Pathways to dropping out: A snapshot at sixth grade using structural equation modeling

Allan Lee Aab

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PATHWAYS TO DROPPING OUT: A SNAPSHOT AT SIXTH
GRADE USING STRUCTURAL EQUATION MODELING

A Dissertation
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education
in
Educational Leadership

by
Allan Lee Aab
June 2011
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6-10-11
ABSTRACT

Current research and statistics reveal a disturbing fact, minority students are dropping out at disproportionate rates (Barton, 2005). For many, the decision to drop out of high school is gradual and is an accumulation of negative school-life experiences (Alexander, Entwisle, & Kabbani, 2001). Clearly, dropping out of school is a problem for society as those who dropout are highly more likely to be unemployed (Drapela, 2006) and are highly more likely to demonstrate maladaptive behavior such as engaging in criminal activity, gang violence, and drug use (Sweeten, Bushway, & Paternoster, 2009).

A plethora of research has examined the dropout issue, but commonly does so in a fashion that does not integrate individual, social and institutional constructs (social characteristics, socioeconomic status, student wellness, literacy, achievement, and behavior) shown to relate to dropping out (Alexander et al., 2001; Battin-Pearson et al., 2000; Carpenter & Ramirez, 2007; Rumberger, 1995; Suh, Suh Houston, 2007). Little can be understood about what schools can do to prevent student dropout when an inclusive approach during a critical transition period is not used to examine the issue.
As a result, this present study, utilizing data from sixth grade student records, explores pathways to dropping out in a proactive fashion such that the results of the study can shed light on programs of practice that might prevent students from dropping out. The purpose of this study is to utilize structural equation modeling to examine student dropout pathways among a diverse minority student population during a critical sixth grade transition. This model documents the interactions of social characteristics and student wellness, literacy, achievement, and behavior. This study found support for student wellness as a potential tool for reducing student dropout rates. Additionally, a potentially critical methodological requirement for future student wellness research was uncovered.

What follows is an introduction to the problem, research questions, and purpose of the study, definitions of the constructs used in the study with an explanation as to why they were used. The literature review includes the theoretical lenses that guide the study and how that links to the constructs used to explore the pathways to dropping out. Results and discussion, limitations and implications for future research are also outlined.
ACKNOWLEDGEMENTS

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Dr. Dan Reed, you made the gathering of my data painless; all of the middle school students, teachers, and principals who participated in the study; my current and former colleagues - Lisa, Stacy, Jose, Cris, Brad, Denise, Phil, Laura, Mike, Gayle, Vickie, Connie, and Marisol; my current and former "wacky" high school students - you keep me young! To all of the adult soccer league players I referee - you provided a physical outlet. To Brad for helping me learn Excel; to Dr. Marita Mahoney for the poster sessions and helping me learn SPSS, and to my fiancée Arlene for editing all of my papers. Each and every one of you has contributed to the successful completion of this awesome journey. THANK-YOU!
DEDICATION

This study is dedicated to a few people starting with my parents, who cultivated wellness in all of their children. Even though I dropped out of high school at age 17, their development of wellness within me is the foundation of everything I have and will accomplish.

I also wish to dedicate this research to my three important educational influencers. First, my high school football coach Richard Hamilton who instilled my drive and discipline; second, my first college chemistry professor, Dr. Michael Americh who initiated my enthusiasm for learning; third, my current committee member, mentor, friend, inspiration, and lighter of the fuse that started this journey, Dr. Randall Wright whose communication class changed me forever.

Lastly, I would like to dedicate this study to my friends and family: to all of my close friends, who still are my friends even though I always seemed to fall asleep when we got together; to my dear friend JJ. To my children, who I hope see me as a role model and always strive to achieve their dream. Lastly, to my fiancée, Arlene who is the epitome of someone who nurtures wellness in everyone.
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The following prominent constructs, social characteristics, wellness, literacy, achievement, and behavior are explored in an integrated fashion using structural equation modeling. Literacy (Hinshaw, 1992) and wellness (Hollingsworth, 2009; Lemon, 2010) have been found to relate to student achievement and at-risk indicators throughout the literature, so it is important to include these variables as possible mediators of achievement.

In this study, macro-level processes and interpretation of results will be viewed through the lens of Critical Race Theory. Student wellness, operationalized as a combination of connectedness, conscientiousness, self-efficacy, and parental involvement, will be utilized to shed light on the role that “social reproduction” (Bourdieu & Passeron, 2000) and “power and resistance” (Foucault, 1975) play toward opening up the pathway for dropping out. Such lenses provide explanation as to why minority students (or students not reflected in dominant society) are often at the peripheral of the school experience.
As a result, it is critical to explore the pathways through these lenses. Understanding the problem from the perspective of individual characteristics such as minority status and/or student behavior does little to shed light on the role of the institution.

Background

Research has revealed a disturbing fact: many students are on pathways that will result in dropping out before graduating from high school (Barton, 2005). For many students, the decision to drop out of high school is gradual and is an accumulation of negative school life experiences (Alexander et al., 2001). A student’s school life experience is shaped and molded by the interactions that occur with both people and institutional structures. This dynamic could be thought of as a push-pull, a force, influence, or situation that creates an environment which results in taking a specific action. This study will explore push-pull forces, influences, or situations that open up pathways for dropping out of school.

Research has shown that critical periods where these pathways exert themselves the most are during the transition from elementary, middle, and high school (Chung,
Elias, & Schneider, 1998; Theriot & Dupper, 2010). The progression through school, elementary, middle, and high school increases the demands and expectations placed on students (Alspaugh, 1998; Cantin & Boivin, 2004). Increases in student discipline issues—defiance of authority, being habitually unprepared for class, and fighting—have been associated with transition from elementary to middle and high school (Theriot & Dupper, 2010; McIntosh, Flannery, Sugai, Braun, & Cochrane, 2008). Consequently, it is critical to understand this contextual shift in the facets of a student's school-life experience.

In addition to push-pull forces during critical transition periods, a student's pathway through school-life experiences has related facets that include social characteristics, student wellness, behavior, and academic achievement. The this study, social characteristics are described and measured as a combination of socioeconomic status (SES), ethnicity, parental education, and home resources; student wellness is described and measured as self-efficacy, connectedness, conscientiousness, and parental involvement; student behavior is described and measured as office referrals, suspensions, attendance; and
academic achievement is described and measured as results on standardized test scores.

Conceptual Framework

The intertwined facets of a student’s pathway through school-life experiences will be viewed through the lens of Critical Race Theory (CRT), power, resistance, and social reproduction. These lenses will highlight some of the apparent, persistent, and continuing inequalities that exist in the educational system. A consequence can be the channeling of students toward a pathway of negative school-life experiences.

The foundational assumption of CRT is that laws, policies, power and racism are directly related and are evident in the social structures of education (Delgado, 2001). One result is institutional racism (Gillborn, 2001). Demographics affected by this apparent racism and impacting student success include socioeconomic status (SES), parental education levels, and ethnicity (Ekstrom, Goertz, Pollack, & Rock, 1986; Alexander et al, 2001; Sirin, 2005). This "built-in" racism also influences allocation of educational resources (Roscigno, Tomaskovic-Devey & Crowley, 2006), testing (Gee, 2003), retention
(Bali, Anagnostopoulos & Roberts, 2005), tracking (Oakes & Guiton, 1995), curriculum and instruction (Anyon, 1981), and discipline (Alexander et al, 2001). The institutionalization of policies and procedures that hinder opportunities, or help create barriers for student success can contribute to an accumulation of negative school-life experiences.

The previously mentioned examples are macrolevel processes, which include system-wide policy and procedures. Legislators, policy-makers, and administrators of the public educational system must address these system-wide issues. On the other hand, microlevel processes involve day-to-day interactions that occur between students, their families and peers, and staff members that comprise the population of an educational system. Most importantly, any individual staff member within the educational system can influence microlevel processes.

The lens of power and resistance (Foucault, 1975) and Bourdieu’s social reproduction (as cited in Nash, 1990) and situated within the educational system in the United States (Bowles & Gintis, 2002) provides insight into the perpetuation of racial barriers within the educational system. The accumulation of interactions that students
have with policies, procedures, and the staff that enforce them, will be spotlighted by the microlevel processes of literacy, student wellness, achievement, and behavior.

Constructs

For this study, student wellness is a combination of connectedness, self-efficacy, conscientiousness, and parental involvement. Connectedness is a student’s sense of belonging to and acceptance by his or her family, peers, teachers, school, and community (Libbey, 2004). Self-efficacy is defined as one’s ability to perform a task (Bandura, 1977). Order, competence, achievement striving, self-discipline, and deliberate actions are the components of conscientiousness (McCrae and John, 1992). Epstein (1986) categorized parental involvement as student learning, support at home, voluntary school activities, communications with school, involvement in school governance, and advocacy.

Student behavior can be the consequence of the accumulation of positive and negative school life experiences. These behaviors will be examined using student's discipline records of office referrals total days suspended, and school attendance.
Achievement is partly dependent upon students' ability to understand and comprehend text. Literacy is defined as "using printed and written information to function in society, to achieve one's goals and to develop one's knowledge and potential" (National Center for Education Statistics, 2003). Socioeconomic status has been shown to significantly impact literacy (Walker, Greenwood, Hart, & Carta, 1994). Conversely, literacy effects on discipline have also been documented (Anderson, Howard, & Graham, 2007; McIntosh, Chard, Boland, & Horner, 2006; McIntosh, Flannery et al., 2008). For the purpose of this study, student achievement will be based on Scholastic Reading Inventory scores, and results from California Standards tests in English language arts and math.

Statement of the Problem

Dropping out of school can have significant impacts on life outcomes. Higher education levels have been correlated with lower levels of crime (Lochner & Moretti, 2002), higher income and better health (Winkleby, Jatulis, Frank, & Fortmarm, 1992), and increased levels of life satisfaction (Pinquart & Sorensen, 2000). The decision to drop out is generally gradual and is an accumulation of
negative school life experiences (Alexander et al., 2001). Although negative school life experiences might be, in part, because of biased educational policies and procedures, individuals within the educational system can help mitigate these effects.

Many researchers have documented the correlates for dropping out of school (Allensworth, 2005; Battin-Pearson et al., 2000; Christie, Nelson, & Jolivette, 2004; Rumberger, 1995). Other investigators have reported the effects of literacy on student academic achievement, behavior and attendance (Hinshaw, 1992; Maughan, Pickles, Hagrl1, Rutter, & Yule, 1996; Trzesniewski, Moffitt, Caspi, Taylor, & Maughan, 2006). Other authors have reported the connections between engagement (Fredricks, Blumenfeld, & Paris, 2004), parental involvement (Fan & Chen, 2001; Hill & Tyson, 2009; Strom & Boster, 2007), and student behavior (Alspaugh, 1998; Edl, Jones, Estell, 2008; Ferguson, 2002) on student achievement. Primarily these investigations have focused on explanations based on a deficit model of psychopathology.

Increasingly, however, a paradigm shift is occurring, from one of deficits and pathology to one of strengths, life satisfaction and student wellness (Hollingsworth,
Seligman and Csikszentmihalyi (2000) introduced positive psychology and its three encompassing themes: positive experience and personality, and the social context of people and their experiences. Authors have suggested promoting positive characteristics (Martens & Witt, 2004), building strengths (Huebner & Gilman, 2003), and promoting positive daily experiences (Gilman & Huebner, 2003) which could help prevent early school failure.

Gilman and Huebner (2003) comprehensively reviewed the academic literature concerning life satisfaction in children and adolescents and concluded that life satisfaction evolves over time. They also encouraged further study to differentiate the structure and content of this construct. A review of academic correlates of children and adolescents' life satisfaction was published by Suldo, Riley, and Shaffer (2006). Their assessment concluded that school satisfaction, teacher support, intelligence, academic achievement, and perceived academic competence were all important indicators of a student's perception of their well-being. A search of the academic literature found no studies that simultaneously investigated the relationships between social characteristics (parental education level, participation in
free or reduced lunch program, and home resources) and student wellness, literacy and student discipline behaviors and academic achievement. Consequently, the simultaneous push-pull of these different forces is unknown.

Purpose of the Study

There is a need for more research that sheds light on the role of schools towards building positive experiences using a positive psychology framework. Therefore, the purpose of this research is to identify the matrix of pathways, using structural equation modeling, in a manner that utilizes wellness as part of the pathway analysis toward a student’s decision to drop out of high school. Much research has been conducted concerning individual correlates associated with dropping out of school. Further, prior research on high school dropouts has primarily focused on a deficit model: the student is the problem. The educational system cannot impact or change many of these influences such as poverty, ethnicity, or parental education. This deficient model helps reinforce the feeling of hopelessness that many individuals—teachers, staff, and administrators—within the educational
community have. They believe they have little impact on the outcomes of students.

However, these paradigmatic orientations have started to shift towards a more positive model. The concept of protective factors or student wellness, common in the field of Psychology, is becoming associated with student behavior and dropout. Therefore, identification of the magnitude each pathway that push-pull a student towards dropping out must be identified. An educational application would be identification of risk and protective factors that yield differentiated assessment and treatment plans. This could result in targeted interventions that promote factors aligned with student wellness. The research questions that guided this study are:

Research Questions

1. What impact does student wellness, as defined in this study, have on literacy?

2. How does literacy impact student behavior and achievement?

3. What effect do social characteristics have on student wellness and literacy?

4. What effect does gender have on student behavior and achievement?
Hypothesis

1. Social characteristics are positively correlated to student wellness, behavior and achievement.
2. Gender is positively correlated to student behavior and achievement.
3. Literacy is negatively correlated to student behavior and positively correlated to student achievement.
4. Minority status is associated with negative student behaviors and lower student achievement.
5. Student wellness is positively correlated to literacy.

Definition of Key Terms

The following section will define the operational terms used in this study.

Attendance - total number of days absent from school.

Behavioral engagement - operationally defined as self-efficacy.

Cognitive engagement - operationally defined as conscientiousness.

Connectedness - sense of belonging and being valued.
Consciousness - willingness to take responsibility for personal actions.

Emotional engagement - operationally defined as connectedness.

Literacy: The ability to read and comprehend written material as measured by Scholastic Reading Inventory Lexile score.

Office referral: Any infraction of school rules as written and coded by school personnel.

Push-Pull: Forces/influences/situations that push or pull a student towards a specific action.

Self-efficacy - perception of a personal ability to perform a task.

SES: Socioeconomic status and measured by participation in free or reduced lunch.

Social characteristics: Comprised of ethnicity, SES, home resources, and parental education level.

SRIS: Scholastic Reading Inventory score.

Student achievement: Measured by California Standards Test in English language arts (ELA) and math.

Student behavior: Comprised of attendance, office referrals, and number of days suspended.
Student wellness: Comprised of connectedness, self-efficacy, conscientiousness, and parental involvement.

Suspension: Total number of days suspended from school for infraction of a school rule.

Summary

The number of students who drop out of school is a serious problem in the United States. It impacts both the student and society. The decision to drop out is generally gradual and can occur because of an accumulation of negative school life experiences. The transition from a small-school and more personal setting (elementary) to a larger and more impersonal setting (middle and high school) can compound these negative feelings. Understanding the interrelated facets of a student's school life experience could allow for more targeted interventions so that the push-pull towards pathways to dropping out of school can be disrupted.
CHAPTER TWO
LITERATURE REVIEW

Students are increasingly making the decision to drop out of school (Educational Testing Service, 2005). The accumulation of negative school life experiences contributes to this decision (Alexander et al., 2001). Research has documented a multitude of factors that can impact student wellness and school life experiences: social, behavioral, and academic. What are the forces—both internal and external—that create pathways which help contour, mold and shape someone who then might make a decision to drop out? This chapter will explore the correlates of dropping out: the theoretical framework will be Critical Race Theory (CRT), power, resistance, and social reproduction. These influences will be examined at both the macro and micro level processes. The macrolevel processes consist of the policy and procedural aspects of the educational system. The microlevel processes are the day-today interactions students have with peers, parents and members of the educational system that make-up their school-life experiences. Then, the facets of student wellness will be conceptualized and analyzed to assess its
impact on literacy. Finally, literacy and its relationship to student behavior and academic achievement will be appraised.

Theoretical Framework

The theoretical framework used in this study will construct a foundation supporting the interconnected nature of the internal and external forces that can influence student experiences that can result in a decision to drop out of school. A Critical Race Theory (CRT) lens will help analyze the inequities at the individual, structural, and institutional level. The power, resistance, and social reproduction lens will support the explanation of the apparent, and the not so apparent, persistent and continuing inequalities that exist in the American public educational system. A consequence can be the channeling of students toward a pathway that can lead to dropping out of school.

Critical Race Theory

CRT arose from the Critical Legal Studies (CLS) in the early 1980’s and is based on Marxian and Gramscian critiques of social order (Lynn & Parker, 2006). CRT was initially derived from legal theory concerning “whiteness
as property." This concept posits that racial identity and property are connected concepts; is acknowledged and protected within the American judicial system and results in societal benefits being allocated based on racial identity (Harris, 1993). A basic assumption of CRT is that laws, policies, power and racism are directly related and are evident in the social structures of education and the justice systems (Delgado, 2001). The framework of CRT, as articulated by Matsuda, Lawrence, Delgado, & Crenshaw (1993), consists of these six tenets:

1. Recognizes that racism is endemic to American life.
2. Expresses skepticism towards dominant legal claims of neutrality, objectivity, colorblindness and meritocracy.
3. Challenges ahistoricism, and insists on a contextual and historical analysis of the law.
4. Insists on recognition of the experiential knowledge of people of color and our communities of origin in analyzing law and society.
5. Is interdisciplinary.
6. Works towards the end of eliminating racial oppression as part of the broader goal of ending all forms of oppression. (p. 6)
Lynn and Parker’s (2006) review of research literature on Critical Race Theory identified a second generation of scholars who have extended the original “strictly legal” focus of African-American-White relationship into additional legal areas. These other lines of critique have included gender, language culture, sexuality as well as other “markers” of difference. An illustration of this is Latino Critical Theory which advocates the use of CRT as a lens to look at other aspects of race and the law. For example, Lopez (2003) articulated how language and national origin are used to disenfranchise Latinos. Concurrently, Critical Race Feminism utilizes the framework of CRT to view women of color and the law (Wing, 1999). A final example is Critical Asian American Legal Studies which uses CRT discourses to reveal how the law has both benefited and harmed Asian Americans: deeming them “honorary whites” or how it was used against them—interning them during WWII or current immigration policy (Chang, 1993).

