relationship of the school survey data to student achievement. The statistical sampling and statistical analysis help to illustrate a relationship, but cannot attribute the occurrence of one event to another seemingly related occurrence (Huck, 2008; Popham, 1993). In other words, the evidence of a correlation between variables does not support a causal relationship, nor does it indicate directionality.

Sample Limitations

The study is limited by the utilized sample. The sample was limited to schools with 3 years of complete cross-sectional data in 2004, 2006, and 2008. In this case, schools with complete data included those with an API score and CHKS data. In addition, the study is limited by the findings from the California cohort of self-reporting seventh grade student responses for each respective year. Future studies might replicate the study design with other grade levels and other school culture and school resilience scores across the nation.

Measurement Limitations

The study is further limited by the two instruments used to measure the relationship between resilience scores and academic achievement. Namely, the construct of academic achievement is solely measured by California's Department of Education composite score the Academic Performance index (API). Similarly, the construct of resilience and school connectedness are solely measured by the results of the self-report survey data gathered by the California Healthy Kids Survey (CHKS). The self-report nature of the survey is a single measure that does not account for an objective measure or an observable behavior measure. The use of one measure does not allow for a second measure that may allow for convergence reliability of the resilience construct and its relationship to student achievement.

Further, the use of data from all seventh grade California schools with resilience scores matched to composite API scores limits the study to one grade level with no treatment group. In turn, with no experimental treatment group, the study does not account for random assignment or random effect when including all reporting California schools to examine the relationship between resilience scores and student achievement. Future studies might incorporate grades and student attendance as other student achievement measures, and also consider qualitative methodology and focus groups to account for observable measures.

Design Limitations

The study is also limited in its design. The examination of the relationship between student resilience scores and student achievement is explored through a limited sample and limited through the instruments used to measure the constructs. In addition,

the replicated, cross-sectional nature of the design does not account for a longitudinal exploration of the data or its cohorts. For example, a longitudinal study of cohorts through varying time points; such as, 5th grade, 7th grade, 9th grade, and 11th grade may enrich the investigation as self-report survey information by age, through time, is compared to student achievement scores.

Further, the study's design does not account for variables, such as schools with algebra and English support classes, types of remediation programs, incentive programs, programs that intend on positively affecting student achievement, student attendance rates, types of school culture, types of school leadership, or the school leadership's orientation towards building student resilience. It is conceivable that unknown and unaccounted for variables may shed light on how schools can bolster academic achievement.

Quantitative analysis of the variables that demonstrate a relationship to student achievement can only be partially explained by a statistical model. A qualitative investigation and approach to examining variables that are thought to be associated with student achievement, however, such as the variables listed above, may lend insights to understanding student, school, and school leader impacts on student achievement.

Varied Statistical Analyses

In addition to the potential of broadening and strengthening the findings of this study by applying qualitative methodology, the study may also benefit from an investigation of the external school protective factor variables, internal student asset variables, school demographic variables, and the school connectedness variable, through a varied statistical quantitative analysis. The statistical procedures of this study examined

12 distinct variables and each variable's relationship to the student achievement outcome measurement of school API through simple correlation and through hierarchical multiple regressions that accounted for each variable's effect on student achievement. The study utilized a relatively large data set ($n = 1.5$ million student responses) that included data from a wide sampling of California students aggregated to the school level and matched to school level composite scores. The study findings were drawn from a large scale of responses and the large scale of school API scores. The results were inclusive of all types of schools.

Statistical manipulation of data, however, could potentially answer other research questions not included as part of this study. For example, the data may have been disaggregated by school type, ethnic composition, and base performance of the school. A manipulation of data may provide evidence to answer questions such as: Did schools with higher or lower API scores respond to the resilience measures differently? Would differences in responses to levels of external school protective factors and internal student assets vary by levels of school API scores? Would schools with higher or lower percentages of students receiving free/reduced meals answer the external school protective factors and internal student assets questions differently? Would an investigation of schools with a certain percentage of demographic variables respond differently when compared to other schools with a different ethnic or socioeconomic composition? Would some groups of students appear to be more or less connected to schools? Do certain types of schools foster more school meaningful opportunities to participate?

