ACADEMIC ACHIEVEMENT AND TRAUMATIC STRESS AMONG PRIMARY SCHOOL STUDENTS

By

RACHAEL DONELSON GOODMAN

A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL
OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

2009

To my parents

ACKNOWLEDGMENTS

I thank my committee members, Drs. Cirecie West-Olatunji, Peter A. D. Sherrard, M. David Miller, and Wayne Griffin for their insight, guidance, and support throughout my graduate studies. I greatly value the encouragement and thoughtfulness they offered to me during my doctoral program. I offer special appreciation to my co-chair, Dr. Cirecie West-Olatunji, who has been my mentor, adviser, teacher, and role model. I thank Dr. Linda Behar-Horenstein for her support and guidance, particularly during the proposal process. I also thank Jon Cohen for his assistance during the analysis process. Finally, I extend my appreciation to my family and friends for their love, humor, and support. They have provided endless understanding and encouragement throughout my doctoral studies.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy

ACADEMIC ACHIEVEMENT AND TRAUMATIC STRESS AMONG PRIMARY SCHOOL STUDENTS

By

Rachael Donelson Goodman

May 2009

Chair: Peter A. D. Sherrard
Cochair: Cirecie A. West-Olatunji
Major: Mental Health Counseling

The purpose of this study was to examine the relationship between traumatic stress and the academic achievement of primary school students. National educational achievement statistics show that academic underachievement is a significant problem for all students in the United States and for culturally diverse students is particular. This study utilized data from a nationally norm referenced database collected by the National Center for Education Statistics (NCES) to assess the relationship between traumatic stress and academic underachievement for primary school students. Furthermore, it examined if the relationship between traumatic stress and academic underachievement was controlled by culture, gender, or socioeconomic status (SES). Thus far, deficit-orientated perspectives have guided programs that attempt to improve the academic achievement of students in general and culturally diverse students in particular. Traumatic stress theory allows for ecosystemic factors to be included in an understanding of academic achievement, which engenders a strength-based view of students. Linear regression analyses showed that traumatic stress was a significant negative predictor of academic achievement. Furthermore, lower socioeconomic status or culturally diverse background also predicted negative achievement. Implications of this study are that counselors and educators

need to assess for traumatic stress among students, as traumatic stress has a significant impact on achievement. Interventions for traumatic stress in the school setting are needed in order address chronic underachievement of students.

CHAPTER 1
INTRODUCTION

In the United States, only 68% of students who enter 9th grade will graduate with a regular diploma in 12th grade (Orfield, Losen, Wald & Swanson, 2004). While the graduation rate for European American students is 75%, the graduation rate is lower among culturally diverse groups: 50% for African American students, 51% for Native American students, and 53% for Latina/o students. European American males graduate at a rate of 71% versus 77% for European American females, while African American, Native American, and Latino males graduate at rates of 43%, 47%, and 48% respectively. Failure to graduate presents a significant problem for these students, as a high school diploma is considered necessary to earn a living wage.

Concerns about the academic performance of socially marginalized students are evident throughout the educational process (Steele, 1997). Culturally diverse students show significantly lower school achievement compared to their European American counterparts in a variety of areas (Osborne, 1999). African Americans are disproportionately reprimanded at school and more severe punishments are used, such as corporal punishment, suspension, and expulsion (Townsend, 2000). Culturally diverse students are overrepresented in the juvenile justice system, as well as in special education where the services they receive are often inadequate (The Civil Rights Project, 2002). Biases in the assessment system lead to the overrepresentation of African American males in special education (Harry & Anderson, 1995). Outcomes of participating in this program include stigmatization, low self-esteem, and inadequate preparation for the future. African American males show chronic poor performance and behavior problems at school (Davis, 2003).

Despite efforts to address this problem, underachievement persists among culturally diverse students (Hudley & Graham, 2001). Indeed, efforts to address academic

underachievement have been based on deficit-oriented views that actually contribute to academic underachievement, particularly for culturally diverse students (Ford, Harris, Tyson & Trotman, 2002). Such deficit-oriented views do not take into account ecosystemic factors that create barriers to academic achievement for students. Traumatic stress theory identifies the effect that ecosystemic factors may have on an individual's functioning. Thus, this theory can be used to improve the way in which educators and counselors intervene with children in order to improve their academic achievement from a strength-based perspective.