Critical Race Theory and Educational Research

CRT gained importance in educational research and was used as an analytical framework to examine various inequities that persisted in education. Giroux (1983), Freire (1970), McLaren (1989), Greene (1986), and Bartolome
(1994) viewed critical pedagogy under the lens of CRT. Fine (1991) looked at urban dropouts from the perspective of CRT that revealed how dropouts experienced inequities that helped shape their decision to drop out of school. Weiler (1987) reviewed aspects of gender, whereas Fine (1988) and Unks (1999) researched student sexuality using the mantle of CRT. Hooks (1990) wrote concerning sex, racism and education. Literacy and language was examined by Delpit (1992). McLaren (1998) explored the interaction of education, politics and the economy using CRT and argued that education was becoming commercialized. Darder & Torres (1999) revealed how race impacts educational opportunities. Ladson-Billings (1999) articulated the effect of race on teacher pre-service beliefs. These individual examples demonstrate how the theory of CRT has been utilized in educational research.

Tate (1997) comprehensively reviewed CRT historically as well as theoretically and connected the law and educational research of the "other." He aptly explained:

Both educational research and the law have often characterized "raced" people as intellectually inferior and raised doubts about the benefit of equitable social investment in education and other social services.
This paradigmatic kinship built on conceptions of inferiority suggests the need for a theory that explicates the role of race in education and the law (p.202). Part of Tate's analysis reviewed educational research and its connection to the legal structure; he concluded that educational research and various legal structures support existing belief systems, legitimizing social frameworks and policies which results in educational inequalities for people of color. CRT originated from the civil rights movement of the 1960s and has always had both academic and social change as its goals. Tate's analysis firmly connected CRT to educational theory and research.

However, manifestation of these exposed inequalities occurs in the everyday practices of the educational institution. The procedures and processes of the day-to-day operations within the educational institution are directed and imposed by educational policies.

**Critical Race Theory and Educational Policy**

CRT has also been used to examine educational policy in the United States. Tate, Ladson-Billings, & Grant (1993) used critical race analysis to review national assessments in mathematics. They explored the hidden costs of Brown v. Board of Education and concluded that it left
school districts free to implement educational programs that did not address the needs of African-American students. Additionally, these authors maintained that student diversity, curriculum and instruction, and parental involvement needed to be addressed. Tate (1995) also examined African-American student's opportunities in mathematics and argued that instruction, culture and policies must be taken into account before standards can be successfully implemented.

Gillborn (2005) analyzed educational reforms in the United Kingdom using CRT, and described how accepted White privilege is the greatest roadblock to reform. In the United States, Yosso (2002) reviewed curriculum structures, processes and discourses and their negative impact on Chicano students. Additionally, Morris (2001) analyzed a court imposed 16-year desegregation plan in St. Louis that omitted African-American educators' voices in its implementation. The conclusion was this plan protected White interests, and suggested that courts and policy makers need to listen to African-American educators when implementing educational policies designed to improve the education of African-American students.
Policies that produce and perpetuate inequities can begin to channel students towards the pathways of dropping out of school. The relationship of CRT and dropping out is explored in the next section.

Critical Race Theory and Dropping Out

As has been shown by the previous examples, CRT has a strong connection to education policy and research. Application of CRT to students at-risk for dropping out can also be documented. Stanard (2003) reviewed dropout rates by ethnicity, showing that Latinos (48%) and African-Americans (46%) dropout at much higher rates when compared to Whites (22%). Additionally, students at-risk for the pathway of dropping out have been shown to exhibit the following characteristics: low socioeconomic status (SES), anti-social behavior, history of high-risk behavior, family conflict, school failure, low commitment to education, school mobility, association with delinquent peers and, low skill levels in vocabulary, reading and comprehension (Alexander et al, 2001; Goldschmidt & Wang, 1999; Haynie, South & Bose, 2006; Lee & Burkam, 2003; McNeely, Nonnemaker & Blum, 2002; Welsh, Park, Widaman, & O’Neil, 2001).

This research clearly demonstrates that CRT can be beneficial in analyzing the many factors and
characteristics that have been correlated with dropping out. However, day-to-day practices exert also influence on a student's perception and decisions. The theoretical mechanisms of these forces will be considered in the next section.

**Power, Social Reproduction, and Resistance**

Before looking at the influences on dropping out through the "lens" of power, resistance and social reproduction, a possible conflict between theoretical lenses needs to be addressed. CRT is grounded in the Marxist tradition of agency, or a person's capacity to act independently. An individual has the power to act on their own behalf. On the other hand, Foucault conceived power as social or psychological; he believed that power was in "techniques and procedures for directing human nature" (as cited in Gillies, 2008, p. 416). Foucault used the term "governmentality" in a very broad sense. Besides the political sense, Foucault also included self-control, guidance of family or children, and direction of the household or soul (Lemke, 2000). Pearce and Tombs (1998) articulated a connection between Foucault, governmentality, and Marxism and stated that "issues would best be attended to through a creative synthesis of aspects of Foucault’s
work and ongoing work in the Althusserian tradition" (p. 572). Althusser (1971) believed that "ideology represents the imaginary relationship of individuals to their real conditions of existence" (p.163). As opposed to Darwin and his theory of natural selection, Marx believed that human beings create their own history. Foucault said "I believe in the freedom of people. To the same situation, people react in very different ways" (as cited in Gordon, 1999).

The basic assumptions of power as advocated by Foucault are: (a) power is pervasive: (b) power is always connected to resistance: (c) power operates through disciplinary practices or techniques that give rise to self-surveillance, and (d) power is productive (good and bad), not repressive (Foucault, 1975). A basic underlying assumption of power is that it is normal and a part of everyday life; everyone in their daily encounters is constantly negotiating power. School discipline is an example of institutional power and "succeeded in making children's bodies the object of highly complex systems of manipulation and conditioning" (p. 125). This conditioning impacts student’s everyday behavior.

Associated with power is the concept of social reproduction, either culturally or economically.
Bourdieu’s concept of *habitus*, the basis for cultural reproduction, encompasses the formal and informal customs, rules, and morals of a society (Bourdieu & Passeron, 2000). The mediation principles of *habitus* are threefold: collective, dispositional, and manifest. Collective is the unifying cultural code that individuals within the society experience; dispositional is the internalization by that individual of the code; and manifest is the actual practice of the code (Nash, 1990). Economic reproduction focuses on school curricula and classroom procedures as an ethnically-stratified system that rations knowledge and develops skills based on blue-collar occupations or middle-class professions (Bowles & Gintis, 1976).

However, for Foucault, the “mirror image” to power is resistance. “There are no relations of power without resistance” (Foucault, 1972, p. 142). Resistance can be expressed in a variety of ways, including silence, subtlety, or general noncompliance. Resistance theories are drawn from an understanding that culture is complex and the relationship between schools and the dominant society is just as complex (McLaren, 1989). An important assumption of resistance theory is that an individual has agency, the ability to act on his or her own behalf.
Therefore, one of the most important tenets of resistance theory is that students are not merely mindless products that are manufactured by schools, but rather active participants within the social fabric of schools (Giroux, 2006).

This active participation was empirically shown by Willis (1977) and Fine (1991) in their studies; formations of social groups by students are created around and influenced by specific values, cultural experiences, class, gender and racial relations. The studies by Willis and Fine also highlight how student’s self-identity is a process that is influenced by the educational structure of which they are a part and can result in formation of cultural politics. Fine (1991) found that students who dropped out were critically and politically astute students:

The dropout was an adolescent who scored as psychologically healthy. Critical of social and economic injustice, this student was willing to challenge an unfair grade and unwilling to conform mindlessly. In contrast, the student who remained in school was relatively depressed. Self-blaming, this student was more teacher dependent, unwilling to
challenge a misgrade, and endlessly willing to
conform. (p.4) Students could remain in school, refuse to resist and just
tacitly accept the situations they encounter, or dropout.

Unfortunately, some societal elements of dropping out
- poverty or family issues—cannot be effectively addressed
by the educational system. However, these issues can
influence the educational system and need to be examined to
see how they might mediate a student’s decision to drop
out. These influences will be explored in the following
section.

Influences on Dropping Out

Demographics

In 2008, the United States Census Bureau estimated the
United States population at just over 304 million people,
with 82.6 million (27% of total) under the age of 19.
Females (50.6%) and males (49.4%) mirrored the general
population. The ethnicity of the under 19 population was
White (57.3%), Hispanic (21.5%), African-American (15.4%),
Asian (4.2%), Native American (1.3%), and Pacific Islander
(0.2%). The total households in the United States included
almost 117 million; White (75.7%), African-American
(11.8%), and Hispanic (10.8%) represented the majority. The primary language spoken in the household was English (80.3%) then Spanish (12.3%), with no other language greater than one percent. The National Poverty Center (2009) reported that although children represent approximately 25% of the population, they represent 35% of the poor population; this rate varies substantially across ethnicities. African-American (33.9%), Hispanic (30.6%), Asian (13.3%), and White (10.6) represented the majority of children living in poverty. Poverty rates for households headed by single women (29.9%) and men (16.9%), particularly African-American or Hispanic, are substantially higher than for married-couples (5.8%).

The impact of poverty on educational outcomes for students is well documented. The issue of socioeconomic status and its connection to poverty will be reviewed in the following section.

**Socioeconomic Status**

Socioeconomic status (SES) has been widely used as a contextual variable in educational research. Sirin (2005) reported that SES can be described around four unique measures: parental income, education, occupation, and
household resources; he also described how SES, as a variable, has changed over the years.

The most common explanation historically is that lower educational achievement has been strongly influenced by family background. Coleman et al., (1966) articulated how cultural capital differed by economic status. Bowles & Gintis (2003) postulated how educational curriculum was structured around social class. Ekstrom et al., (1986) reported that students from single-parent households had higher dropout rates than two-parent households. Alexander et al., (2001), documented that students in the lower SES quartile (60%) versus students (15%) in the upper SES quartile left school without graduating.

Sirin (2005) meta-analytical review documented the average Effect Sizes (ES) for home resources (0.51), free or reduced lunch programs (0.33), parental education (0.30), parental income (0.29), and parental occupation (0.28) indicating the impact SES has on student achievement. His primary conclusion was that a parents' position in the socioeconomic structure can broadly impact a student's academic performance. SES mediated directly or indirectly, the availability of home resources, school locations and classroom environments, as well as the
quality of relationships developed between school, student, and parent. Unfortunately, the educational system cannot change a parent or student’s demographic factors; however, there are influences within the system that need to be examined to determine how they might push-pull a student towards the pathway of dropping out.

Macrolevel Evaluative Processes

Institutional Racism

Viewing the institutional influences on dropping out through the lens of CRT, power, and resistance, a picture of social injustice begins to emerge. Institutionalism is an organized pattern of action (Zucker, 1987). Prins (2007) showed that inter-district transfers of Latino students was a form of institutional racism, and Warren (2007) reviewed the educational experience of immigrants to England which revealed a British educational system that is institutionally racist. Gillborn’s (2005) analysis concluded that the “taken-for-granted” routine privilege of White interests is the most dangerous form of institutional racism. Gillborn (2001) also conceptualizes a “color-blind approach” as a form of denial of race that undermines critical examination of racism, its processes, and in turn,
strategies to counteract its destructive practices. Color-blindness refers to equal treatment for all individuals regardless of color or race; equal justice to rights and opportunities should not hinge on skin color and racial differences (Cose, 1997). The following topics will illustrate how the inequalities in educational attainment and learning opportunities have apparently become institutionalized and could contribute to the creation of pathways for dropping out.

Resources

The allocation of resources is a way that the inequity of social justice can be highlighted. Toutkoushian and Michael (2008) analyzed Indiana’s school financing program and determined that these provisions increased both horizontal and vertical inequity in funding. In the same vein, Alemán (2007) analyzed Texas Education Code that utilizes local property taxes, as all states do, as the base for school financing. This study indicated that majority-Mexican American school districts received less funding under Texas school finance policy. Likewise, Roscigno et al. (2006) used the National Educational Longitudinal Survey to compare funding between inner-city, rural and suburban schools. They found that families and
schools within the inner cities and rural areas lack many of the resources that promote educational achievement and attainment. Additionally, Condron & Roscigno (2003) reviewed spending within an urban school district; this study revealed considerable disparity in monies spent and appeared to be corresponding to racial and class composition of the particular school. A specific consequence of this imbalance of funding is the availability of technology, which was disproportionately low for schools with high minority students (Oakes, Ormseth, Bell, & Camp, 1990).

Litigation involving the procedures for allocating resources has occurred in 44 of 50 states (Rebell, 2002). When this litigation was reviewed by Glenn (2006) to see if these lawsuits have helped to narrow the African-American-White achievement gap, only minimal effects were observed.

Testing

Gee (2003) articulated the overarching argument that an evaluative assessment is invalid and unjust if the people being assessed have not had equivalent opportunities to learn. The No Child Left Behind Act (NCLB, 2001) has resulted in most states implementing some form of high-stakes testing; many states now require that students pass
some type of high school exit exam. Siegel (2004) outlined an assortment of reasons that are given for the practice of high stakes testing including examination and monitoring of student performance and measurement of teacher and school effectiveness and accountability. His argument was that while some testing is needed, high-stakes testing is largely detrimental to a fundamental aim of education — development of critical thinkers.

Yet high-stakes testing continues, and as a consequence there has been an increase in high school dropout rates (Amrein, & Berliner, 2003). Helms (2008) reviewed how common practices in assessment using the same objective standard could cause disadvantages to students of color when compared to White students. Kellow & Jones (2008) examined how stereotype threat could negatively impact African-American student’s achievement. Stereotype threat is a phenomenon where a student belonging to a stigmatized group believes that taking a test and failing would confirm a negative stereotype of that group. These authors express that certain environmental and cognitive factors connected with high-stakes testing may serve to undermine the performance of African-American students.
Bunch & Panayotova (2008) evaluated language assessments and policies, utilized for community college placement decisions. The term Generation 1.5 defines language minority students as a cross somewhere between first and second generation immigrants. The characteristics for this group are linguistic, socio-cultural, and educational backgrounds fluent in spoken English, yet having deficiencies in grammar and pronunciation similar to English Language Learners (ELL) students. These authors found that the placement tests were not accurately evaluating the needs of these ELL students.

Retention

The literature on social promotion or grade retention is very contentious due to the conflicting data and the impact on a narrow segment of population. Martin (2009) analyzed high school level data and suggested that being retained provided little or no motivation, engagement, or performance advantages. On the other hand, Wu, West & Hughes (2008) showed that retention could be either detrimental or beneficial depending on age and grade at which retention occurred. Fine and Davis (2003) found that students who have been retained are less likely to enroll
in post-secondary education. Additionally, retention has been shown to be a strong predictor for dropping out of school (Allensworth, 2005; Goldschmidt & Wang, 1999). Furthermore, students of color, African-American, Hispanic, Native American, have been retained at a higher rate than White students (Bali et al., 2005). Gottfredson, Fink & Graham, (1994) documented a clear association between being "held back" and later adolescent problem behaviors.

**Tracking**

Ability grouping has been scrutinized since the 1970's (Alexander, Cook, & McDill, 1978; Alexander & Eckland, 1975). Students have been unequally distributed among tracks. Low-income and students of color have been placed on low ability, vocational tracks whereas, White and high socioeconomic students are tracked towards college (Oakes & Guiton, 1995). English language learners (ELL) have also been tracked towards low-ability curricular pathways (Callahan, 2005).

The persistent and ingrained nature of tracking is exemplified using the 1998 San Diego Unified School District implementation of a district-wide school achievement-gap reducing reform effort called Genre Studies. The process of implementation was clear, open and
transparent and included all stakeholders - parents, teachers, policy makers and administration. Their stated concerns were addressed; and yet the overall results were mixed. There appeared to be some persistent effects of ethnicity and home language in determining student placement; school-wide effects showed that students in high poverty schools are more likely to be placed in these Genre Studies. These findings suggest that some of the patterns associated with tracking systems are still at work (Powers & Chapman, 2007).

Special Education

Unfortunately, like in tracking and retention, minorities, in particular African-American, are overrepresented within special education (MacMillan & Reschly, 1998). Special education, broadly defined, is a way to address the educational needs of students designated with various forms of disabilities including mild mental retardation (MMR), learning disabilities (LD), or emotional disturbance (ED). These disabilities can be divided into judgmental and nonjudgmental categories. Nonjudgmental labels would include disabilities that require limited inferential judgment: blindness, deafness, orthopedic impairments, and severe mental retardation. On the other
hand, designation for MMR, LD, or ED requires extensive “professional” judgment (O'Connor & Fernandez, 2006).

The overrepresentation of minorities in special education has been documented to occur in disabilities based on inferential or professional judgment; African-Americans had higher rates of inclusion in the LD and ED categories (Hosp & Reschly, 2004). Additionally, Hosp and Reschly (2003) investigated referral rates for special education services and found that African-Americans were referred for judgmental disabilities (LD and ED) at a significantly greater rate than Whites or Hispanics.