Finally, this investigation examined survey responses of seventh grade students. Would survey responses related to external school protective factors and internal student assets vary by grade if examining 5th grade, 9th grade, or 11th grade responses? Findings from these types of research questions may assist school leaders with the types of programs employed as part of increasing student achievement.

Recommendations for Educational Practice

Social justice leadership (SJL) is one such educational leadership theory that seems to incorporate school meaningful participation and school connectedness as part of its operationalized construct. The SJL framework describes a three-legged approach to improving schools, including: increased access to core learning, improved core learning, and the creation of a climate of belonging.

The school meaningful participation and school connectedness variables, shown to be powerfully consistent predictors of student achievement in this study, are addressed within the SJL construct of increased access to core learning. Increasing access to core learning presumes high expectations for all students and negates remedial pull-out programs, where students are segregated from their peers to receive additional instruction in tested basic skills.

A test-oriented focus on student achievement appears to adversely affect resilience and youth development. The traditional pull-out, increased time-on-task model does not account for student developmental needs to connect with school, and instead, results in labeling, tracking, and a distancing from peers (Benard, 2004; Kohn, 2000; Meier, 2000; Nieto, 1992; Oakes, 1985; Theoharis, 2009).

In addition, school meaningful participation and school connectedness are fostered within the SJL construct of improved core learning. Educational equity undergirds the SJL principle of improved core learning, which is, creating the sort of high quality curricula, instruction, and assessments central to equitable classrooms. When teachers strive for just and equitable learning opportunities for all students, students feel that teachers care and hold high expectations for their success (Benard, 2004; Theoharis, 2009).

The notion of an equitable classroom is especially important when considering the achievement gap between African-American and Hispanic/Latino students compared to the achievements of White and Asian students when examining student achievement measures. The findings of this study suggest that schools with higher percentages of African-American students, Hispanic/Latino students, and students receiving free/reduced meals, in general, possess lower API scores. These data suggest that lower performing schools with higher percentages of African-American, Hispanic/Latino, and students receiving free/reduced meals may benefit from instructional programs that promote meaningful school participation, school connectedness, and SJL-oriented approaches.

Finally, SJL schools create a climate of belonging. This climate of belonging parallels the construct of school connectedness, explored and substantiated within this study. Social justice leadership bolsters school connectedness and a climate of belonging by creating learning environments meant to engage students in collaborative learning communities while incorporating social responsibility. Within SJL schools, students and teachers exhibit a mutual respect for one another. In addition, a SJL school seeks to engage students in designing their own learning activities that are interesting, allows a

student to help to decide class activities or rules, engages students in activities that are relevant and make a difference, encourages school participation while treating all students fairly, and promotes a sense of community (Theoharis, 2009).

Parallels between the resilience construct and the SJL-approach suggest that resilience measures may help to determine the extent to which schools possess a SJL orientation. As the findings of this study suggested, school levels of school meaningful participation and school connectedness were associated with increased student performance.

Utilizing an SJL approach, school leaders can enhance school resilience scores. School leaders who recognize the relevant organizing construct of resilience may approach school reform with a SJL, holistic and systems-based approach to school organization, and may recognize that they can positively impact school culture and build capacity for successful school change through SJL and resilience-focused school programs (Bosworth & Earthman, 2002; Theoharis, 2009). Perhaps too often, however, school leaders are focused solely on increasing test scores in response to external pressures from the wider school community.

School Leader Orientation

Current NCLB legislation includes school and school district performance mandates within its legislative construct. These mandates, however, meant to increase the accountability of school leaders and to raise student achievement, pressure school officials to adopt a test-focused orientation (Ravitch, 2010; Zhao, 2009).

Research suggests that school leaders, intent on organizational change and successful school reform, should focus more broadly on aspects of positive school culture

and a systems-approach to student achievement (Fullan, 2000; Wagner et al., 2006). The findings of this study suggest that attention be paid to student perceptions of school meaningful participation and school connectedness to positively affect school improvement efforts.