Traditionally, mental health practice has relied on the American Psychiatric Association's (APA), *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) to guide case conceptualization, assessment, and treatment (Eriksen & Kress, 2006; Mead, Hohenshil & Kusum, 1997; Seligman, 1999; White, 2002). The field of trauma has been greatly influenced by the *DSM* since posttraumatic stress disorder (PTSD) was added as a diagnosis to the third edition in 1980 (Halpern & Tramontin, 2007; Scaer, 2001). Since that time, mental health professionals have been able to diagnose clients with PTSD, receive insurance coverage, and seek legal recourse when appropriate (Burstow, 2005; Cosgrove, 2005; James & Gilliland, 2005; McLaughlin, 2002; White).

The addition of PTSD to the *DSM* had further implications for mental health, as it engendered the systematic study of trauma and trauma treatment (van der Kolk & McFarlane, 1996). In general, the *DSM* informed how trauma was to be understood (Becker, 1995; Danieli, 1998; Herman, 1997). The definition of trauma legitimized certain events as traumatic (Burstow, 2005) and articulated the expected effects of trauma on the traumatized individual (Rothschild, 2000; van der Kolk & McFarlane). Furthermore, the *DSM* informed and guided mental health treatment for traumatized individuals (Becker; Danieli; Eriksen & Kress, 2006; Herman).

According to some mental health professionals, despite considerable revisions in the *DSM*, the PTSD criteria continue to have significant limitations (Burstow, 2003; Halpern & Tramontin, 2007). The definition of trauma is criticized for disregarding individuals' unique perceptions (Rothschild, 2000) and for excluding experiences that are common in certain communities (Levine, 1997), such as patriarchal violence experienced by women (Burstow, 2003, 2005). Ivey and Ivey (1998) reported that the individual focus does not acknowledge that the trauma may be located within the family or larger context. Recent literature has noted that experiences of systemic oppression and transgenerational trauma can be significant sources of traumatic stress and therefore should be included in conceptualization and treatment of traumatic stress (Bryant-Davis & Ocampo, 2005; Carter, 2007).

Given this expanding understanding of trauma, it is reasonable to expect that the rate of trauma exposure, and therefore traumatic stress, among children is much higher than previously thought. Indeed, scholars have noted that the impact of traumatic stress on mental health is likely underestimated (McFarlane, 2000). However, little is actually known about the rate of trauma in the population (Kessler, 2000). There is variance regarding the prevalence of exposure to trauma, the development of symptoms, and PTSD (Breslau, 2002). One study found that adolescents meet PTSD criteria at a rate of less than 3% (Cuffe et al., 1998).

Traumatic symptoms in children include irritability, trouble concentrating, hypervigilance or worrying about safety, and trying to avoid thinking about the traumatic event (Graham-Bermann & Levendosky, 1998; Schuster et al., 2001). Children who have experienced traumatic violence also may experience intrusive thoughts about the traumatic event and increased startle response (Graham-Bermann & Levendosky). Children may also have difficulty sleeping or may experience nightmares (Schuster et al.). Schwartz and Perry noted that trauma can result in

behavior disorders, anxiety, phobias, and depression for exposed children (cited from Perry, Pollard, Blakely, Baker & Vigilante, 1995). Using an ad hoc data set, the purpose of the study was to examine the relationship between traumatic stress and the academic achievement of primary school students.

Research Questions

In order to develop an understanding of the relationship between traumatic stress and academic achievement, this study examined five research questions.

- What is the relationship between academic achievement and gender for primary school students?
- What is the relationship between academic achievement and culture for primary school students?
- What is the relationship between academic achievement and socioeconomic status (SES) for primary school students?
- What is the relationship between academic achievement and traumatic stress for primary school students?
- What is the relationship between traumatic stress and academic achievement for primary school students when controlled by culture, gender, and SES?