Bias or discrimination could occur anywhere in the process that identifies and labels a student as having a disability. Generally this process starts in the classroom with a teacher noting a behavior problem. The most commonly cited factor for disproportionate referrals is cultural differences. The majority of teachers are White, whereas the population of students is increasingly minority. Differences, based on cultural differences, can trigger conflicts (Hosp & Reschly, 2003). A more detailed explanation of cultural differences occurs in the section on discipline.
The end result for a student with a disability is the increased likelihood of dropping out. Specifically, Dunn, Chambers, and Rabren (2004) reported these significant findings. Students with LD were at greater risk for dropping out than students with MMD. Students who did not drop out felt their class work prepared them for post-high school life. Students stated a significant reason for staying in school was connecting with an educational staff member, primarily a teacher.

**Curriculum and Instruction**

Numerous authors examined the differentiated hidden curriculum in classrooms based along class, race or gender (Anyon, 1980; Apple, 1980; Mickelson, 1987; Oakes, 1982,). Apple (1996, 2004) provided a comprehensive overview on power and its relationship to the sociology and the "marketing" of education in the United States. He argued that profit motives have created imbalances in power relations that have tended to reproduce dominant pedagogical and curricular interests. Following are specific examples that will illustrate the historical nature of institutionalization in curriculum and instruction.
Anyon's (1981) investigation of the hidden curriculum of "Whiteness" initiated this line of inquiry. This author documented how schools with students from a working class environment had a curriculum whose focus was the creation of working class students; whereas, students of professional parents had a curriculum designed to foster creativity and problem-solving abilities. More recently, Bianchini, Whitney, Breton, & Hilton-Brown (2002) studied science teachers and revealed how gender bias can be exhibited in their instructional methods. The elimination of this bias is a responsibility of not just minority instructors but all instructors.

In the same vein, Cross (2003) detailed how reproduction of inequities through teacher education programs could occur through the inadvertent guise of helping; thus perpetuating inequities in curriculum and instruction. Trainor (2008), on the other hand, confirmed the creation of racial bias in White students from the institutionalized everyday nonracist school practices and culture.

Similarly, Ndura (2004) demonstrated bias in textbooks used by ELL students, which as a result, silenced minority voices and views. Gamoran & Carbonaro (2002) reported that
students in honors classes received higher quality instruction than did students in general-track classes; honors classes were generally populated by White students whereas general-track primarily consisted of students of color. Additionally, Solórzano & Ornelas (2002) described how Latinos, on average, had fewer honors classes made available to them. They documented that the majority (55%) of schools located in rural and urban schools offered less than four honors classes. On the other hand, schools in affluent areas offered a greater number of honors classes. Consequently, Latino students would have reduced ability to improve their grade point averages, thus impacting their opportunities for acceptance to universities. These examples illustrate how hegemony can perpetuate the dominant culture in the field of curriculum and instruction.

**Discipline**

Discipline, intuitively a microlevel process, can also be reviewed at a macro level. “Zero tolerance” describes policies that were widely instituted during the early 1990’s after passage of federal legislation (Casella, 2003). The Gun-Free Schools Act (1994) requires students to be expelled if they bring a gun to school. This body of
legislation has been amended over the years to extend and redefine meanings; guns and knives were amended to weapons, and as such, students could be expelled for metal nail files, clippers, and pocket knives (Casella, 2005).

Although zero tolerance policies are designed to be applied in a consistent and uniform manner, this uniformity can be undermined with provisions (within the law) that allow case-by-case exceptions: some schools have exception polices while others do not (Zirkel, 1997). Additionally, research has demonstrated that students of color are more likely to be involved in confrontations due to structural factors like SES, family conflicts, and student mobility (Battin-Pearson et al, 2000; Alexander et al, 2001; Haynie et al, 2006). Social policy that is intended for youth includes educational, child welfare, and crime policy. The end result of zero tolerance policies is that the link between schools and prison is strengthened (Casella, 2003).

These macroevaluative processes, individually or in combination, can impact how a student interacts with others, and performs academically. The institutionalization of policies and procedures that hinder opportunities, or help create barriers for student success can contribute to an accumulation of negative school-life
experiences and "push" the student towards a pathway of dropping out. The cumulative effects of these experiences can be exhibited in student behavior and actions. The next section will explore some microlevel processes which can impact students' behavior and actions, and contribute to the decision of dropping out of school.

Microlevel Evaluative Processes

Student Wellness

Cowen (1991) described four concepts that comprise wellness: competence, resilience, social system modification, and empowerment. Cowen (1994) also articulated avenues in which the development of wellness could occur. These included forming beneficial attachments; acquisition of age and ability appropriate competencies; environments that promote adaptive outcomes and empowerment; and development of stress-reducing coping skills. Seligman and Csikszentmihalyi (2000) reported on the umbrella concept of positive psychology. These authors described three encompassing themes: positive experience and personality, and the social context of people and their experiences. Positive experience focuses on well-being, optimism, happiness, self-determination, and the
relationship between positive emotions and physical health. Positive personality, on the other hand, is a perspective that humans are self-organizing, self-directed, adaptive, and that these attributes develop over one’s lifetime. This implies that communities and institutions must help develop and support individuals in their quest for wellness. Bruhn, Cordova, Williams, and Fuentes (1977) argued that wellness is a learned process. This learning is influenced by family members and peers, and on a wider level, the educational system, community, Internet, and various types of media. These authors stated that “Beliefs, motives, and behaviors associated with wellness are transmitted by members of one generation to another through models and reinforcement” (p.219).

Operationally, student wellness could consist of parental and peer influences, and student engagement. Learning requires a student to be actively involved and can be either enhanced or retarded by these influences. The following sections will examine the impact of parental and peer influences, and student engagement on learning.

Parental Involvement. Different types of activities are included under the umbrella of parental involvement. Epstein categorized parental involvement into student
learning support at home, communications with school, voluntary school activities, involvement in school governance, and advocacy (cited in Anguiano, 2004, p.62). These categories can be grouped into two major topic areas: parent-school and parent-student interactions.

Kohl, Lengua, and McMahon (2000) outlined five different parent-school types of involvement: parent-teacher contact; parent involvement at school; quality of parent-teacher relationships; and parent endorsement of school. They reported that family and demographic risk factors—parental education level, maternal depression, and single-parent status—impacted parental involvement in unique ways, suggesting that demographic variables should be taken into account when attempting to increase parental involvement.

Desimone (1999) concluded that White, Asian and middle-income students received more advantages from parent-school involvement than Hispanic, African-American, and low-income students. She postulated that this could have occurred because macrolevel influences—school organization and social structure; school tracking systems; and peer group influences—tend to impact disadvantaged groups greater than advantaged groups. On the other hand,
Stewart (2006) argued that a school's environment can make a difference in all students' achievement. Supporting this argument, Hill and Tyson (2009) reported that the greatest effect on student achievement occurred when parental communication supported the purposes and goals of education and provided actual strategies to use.

Strom and Boster (2007) described how supportive parent-student communication in the home strongly influenced student achievement. Their findings indicated that parental expectations were an important factor in a student's decision to stay in school. Fan and Chen (2001) and Teachman and Paasch (1998) also reported that parental aspirations had the greatest impact on a student's academic achievement. Jeynes (2003) reported that across all race and academic outcomes, constructive parent-student interactions had a positive impact on school outcomes. However, Hill and Tyson (2009) noted that a limitation of their study was that as adolescent's cognitive abilities, sense of efficacy, and competence increased, the fluid nature of parental involvement also changed. Epstein (1986) noted that parental involvement is a malleable variable that can be "increased or decreased by teachers, administrators, parents, and students" (p.52).
As adolescents develop independence, parental involvement has less of a direct impact on their achievement. Jeynes (2007) reported that student achievement at the secondary school-level versus elementary level was not as significantly impacted by parental involvement. Student engagement in school, school activities, and peers has been theorized as starting to exert greater influences on academic outcomes (Fredricks, Blumenfeld, & Paris, 2004).

Engagement. Ackerman and Heggestad (1997) argued that abilities, interests, and personality develop simultaneously; consequently, success in a particular domain is influenced by ability and personality, and interest level determines the motivation to start and complete an activity. Student engagement, therefore, could be interpreted relationally with the school: people (adults and peers); structures (rules and procedures); pedagogy (curricula and content); and opportunities (curricular, cocurricular, and extracurricular; Yazzie-Mintz, 2006). Glanville and Wildhagen (2007) argued that engagement should be measured as a multi-dimensional concept. Appleton, Christenson, Kim, and Reschly (2006) proposed four sub-types: academic, behavioral, cognitive, and
psychological. However, meta-analytical reviews have argued that engagement consists of three constructs: cognitive, behavioral, and emotional (Fredricks et al, 2004). The following sections will articulate the operational definition for cognitive, behavioral and emotional engagement.

**Cognitive Engagement.** Cognitive engagement emerges from the psychological investment in learning. The emphasis is on strategic learning and can be described as student willingness to self-regulate, establish learning goals, and invest in his or her learning (Fredricks et al, 2004). Learning requires the active process of organizing and integrating new information, and the monitoring of understanding so that comprehension of the subject matter occurs.

Meece, Blumenfeld, and Hoyle (1988) concluded that engagement connected directly to task-mastery of goals. Pokay and Blumenfeld (1990) analyzed the effect of motivation and the use of learning strategies on early and late semester subject content. They reported that use of content-specific learning strategies were more effective in the early semester when students were first exposed to content. After students became more familiar with content
later in the semester, strategies involving planning and time management were more effective. Fredricks et al (2004) described cognitive motivation as the willingness to do schoolwork as opposed to having to do schoolwork.

Thinking activities or cognitive processing is used by students that lead to learning results, such as knowledge and skills. McCrae and John (1992) described the facets of conscientiousness as competence, order, achievement striving, self-discipline, and deliberate action. Conscientiousness is the propensity to exhibit self-discipline and strive for achievement. Therefore, the operational definition of cognitive engagement will be conscientiousness, or a student’s willingness to take personal responsibility for his/her actions.

Behavioral Engagement. Behavioral engagement can be defined as behaviors such as effort, persistence, and concentration (Fredricks et al, 2004). Various researchers have succeeded in predicting common outcomes such as activity, choices, effort, persistence, and emotional reactions (Zimmerman, 2000). A social cognitive theory tenet is that of direct personal agency. Human agency has four core features: intentionality, forethought, self-reactiveness, and self-reflectiveness (Bandura, 2001).
Agency refers to intentional action: "The power to originate actions for given purposes is a key feature of personal agency" (p.6). In any given task, individuals judge their capabilities to perform the task. Judgment in one's ability to perform a task is self-efficacy (Bandura, 1977). A student's belief in the ability to regulate learning and mastery of academic content determines academic outcomes (Bandura, 1993). Multon, Brown and Lent's (1991) meta-analytic investigation on self-efficacy and academic outcomes revealed positive and significant relationships between self-efficacy beliefs and students' academic performance and persistence. Stajkovic and Luthans (1998) also found a significant correlation between self-efficacy and work-related performance. Consequently an operational definition for behavioral engagement will be a student's perception of personal ability to perform a task, or self-efficacy.

**Emotional Engagement.** Emotional engagement pertains to a student's identification or interest in an activity, anxiety or anticipation for the activity, boredom or excitement during the activity, and happiness or sadness as a result of that activity. This engagement can be construed as connectedness or sense of belonging.
Belonging is the feeling of being a part of, included in, accepted by, or fitting in; it is the sense of being valued for who you are. Finn (1989) describes identification as belonging and value; being important to the school is belonging and success in school activities is the value.

The source of this engagement or connectedness is peers, the school, or with the teacher (Fredricks et al, 2004). Therefore, the operational definition for emotional engagement will be connectedness. The following sections will explore the relationships or connectedness of students to peers, the school, and teachers.

**Peer Connections.** Newcomb and Bagwell (1995) characterize friendships as patterns of positive interactions; task-related activities that produced greater productivity and exhibited less domination, with greater balance, intimacy and faithfulness. Wentzel (1998) investigated social relationships and detailed how perceived support from peers was indirectly related to interest in schools. Riegle-Crumb, Farkas, & Muller (2006) examined the effect of friends on school courses taken, and found that same-sex friends' significantly predicted course-taking for girls, but not for boys. Additionally, in a pilot study, McNamara (2000) examined how pairing
disengaged youths with engaged youths resulted in improvements in attendance and grades for the disengaged youths.

Conversely, Gardner and Steinberg (2005) analyzed risk-taking activities and peer influence and described how younger age was associated with greater risk-taking behaviors. Allen, Donohue, Griffin, Ryan and Turner (2003) compared the influence of parents and peers in relationship to drug use. They found that peers exerted greater influence for engaging in illegal substance use. Along this same vein, McNeely and Falci (2004) reported that connection to peers with anti-social norms promoted initiation of high-risk behaviors. These examples demonstrate the importance of peer influence on student behaviors. However, relations with school can also impact student responses.

**School Connections.** The interactions of school's daily inhabitants develop the environment or social climate. Brand, Felner, Seitsinger, Burns, and Bolton (2008) described school climate as consisting of diversity of students, instruction and home-school interactions, and student's perceptions of support, personally and academically. McNeely et al (2002) examined the
correlation between school connectedness and school environment. These authors identified some factors such as discipline policies, school size, classroom climate, and segregated or non-segregated schools as impacting school environment. They reported that genuine classroom management styles, tolerant disciplinary policies, engagement in extracurricular activities, and small school size increased school connectedness. Catalano, Haggerty, Oesterle, Fleming and Hawkins (2004) used longitudinal data to demonstrate that strong school bonding was correlated to reduced use of tobacco, alcohol, and drugs, as well as decreased criminal involvement. Additionally, their data demonstrated that increased school bonding promoted academic success. Martin and Dowson (2009) investigated student’s high-quality interpersonal relationships with school and teachers, and argued that these relationships contributed to academic motivation, engagement, and achievement. This body of research has empirically established that decreased risk behaviors and increased academic outcomes in students can result with an increase in school bonding. However, student’s social participation also includes the interplay between teacher and student.
Teacher Connections. Interplay between teacher and student primarily occurs in the classroom, and this is where much of the learning does or does not occur. These interactions include student-student, student-teacher or possibly student-administrator. These exchanges can help students learn about the content of the curriculum, or it can help shape their perceptions. Rowley, Burchinal, Roberts, and Zeisel (2008) suggested that as early as 3rd grade, children are forming attitudes about their racial group that have implications for their future cross-race social interactions. A consequence of this cross-race interaction was demonstrated by Downey and Pribesh (2004) that showed how eighth grade African-Americans and Latino students are more consistently rated by White teachers as poorer classroom participants than White students.

Cultural Ecological Theory (CET) can be used as a starting point to help explain the previous examples, as well as to help understand some of the examples that follow. Minorities can be classified as either voluntary or involuntary, determined by the involvement of White America in their becoming minorities and the reasons they are in the United States. Voluntary minorities have chosen to come to the United States; involuntary minorities, on
the other hand, have been conquered, colonized or enslaved. The distinguishing characteristic of involuntary minorities is that they did not choose but were forced by White America to become part of the United States (Ogbu & Simons, 1998). CET posited that "involuntary" minorities – African-Americans, some Latinos, and Native Americans – evaluate their oppression as systematic and continuous. Consequently, they developed cultural adaptations that perceive their identities in opposition to White Americans.

The reverse side of this relates to academic success for African-Americans. An additional burden is placed on them, mainly by themselves and their culture. Dorothy Gilliam, columnist for the Washington Post recounts:

Existing ecological conditions have led black parents unwittingly to teach their children a double message: "You must be twice as good to go half as far," and "Don't get the big head, don't blow your own horn." Generations of black children have learned this lesson so well that what appears to have emerged in some segments of the black community is a kind of cultural orientation which defines academic learning in school as "acting white," and academic success as the
prerogative of white Americans (as cited in Fordham & Ogbu, 1986, p.177).

As a result, their belief that schooling is a White dominated structure resulted in resistance to the norms as a method of maintaining their racial identity (Ogbu, 1987).

The educational system can improve a student's individual outlook towards school by establishing good teacher-student relationships (Klem & Connell, 2004). However, classroom interactions can also be the start of the discipline process. Perceptions of "fitting-in" can affect teacher-student interactions. For example, Sheets (2002) examined Chicano students' opinions concerning teacher-student conflicts. These students described the clashes as injustices; applications of rules were applied when the values, attitudes and beliefs held by the student and teacher were different. Vavrus and Cole (2002) articulated how a teacher's perception of loss of classroom control can lead to verbal confrontation, resulting in the student being removed from the classroom environment. This removal, as a discipline referral, institutes a formal discipline process.
Student Behavior

Resistance to the norms, protocols and rules may result in disciplinary action. McLaren (1985) explained resistance as: oppositional behavior that has symbolic, historical, and "lived" meaning and which contests the legitimacy, power, and significance of school culture in general and instruction in particular (p.85). Consequently, resistance to these norms and rules may occur. Boys may attempt to show masculinity by breaking school rules. White boys were looked upon as children and as such should be punished as children - innocent in their wrong doing. On the other hand, boys of color were perceived as adults and should be punished as adults - punishment through example and exclusion (Ferguson, 2000). Students of color are clearly over-represented in the use of exclusionary and punitive consequences (Arcia, 2007; Skiba, Michael, Nardo, & Peterson, 2002). Mendez and Knoff (2003) investigated suspensions in a large school district and found that across all school levels - elementary, middle and high school - most suspensions were for relatively minor offenses and African-American males were over-represented across all types of infractions.

McFadden, Marsh, Price, and Hwang (1992) studied corporal
punishment in a Florida school district and found that African-American students had higher rates of referrals, suspensions, and had corporal punishment administered more frequently. Additionally, students with a lower socioeconomic status, as determined by participating in the free or reduced lunch program, were more likely to be suspended (Wu, Pink, Crain, & Moles, 1982; Nichols, Ludwin, & Iadicola, 1999).