More resilience construct parallels can be drawn from Wagner et al.'s (2006) *Change Leadership* construct that suggests school leaders and members of the school community develop a common vision of effective teaching based on respectful, trusting relationships, rigor, and relevance. Relevance of school curricula and instructional strategies that explicitly develop the relevance of intended learning outcomes help to develop meaningful participation and school connectedness (Wagner et al., 2006).

School leaders, therefore, should be mindful of resilience-focused constructs that can positively enhance a school's culture and a student's level of school connectedness and school meaningful participation, rather than pursuing test-focused outcomes and a testing-orientation alone.

School Culture and School Reform

Deal and Peterson (2009) suggest that school leaders may often overlook the importance of a positive and innovative organizational culture as a critical element to school reform. They suggest that far too often, organizations are shaped by external forces, such as NCLB mandates, rather than being shaped from within.

Given that NCLB mandates have failed to close the achievement gap and have resulted in remediation programs that separate the lowest achieving students from their peers, it seems appropriate that school leaders focus on acknowledging student developmental needs to feel a sense of connectedness, belonging, and meaningful

participation to more positively affect school improvement and student achievement efforts, and to build more positive school cultures (Cohen, 2006). The unintended negative effects of a test-oriented society, demonstrated by China's historically test-driven educational system, coupled with the pervasive achievement gap in the United States, should encourage school leaders to pursue sustainable reform efforts intent on fostering a positive school culture and designed to engage students through a curriculum that promotes school meaningful participation and school connectedness (Deal & Peterson, 2009; Muhammed, 2009; Peters & Oliver, 2009; Ravitch, 2010; Zhao, 2009).

Student Achievement Variables

School leaders should consider student perceptions and accumulated CHKS survey data to determine the extent to which students perceive their school provides meaningful opportunities to participate and the extent to which students feel connected to school. As an example, the most powerful predictor of increased schoolwide student achievement outcomes was the school connectedness variable. Mean scores of school connectedness on a 5-point scale through 2004, 2006, and 2008 were 3.2, 3.3, and 3.5, respectively. The mean scores indicate that the average seventh grader in California perceives that they neither agree, nor disagree, with the statements of: "I feel close to people at this school; I am happy to be at this school; I feel like I am part of this school; The teachers at this school treat students fairly; and I feel safe in my school."

The study findings suggest that higher reports of school connectedness are related to higher API scores. Given this information, school leaders should consider aspects of the school's culture and gathered student perceptions of school conditions for learning which may be attained through various data, such as CHKS self-reports. Beyond

summative test performance data, and beyond remediation strategies that increase instructional time, school leaders should consider how schools might bolster student perceptions of school meaningful participation and school connectedness.

It seems incumbent on the school leader to survey school sites and to gather various empirical data to most-accurately assess a school's climate, capacity for school improvement, and conditions for school change. A collection of varied data points can assist school leaders with identifying school areas of need and may assist with educational improvement efforts.

The replicated statistical models applied in this study, utilized over three time points, provide significant support for the variables accounted for within this study. The variables accounted for in the study: levels of external school protective factors of caring adults, high expectations, meaningful opportunities for participation; levels of internal student assets of self-efficacy, empathy, problem-solving, and self-awareness; school demographic variables of percentage of African-American students, of percentage of Hispanic/Latino students, of percentage of students receiving free/reduced student lunches, and of percentage of English-language learners; and level of school connectedness represented 50%, 53%, and 57% of the variance accounted for by the hierarchical multiple regression model when determining the variables' relationship to student achievement ($R^2 = .501, .527, \text{ and } .570$ in school years 2004, 2006, and 2008; respectively). Stated simply, the study's selected variables explain more than half of possible variance when predicting the relationship between school factors and the student achievement outcome measure of school API.

Accounting for more than half of the possible variance is significant, especially when several other potential variables exist. To summarize, other variables not accounted for in this study, but already suggested to be important factors for school leaders to consider, are factors such as: the school leader's perceptions towards school culture that may reveal a test-focused or resilience-focused orientation; the extent to which the school leader advocates for, and addresses student developmental needs; the extent to which the school leader possesses an SJL orientation; the extent to which the school leader utilizes a systems-based approach to school reform; the extent to which the school leader attributes school culture as a component of school reform; or the extent to which the school leader believes in developing positive relationships, collaboration, and community within the school. Although not included as variables explored in this investigation, research and educational theory suggests that the variables listed above are important to the decision-making of a school leader and are related to student achievement outcomes (Bosworth & Earthman, 2002; Deal & Peterson, 2009; Fullan, 2000; Muhammed, 2009; Ravitch, 2010; Theoharis, 2009; Wagner et al., 2006; Zhao, 2009).