Hypotheses

Null hypotheses were developed for each of the five research questions, as follows.

- **Ho1:** There is no relationship between academic achievement and gender for primary school students.
- **Ho2:** There is no relationship between academic achievement and culture for primary school students.
- **Ho3:** There is no relationship between academic achievement and socioeconomic status (SES) for primary school students.
- **Ho4:** There is no relationship between academic achievement and traumatic stress for primary school students.
- **Ho5:** There is no relationship between traumatic stress and academic achievement when controlled by culture, gender, and socioeconomic status (SES) for primary school students.

Definition of Terms

Following are definitions of terms used in the study.

- **Academic Achievement:** a student's level of success as measured by the standards of the school system (Robinson & Biran, 2006), such as grades, standardized test scores, and amount of school completed

- **Academic Underachievement:** school performance that is not commensurate with the student's ability (Reis & McCoach, 2002) Lower grades, placement in special education courses, retention, and failing to graduate are indicators

- **African American:** individual who self-identifies as belonging to a cultural group from the United States with African ancestry (Paniagua, 2005)

- **Arousal:** a symptom of traumatic stress characterized by any of the following: (a) sleep disturbance, (b) difficulty concentrating, (c) increased startle response or hypervigilance, and (d) irritability and anger (American Psychiatric Association, 2000)

- **Avoidance:** a symptom of traumatic stress characterized by numbing as evidenced by any of the following: (a) efforts to avoid thoughts, feeling, behaviors, or activities that are associated with a traumatic event, (b) lack of memory for a traumatic event, (c) feelings of detachment from others, (d) sense of a foreshortened future, (e) flat affect or diminished interest in previous interests (American Psychiatric Association, 2000)

- **Culturally Appropriate Pedagogy:** teaching practices that take into account and respond appropriately to cultural factors (Nguyen, Terlouw & Pilot, 2006)

- **Culturally Diverse:** individual who identifies as a member of a cultural group other than European American, including African American, Latina/o, and Native American (Sue & Sue, 2003)

- **Culture:** group identification based on shared and transgenerational values, beliefs, behaviors, and perspectives (Diller, 2007)

- **Externalizing Behaviors:** problem behaviors symptomatic of traumatic stress that include aggression and delinquency (Graham-Bermann & Levendosky, 1998)

- **Hegemony:** domination or privilege of one individual or group over another (Naidoo, 1996)

- **Internalizing Behaviors:** problem behaviors symptomatic of traumatic stress that include anxiety/depression, withdrawal, and somatic complaints (Graham-Bermann & Levendosky, 1998)

- **Latina/o:** individual who self-identifies as belonging to a cultural group from the United States with ancestry from a Latin American country (Paniagua, 2005)

- **Low-ability Tracking:** placement in special education programs, including having an individualized education plan (IEP) on file with the school (Townsend, 2000)

- **Maltreatment:** physical or emotional abuse or neglect (Kaplan, Pelcovitz & Labruna, 1999)

- **Multicultural Competencies:** characteristics that include (a) being aware of one's own biases and worldview, (b) having knowledge regarding the worldviews of others, and (c) possessing skills appropriate to engaging with culturally different individuals (Sue, Arredondo & McDavis, 1992)

- **Native American:** individual who self-identifies as belonging to a cultural group from the United States with indigenous ancestry (Trimble & Thurman, 2002)

- **Reexperiencing:** a symptom of traumatic stress characterized by any of the following: (a) frequent and disruptive thoughts or nightmares about a traumatic event, (b) feeling that a traumatic event is recurring, (c) psychological distress or physiological reactivity triggered by internal or external cues that resemble a traumatic event (American Psychiatric Association, 2000)

- **School Disengagement:** actions disconnecting a student from the school process, such as being absent, that may be indicators of low academic performance (Alexander, Entwisle & Horsey, 1997)

- **Socially Marginalized:** individuals who experience oppression due to factors such as culture, gender, or socio-economic status (Amaro & de la Torre, 2002)