Hernandez (2004) documented that many states for the first time are now experiencing a large influx of immigrant families. There is a trend that shows half of all children will be members of a minority group by the year 2035. Minorities unmistakably comprise a major portion of the lower economic layers of society. A wide range of socioeconomic and cultural factors have negative impacts on students. A possible method to break the obvious and destructive discipline cycle described by the previous examples is explored below.

Literacy

Hinshaw (1992) reviewed 17 longitudinal studies (K-12) and concluded that there is a vigorous correlation between educational underachievement and antisocial behavior. He classified reading underachievement as deficiency in
decoding and comprehension. Maughan et al., (1996) longitudinal study (England, ages 10-14) assessed the comorbidity between reading and disruptive behaviors. These authors determined that poor readers exhibited higher rates of behavioral issues in middle childhood. Specifically, girls with poor-reading skills showed increased levels of conduct problems. Concurrently, for boys, school adversity issues predicted antisocial behavior. School adversity was measured as a composite scale consisting of rates of teacher and student turn-over, percentage of students on the free or reduced lunch program, percentage of minority students, and student/teacher ratio. An additional finding from this study was that males and females who were poor readers had increased levels of nonattendance.

On the other hand, Sadler and Sugai (2009) reviewed an early identification model for preventing reading and behavior problems for a K-3 district in Washington State, and found that across all grade levels, students with higher reading scores had fewer discipline referrals. Trzesniewski et al., (2006) used a longitudinal twin study database (England & Wales) to show that a robust association between reading achievement and antisocial
behavior occurred primarily from environmental factors common to both reading problems and antisocial behavior and was stronger for boys. They proposed a reciprocal relationship: poor reading skills led to antisocial behavior and antisocial behavior led to poor reading skills. Buchanan and Flouri’s (2001) longitudinal study in England, Scotland and Wales indentified students who at age seven exhibited behavior problems, but did not have these problems at age 11 and 16. The significant protective factors associated with these “recovered” students included good reading skills, good school attendance, and positive relations with family.

It seems the factors correlated to dropout could be impacted by improving reading skills since this is a major component of school work. Failure in reading has social/emotional ramifications for a student. As previously shown, academic achievement is strongly correlated to student engagement (DiPerna, Volpe & Elliott, 2001). Engagement in academics and school is strongly correlated to remaining in school (Rumberger, 1995).

Disengagement from school is positively correlated with truancy (Henry, 2007). Poor academic achievement and deviant behaviors are strong predictors for dropping out of
school. Additionally, academic achievement, as measured by grades, is highly correlated to dropout behavior (Wehlage & Rutter, 1986). Deviant behaviors are often expressed as disruptive behaviors and strongly correlated to dropping out (Gruskin, Campbell, Paulu, 1987). Disruptive behaviors often result in out-of-school suspension (Christle et al., 2004). Suspension is highly correlated to dropout (Suh et al., 2007).

Screening and implementation of interventions, within the direct control of the educational system, is an option that could break or slow down the discipline process. Prevatt and Kelly (2003) review of dropout intervention programs documented the entwined nature of successful programs. Their investigation revealed that early identification, monitoring of tardiness, truancy, behavioral referrals, and instruction in mathematics, language arts and reading produced the best results.

Implementation of reading interventions at an early age has been shown to possibly affect school dropout (Reitzammer, 1991). Anderson, Howard, and Graham (2007) connected reduced reading achievement with an increase in suspensions. McIntosh, Flannery, et al. (2008) investigated interactions between reading achievement
(academics) and office referrals (behavior) during the transition from middle school to high school and found that problems in behavior had a significant impact on academics. They concluded that the presence of low academic skills often interferes with social behavior; however, the presence of problem behavior nearly always interfered with academic learning. McIntosh et al. (2006) looked at a predictive model using reading skills and problem behavior. The results demonstrated that reading levels significantly predicted discipline referrals. On a very broad note, Maughan et al. (2009) reported on the persistence of literacy problems through mid-life. The authors in this 30-year follow-up study of the original Isle of Wight study participants indicated that spelling, reading, and writing difficulties still persisted. The vast majority (73%-80%) reported needing help in writing letters, or filling in forms.

Summary

The high rate of dropping out of high school is a trend that must be reversed. There are many influences—individual, family, school—that contribute to the creation of pathways for dropping out. The educational system can only have a marginal impact on a student’s “out-of-school”
life. However, the educational system does have control over the school policies, and procedures, and the environment that can contribute to the creation of pathways that can influence the decision to drop out. This literature review has demonstrated that literacy and student wellness, behavior, and social characteristics can impact students academically.

Unfortunately, the effects that each of these constructs has on each other is unknown. The intertwined pathways to dropping out are still blurry. On the other hand, this study brings together these strands of research: literacy, student behavior, achievement and wellness. Figure 1 describes the possible pathways that connect the theoretical constructs reviewed in this chapter.

Consequently, we can begin the process of uncovering the interlaced aspects of pathways that can lead a student to make the decision to drop out of school. This leads to the following research questions:

1. What impact does student wellness have on literacy?
2. How does literacy impact student behavior and achievement?
3. What effects do social characteristics have on student wellness, behavior, academic achievement, and literacy?

4. Does gender play a role?

Hypotheses

1. Social characteristics are positively correlated to student wellness, behavior and achievement.

2. Gender is positively correlated to student behavior and achievement.
3. Literacy is negatively correlated to student behavior and positively correlated to student achievement.

4. Minority status is associated with negative student behaviors and lower student achievement.

5. Student wellness is positively correlated to literacy

Chapter II reviewed the literature on the various constructs and influences associated with dropping out, including SES, ethnicity, parental involvement, educational structures, student engagement with teachers and peers, and literacy. Possible connects between these constructs was proposed. Chapter III will discuss the procedures, data collection methods, and statistical methodologies used to investigate the research questions and hypothesis. Chapter IV will provide the results of this study and Chapter V outlines the support for the conclusions reached, an explanation of limitations within this study, and implications for further research needed to bring into focus, the interconnected nature of "pathways to dropping out."
Dropping out of high school is the end decision; over time, accumulations of negative experience contribute to this decision (Alexander et al., 2001; Rumberger, 1995). Looking at these forces and influences early in a student's school experience can help identify the what, where, and when of an intervention. This intervention could then disrupt the pathway to dropping out. Additionally, the district's grade structure is elementary (K-5), middle (6-8) and high school (9-12). Research has documented that transition from elementary to middle, and high school impact student's behavior and achievement (Chung et al., 1998; Theriot & Dupper, 2010). Sixth grade was chosen since this is the first transition students undergo in the district. Therefore, this study will take a snapshot of the proposed theoretical pathways among the latent variables social characteristics, student wellness, behavior, and academic achievement for sixth grade students in a public school district located in the United States.
The methodology section describes the sample of the study, permission to participate procedures, the proposed latent and manifested variables, as well as the research design (correlational) and analytic tool (structural equation modeling) used to describe these pathways. Additionally, the survey instrument used to elicit student wellness, parent involvement, and home resources will be discussed. Finally, the data collection procedures and archival data used to measure the manifested variables will be outlined.

Research has consistently demonstrated the correlation between demographic, economic and social factors, student wellness, behavior, and achievement with dropping out. A description of these variables and methodology to be employed follows.

Participants and Setting

Potential participants \((n = 2,685)\) will be the total number of sixth graders enrolled in a large American public urban school district in Southern California. The demographics of the potential participants are listed in Table 1.
Table 1

Demographics of Possible Participant Population

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Gender</th>
<th>Parent Ed Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>Female</td>
<td>Not a HS Grad</td>
</tr>
<tr>
<td>A-Amer</td>
<td>Male</td>
<td>HS Grad</td>
</tr>
<tr>
<td>White</td>
<td></td>
<td>Some College</td>
</tr>
<tr>
<td>Asian</td>
<td></td>
<td>College Grad</td>
</tr>
<tr>
<td>Pac Isle</td>
<td></td>
<td>Grad School</td>
</tr>
<tr>
<td>Nat Am</td>
<td></td>
<td>Dec/Unknown</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hispanic 65.1% Female 48.7% Not a HS Grad 17.3%
A-Amer 17.8% Male 51.3% HS Grad 28.5%
White 10.0%
Asian 4.7%
Pac Isle 0.7%
Nat Am 0.6%
Other 1.1%

Note. A-Amer = African-American; Pac Isle = Pacific Islander; Nat Am = Native American; Not a HS Grad = Not a High School Graduate; HS Grad = High School Graduate; College Grad = College Graduate; Grad School = Graduate School; Dec/Unknown = Declined/Unknown. All participants are regular education students and are in good physical and mental health.

Participation Permission Procedures

Permission from middle school principals and teachers was obtained for students to complete a survey on student wellness, parental involvement, and home resources. Parental consent for student participation was obtained using a letter requesting permission to participate in the study. The letter was sent home one to two weeks prior to data collection and described the general purpose of the study, issues of confidentiality, and contact information regarding the researcher. Participants' assent to participate was also obtained during survey briefing. All
briefing and consent procedures were conducted in accordance with the American Psychological Association’s Code of Ethics, and approved by the school district and California State University San Bernardino, Institutional Review Board (IRB). An alternative class activity was arranged for students who did not return a signed parental consent form.

Latent Variables

The purpose of the study is to investigate the impact of student wellness and social characteristics on literacy (as measured by Lexile score), and the mediating effects they had on student behavior and achievement. Latent variables or factors are unobservable constructs, theoretically-based, and constructed from observable or measured variables.

Student Wellness

Wellness is generally conceptualized as consisting of many constructs: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (Ryff & Keyes, 1995). Child wellness is partly dependent upon physical and psychological needs (Prilleltensky & Nelson, 2000). For each individual,
wellness is predicated on social, cognitive, and emotional function (Peters, 1988). Cowen (1991, 1994) described four concepts of wellness: competence, resilience, social system modification, and empowerment, and articulated how wellness could develop. For this study, the latent variable of student wellness will be constructed from the manifested variables of connectedness, conscientiousness, self-efficacy, and parental involvement. These four variables are described as follows:

**Connectedness.** Connectedness is a student’s sense of belonging and acceptance with his or her family, peers, teachers, school, and community. Healthy relationships and their positive psychological impact have been clearly linked in the research literature (Gable, Reis, Impett, & Asher, 2004). Connectedness has been documented as a highly influential predictor of both positive and negative behaviors in adolescents, including their engagement in harmful health behaviors (McNeely et al., 2002; Resnick et al, 1997). Perceived school and parent-family connectedness demonstrated strong protection against substance abuse, violent behavior, emotional distress, and suicidality (Resnick et al, 1997).
Conscientiousness. Conscientiousness is described as competence, order, achievement striving, self-discipline, and deliberate action (McCrae and John, 1992). Conscientiousness is the propensity to exhibit self-discipline and to strive for achievement. Strategic learning can be described as student willingness to establish learning goals, to self-regulate, and to invest in his or her learning (Fredricks et al, 2004).


Parental Involvement. Epstein (1986) categorized parental involvement into student learning support at home, communications with school, voluntary school activities, involvement in school governance, and advocacy. Constructive parent-student interactions have been shown to have a positive impact on student outcomes (Jeynes, 2003). Parental involvement generally decreases over time, with
the highest level during elementary school and lowest at secondary school (Jeynes, 2007). Fredricks et al (2004) theorized that student engagement in school and school activities when they occur, not parental involvement, started to exert greater influences on academic outcomes. The theoretical model for student wellness is presented in Figure 2.

Social Characteristics

Social characteristics can be defined as features or descriptions that relate to an individual's position in society. For this study, the latent variable of social characteristics will be based on the manifested variables of home resources, parental education, and socioeconomic status. These three variables are described as follows:
Home Resources. Downey (1995) divided home resources into economic and interpersonal. Economic resources included availability of a home computer, a specific place for study, and cultural activities. Sirin's (2005) meta-analytical review of SES indicators, documented home resources as having the highest effect on student achievement. Mullis, Rathge, and Mullis (2003) also indicated that resource capital (parental income, education level, and home resources) were similar in their predictive nature and strong contributors to a student's academic performance.

Parental Education. The connection between education level and income is well documented. In 2008, according to the U.S. Census Bureau the average annual income for someone who dropped out of high school was $18,900; compared to a high school graduate ($25,900), college graduate ($45,400) or a doctoral degree ($81,400). The lifetime earnings potential was also projected to be different with high school drop outs earning ($1 million) and college graduates earning ($2.1 million). The Census Bureau also reported that the earnings gap was increasing. In 1975 college graduates earned 150% more annually than
high school dropouts and by the year 2000 this gap had increased to 180%.

Parental education has also been used as an indicator of resources that are available for student academic support (Sirin, 2005). A strong correlation has also been documented between a parent's education level and his/her support of education in general (Mullis, Rathge, & Mullis, 2003).

Socioeconomic Status. Socioeconomic status (SES) has been used extensively in educational research. Sirin's (2005) meta-analysis documented how this indicator has changed over time in educational research and he reported the following effect sizes (ES): home resources (0.51), free or reduced lunch program (0.33), and parental education (0.30). The theoretical model for social characteristics is presented in Figure 3.

![Figure 3. Theoretical model for social characteristics.](image-url)
Student Behavior

Student behavior represents an individual's day-to-day actions as he/she makes a pathway through the educational system. For this study, the latent variable student behavior will be developed from the manifested variables of absences, office referrals, and suspensions. These three variables are described as follows:

Absences. Attendance at school must occur in order for formal student learning to occur. Henry (2007) reported that truancy was strongly correlated to student achievement.

Office Referrals. When discipline issues occur in an educational setting, a consequence is often an office referral. McIntosh, Horner, Chard, Dickey, and Braun (2008) documented the correlation between problem behavior and academics for middle school students.

Suspensions. Disruptive behaviors often result in out-of-school suspension (Christie et al., 2004) and like absences, out-of-school suspensions result in students being unavailable for learning in a structured environment. Suh et al., (2007) reported that suspension is highly correlated to dropping out of school. The theoretical model for student behavior is presented in Figure 4.
Student Achievement

Student achievement is the primary goal of an educational system. Standardized testing is one assessment method for student achievement. The latent variable student achievement will consist of the manifested variables of English Language Arts (ELA) and Math scores as documented by California Standardized Testing and Reporting (STAR) results. The theoretical model for student achievement is shown in Figure 5.

Figure 4. Theoretical model for student behavior.

Figure 5. Theoretical model for student achievement.
Measures and Archival Data

For this study, a survey was administered to students who agreed to participate and whose parents had given them permission to do so. This survey was designed to elicit the constructs of connectedness, self-efficacy, conscientiousness, parental involvement, and home resources.

Archival Data

The archival data used in this study included the Scholastic Reading Inventory score, parental education level, free or reduced lunch program participation, attendance, academic achievement information, office referrals, suspensions, gender, and ethnicity. All archival data was stripped of identification information except for the district issued student ID number, which is used to match archival data with survey results. These manifested variables are detailed as follows:

Measures

Student Survey. The Child and Adolescent Wellness Scale (CAWS) consist of 10 constructs designed to measure student wellness. The 10 constructs include adaptability, connectedness, self-efficacy, conscientiousness, emotional self-regulation, empathy, optimism, mindfulness,
initiative, and social competence; each construct is assessed through 10 questions. The CAWS, used with permission (see appendix C) and rooted in the positive psychology movement is a measure of childhood psychological health (grades 6-12) being developed by Copeland and Nelson (2004). Weller-Clarke (2006) and Copeland, Nelson and Traughber (2010) reported that CAWS showed strong correlation \((r = 0.72 \text{ and } 0.71)\) with the Multidimensional Student’s Life Satisfaction Scale (MSLSS). This scale is one of the most comprehensive scales for assessing children’s life satisfaction (Greenspoon & Saklofske, 1998).

The CAWS utilizes a Likert-type response: Strongly disagree/Not at all like me (1 point); Disagree/Unlike me (2 points); Agree/Like me (3 points); and Strongly agree/Very much like me (4 points). The scoring for negative items is reversed. The internal consistency for the CAWS was reported as: Overall (0.97), adaptability (0.75), connectedness (0.85), self-efficacy (0.85), conscientiousness (0.85), emotional self-regulation (0.83), empathy (0.77), optimism (0.86), mindfulness (0.76), initiative (0.77), and social competence (0.81) (Weller-Clarke, 2010, pp. 6-7).
Due to the age of the students, this study’s survey instrument was modified to total 40 questions: 30 questions and three constructs from the CAWS (connectedness, self-efficacy, and conscientiousness), parental involvement (7 questions), and home resources (3 questions). The parental involvement and home resources questions also used a Likert-type response: Never (score 1), rarely (score 2), sometimes (score 3) often (score 4), and always (score 5). Table 2 shows sample questions (full survey in appendix D).

Scholastic Reading Inventory. The Scholastic Reading Inventory (SRI) is a computer-adaptive reading assessment program designed for K-12 students and measures reading comprehension based on the Lexile Framework. A computer-adaptive test adjusts the difficulty of test items presented, based on the performance on preceding items. The SRI is reported both as a grade level and an actual Lexile score. Table 3 details grade levels and corresponding Lexile scores. All sixth grade students are administered this placement test at the end of the fifth grade, or prior to starting classes in the sixth grade.