School Connectedness Obstacles

Research suggests that levels of school connectedness and levels of student achievement decline with each subsequent year of secondary school (Whitlock, 2006). School leaders continue to provide programs intended to remediate students performing below grade-level standards and to improve student learning outcomes. Despite attempts to improve the performance and learning of all students to address the well-documented achievement gap, the gap persists.

It may be important to note the effect of the intervention programs and its relationship to student perceptions. For example, are the programs that are meant to support students perceived as they are intended? Does increased time-on-task in a subject area that the student is already struggling with produce the intended outcome of student achievement, or does it produce unintended consequences? Do students perceive being supported or stifled; assisted or stigmatized; nurtured or suffocated; grouped by ability or segregated? Do students receive a qualitatively different instructional program when offered support classes, or do they get more of the same workbooks and exercises that they have already tackled with little success? Do students recognize the relevance of the subject matter with real-world applications? Do supported students sense that teachers and schools have low expectations of them? Focus groups and student forums meant to seek answers to these questions may help to direct school culture and school improvement efforts. Rarely, however, are students asked for substantive feedback in regards to their educational program (Hatchman & Rolland, 2001; Mitra, 2009; Whitlock, 2006).

Recommendations for Future Research

This study is limited to the examination of only two constructs: the measurements of the CHKS survey and its resilience model and the student achievement measure of school API. An attempt to triangulate the study's findings with a qualitative exploration to add convergent reliability may have been employed. For example, an intensely concentrated small-scale study of schools with high and low resilience scores, high and low API scores, with varying student demographic distributions utilizing focus group

interviews and observations could supplement and enrich the findings of this investigation (Creswell, 2009).

In addition, replication of the statistical methods for children of other grade levels such as 9th and 11th grades could have been compared with this study's findings or matched to different outcome variables, such as grades or another standardized test. The use of multiple measures and experimental treatments, such as the application of a resilience-focused program, may help to explain the complexities of the study's findings, the resilience measures, school settings, and student achievement.

Altogether, given that educators are continually working to improve student outcomes, the need to explore new ways to affect change and meet the needs of diverse student populations so that all students are performing at high levels is evident. Further exploration may follow-up with the key variables shown to demonstrate a significantly strong relationship to student academic achievement, namely: school connectedness and school meaningful participation. An investigation of schools with higher reports of school connectedness and school meaningful participation would inform this study.

An examination and utilization of other measures to explore variables that positively impact student achievement would be an area of further research. Different types of measures and more data would provide more convergence reliability to explore the phenomenon of student achievement. This retrospective, descriptive study would benefit from a prospective study that includes objective measures along with behavioral measures. For example, further research may include other measures of school spirit, school culture, or number and type of course offerings in the master schedule.

Further, survey data gathered from states beyond California that are designed to measure constructs of student resilience, school connectedness, and school meaningful participation may be utilized to examine the relationship to other student achievement measures such as the Iowa's Test of Basic Skills or Texas' Assessment of Knowledge and Skills. An analysis of the data from other types of survey data and its relationship to varying student achievement measures may assist with providing normative data and evidence to corroborate, or refute, the findings of this investigation.

Future study may explore the impact of programs and reforms meant to increase student achievement. Social justice leadership suggests a promising construct for further exploration. For example, common remediation efforts seek to increase a student's instructional time in math or English as a means to increase student achievement. Close examination of the numbers and types of classes devoted to increased time on-task for students struggling with core academic areas may prove illustrative, including consideration of the way students are grouped throughout the school day. For example, are struggling students homogeneously grouped by ability level, or is school intervention incorporated within heterogeneously grouped classrooms?