- **Socioeconomic Status (SES):** a measure based on a household's income and the education level and occupation of the adult(s) (Bradley & Corwyn, 2002; Tourangeau, Lê & Nord, 2005)

- **Systemic Oppression:** differential treatment and systematic marginalization of groups and individuals based on characteristics including culture, gender, class, sexual identity, religion, and more (Burstow, 2003)

- **Transgenerational Trauma:** trauma that is passed down from one generation to another (Dass-Brailsford, 2007)

- **Trauma/traumatic event/experience:** an event that is perceived by an individual to be negative, uncontrollable, and sudden that can involve actual or threatened physical pain, injury or death or actual or threatened emotional pain (Carlson, 1997) in which the individual feels no sense of control (Carter, 2007)

- **Traumatic Stress:** psychological stress that results from a negative event leading to arousal and avoidance of the associated stimuli that triggers experiencing that occurrence in which an individual feels no sense of control (American Psychiatric Association, 2000; Rothschild, 2000; Scaer, 2001)

Significance of the Study

Identifying traumatic stress as a significant factor in academic achievement can allow counselors and educators to intervene more effectively in school settings. Awareness that children exhibiting certain behaviors may actually be symptoms of trauma can enable counselors and educators to make more accurate assessments of children's abilities and needs. Thus, children can be provided with appropriate interventions in order to ameliorate the effects of traumatic stress and improve academic performance. Theoretically, this study applied traumatic stress theory to the understanding of academic underachievement in order to identify this as an appropriate lens through which to understand student achievement. Furthermore, the understanding of ecosystemic perspectives through traumatic stress theory will be expanded upon, thus moving towards strength-based orientations and away from deficit-oriented views.

Policy makers may have an interest in the study as it can potentially have an impact on how standards and accountability are viewed, particularly in low-resourced schools that so often serve culturally diverse students (Lipman, 2006). Moreover, policy makers may wish to contextualize disproportionate educational outcomes with historical inequities in economic spheres in order to reconsider allocation of resources (King, 2005). Central to the issue of educational policy is the concern for social justice and advocacy in which policy makers ensure that public interests align with student needs (Gillborn, 2006). Assessment of low-income and culturally diverse students is often informed by poor conceptualization due to lack of familiarity with diverse groups of people. Policy makers can become better informed by relevant research when taking action to ensure high quality education for underperforming students. This study sought to provide such relevance and innovation.

Previous research on academic achievement has examined the relationship between behavior problems and underachievement. Studies have found that problem behaviors including

aggression, disengagement, lack of attention, low self-esteem, and elevated activity levels are associated with and contribute to academic underachievement (Arnold et al., 1999; Holmes, Slaughter & Kashini, 2001; Rabiner & Coie, 2000; Trout, Nordness, Pierce & Epstein, 2003). This research is notable because the problem behaviors associated with academic underachievement are also symptoms of traumatic stress (reexperiencing, arousal, avoidance, internalizing behaviors, and externalizing behaviors). Some research has specifically investigated the relationship between traumatic stress and academic underachievement, finding that abuse and exposure to violence are linked to academic underachievement (Harris, Putnam & Fairbank, 2004; Margolin & Gordis, 2000; Trickett & Putnam, 1998; Veltkamp, Miller & Silman, 1994).

This study extended previous research on academic underachievement and traumatic stress by using a nationally representative sample of primary school students. Studies that perform secondary analyses using national datasets can further knowledge about the disparities in academic achievement and inform education policy (Schneider, Carnoy, Kilpatrick, Schmidt & Shavelson, 2007). This study investigated issues of culture, gender, and SES on the prevalence of traumatic stress and its relationship to academic underachievement among 5th grade students. As such, this study has several implications for educational policy makers seeking to improve academic outcomes. Policy makers, including school board members, department of education administrators, and legislators, can use the results of this study to inform training, professional development, and school-wide initiatives. Teachers can receive training on how to recognize the symptoms of traumatic stress so that they can make appropriate referrals to mental health professionals. Additionally, teachers can be trained to provide educational interventions that can ameliorate the effects of traumatic stress within the classroom environment. The outcomes of this research may be of interest to educational policy makers in shifting to a strength-based approach

in order to enhance students' resilience to traumatic stress. School-wide programs for students who have been identified as experiencing traumatic stress may also be useful in reducing the effects on academic achievement for these students. Finally, school counselors and other mental health professionals working in educational settings may provide trainings to teachers, develop programs, and intervene with children individually and in group counseling settings. Using this study's results, educational policy makers can facilitate the creation of training programs and initiatives that specifically address the impact that traumatic stress has on academic achievement and improve these educational outcomes.