Parental Education Level. Parental education level is self-reported on the student’s registration packages and represents the highest attained parental education level.
### Table 2

**Sample Question Items by Dimensions**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connectedness</strong></td>
<td></td>
</tr>
<tr>
<td>(10 items)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I am cared for and loved</td>
</tr>
<tr>
<td>26</td>
<td>I don't like to volunteer to help others*</td>
</tr>
<tr>
<td><strong>Conscientiousness</strong></td>
<td></td>
</tr>
<tr>
<td>(10 items)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>I do what I say I'm going to do</td>
</tr>
<tr>
<td>17</td>
<td>The choices I make are thoughtful ones</td>
</tr>
<tr>
<td><strong>Self-efficacy</strong></td>
<td></td>
</tr>
<tr>
<td>(10 items)</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>My life is empty*</td>
</tr>
<tr>
<td>25</td>
<td>Learning new things is fun</td>
</tr>
<tr>
<td><strong>Parental involvement</strong></td>
<td></td>
</tr>
<tr>
<td>(7 items)</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Ask me about school</td>
</tr>
<tr>
<td>36</td>
<td>Praise me for my progress and improvement in school</td>
</tr>
<tr>
<td><strong>Home resources</strong></td>
<td></td>
</tr>
<tr>
<td>(3 items)</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>How often can you access a computer with Internet at home for school work?</td>
</tr>
</tbody>
</table>

*Negative item: responses for these items are reversed.*
Table 3

Grade Levels and Lexile Scores

<table>
<thead>
<tr>
<th>Grade</th>
<th>Lexile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>200 - 400</td>
</tr>
<tr>
<td>2</td>
<td>300 - 500</td>
</tr>
<tr>
<td>3</td>
<td>500 - 700</td>
</tr>
<tr>
<td>4</td>
<td>650 - 850</td>
</tr>
<tr>
<td>5</td>
<td>750 - 950</td>
</tr>
<tr>
<td>6</td>
<td>850 - 1050</td>
</tr>
<tr>
<td>7</td>
<td>950 - 1075</td>
</tr>
<tr>
<td>8</td>
<td>1000 - 1100</td>
</tr>
<tr>
<td>9</td>
<td>1050 - 1150</td>
</tr>
<tr>
<td>10</td>
<td>1100 - 1200</td>
</tr>
<tr>
<td>11 and 12</td>
<td>1100 - 1300</td>
</tr>
</tbody>
</table>

for the household. This item will be reported as (a) not a high school graduate; (b) high school graduate; (c) some college; (d) college graduate; (e) graduate school; and (f) declined or unknown.

Socioeconomic Status Indicators. Socioeconomic status indicators will consist of two methods: participation in free or reduced lunch program and three questions designed to elicit available home resources for school-related activities. Free or reduced lunch program participation will be reported as participating or not participating, and home resources will be a composite score, based on the answers provided in the survey.
Attendance. Attendance is recorded daily by the teacher and school revenue is dependent upon attendance; consequently, reported student attendance is very accurate. Attendance will be reported by total number of days absent comprised of both excused and unexcused absences.

Academic Achievement. Academic achievement will be assessed by the English Language Arts (ELA) and Math components of the California Standard Tests (CST). These test scores are reported from the CST’s administered during the spring of a student’s fifth grade school year.

Office Referrals and Suspensions. The district follows a sequential discipline guide (see appendix) that outlines consequences for inappropriate student behavior or actions. This schedule is designed to promote comprehensive and consistent enforcement of consequences. Office referrals range from minor offenses like a dress code violation up to very serious offenses like violence or drug use. This data will be collected by specific offense. Total referrals will be reported. Total number of days suspended will also be reported.

Ethnicity and Gender. Ethnicity and gender are self-reported on the student’s registration package. Gender is reported as male or female. Ethnicity is marked as
Hispanic, African American, White, Cambodian, Chinese, Filipino, Indian, Japanese, Korean, Laotian, Other Asian, Vietnamese, Guamanian, Other Pacific Islander, Samoan, Native American, Declined, or Unknown. The following categories were created for parsimony: Asian: Cambodian, Chinese, Filipino, Indian, Japanese, Korean, Laotian, other Asian, and Vietnamese; Pacific Islander: Guamanian, Samoan, and other Pacific Islander; and other: Declined and Unknown. Consequently, ethnicity is reported as (a) Hispanic, (b) African-American, (c) White, (d) Asian, (e) Pacific Islander, (f) Native American, and (g) other.

Proposed Analysis

Structural Equation Modeling (SEM) will be used to assess the hypothesized pathways between the latent variables and their manifest variables as well as between latent variables and mediating or predicting variables. SEM is a collection of statistical techniques that allows examination and analysis of a set of relationships between independent and dependent variables (Tabachnick & Fidell, 2007). This statistical methodology incorporates both observed (manifested) and unobserved (latent) variables within a hypothesized model and can test interactions among
these variables. SEM is based on covariance statistics and attempts "to understand patterns of correlations among a set of variables and to explain as much of their variances" (Kline, 1998, pp. 10-11). On the other hand, Mueller and Hancock (2008) described SEM as a model building process, more so than a statistical technique. Anderson and Gerbing (1988) also identified SEM as an attractive tool for model development.

Latent variables are constructs that cannot be directly measured, and in the model are signified by circles. Conversely, manifested variables can be directly measured and are identified by rectangles. Kenny (1979) stated when developing latent variables from manifested variables, "two might be fine, three is better, four is best, and anything more is gravy" (p. 143). Ding, Velicer, and Harlow (1995) indicated that using multiple manifested variables for each latent variable will aid in removing measurement error.

This methodology allows indirect and direct relationships to be specified. The output is then used to describe the amount of explained and unexplained variance among them. SEM computes the coefficients of the model, which indicates the strength and direction of the
relationship among the latent variables. The arrows in a model indicate directionality and infer a causal pathway.

For Structural Equation Modeling, guidelines have been established for optimum number of participants and are based on the number of parameters in the model. Any path that is not fixed counts as a parameter; residuals of indicators, regression coefficients, variances of independent variables and, manifested variables, all would be considered parameters (MacCallum, Browne, & Sugawara, 1996; Tabachnick & Fidell, 2007). The model proposed in this study is a medium sized model. The guidelines for number of participants are: fair ($n = 200$), good ($n = 300$), very good ($n = 500$), and excellent ($n = 1,000$).

A latent variable does not have a natural metric; consequently, a metric for each latent variable must be created. In this analysis, the metric was established by having one pathway leaving a latent variable set to a constant. For example, student achievement would have the pathway leaving to math set at a constant value of one.

In SEM, a criterion that needs to be met is over-identification. A model is over-identified if the number of parameters needing estimation is less than the number of data points. A data point is a sample variance or
covariates and is calculated using the formula \( p(p+1)/2; \) \( p \) represents the number of measured variables. A parameter is a regression coefficient, variance or covariance that needs to be estimated. Degrees of freedom (\( df \)) is the difference between data points and model parameters. The \( df \) must be positive to meet the criterion of over-identification; the proposed model has \( df = 105 \).

**Proposed Model**

The full theoretical model with pathways is as follows: social characteristics consist of home resources, parental education level, and participation in the free or reduced lunch program. This latent variable will predict student wellness, behavior and achievement. Ethnicity will mediate through social characteristics, student wellness, behavior and achievement. Student behavior includes attendance, office referrals, and suspension records. This latent variable will be mediated by literacy and be predicted by gender and social characteristics. Student achievement will comprise a student’s results in the California’s Standardized Tests (CST) in English Language Arts and Mathematics. Achievement will be mediated by literacy and predicted by gender and social
characteristics. The latent variable student wellness will be constructed from connectedness, conscientiousness, self-efficacy, and parental involvement. This latent variable will be predicted by social characteristics and will mediate student behavior and achievement through literacy. The full hypothesized model, with pathways, is shown in Figure 6.

Figure 6. Proposed theoretical model with pathways.
Chapter 4 includes the results of the study and consists of the data screening procedures, descriptive statistics and the final SEM model. Additionally, research questions and hypotheses will be reviewed. Chapter 5 includes discussion and analysis of the results in relationship to the specific hypotheses, limitations of the study and implications for future research directions and needs.
CHAPTER FOUR

RESULTS OF THE STUDY

Archival Data

An enrollment date prior to September 1, 2010 was the cutoff date for inclusion into the study (n = 2,685). Individual student data is connected to the unique student identification number. Archival data was collected over the first semester of the school year 2010-2011. Student demographics, parental education levels, California Standards Test scores (ELA and Math), and Scholastic Reading Inventory Scores (SRIS) were collected in October 2010. Participation in free or reduced lunch program was collected in December 2010. Dates for attendance and discipline information (referrals and suspensions) consisted of the complete first semester and was collected on the last day of the first semester.

Student Survey

Permission to administer the survey was obtained from the district. All middle school principals were asked to participate, with five of the six consenting. The survey was administered during the last three months of the first
semester. Administration of the survey occurred in sixth grade science classes. Consenting teachers also collected signed parental consent forms and provided an alternative assignment for students who chose not to participate, or had not returned parental permission forms.

Prior to administration of the survey, participants \( n = 726 \) were informed of the general nature of the study and asked to sign a consent form on the back of the survey. Student’s school identification number was included on the survey to ensure linkage of archived student data with survey responses. During administration, teachers read the survey questions aloud and students marked their choices; this resulted in a very low rate of missing data (less than 2.5%).

Survey responses were coded into an Excel worksheet. Participants missing more than two items on any sub-scale were excluded from the analysis. If two adjacent responses were circled, a mean value was assigned (for example: Strongly disagree and Disagree would be 1.5; disagree and agree would be 2.5). Items that had more than two items circled were considered missing data. Scoring on ‘negative’ items was reversed prior to analysis (for example ‘My life is empty’). Missing data points were
estimated using mean score value of the participating school for the sub-scale to which the item belonged. Table 4 contains initial and replacement values for the four questions that had the most missing responses. Composite sub-scale scores for connectedness (CONN), conscientiousness (CONS), self-efficacy (SELF), parental involvement (PI), and home resources (R) were calculated after replacing missing values. Archival data and composite sub-scale scores were merged using SPSS. Duplicate cases or phantom student identification numbers resulted in student population \( n = 2,565 \) and completed surveys \( n = 706 \).

Sample Size

Recommendations concerning sample size required for a SEM analysis are varied. Schumacker and Lomax (1996) suggested 10 subjects per variable; other researchers (Ullman, 2001; Bentler, 1990; Raykov & Marcoulides, 2000; Nancock & Mueller, 2004) have felt it was the number of participants per estimated parameter that should be used to determine sample size. These authors have proposed the general guidelines as 5-10 participants per parameters-to-be-estimated. On the other hand, still other researchers
Table 4

Sample Questions and Mean Replacement Values

<table>
<thead>
<tr>
<th>Question</th>
<th>10</th>
<th>20</th>
</tr>
</thead>
<tbody>
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<td>726</td>
</tr>
<tr>
<td></td>
<td>710</td>
<td>726</td>
</tr>
<tr>
<td>Missing</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Mean</td>
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<td>3.22</td>
</tr>
<tr>
<td></td>
<td>3.342</td>
<td>3.342</td>
</tr>
<tr>
<td>SD</td>
<td>0.966</td>
<td>0.955</td>
</tr>
<tr>
<td></td>
<td>0.7266</td>
<td>0.7186</td>
</tr>
<tr>
<td>Skewness</td>
<td>-1.064</td>
<td>-1.076</td>
</tr>
<tr>
<td></td>
<td>-1.135</td>
<td>-1.148</td>
</tr>
<tr>
<td>SE</td>
<td>0.092</td>
<td>0.091</td>
</tr>
<tr>
<td></td>
<td>0.092</td>
<td>0.091</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>0.043</td>
<td>0.116</td>
</tr>
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<td>1.486</td>
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<td>0.181</td>
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<tr>
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<td>0.181</td>
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<td>----</td>
</tr>
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<td>726</td>
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<td>715</td>
<td>726</td>
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<td>0.091</td>
<td>0.091</td>
</tr>
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<td>1.15</td>
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<td>0.775</td>
</tr>
<tr>
<td>0.183</td>
<td>0.181</td>
<td>0.183</td>
</tr>
</tbody>
</table>
(MacCallum, Browne, & Sugawara, 1996; Tabachnick & Fidell, 2007) have recommended a sample size based on the complexity of the model; a medium complex model needing a range of 200-1000 participants. The final number of completed surveys (n = 706) fits within the recommended number (150 to 1,000) of participants needed for the analysis.

Data Screening and Descriptive Statistics

Statistical testing is based on the belief that the variables under investigation have values that are normally distributed. Parametric assumptions include normality, linearity and homoscedasticity. The premise of normality is a normal distribution of scores. Linearity refers to the assumed linearity relationship between variables. Homoscedasticity is the belief that the variability of a continuous variable will be approximately equal at all values in reference to another continuous variable. These assumptions can be impacted by missing data and outliers. Data was screened for multivariate outliers using Mahalanobis distance ($\chi^2 = 40.79$, df = 17) at $p < 0.001$. Eighteen multivariate outliers were found and deleted from all further analysis. Tables 5-8 contain demographic
Table 5

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>6th Grade Class</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1,662</td>
<td>488</td>
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<td></td>
<td>65.15%</td>
<td>69.12%</td>
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<tr>
<td>2</td>
<td>442</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>17.43%</td>
<td>13.88%</td>
</tr>
<tr>
<td>3</td>
<td>261</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>10.18%</td>
<td>10.62%</td>
</tr>
<tr>
<td>4</td>
<td>124</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>4.83%</td>
<td>4.96%</td>
</tr>
<tr>
<td>5</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>0.62%</td>
<td>0.28%</td>
</tr>
<tr>
<td>6</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>0.62%</td>
<td>0.28%</td>
</tr>
<tr>
<td>7</td>
<td>28</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>1.17%</td>
<td>0.85%</td>
</tr>
<tr>
<td>Totals</td>
<td>2,547</td>
<td>706</td>
</tr>
<tr>
<td></td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Note. 1 = Hispanic; 2 = African-American; 3 = White; 4 = Asian; 5 = Pacific Islander; 6 = Native American; 7 = other.

Descriptive statistics for the variables under investigation are listed in Table 9.

Skewness and kurtosis are exhibited by the variables TABS, TREF, and SUSP. However, this is not unexpected since the majority of students attend school regularly, follow the rules, and consequently do not receive a referral or get suspended from school.
Table 6

Parental Education Level

<table>
<thead>
<tr>
<th>6th Grade Class</th>
<th>Sample</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>439</td>
<td>17.23%</td>
</tr>
<tr>
<td>2</td>
<td>727</td>
<td>28.50%</td>
</tr>
<tr>
<td>3</td>
<td>675</td>
<td>26.55%</td>
</tr>
<tr>
<td>4</td>
<td>285</td>
<td>11.11%</td>
</tr>
<tr>
<td>5</td>
<td>67</td>
<td>2.61%</td>
</tr>
<tr>
<td>6</td>
<td>354</td>
<td>14.00%</td>
</tr>
<tr>
<td>Total</td>
<td>2,547</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Note. 1 = Not High School Graduate; 2 = High School Graduate; 3 = Some College; 4 = College Graduate; 5 = Graduate School; 6 = Declined or Unknown.

Table 7

Participation in Free or Reduced Lunch Program

<table>
<thead>
<tr>
<th>6th Grade Class</th>
<th>Sample</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>429</td>
<td>16.80%</td>
</tr>
<tr>
<td>Yes</td>
<td>2,116</td>
<td>83.20%</td>
</tr>
<tr>
<td>Total</td>
<td>2,547</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Table 8

Gender

<table>
<thead>
<tr>
<th>6th Grade Class</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1,244 48.85% 400</td>
<td>56.66%</td>
</tr>
<tr>
<td>2 1,303 51.15% 306</td>
<td>43.34%</td>
</tr>
<tr>
<td>Total 2,547 100.00% 706</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Note. 1 = female; 2 = male.

Preliminary Correlational Analysis

A bivariate correlational analysis was conducted on the measured model variables in order to ascertain any significant relationships. Results are shown in Table 10.