In addition, further studies might explore the factors that contribute to school connectedness and meaningful school participation. Investigations may include school course offerings such as band, orchestra, art, sports programs, leadership class, and programs designed to enhance community service, weighed against schools with fewer such offerings and potentially more remediation courses that separate students by achievement.

Finally, an investigation of schools that report higher levels of school participation, school connectedness, and student achievement should be explored to discover the mechanisms that foster such outcomes. A qualitative, ethnographic approach may help reveal how schools that report higher levels of participation and connectedness are developing higher levels of student achievement through the school's treatment of students and its approach to enhancing academic outcomes.

Conclusion

To summarize, the study showed a consistently significant statistical correlation between the school meaningful participation variable and student achievement. Student internal assets variables of problem-solving, self-efficacy, empathy, and self-awareness did not demonstrate a predictive relationship to student achievement. And finally, the school connectedness variable exhibited the most powerful correlation to student achievement after all other variables were accounted for.

Improved student preparation and achievement continues to be a concern for educators and our nation. Through further empirical investigations and a gathering of diverse data points for analysis, educators will be able to make more informed decisions regarding what schools can do to improve the achievement of all students.

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Appendix A

Select-Item Survey Questions

External - School Supports Scale (Caring Relationships and High Expectations combined)

At my school, there is a teacher or some other adult ...

(1 = Not at All True, 2 = A Little True, 3 = Pretty Much True, 4 = Very Much True)

1. who really cares about me.
2. who tells me when I do a good job.
3. who notices when I'm not there.
4. who always wants me to do my best.
5. who listens to me when I have something to say.
6. who believes that I will be a success.

External - School Meaningful Participation Scale

At school...

(1 = Not at All True, 2 = A Little True, 3 = Pretty Much True, 4 = Very Much True)

7. I do interesting activities.
8. I help decide things like class activities or rules.
9. I do things that make a difference.

How true do you feel that these statements are about you personally?

(1 = Not at All True, 2 = A Little True, 3 = Pretty Much True, 4 = Very Much True)

Internal - Self-Efficacy Scale

10. I can work with someone who has different opinions than mine.
11. I can work out my problems.

12. I can do most things if I try.

13. There are many things that I do well.

Internal - Empathy Scale

14. I feel bad when someone gets their feelings hurt.

15. I try to understand what other people go through.

16. I try to understand how other people feel and think.

Internal - Problem-Solving Scale

17. When I need help, I find someone to talk with.

18. I try to work out problems by talking or writing about them.

Internal - Self-Awareness Scale

19. There is a purpose to my life.

20. I understand my moods and feelings.

21. I understand why I do what I do.

Healthy School Connectedness Scale (included in the CHKS)

How strongly do you agree or disagree with the following statements about your school?

(1 = Strongly Disagree, 2 = Disagree, 3 = Neither Disagree Nor Agree, 4 = Agree,

5 = Strongly Agree)

22. I feel close to people at this school.

23. I am happy to be at this school.

24. I feel like I am part of this school.

25. The teachers at this school treat students fairly.

26. I feel safe in my school.

Appendix B

2004 Regressions

Model Summary Without School Connectedness

R	R Square	F	df1	df2	p
.691	.477	103.2	10	1132	<.001

Coefficients Without School Connectedness

Source	B	SEM	Standardized Beta	t	P
(Constant)	516.054	38.668		13.346	<.001
supp	-74.270	15.803	-.140	-4.700	<.001
part	168.028	15.370	.331	10.932	<.001
ps	9.873	12.102	.034	.816	.415
SE	-9.939	12.074	-.043	-.823	.411
emp	-3.492	12.772	-.014	-.273	.785
aware	37.054	11.863	.142	3.124	.002
pct_aa	-2.169	.244	-.210	-8.893	<.001
pct_hi	-1.449	.174	-.326	-8.307	<.001
meals	-1.423	.146	-.317	-9.734	<.001
el	.801	.282	.107	2.838	.005