Limitations

This study used a nationally norm referenced data set compiled by the National Center for Education Statistics (NCES). Therefore, the findings are generalizable from the sample to the population. However, there are limitations concerning validity due to the use of pre-collected data for ad hoc analyses. First, construct underrepresentation needed to be addressed in order to ensure that traumatic stress is indeed measured by the variables selected from the database. Second, the variables may be vulnerable to the problem of construct irrelevant variance if they contain content that they are not intended to measure. To address these validity concerns, the items were examined in relation to the literature in order to deem them appropriate.

CHAPTER 2
LITERATURE REVIEW

The purpose of this chapter is to present an overview of the literature relevant to this study. Literature related to the following topics will be presented: (a) traumatic stress, (b) traumatic stress among school aged children, (c) underachievement among school aged children, and (d) traumatic stress and underachievement.

Traumatic Stress

History of Traumatic Stress

While scholars have found references to traumatic stress and related psychological reactions perhaps as early as 2100 B.C. (Ben-Ezra, 2004), the Western study of traumatic stress began in the late 19th century (Figley, 1985). The Western study of traumatic stress began in Europe when English surgeon John Eric Erichsen published a report about the victims of railway accidents (Weisaeth, 2002). Erichsen (1866) observed that despite having no physical injuries, the victims exhibited symptoms including loss of memory, difficulty concentrating, anxiety, and nightmares. Erichsen incorrectly attributed these symptoms to an organic rather than a psychological cause. However, his work laid the foundation for the study of traumatic stress (Halpern & Tramontin, 2007; Weisaeth). In 1883, surgeon Herbert Page published a rebuttal to Erichsen's conclusion, positing that the symptoms were of a psychological nature and terming this condition "nervous shock" (Trimble, 1981). Thus, the foundation for traumatic stress symptoms was laid in the English medical community.

Also in the late 1800s, French neurologist Jean-Martin Charcot began exploring hysteria, which at the time was used to connote patients' unexplained physical or emotional symptoms (Halpern & Tramontin, 2007). Charcot theorized that the symptoms were the result of the

emotional impact of a traumatic incident. After studying with Charcot, physician Pierre Janet and psychiatrist Sigmund Freud and their colleagues expanded Charcot's theories of hysteria.

Janet stated that hysteria was "characterized by the retraction of the field of personal consciousness and a tendency to the dissociation and emancipation of the systems of ideas and junctions that constitute personality" (1929/1965, p. 332). Thus, he introduced the concept of dissociation as part of hysteria and traumatic stress (Straker, Watson & Robinson, 2002). Janet believed that hysteria developed because of mental weakness, while Freud, who was working in collaboration with Viennese psychoanalyst Josef Breuer, believed that hysteria resulted from repressed memories of traumatic events (Trimble, 1981). Breuer and Freud (1893/1962) investigated hysterical symptoms and began to follow the thread of memory back to traumatic experiences. Freud (1896/1962) investigated further and published his findings in the *Aetiology of Hysteria*. He concluded that women's hysterical symptoms resulted from premature sexual experiences: "I therefore put forward the thesis that at the bottom of every case of hysteria there are *one or more occurrences of premature sexual experience*" (p. 203). Within a year, Freud recanted this claim because of the unacceptable societal implications of prevalent sexual abuse and the exploration into traumatic stress was largely abandoned (Herman, 1997). However, the field of traumatic stress evolved and eventually became know as "traumatic neurosis", a term coined by German neurologist Hermann Oppenheim in 1911 (Figley, 1988; Trimble).