Another significant finding was the strong positive correlation between home resources and all four constructs of student wellness - connectedness, conscientiousness, self-efficacy, and parental involvement. This will be addressed in implications for further research. Additionally, and as expected, gender was positively correlated with reading ability, math and English scores, and negatively correlated with total referrals and suspension days. Somewhat unexpected, however, was gender's impact on parental involvement and student connectedness.
Table 9

Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>SE</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONN</td>
<td>706</td>
<td>1</td>
<td>4</td>
<td>3.3739</td>
<td>0.4233</td>
<td>-0.9640</td>
<td>0.0920</td>
<td>1.2310</td>
</tr>
<tr>
<td>CONS</td>
<td>706</td>
<td>1</td>
<td>4</td>
<td>3.2341</td>
<td>0.3508</td>
<td>-0.5740</td>
<td>0.0920</td>
<td>2.3220</td>
</tr>
<tr>
<td>SELF</td>
<td>706</td>
<td>1</td>
<td>4</td>
<td>3.3407</td>
<td>0.3565</td>
<td>-0.6810</td>
<td>0.0920</td>
<td>1.6720</td>
</tr>
<tr>
<td>PI</td>
<td>706</td>
<td>1</td>
<td>5</td>
<td>4.0781</td>
<td>0.6125</td>
<td>-0.5980</td>
<td>0.0920</td>
<td>0.9690</td>
</tr>
<tr>
<td>R</td>
<td>706</td>
<td>1</td>
<td>5</td>
<td>3.8190</td>
<td>0.8244</td>
<td>-0.5770</td>
<td>0.0920</td>
<td>-0.1710</td>
</tr>
<tr>
<td>ELA</td>
<td>2162</td>
<td>202</td>
<td>505</td>
<td>346.8300</td>
<td>44.9030</td>
<td>-0.0350</td>
<td>0.0530</td>
<td>-0.2590</td>
</tr>
<tr>
<td>MATH</td>
<td>2176</td>
<td>171</td>
<td>600</td>
<td>344.9500</td>
<td>73.9940</td>
<td>0.6990</td>
<td>0.0520</td>
<td>0.3920</td>
</tr>
<tr>
<td>SRIS</td>
<td>2021</td>
<td>0</td>
<td>1298</td>
<td>677.2600</td>
<td>234.0670</td>
<td>-0.5190</td>
<td>0.0540</td>
<td>0.5090</td>
</tr>
<tr>
<td>TABS</td>
<td>2547</td>
<td>0</td>
<td>73</td>
<td>2.6900</td>
<td>3.8790</td>
<td>4.5430</td>
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<tr>
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<td>SUSP</td>
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<td>7.0400</td>
<td>0.0480</td>
<td>66.1070</td>
</tr>
</tbody>
</table>

Note. CONN = connectedness; CONS = conscientiousness; SELF = self-efficacy; PI = parental involvement; R = home resources; ELA = score on California Standards test in English language arts; Math = score on California Standards test in math; SRIS = Scholastic Reading Inventory score; TABS = total absences; TREF = total office referrals; SUSP = total days suspended.
Table 10

Correlations Among Study Variables

<table>
<thead>
<tr>
<th></th>
<th>ETHN</th>
<th>SEX</th>
<th>HR</th>
<th>PEDL</th>
<th>LSES</th>
<th>CONN</th>
<th>CONS</th>
<th>SELF</th>
<th>PI</th>
<th>TREF</th>
<th>TABS</th>
<th>SUSP</th>
<th>ELA</th>
<th>MATH</th>
<th>SRIS</th>
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</thead>
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<tr>
<td>ETHN</td>
<td>-</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
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<td>-.02</td>
<td>.03</td>
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<td>.34</td>
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<tr>
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<td>-.02</td>
<td>.00</td>
<td>-.04</td>
<td>-.10</td>
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<tr>
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<td>SEX</td>
<td>HR</td>
<td>PEDL</td>
<td>LSES</td>
<td>CONN</td>
<td>CONS</td>
<td>SELF</td>
<td>PI</td>
<td>TREF</td>
<td>TABS</td>
<td>SUSP</td>
<td>ELA</td>
<td>MATH</td>
<td>SRIS</td>
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</tr>
<tr>
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<td>.01</td>
<td>.04</td>
<td>.00</td>
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<td>.09</td>
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<td>.06</td>
<td>.05</td>
<td>.12</td>
<td>.10</td>
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<td>-.12</td>
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<tr>
<td>MATH</td>
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<td>.08</td>
<td>.10</td>
<td>.16</td>
<td>.08</td>
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<td>-.11</td>
<td>.69</td>
<td>-</td>
<td></td>
</tr>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SRIS</td>
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<td>-.07</td>
<td>.01</td>
<td>.03</td>
<td>.12</td>
<td>.01</td>
<td>.03</td>
<td>.08</td>
<td>.02</td>
<td>-.13</td>
<td>-.06</td>
<td>-.14</td>
<td>.69</td>
<td>.49</td>
<td>-</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. ETHN = ethnicity; SEX = gender; HR = home resources; PEDL = parental education level; LSES = participation in free or reduced lunch program; CONN = connectedness; CONS = conscientiousness; SELF = self-efficacy; PI = parental involvement; TABS = total absences; TREF = total office referrals; SUSP = total days suspended; ELA = score on California Standards test in English language arts; Math = score on California Standards test in math; SRIS = Scholastic Reading Inventory score.

**p < .01  *p < .05
To further investigate ethnic correlation with the study variables, an analysis of variance (ANOVA) was conducted with ethnicity as the independent variable and the study variables as the dependent variable. Table 11 shows the correlations between groups; no significant within-groups correlations were noted.

Table 11

ANOVA: Ethnicity and Measured Variables

<table>
<thead>
<tr>
<th></th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSES</td>
<td>22.574</td>
<td>6,254</td>
<td>3.762</td>
<td>28.579</td>
<td>.000</td>
<td>.063</td>
</tr>
<tr>
<td>PEDL</td>
<td>88.31</td>
<td>6,254</td>
<td>14.718</td>
<td>6.101</td>
<td>.000</td>
<td>.014</td>
</tr>
<tr>
<td>SEX</td>
<td>1.404</td>
<td>6,254</td>
<td>0.234</td>
<td>0.936</td>
<td>.468</td>
<td>n/a</td>
</tr>
<tr>
<td>CONN</td>
<td>0.591</td>
<td>5,687</td>
<td>0.118</td>
<td>0.69</td>
<td>.631</td>
<td>n/a</td>
</tr>
<tr>
<td>CONS</td>
<td>0.213</td>
<td>5,687</td>
<td>0.043</td>
<td>0.362</td>
<td>.875</td>
<td>n/a</td>
</tr>
<tr>
<td>SELF</td>
<td>0.329</td>
<td>5,687</td>
<td>0.066</td>
<td>0.554</td>
<td>.735</td>
<td>n/a</td>
</tr>
<tr>
<td>PI</td>
<td>2.216</td>
<td>5,687</td>
<td>0.443</td>
<td>1.234</td>
<td>.291</td>
<td>n/a</td>
</tr>
<tr>
<td>HR</td>
<td>3.456</td>
<td>5,687</td>
<td>0.691</td>
<td>1.034</td>
<td>.396</td>
<td>n/a</td>
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<tr>
<td>ELA</td>
<td>183,401.348</td>
<td>6,214</td>
<td>30,566.891</td>
<td>15.795</td>
<td>.000</td>
<td>.043</td>
</tr>
<tr>
<td>MATH</td>
<td>676,868.667</td>
<td>6,215</td>
<td>112,811.445</td>
<td>21.741</td>
<td>.000</td>
<td>.057</td>
</tr>
<tr>
<td>SRIS</td>
<td>2,437,989.541</td>
<td>6,200</td>
<td>406,331.59</td>
<td>7.556</td>
<td>.000</td>
<td>.022</td>
</tr>
<tr>
<td>TABS</td>
<td>1,004.83</td>
<td>6,254</td>
<td>167.472</td>
<td>11.557</td>
<td>.000</td>
<td>.027</td>
</tr>
<tr>
<td>TREF</td>
<td>246.11</td>
<td>6,254</td>
<td>41.018</td>
<td>24.392</td>
<td>.000</td>
<td>.055</td>
</tr>
<tr>
<td>SUSP</td>
<td>106.002</td>
<td>6,254</td>
<td>17.667</td>
<td>10.311</td>
<td>.000</td>
<td>.024</td>
</tr>
</tbody>
</table>

Note. LSES = participation in free or reduced lunch program; SEX = gender; PEDL = parental education level; CONN = connectedness; CONS = conscientiousness; SELF = self-efficacy; PI = parental involvement; HR = home resources; ELA = score on California Standards test in English language arts; Math = score on California Standards test in math; SRIS = Scholastic Reading Inventory score; TABS = total absences; TREF = total office referrals; SUSP = total days suspended.
Post Hoc testing revealed the significant between-group differences, and is consistent with the previous research conducted by numerous researchers. Hispanic students participate in the free or reduced lunch program to a greater extent than any other ethnicity. Additionally, parental education levels are much lower for Hispanic and African-American students when compared to White or Asian students. Literacy or lack of literacy clearly impacts standardized test scores. Hispanic and African-American students had lower scores on the Scholastic Reading Inventory assessment which obviously connects to their scores on the California Standards tests for English language arts and math. Also, as supported by previous research, attendance is lower for African-American and Hispanic students than White or Asian students. Prior research has unequivocally demonstrated the disproportionate number of office discipline referrals and out-of-school suspension days experienced by African-American students as compared to all other ethnicities; this study also supports that research.

Jeynes (2003) conducted a meta-analytical review of 21 studies on parental involvement and reported that none of the studies showed any significant effects for gender.
Consequently, to examine the unexpected correlation between gender and the variables of connectedness and parental involvement, as well as the expected connection of gender to middle school literacy and deviant student behavior (office discipline referrals and suspension days), a t-test analysis was conducted (see Table 12 for details).

Table 12

ANOVA: Gender and Measured Variables

<table>
<thead>
<tr>
<th></th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSES</td>
<td>0.0042</td>
<td>1,2544</td>
<td>0.0042</td>
<td>0.0302</td>
<td>.862</td>
<td>n/a</td>
</tr>
<tr>
<td>PEDL</td>
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<td>1,2546</td>
<td>0.1753</td>
<td>0.0718</td>
<td>.789</td>
<td>n/a</td>
</tr>
<tr>
<td>CONN</td>
<td>2.0957</td>
<td>1,687</td>
<td>2.0957</td>
<td>12.4642</td>
<td>.000</td>
<td>.018</td>
</tr>
<tr>
<td>CONS</td>
<td>0.4347</td>
<td>1,687</td>
<td>0.4347</td>
<td>3.7205</td>
<td>.054</td>
<td>.005</td>
</tr>
<tr>
<td>SELF</td>
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<td>1,687</td>
<td>0.4259</td>
<td>3.6083</td>
<td>.058</td>
<td>.005</td>
</tr>
<tr>
<td>PI</td>
<td>3.8230</td>
<td>1,687</td>
<td>3.8230</td>
<td>10.7763</td>
<td>.001</td>
<td>.015</td>
</tr>
<tr>
<td>HR</td>
<td>0.6708</td>
<td>1,687</td>
<td>0.6708</td>
<td>1.0034</td>
<td>.317</td>
<td>n/a</td>
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<tr>
<td>ELA</td>
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<td>1,2143</td>
<td>83,750.7856</td>
<td>42.3584</td>
<td>.000</td>
<td>.019</td>
</tr>
<tr>
<td>MATH</td>
<td>10,651.6734</td>
<td>1,2157</td>
<td>10,651.6734</td>
<td>1.9416</td>
<td>.164</td>
<td>.001</td>
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<tr>
<td>SRIS</td>
<td>533,293.0974</td>
<td>1,2002</td>
<td>533,293.0974</td>
<td>9.7686</td>
<td>.002</td>
<td>.005</td>
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<tr>
<td>TABS</td>
<td>34.0659</td>
<td>1,2546</td>
<td>34.0659</td>
<td>2.2950</td>
<td>.130</td>
<td>.001</td>
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<tr>
<td>TREF</td>
<td>72.2323</td>
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<td>72.2323</td>
<td>41.3544</td>
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<td>.016</td>
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<td>SUSP</td>
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<td>40.9217</td>
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<tr>
<td>ETHN</td>
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<td>1,2546</td>
<td>0.5656</td>
<td>0.4552</td>
<td>.500</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Note. ETHN = ethnicity; PEDL = parental education level; HR = home resources; LSES = participation in free or reduced lunch program; CONN = connectedness; CONS = conscientiousness; SELF = self-efficacy; PI = parental involvement; ELA = score on California Standards test in English language arts; MATH = score on California Standards test in math; TABS = total absences; TREF = total office referrals; SUSP = total days suspended SRIS = Scholastic Reading Inventory score.

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This t-test analysis showed that female students, as opposed to male students, felt a greater degree of connectedness to school/parents/peers, as well as a higher sense of parental involvement in their lives. This analysis also supported prior research that connects male students, as opposed to female students, with increased discipline issues at the middle school level.

A final t-test analysis was conducted to compare survey and nonsurvey participants. In SPSS, students who participated were coded 1 and those who did not participate were coded 0. The result for that analysis is presented in Table 13.

Structural Equation Modeling Results

This section will detail the SEM analysis (n = 576) that used EQS software with maximum likelihood estimation (ML) and robust goodness-of-fit statistical output. The initial model (see Figure 6) contained four latent variables or factors: social characteristics and student wellness, behavior, and achievement. Social characteristics consisted of home resources, parental education, and SES or participation in the free or reduced lunch program. Student wellness was comprised of
Table 13

ANOVA: Survey and Nonsurvey Participants

<table>
<thead>
<tr>
<th></th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSES</td>
<td>0.308</td>
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<td>0.308</td>
<td>2.205</td>
<td>.138</td>
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<tr>
<td>PEDL</td>
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<td>2.032</td>
<td>0.830</td>
<td>.362</td>
<td>n/a</td>
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<tr>
<td>SEX</td>
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<td>5.938</td>
<td>23.967</td>
<td>.000</td>
<td>.001</td>
</tr>
<tr>
<td>ELA</td>
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<td>1,2143</td>
<td>22,365.018</td>
<td>11.144</td>
<td>.001</td>
<td>.006</td>
</tr>
<tr>
<td>MATH</td>
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<td>1,2157</td>
<td>24,804.007</td>
<td>4.538</td>
<td>.033</td>
<td>.003</td>
</tr>
<tr>
<td>SRIS</td>
<td>316,565.236</td>
<td>1,2002</td>
<td>316,565.236</td>
<td>5.792</td>
<td>.016</td>
<td>.003</td>
</tr>
<tr>
<td>TABS</td>
<td>946.266</td>
<td>1,2546</td>
<td>946.266</td>
<td>64.433</td>
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<td>.003</td>
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<td>46.46</td>
<td>25.364</td>
<td>.000</td>
<td>.015</td>
</tr>
<tr>
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<td>31.232</td>
<td>1,2546</td>
<td>31.232</td>
<td>17.314</td>
<td>.000</td>
<td>.001</td>
</tr>
<tr>
<td>ETHN</td>
<td>7.769</td>
<td>1,2546</td>
<td>5.139</td>
<td>6.267</td>
<td>.012</td>
<td>.003</td>
</tr>
</tbody>
</table>

Note. ETHN = ethnicity; PEDL = parental education level; SUSP = total days suspended; LSES = participation in free or reduced lunch program; TABS = total absences; SEX = gender; SRIS = Scholastic Reading Inventory score; TREF = total office referrals; ELA = score on California Standards test in English language arts; Math = score on California Standards test in math.

connectedness, conscientiousness, self-efficacy, and parental involvement. Student behavior is developed from total absences, office discipline referrals, and total days suspended. Student achievement consisted of results on the students California Standards tests in English language
arts and math. Additionally, literacy, gender, and ethnicity are hypothesized to impact these four factors.

The initial proposed model was run in EQS and resulted in an unacceptable goodness-of-fit. Details concerning acceptable goodness-of-fit and factor loading values will be discussed later. Part of the resulting output includes recommended additions and deletions of pathways and is based on the Lagrange Multiplier (additions) and Wald Test (deletions). This model building/trimming process allows construction or testing of a model to achieve a theory-based and parsimonious model. However, it is cautioned that additions or deletions should be made based on theory (Byrne, 2006).

The Lagrange Multiplier Test is used to detect if additions of variables or pathways improve the fit of the model. This test, based on chi-square distribution, is calculated based on the slope of the likelihood function. The result is then used to estimate the expected improvement in model-fit with the addition of that variable or pathway.

On the other hand, the Wald Test is used to ascertain if deletions of pathways would improve the fit of the model. This test, also based on chi-square distribution,
is used to determine the extent of a statistically significant relationship between an independent and dependent variable. It determines the true value of a parameter, by comparing the unrestricted parameter to the restricted parameter, and then recommends deletions to improve the parsimony of the model.

The Wald Test recommended deletion of the factor social characteristics. Unequivocally, theory and research strongly support social characteristics as an indicator of both student behavior and achievement. This statistical anomaly, however, is explainable. A review of the measures (participation in the free or reduced lunch program, parental education levels, and home resources) used to construct the factor social characteristics reveals this anomaly. SES is a complex and continuous variable. Two of the measures (participation in the free or reduced lunch program and parental education levels) are dichotomous variables and home resources consisted of only three questions on the student survey. Consequently, a complex and continuous factor, social characteristics, was being constructed from limited, simple, and dichotomous variables. Additionally, a review of the correlations, Table 14, between these variables supports the contention
that this anomaly is due to the limitations of the measures used to construct the factor social characteristics. Therefore, based on theory and research concerning social characteristics these three measures were transformed into a single measured variable rather than a latent factor.

Table 14
Correlations of Variables for Proposed Latent Variable Social Characteristics

<table>
<thead>
<tr>
<th></th>
<th>HR</th>
<th>PEDL</th>
<th>LSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PEDL</td>
<td>0.068</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LSES</td>
<td>0.065</td>
<td>0.121**</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note. HR = home resources; PEDL = parental education level; LSES = participation in the free or reduced lunch program.*

In addition to the transformation of these measures into a single measured variable, the Lagrange Multiplier Test recommended inclusion of a pathway between the latent factors of student behavior and student achievement. Consequently, a rerun of the EQS software with a revised model resulted in acceptable goodness-of-fit values.
Results for the final model and pathways will be outlined in two steps: construction of the latent variables with overall goodness-of-fit and presentation of the proposed pathways with coefficients between the latent variables. The first step—construction of the latent variables—consists of determining if the combined manifest variables are an adequate proxy for the latent variable. Accordingly, this step describes the relationship between the measured variables (e.g., ELA and MATH) and the hypothesized unmeasured variables (e.g., student achievement). Therefore, the architect of the first step can be referred to as the measurement model. Evaluating the soundness of each individual latent variable contributes to the overall validity or fit of the full theoretical model.

Evaluating each latent variable for validity is accomplished by assessing the factor loading each manifested variable has to the latent variable, or factor. This is critical in order to assure accurate grouping. Theoretically, each manifested variable should have a factor loading of 1.0 to its corresponding latent variable and a factor loading of 0.0 to all other latent variable. Guidelines for acceptable factor loadings should approach
0.50 or greater; however, theoretical significance should also be evaluated (Hair, Anderson, Tatham, & Black, 1995). On a more recent note, Asparouhov and Muthen (2009) have argued that in pursuit of a parsimonious model, strict adherence to the Confirmatory Factor Analysis (CFA) 1.0 or 0.0 loading requirement can lead to distortions in structural relationships. Consequently, theoretical implications support inclusion into the model, although not all factor loadings approach the guideline of 0.50.

On the other hand, the $R^2$ value represents the variance explained by the underlying related factor. In other words, $R^2$ is the proportion of the variance a measured variable has, in relation to the variance of the other measured variables. Consequently, higher values for $R^2$ indicate the higher relative importance of a particular measured variable. Factor loadings and variance explained ($R^2$) for each measured variable are shown in Table 15.