Model Summary With School Connectedness

R	R Square	F	df1	df2	P
.708	.501	103.2	11	1131	.000

Coefficients With School Connectedness

Source	B	SEM	Standardized Beta	t	P
(Constant)	451.794	38.763		11.655	<.001
supp	-136.363	17.569	-.257	-7.762	<.001
part	128.974	15.916	.254	8.104	<.001
ps	12.938	11.831	.044	1.094	.274
SE	-4.915	11.816	-.021	-.416	.677
emp	-10.013	12.509	-.040	-.800	.424
aware	32.388	11.607	.125	2.790	.005
pct_aa	-1.683	.247	-.163	-6.809	<.001
pct_hi	-1.505	.171	-.338	-8.825	<.001
meals	-1.170	.147	-.261	-7.969	<.001
el	.690	.276	.092	2.497	.013
conn	100.016	13.503	.258	7.407	<.001

Appendix C

2006 Regressions

Model Summary Without School Connectedness

R	R Square	F	df1	df2	p
.695	.483	91.2	10	976	<.001

Coefficients Without School Connectedness

Source	B	SEM	Standardized Beta	t	P
(Constant)	555.22	37.685		14.733	<.001
supp	3.050	16.319	.006	.187	.852
part	113.08	15.821	.233	7.148	<.001
ps	3.310	8.763	.016	.378	.706
SE	7.508	9.478	.044	.792	.428
emp	5.964	9.183	.035	.649	.516
aware	-20.64	8.270	-.119	-2.495	.013
pct_aa	-2.779	.250	-.277	-11.104	<.001
pct_hi	-.749	.170	-.188	-4.415	<.001
meals	-1.341	.141	-.331	-9.500	<.001
el	-.165	.278	-.024	-.593	.553

Model Summary With School Connectedness

R	R Square	F	df1	df2	P
0.730	.532	100.839	11.0	975	<.001

Coefficients With School Connectedness

Source	B	SEM	Standardized Beta	t	P
(Constant)	479.54	36.639		13.088	<.001
supp	-90.794	18.090	-.180	-5.019	<.001
part	49.421	16.319	.102	3.028	.003
ps	1.580	8.342	.008	.189	.850
SE	14.136	9.045	.083	1.563	.118
emp	3.041	8.745	.018	.348	.728
aware	-23.55	7.876	-.136	-2.990	.003
pct_aa	-1.918	.253	-.191	-7.584	<.001
pct_hi	-.843	.162	-.211	-5.217	<.001
meals	-1.122	.136	-.277	-8.245	<.001
el	.043	.265	.006	.162	.871
conn	142.64	14.096	.404	10.119	<.001

Appendix D

2008 Regressions

Model Summary Without School Connectedness

R	R Square	F	df1	df2	p
.719	.518	88.5	10	825	<.001

Coefficients Without School Connectedness

Source	B	SEM	Standardized Beta	t	P
(Constant)	471.03	48.455		9.721	<.001
supp	-2.662	20.904	-.004	-.127	.899
part	146.05	19.246	.267	7.589	<.001
ps	27.027	12.194	.136	2.216	.027
SE	-35.977	11.791	-.224	-3.051	.002
emp	37.382	12.834	.226	2.913	.004
aware	-13.03	10.448	-.078	-1.247	.213
pct_aa	-2.769	.284	-.265	-9.742	<.001
pct_hi	-1.065	.179	-.258	-5.938	<.001
meals	-1.032	.162	-.256	-6.387	<.001
el	.103	.302	.014	.342	.732

Model Summary With School Connectedness

R	R Square	F	df1	df2	P
0.758	.575	101.472	11.0	824	<.001

Coefficients With School Connectedness

Source	B	SEM	Standardized Beta	t	P
(Constant)	416.34	45.786		9.093	<.001
supp	-142.42	23.658	-.236	-6.020	<.001
part	84.076	18.996	.154	4.426	<.001
ps	25.373	11.450	.128	2.216	.027
SE	-31.29	11.079	-.195	-2.824	.005
emp	29.29	12.073	.177	2.426	.015
aware	-11.78	9.810	-.070	-1.201	.230
pct_aa	-2.126	.274	-.203	-7.765	<.001
pct_hi	-1.118	.168	-.271	-6.637	<.001
meals	-.710	.155	-.176	-4.589	<.001
el	.064	.284	.009	.225	.822
conn	172.98	16.351	.440	10.579	<.001