The assessment for the validity of the overall model can be described as goodness-of-fit. A variety of indices have been developed to determine how well the data fits the underlying theoretical model. Chi-square test is the basic goodness-of-fit measure. However, this test is sensitive to sample size and nonnormality data. Consequently, scaled
Table 15

Factor Loadings and $R^2$ for Latent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor loading</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Wellness</td>
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<td></td>
</tr>
<tr>
<td>Connectedness</td>
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<td>.739</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.634</td>
<td>.402</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>.718</td>
<td>.516</td>
</tr>
<tr>
<td>Parental involvement</td>
<td>.613</td>
<td>.376</td>
</tr>
<tr>
<td>Student behavior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office referrals</td>
<td>.734</td>
<td>.538</td>
</tr>
<tr>
<td>Absences</td>
<td>.171</td>
<td>.029</td>
</tr>
<tr>
<td>Suspensions</td>
<td>.638</td>
<td>.407</td>
</tr>
<tr>
<td>Student achievement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELA</td>
<td>.994</td>
<td>.988</td>
</tr>
<tr>
<td>Math</td>
<td>.685</td>
<td>.469</td>
</tr>
</tbody>
</table>

chi-square indices have been developed to reduce bias due to nonnormal distribution within a dataset; the Satorra-Bentler Scaled Chi-Square index attempts to adjust for kurtosis in the data. Various researchers (Kline, 1998; Ullman, 2001; Schumacker & Lomax, 2004) have recommended ratios of 2:1 to 5:1 for acceptable chi-square index to degrees-of-freedom; Satorra-Bentler Scaled Chi-Square index ($161.1671$, $df = 80$). The Comparative Fit Index (CFI) assesses the fit of the hypothesized model relative to a perfect independent model with a value of 0.0; CFI values
greater than 0.95 indicate a good-fitting model (Bentler, 1990). The Root Mean Square Error of Approximation (RMSEA) measures the average error in parameters and estimates the lack-of-fit compared to a perfect model; RMSEA values of less than 0.06 denote a good-fitting model (Bentler, 1990). Table 16 reports the goodness-of-fit indices.

Table 16

<table>
<thead>
<tr>
<th>Index</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFI</td>
<td>.956</td>
</tr>
<tr>
<td>RMSEA</td>
<td>.042</td>
</tr>
</tbody>
</table>

The second step involves the analysis of the proposed pathways between the latent variables and their manifested variables, as well as those between the latent variables or factors. This is the assessment of the structural model. However, a note of explanation needs to occur. In SEM, a contrasting group needed to be established for ethnicity; White was designated as the contrasting group; that is why no arrow is shown from Ethnicity White to social characteristics. Figure 7 details the final proposed theoretical structural model with pathway coefficients.
One value of SEM is the ability to simultaneously examine multiple relationships. An output that is generated is the amount of variance explained. In this model, the variance in student wellness (5%) is explained by social characteristics. The variance in student behavior (6.6%) is explained by literacy, gender, and
social characteristics. The variance in student achievement (47.4%) is explained by literacy, gender, social characteristics, and student behavior.

Summary

Looking at the full model and the various standardized path coefficients allows for an assessment of the relationships that exist among the factors and measured variables. The larger the coefficient, the greater the impact described. For example, literacy has a greater impact on student achievement (0.668) than it does on student behavior (-0.097). If the sign of the coefficient is negative, then an inverse relationship is implied. For example, the sign for the path coefficient literacy to student achievement is positive, whereas for student behavior it is negative. The interpretation is that as literacy increases student achievement increases and as literacy decreases negative student behavior increases.

A general review of the research questions and specific hypotheses will be undertaken prior to the detailed discussion that will occur in chapter 5. The research questions are as follows:
1. What explained variance does student wellness have on literacy?

2. How does literacy impact student behavior and achievement?

3. What effect do social characteristics have on student wellness, behavior, academic achievement, and literacy?

4. Does gender play a role?

These research questions generated the following hypotheses which were assessed using SEM statistical techniques.

1. Social characteristics are positively correlated to student behavior and achievement.

2. Gender is positively correlated to student behavior and achievement.

3. Literacy is negatively correlated to student behavior and positively correlated to student achievement.

4. Ethnicity is positively correlated to student behavior and achievement.

5. Minority status is associated with negative student behaviors and lower student achievement.
This study, using Structural Equation Modeling, was the first to integrate the concept of student wellness, literacy, gender, and ethnicity and its resulting relationships to student behavior and achievement. These impacts will be discussed in Chapter 5 using the full model with standardized coefficients as detailed in Figure 7.
CHAPTER FIVE
DISCUSSION

This study attempts to thread together the research areas of demographics, socioeconomic status, literacy, student wellness, behavior, and academic achievement that are hypothesized to influence the decision to drop out of school, using structural equation modeling. This chapter will outline the conceptual framework applied to this study and review the overall research problem and purpose. The data collection procedures and model construction method will then be outlined. The hypotheses posed will be specifically addressed and analyzed. The results of the study will be summarized and limitations discussed. Finally, future research methodologies will be proposed.

Review of Conceptual Framework

This study's conceptual foundation is Critical Race Theory (CRT) which postulates that ethnicity is intimately connected to the social structures and interactions within our society. Supporting CRT are the concepts of social reproduction, and power and resistance. Social reproduction
is the perpetuation of the rules, customs, and norms of the
dominant ethnicity (Bowles & Gintis, 1976; Nash, 1990).
Power and resistance are mirror images: individuals have
choice or agency (Foucault, 1975; McLaren, 1989; Giroux,
2006). These four lenses help shed light on the persistent
and seemingly ingrained nature of dropping out of school.
Understanding the theoretical underpinnings of the dropout
problem can lead to the dismantling of policies and
procedures that seem to push-pull a student towards a
pathway of dropping out. This understanding can also lead
to implementation of programs that help keep a student on
the pathway to graduating from high school.

Review of Research Problem and Purpose of Study

The purpose of this research is to articulate the
connections between pathways that can impact the decision
to drop out of school. The correlates of dropping out are
well known. However, the majority of research has been
conducted and built on a deficit model: the student is the
problem, rather than the student being the solution. This
deficit model contributes to the feeling of hopelessness
that many individuals—teachers, staff, and
administrators—within the educational fraternity have
little impact on the outcomes of students, due to the inability to change the demographics and socioeconomic factors of students.

On the other hand, helping to improve the agency capacity of students is clearly within the realm of the educational system. The concept of student wellness, born out of the positive psychology movement (Seligman & Csikszentmihalyi, 2000), consists of autonomy, personal growth, environmental mastery, positive relations with others, and a sense of purpose in life, and self-acceptance (Ryff & Keyes, 1995). Student wellness is a learned process (Bruhn, et al, 1977) and the purpose of the educational system is to help students learn. The learning process starts from birth. Likewise, in the educational system, the pathways for learning and dropping out also start early (Rumberger, 1995; Alexander et al., 2001). The transitions from elementary to middle, and then to high school has been shown to impact student engagement, and consequently their academics and behavior (Alspaugh, 1998; Cantin and Boivin, 2004; Fredricks et al, 2004; McIntosh, Flannery, et al, 2008; McIntosh, Horner, et al, 2008; Theriot & Dupper, 2010).
Student learning and achievement are impacted by engagement. For the purposes of this study, the operational definition of student wellness was constructed from connectedness, self-efficacy, conscientiousness, and parental involvement which can be considered as elements of engagement (Fredricks et al, 2004). Learning is also affected by literacy, part of which is the ability to decipher and comprehend written material (National Center for Education Statistics, 2003). Literacy has been documented as being correlated with demographic and SES factors, student behavior, and achievement (Hinshaw, 1992; Maughan, et al, 1996; Buchanan & Flouri, 2001). Consequently, because of the entwining nature of student wellness, literacy, student behavior and academic achievement hypotheses were developed and investigated using archival and survey data from a large urban American public school district in Southern California.

Review of Data Collection and Model Construction

Archival data was collected during the first semester of school year 2010-11. Survey administration, with parental permission, was conducted at the participating middle schools in science classes during October-December.
school year 2010-11. Student data (n = 2,565) was analyzed using SPSS for all screening, including multivariate outliers, descriptive statistics, and bivariate correlational analysis. EQS was used on complete cases (n = 576) to develop the structural equation model (see Figure 7).

Minor model modification occurred due to limiting measurement capacity. Initially, social characteristics was designated a factor; however, this complex continuous construct was being measured by simple dichotomous measures. Consequently, the initial proposed four factor model was modified into a three factor model with predicting and mediating variables.

The creation of the final three factor model consisting of student wellness, student behavior and student achievement, with predicting and mediating variables was well supported (see Figure 7 and goodness-of-fit: CFI = 0.956; RMSEA = 0.042). All of the manifested variables showed significant pathways for their respective factors. Table 17 shows the coefficients for the pathways. On the other hand, support for the pathways between the factors, and predicting and mediating variables was mixed. Table 18 shows coefficients for these variables and
factors. The specific discussion of these coefficients will occur in the section hypotheses and analysis.

Table 17

*Standardized Coefficients of Manifested Variables*

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student wellness</td>
<td></td>
</tr>
<tr>
<td>Connectedness</td>
<td>.860*</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.634*</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>.718*</td>
</tr>
<tr>
<td>Parental involvement</td>
<td>.613*</td>
</tr>
<tr>
<td>Student behavior</td>
<td></td>
</tr>
<tr>
<td>Office referrals</td>
<td>.734*</td>
</tr>
<tr>
<td>Absences</td>
<td>.171*</td>
</tr>
<tr>
<td>Suspensions</td>
<td>.638*</td>
</tr>
<tr>
<td>Student achievement</td>
<td></td>
</tr>
<tr>
<td>ELA</td>
<td>.994*</td>
</tr>
<tr>
<td>Math</td>
<td>.685*</td>
</tr>
</tbody>
</table>

*p Variable coded a constant in the analysis.

*p ≤ 0.05

Hypotheses and Analysis

This section will provide a discussion of the specific hypotheses proposed. The following five hypotheses were articulated and will be evaluated individually.
Table 18

Standardized Coefficients of Predicting and Mediating Variables

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Characteristics</strong></td>
<td></td>
</tr>
<tr>
<td>Student Wellness</td>
<td>.234*</td>
</tr>
<tr>
<td>Student Behavior</td>
<td>.062</td>
</tr>
<tr>
<td>Student Achievement</td>
<td>.082*</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Student Behavior</td>
<td>.230*</td>
</tr>
<tr>
<td>Student Achievement</td>
<td>.107*</td>
</tr>
<tr>
<td><strong>Literacy</strong></td>
<td></td>
</tr>
<tr>
<td>Student Behavior</td>
<td>.038</td>
</tr>
<tr>
<td>Student Achievement</td>
<td>.668*</td>
</tr>
</tbody>
</table>

* $p \leq 0.05$

**Hypothesis 1**

The first hypothesis was that social characteristics would be positively correlated with student wellness, behavior, and achievement. This hypothesis was partially supported. Social characteristics predicted student wellness and achievement, but do not predict student behavior. The coefficients for the pathway between social characteristics and student achievement ($0.082, p \leq 0.05$) and wellness ($0.234, p \leq 0.05$) were significant; on the
other hand, the pathway towards student behavior \((-0.062, p \geq 0.05)\) was not. The finding of significance between social characteristics and student achievement is clearly supported by prior research which has demonstrated a strong correlation between demographics, SES, and parental education levels (components of social characteristics) and student achievement. The significance of social characteristics on student wellness is a new finding in the literature. This will be discussed further in the section implications for future research.

**Hypothesis 2**

The second hypothesis was that gender would be positively correlated to student behavior and achievement. This hypothesis was strongly supported. Gender predicts both student behavior \((0.230, p \leq 0.05)\) and achievement \((-0.107, p \leq 0.05)\). Gender was coded females (1) and males (2). Therefore, the interpretation for behavior would be as gender increases, student misbehavior increases. The interpretation for student achievement, on the other hand, would be that as gender decreases student achievement increases. The finding that gender is predictive of student behavior and achievement was expected, and is supported by prior research. Male students have been shown
to exhibit higher rates of deviant behavior— as evidenced by office discipline referrals and suspensions— than female students (Rumberger, 1995; Suh et al., 2007) and female students tend to perform better academically than male students (Pomerantz, Altermatt, & Saxon, 2002; Duckworth, & Seligman, 2006).

**Hypothesis 3**

The third hypothesis was that literacy would be negatively correlated to student behavior and positively correlated to student achievement. This hypothesis was partially supported. Literacy mediated student achievement (0.668, \( p \leq 0.05 \)), but did not significantly mediate student behavior (-0.097, \( p \geq 0.05 \)). The positive and significant coefficient for the literacy-student achievement pathway makes sense and was expected. This result is supported by prior research that strongly correlates the ability to read and comprehend written material with academic achievement. On the other hand, the finding of a negative coefficient for the literacy-student behavior pathway was expected; however, not being a significant factor was unexpected. Numerous researchers (Hinshaw, 1992; Rumberger, 1995; Alexander et al, 2001;
McIntosh et al., 2006) have indicated a robust association between literacy and deviant behavior.

This finding, however, highlighted a methodological weakness. Procedurally, teachers distributed survey participation permission letters to students, who then had to return the letter, signed by their parents or guardians, in order to participate in the survey. This method is called active parental permission; passive parental permission would be when a student is automatically included, unless a parent or guardian specifically requests nonparticipation. Researchers have reported that when active parental permission is required, lower participation rates occur (50% or lower), especially in minority and low SES students (Dent, Sussman, & Stacy, 1997; Eaton, Lowry & Brener, 2004). The lower participation rates for active parental permission could be the perceived inconvenience of having to return the signed parental permission letter (Moberg, & Piper, 1990). The return rate for this study (28%) was significantly below reported participations rates from the previously mentioned researchers.

This study was designed to investigate the connection of student wellness to literacy, student behavior and achievement. The student wellness construct included
connectedness and parental involvement. If a student is less connected, or a parent is less involved, the expected probability for returning a permission letter would be smaller. Upon quantitative inspection, there is an obvious difference between the characteristics of survey takers versus nonsurvey takers.

Investigating the differences was accomplished by looking at descriptive statistics that compared survey and nonsurvey participants and ANOVA with Post Hoc listwise analysis. Initially, students who agreed to participate in the survey were recoded coded one and those that did not were recoded coded two. No significance was found between groups in the areas of parental education levels and participation in free or reduced lunch program which are indicators of financial resources available to the family. Table 19 shows the significant differences between the survey and nonsurvey participants.

Descriptive statistics highlighted differences in gender and ethnicity. The composition of gender for the population was males (51.15%) and females (48.85%); on the other hand, the sample was males (43.34%) and females (56.66%). Ethnicity for the population was Hispanic (65.15%) and African-American (17.43%), whereas the sample
Table 19

Differences: Survey Participants Versus Nonsurvey Participants

<table>
<thead>
<tr>
<th></th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETHN</td>
<td>7.769</td>
<td>1,254</td>
<td>5.139</td>
<td>6.267</td>
<td>.012</td>
<td>.003</td>
</tr>
<tr>
<td>MATH</td>
<td>24,804.007</td>
<td>1,2157</td>
<td>24,804.007</td>
<td>4.538</td>
<td>.033</td>
<td>.003</td>
</tr>
<tr>
<td>SRIS</td>
<td>316,565.236</td>
<td>1,2002</td>
<td>316,565.236</td>
<td>5.792</td>
<td>.016</td>
<td>.003</td>
</tr>
<tr>
<td>ELA</td>
<td>22,365.018</td>
<td>1,2143</td>
<td>22,365.018</td>
<td>11.144</td>
<td>.001</td>
<td>.006</td>
</tr>
<tr>
<td>SEX</td>
<td>5.938</td>
<td>1,2546</td>
<td>5.938</td>
<td>23.967</td>
<td>.000</td>
<td>.001</td>
</tr>
<tr>
<td>TABS</td>
<td>946.266</td>
<td>1,2546</td>
<td>946.266</td>
<td>64.433</td>
<td>.000</td>
<td>.003</td>
</tr>
<tr>
<td>TREF</td>
<td>46.46</td>
<td>1,2546</td>
<td>46.46</td>
<td>25.364</td>
<td>.000</td>
<td>.015</td>
</tr>
<tr>
<td>SUSP</td>
<td>31.232</td>
<td>1,2546</td>
<td>31.232</td>
<td>17.314</td>
<td>.000</td>
<td>.001</td>
</tr>
</tbody>
</table>

Note. ETHN = ethnicity; Math = score on California Standards test in math; SRIS = Scholastic Reading Inventory score; ELA = score on California Standards test in English language arts; SEX = gender; TABS = total absences; TREF = total office referrals; SUSP = total days suspended.

consisted of Hispanic (69.12%) and African-American (13.88%). All other ethnicities were similar. The specifics of the Post Hoc listwise analysis will be discussed when addressing hypothesis four.

Hypothesis 4

The fourth hypothesis was that minority status is associated with negative student behaviors and lower student achievement. This hypothesis was not supported.
In the initial proposed model, ethnicity was hypothesized to be fully mediated through social characteristics. The weakness of the measuring instrument for social characteristics did not support ethnicity as fully mediating student behavior and achievement. However, prior research has clearly documented the effect of ethnicity on both student behavior and achievement (Alexander et al., 2001; Hinshaw, 1992; Rumberger, 1995; Skiba et al., 2002).

Therefore, additional ANOVA Post hoc with listwise analysis was done. Survey and nonsurvey participants were recoded based on ethnicity and gender. For example, if a survey participant was Hispanic and female, she would be labeled SHF and coded 1; or, if a nonparticipant was African-American and male, he would be labeled NSBM and coded two. The four main ethnicities of this study—Hispanic, African-American, White and Asian—were coded in this manner; 16 recoded codes resulted.

The results demonstrated the distinct difference between survey and nonsurvey participants. In the domain of student behavior, as supported by prior research (Skiba et al., 2002), African-American students, primarily males, were clearly overrepresented. There were significant differences in average total referrals (1.63) and
\( (F(1,2564) = 25.273, p \leq 0.01, \eta^2 = 0.009) \) and days suspended \( (1.19) \) and \( (F(1,2564) = 17.314, p \leq 0.01, \eta^2 = 0.006) \) for nonsurvey African-American males versus all other ethnicities whether they participated in the survey are not. For example, the next highest average total referrals were nonsurvey African-American females (0.83), whereas the highest for survey participants was African-American males (0.76) followed by African-American females (0.37). This pattern also held when looking at total days suspended.

In contrast, the pattern for total days absent \( (F(1,2564) = 64.433, p \leq 0.05, \eta = 0.002) \) showed that all survey participants’ ethnicities and gender, except for White males (2.55), had lower averages. Nonsurvey participants total days absent, ranged from highest, African-American male (4.35) and \( (F(1,2564)=64.433, p \leq 0.01, \eta^2=0.002) \) to lowest, Asian male (2.14), whereas survey participants, except for White males, ranged from highest, White female (2.11) to lowest, Asian female (0.84).

In the domain of student achievement, although gender did affect achievement, ethnicity appeared to have more of an impact. The only significant predictor of social
characteristics was in the category Hispanic (-0.224, \( p < 0.05 \)). To investigate this further, previously coded ethnicity-gender labels were collapsed into four coded groups. For example, Hispanic survey participants, both male and female, were collapsed into one group (recoded coded 1); all other survey participants were grouped together (recoded coded 2). This procedure was also followed for nonsurvey participants; Hispanic (recoded coded 3) and all others (recoded coded 4).

The results of this ANOVA post hoc listwise analysis revealed the impact of ethnicity on student achievement. Survey participants, as a group, had higher average scores in literacy (\( F(1,2020)=5.79, p=0.016, \eta^2=0.003 \)), and the California STAR tests ELA (\( F(1,2160)=11.14, p<0.01, \eta^2=0.005 \)) and MATH (\( F(1,2175)=4.54, p=0.033, \eta^2=0.002 \)) when compared to nonparticipants. Specifically, Hispanics that participated in the survey had literacy (\( F(3,1958)=5.95, p=0.01, \eta^2=0.009 \)) and ELA (\( F(3,22092)=9.02, p=0.01, \eta^2=0.012 \)) scores significantly higher than Hispanics who did not take the survey. The differences in the math scores of participants versus nonparticipants were primarily due to the scores of African-American, White and Asian participants.
Hypothesis 5

The fifth hypothesis was that student wellness would be positively correlated to literacy. This hypothesis was not supported. The coefficient \((0.038, p \geq 0.05)\) for the pathway between student wellness and literacy was not significant. However, the methodological weakness discussed in hypothesis three, requiring active parental permission, clearly is applicable when considering this hypothesis. Discussion of this result will be included in the section implications for future research.

Summary of Results

The primary goal of this study was to conceptualize multiple pathways that could push-pull a student towards dropping out. This involved connecting the research areas of demographics, socioeconomic status, literacy, and student wellness, behavior, and achievement using structural equation modeling. This study supports the continued paradigm shift from a deficit model of dropout towards a model where the student is part of the solution.

The initial proposed theoretical model only changed slightly due to the ineffective instruments used to measure social characteristics. The final three-factor model of
student wellness, behavior, and achievement (CFI = 0.956, RMSEA = 0.42) is strongly supported theoretically. In the model, gender was a significant predictor for both student behavior (0.230, \( p < 0.000 \)) and achievement (-0.107, \( p < 0.000 \)). Social characteristics, even with its measurement weakness, were able to predict student achievement (0.082, \( p \geq 0.05 \)) and student wellness (0.234, \( p \geq 0.05 \)). Literacy was shown to mediate student achievement (0.668, \( p \geq 0.05 \)). Variance explained included student achievement (47.4%), student behavior (6.6%), and student wellness (5%).

The model implies that simultaneous relationships exist at both the macro- and microlevels within the educational system. Additionally, this study helps to expose the interactive pathways that could be targeted for support or disruption. This study also accents the priority for the simultaneous investigation of concepts or pathways that can lead to dropping out. However, there were theoretical disconnects within the model that are highlighted by insignificant coefficients and lack of variances explained.

The theoretical disconnect occurs in three places. The first disconnect was with social characteristics previously discussed as a weakness in measurement. The
second was literacy as a mediating variable for student behavior. The third disconnect was the construct of student wellness and its mediation of student behavior and achievement through literacy. Numerous researchers have documented the effect of student engagement, connectedness, self-efficacy, parental involvement, and literacy on student behavior and achievement (Alexander et al., 2001; Fredricks et al., 2004; Hinshaw, 1992; Klem & Connell, 2004; McIntosh, Flannery et al., 2008; McNeeley, et al., 2002; Rumberger, 1995; Skiba et al., 2002). These disconnects will be discussed in the next section concerning limitations of the study.

Limitations of Study

The major limitation for this study was methodological. This study investigated the concept of student wellness that consisted of connectedness, conscientiousness, self-efficacy, and parental involvement. A requirement to participate in the survey, designed to elicit these constructs, was active parental permission which required a student to take home a permission letter and return it signed by their parent or guardian. Research has shown that the requirement of active parental
permission, which is reasoned as being inconvenient, results in reduced rates of participation (Dent et al., 1997; Eaton et al., 2004; Moberg, & Piper, 1990). Students who are less connected to school or school activities, a staff member at the school, or parents who are less involved with their child's education would be less inclined to return a permission letter. Consequently, a segment of the population that could clearly impact results is excluded from the study. Post hoc analysis clearly demonstrated differences between the population and the sample used to construct the model. Therefore, the effect of student wellness and its comprising constructs, as well as its mediation of student behavior and achievement through literacy was compromised. The dissimilarity of the population and the sample results in interpretation for the sample only and does not allow for generalization to other populations.

Another limitation is a consequence of the student's ages. The full CAWS survey consists of 100 questions and is designed to elicit a broader range of student wellness constructs. Additionally, as previously mentioned, the survey had only three questions to assess home resources, part of the social characteristic construct, and seven
questions to elicit parental involvement, part of student wellness. The student's age at sixth-grade limits the use of the full CAWS survey and the total number of questions on a survey. As a result, only a limited numbers of questions relating to home resources could be asked. This was part of the reason the social construct as a factor had to be dropped and converted into a measured variable. This could have limited its predictive value.

A final limitation pertains to archival data. Student achievement consisted of results on the California STAR tests in English Language Arts and math and scholastic Reading Inventory scores. These tests were administered when the students were in fifth-grade (spring), prior to the transition into sixth-grade and reflect on the context at their previous school site, not their current one. These limitations highlight areas that should be addressed in future research.

Implications for Future Research

This study implicates the need to continue the paradigm shift from a deficit model of dropping out, to one where the student, supported by a school system that fosters the development of wellness becomes the solution.
The concept of student wellness holds much promise for being part of the solution. Even though the instrument used to measure social characteristics was weak, it still predicted student wellness. Social characteristics were a combination of home resources, participation in free/reduced lunch program, and parental education level. Home resources were strongly correlated with the four constructs (connectedness, conscientiousness, self-efficacy, and parental involvement) of student wellness. Yet, post hoc analysis of survey takers and non-survey takers showed there was no significant difference between parental education level and participation in free/reduced lunch program which are indicators of available financial resources. This would seem to indicate that parents of survey takers appeared more willing to invest available financial resources on their child's education.

The theory of social reproduction - the perpetuation of values, norms and culture - can help provide an explanation for this result. As students see their parents spending their resources (time and money) on their education, their perceived value of that education is enhanced. Consequently, student’s achievement increases and
misbehavior decreases. Post hoc analysis clearly demonstrated this result.

The educational system can also be viewed under the lens of social reproduction. A plethora of research has demonstrated how macro-level processes (policies and procedures) impact students. Yet, micro-level processes (day-to-day interactions) have also been shown to positively affect student behavior and achievement.

Specifically, wellness has been shown to impact achievement and at-risk factors (Hollingsworth, 2009; Lemon, 2010) for dropping out. Cowen (1994) discussed how forming beneficial attachments develops wellness. Students who have parents willing to invest time (parental involvement) and money (social characteristics) into their education see that their parents value education and reproduce that value (social reproduction). Likewise, teachers can demonstrate an investment in students by positively connecting and engaging them within their day-to-day interactions. These positive interactions are also a form of social reproduction.

Consequently, the implications for the educational system, when viewed through the lens of social reproduction, support early initiation of strategies and
interventions designed to increase student wellness. Given that this study reflects that wellness is developed differentially based upon the students’ home resources, it becomes a school’s task to determine models of practice that equally produce opportunities for student wellness despite home resources.

However, future research on the construct of student wellness needs to be conducted using passive parental permission rather than active. This presumably would result in a more representative sample, as well as including a segment of students that are potentially less engaged or connected. The use of passive parental permission implies the need for greater collaboration between universities and school districts. Part of a school district’s registration packet could be the acknowledgment of survey investigations that occur in the district. The district could then automatically administer a student wellness inventory or other types of surveys. For example, many districts currently administer the California Healthy Kids survey. Although this type of survey can provide an overarching picture of student engagement and school climate, unfortunately, this type of survey is anonymous and cannot connect individual students with specific wellness
characteristics. Therefore, individual student results need to be collected so that this information can become archived and a longitudinal database can be constructed.

However, future research on the construct of student wellness needs to be conducted using passive parental permission rather than active. This presumably would result in a more representative sample, as well as including a segment of students that are potentially less engaged or connected. The use of passive parental permission implies the need for greater collaboration between universities and school districts. Part of a school district's registration packet could be the acknowledgment of survey investigations that occur in the district. The district could then automatically administer a student wellness or other types of surveys. This information then becomes archived and a longitudinal database could start to be constructed.

Future research also needs to focus on the other components—adaptability, empathy, optimism, mindfulness, initiative, and social competence—that are part of the student wellness construct. A significant need for longitudinal data within the domain of student wellness is paramount. Since wellness is considered a learned process,
documentation over time would help unravel the trajectory of this construct. An important component for understanding this trajectory would be the use of qualitative research, so that the voices of students could be heard. These voices would help uncover some of the nuances relating to student wellness and allow for a deeper understanding of this construct.

Another area for future research would be the impact of social characteristics and ethnicity on student wellness. Only limited research has occurred in this area. However, this study found that the pathway from social characteristics to student wellness was significant. Even though there was weakness in the measurement of social characteristics, this finding indicates that future research with better measurement could potentially decipher the relationships of social characteristics and ethnicity to student wellness.

A final research area would be to uncover more fully the relationship between student behavior and achievement. The pathway in this study’s model showed a negative and insignificant coefficient between student behavior and achievement. However, the fact that this pathway did not show significance does not mean the pathway is irrelevant.
Trzesniewski et al. (2006) proposed a reciprocal relationship between reading skills and behavior. In this study and prior research, the correlation between literacy and achievement is very strong. McIntosh and colleagues (2006, 2008) have been investigating the connection between academics and behavior. For this study, student wellness was mediated through literacy. Future research could be directed at student wellness directly predicting student behavior and achievement.

A change from a deficit model of dropout to one that embraces student wellness as a protective factor against dropping out would directly have an important educational application. Members of the educational community realize they cannot change a student's demographics, language, or socioeconomic status. On the other hand, teachers and other members of the educational system can and should directly affect a student's feelings of connectedness and self-efficacy despite what resources are available to them. Development of student wellness could help reduce the influences that push-pull a student towards the pathways to dropping out. The result would be an increase in the factors that could push-pull a student towards pathways that keep them in school.
APPENDIX A

INSTITUTIONAL REVIEW BOARD PERMISSION
September 15, 2010

Mr. Allan Aals
Department of Educational Leadership
dr: Prof. Carolyn Eggleston
Department of Educational Psychology and Counseling
California State University
5500 University Parkway
San Bernardino, California 92407

Dear Mr. Aals:

Your application to use human subjects, titled "Middle School Trajectory to Literacy: A Structural Equation Model" has been reviewed and approved by the Institutional Review Board (IRB). The attached informed consent document has been stamped and signed by the IRB chairperson. All subsequent copies used must be the officially approved version. A change in your informed consent (no matter how minor the change) requires resubmission of your protocol as amended. Your application is approved for one year from September 15, 2010 through September 14, 2011. One month prior to the approval end date you need to file for a renewal if you have not completed your research. The protocol renewal form is on the IRB website. See additional requirements of your approval below.

The CSUSB IRB has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval notice does not replace any departmental or additional approvals which may be required.

Your responsibilities as the researcher/investigator reporting to the IRB Committee include the following requirements. You are required to notify the IRB of the following: 1) submit a protocol change form if any substantive changes (no matter how minor) are made in your research protocol/protocol, 2) if any unanticipated adverse events are experienced by subjects during your research, and 3) when your project has ended by emailing the IRB Coordinator. Please note that the protocol change forms and renewal forms are located on the IRB website under the forms menu. Failure to notify the IRB of the above may result in disciplinary action. You are required to keep copies of the informed consent forms and data for at least three years.

If you have any questions regarding the IRB decision, please contact Michael Gillespie, IRB Compliance Coordinator. Mr. Michael Gillespie can be reached by phone at (909) 537-7588, by fax at (909) 537-7028, or by email at mgillespie@csusb.edu. Please include your application identification number (above) in all correspondence.

Best of luck with your research.

Sincerely,

Sharon Ward, Ph.D.

Sharon Ward, Ph.D., Chair
Institutional Review Board

cc: Prof. Carolyn Eggleston, Department of Educational Psychology and Counseling

800.537.7588 • fax: 909.537.7028 • http://irb.csusb.edu/
5500 UNIVERSITY PARKWAY, SAN BERNARDINO, CA 92407-2393

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APPENDIX B

DISTRICT SUPPORT LETTER
May 19, 2010
Allan L. Aab
22632 Raven Way
Grand Terrace, CA 92313

Dear Mr. Aab,

I have reviewed your study proposal "Middle School Trajectory to Literacy: A Structural Equation Model." I understand that your study will require a survey be administered to 6th grade students in the class of 2010-11 and will require the collection of demographic, attendance, and discipline data for this group. You have District permission to contact middle school principals to initiate conversation regarding the participation of their school. This office will:

- Notify principals that permission for the study has been granted,
- Assist you with the creation and administration of the online survey, and
- Assist you with the collection of needed student data.

Please send a copy of findings of your study upon conclusion. Give me a call if you need additional information or assistance.

Sincerely,

Dan Reed
Director, Accountability & Assessment
APPENDIX C

CHILD AND ADOLESCENT WELLNESS

SCALE PERMISSION EMAIL
Hi, Allan

Permission is granted to Allen Aab to use the CAWS for research purpose. R. Brett Nelson Ph D.

E-mail

permission

From: Brett Nelson <brett@csusb.edu>  
To: allenab@abac.com

Attachment

permission

From: Brett Nelson <brett@csusb.edu>  
To: allenab@abac.com

Attachment

Permission is granted to Allen Aab to use the CAWS for research purpose. R. Brett Nelson Ph D.

E-mail

permission
APPENDIX D

STUDENT SURVEY
Dear Student: Please complete the items below to the best of your ability. Please complete all items, based on the ONE response that best describes how you see yourself today. Circle ONLY ONE of the four possible responses for each item.

SD = Strongly disagree/Not at all like me  
A = Agree/Like me  
D = Disagree/Unlike me  
SA = Strongly agree/Very much like me

<table>
<thead>
<tr>
<th>Item</th>
<th>SD</th>
<th>D</th>
<th>A</th>
<th>SA</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I do what I say I'm going to do</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>I feel comfortable asking others for help</td>
</tr>
<tr>
<td>2. I can admit to mistakes I make</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>The choices I make are thoughtful ones</td>
</tr>
<tr>
<td>3. I am cared for and loved</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>My friends are very supportive</td>
</tr>
<tr>
<td>4. I feel like I belong at school</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>My family is fun to be around</td>
</tr>
<tr>
<td>5. I care about my health</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>I belong</td>
</tr>
<tr>
<td>6. I am dependable</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>My life is empty</td>
</tr>
<tr>
<td>7. I get plenty of support from friends and the community</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>I am confident and self-assured</td>
</tr>
<tr>
<td>8. When something goes wrong that I am responsible for, I try to make it right</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>I hope to continue to learn new things for the rest of my life</td>
</tr>
<tr>
<td>9. I know what I do well in at school</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>I take pride in my accomplishments</td>
</tr>
<tr>
<td>10. I am close to my dad</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>Learning new things is fun</td>
</tr>
<tr>
<td>11. I don't give up easily, as I am determined</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>I don't like to volunteer to help others</td>
</tr>
<tr>
<td>12. I am responsible for my actions</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>In my family, nobody listens to one another</td>
</tr>
<tr>
<td>13. I exercise regularly</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>I take care of my body</td>
</tr>
<tr>
<td>14. Sometimes it helps to have another's opinion</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>I finish what I start</td>
</tr>
<tr>
<td>15. It's important to have a plan when taking on a task</td>
<td>SD</td>
<td>D</td>
<td>A</td>
<td>SA</td>
<td>I feel supported and listened to in my life</td>
</tr>
</tbody>
</table>

How often do your parents/guardians do the following in the school year? Please use the scale below to give your answers.

<table>
<thead>
<tr>
<th>Item</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>31. Ask me about school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>32. Talk about school work with me at home.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>33. Encourage me to work hard at school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>34. Expect me to behave and perform well at school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>35. Keep track of my school progress.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>36. Praise me for my progress and improvement in school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>37. Help me when I have trouble with homework.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>38. Try their best to provide me with resources for studying.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>39. How often can you access a computer with internet at home for school work?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>40. How often do you have the opportunity to have out-of-school learning experiences?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

(For example: going to a museum, watching a science/history program on TV/DVD)
REFERENCES


Downey, D. (1995). When bigger is not better: Family size, parental resources and children's educational


Epstein, J. (1986). Towards an integrated theory of school and family connections (report #3). Center for research on elementary and middle schools, Baltimore, MD, Office of Research and Improvement: Washington, DC, 1-63


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adequacychapter.pdf