Significant developments in the field of traumatic stress occurred through the study of the psychological impacts of war (Halpern & Tramontin, 2007). American physician Abram Kardiner studied World War I and World War II veterans and attempted to create a systematic description of the features of what he called traumatic neurosis (Kardiner & Spiegel, 1947). Kardiner's work eventually became the basis for the diagnostic description of posttraumatic

stress disorder (Herman, 1997). Robert Jay Lifton (1967) and Charles Figley (1978) also advanced the field of trauma through their work on the traumatic stress outcomes among World War II veterans and Vietnam veterans, respectively. Traumatic stress continued to receive increasing attention due to the Vietnam veteran's and the women's movements in the mid- to late-1970s (Herman; van der Kolk & van der Hart, 1989). Through these movements and due to lobbying by veterans groups, an awareness of traumatic stress resulted in the designation of posttraumatic stress disorder (PTSD) as a mental illness in the third edition of the American Psychiatric Association's (APA) *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) in 1980 (Burstow, 2003; van der Kolk & van der Hart). The addition of PTSD to the *DSM* increased interest in traumatic stress and engendered the systematic study of trauma and trauma treatment (van der Kolk & McFarlane, 1996; Zimmerman & Mattia, 1999). In general, the *DSM* informed how trauma was to be understood (Becker, 1995; Danieli, 1998; Herman) and influenced the development of traumatic stress theory (Rosenthal & Wilson, 2003).

The *DSM* diagnostic criteria for PTSD include a description of what qualifies as a traumatic event. The current edition of the *DSM* provides the following definition of a traumatic event: "The person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others" (American Psychiatric Association, 2000, p. 467). As such, the definition of trauma legitimized certain events as traumatic (Burstow, 2005). The expected effects of trauma on the traumatized individual were also provided (Rothschild, 2000; van der Kolk & McFarlane, 1996). Thus, the *DSM* has been used to inform and guide mental health treatment for traumatized individuals (Becker, 1995; Danieli, 1998; Eriksen & Kress, 2006; Herman, 1997).

Recently, some mental health professionals have advocated for an expanded understanding of trauma that addresses the limitations inherent in the *DSM*'s PTSD criteria (Bryant-Davis & Ocampo, 2005; Burstow, 2003; Halpern & Tramontin, 2007). In the past decade, empirical studies on the outcomes of experiencing discrimination due to culture have shown that discrimination has deleterious effects on both physical and mental health (Harrell, Hall & Taliaferro, 2003; Paradies, 2006; Williams, Neighbors & Jackson, 2003). Research in the field of counseling and psychology has found that ecosystemic factors, including racism, harassment, and oppression, can result in traumatic stress (Burstow, 2003; Carter, 2007; Watts, Griffith & Abdul-Adil, 1999). Critics of the *DSM* note that it limits the understanding of trauma in that it minimizes the importance of individual perception (Rothschild, 2000) and fails to acknowledge systemic and contextual factors (Ivey & Ivey, 1998). Furthermore, because the PTSD definition in the *DSM* criteria requires that a traumatic event be physically dangerous, systemic oppression and discrimination are often excluded (Burstow).

Etiology of Traumatic Stress

For the purpose of this study, Carlson's (1997) theory was used to frame the understanding of traumatic stress. According to Carlson, a traumatic event must meet three criteria: (a) a perception that the event is negative, (b) suddenness of the event, and (c) lack of control over the event. Carlson's definition of trauma addresses the limitations noted above in the *DSM* definition in that it explicitly includes that an individual's perception is a critical component of determining that an event is traumatic. In addition, systemic factors, such as experiences of racism or oppression would be traumatic if they were perceived by the individual as negative, sudden, and beyond the individual's control. Carter (2007) noted that while discrimination might be frequent and expected, it is still beyond the individual's control and therefore potentially traumatic. As

such, Carlson's theory includes individuals' perceptions as well as systemic and contextual factors that may or may not be common to certain communities.

Studies have shown that the majority of people will experience a traumatic event in their lifetime (Anda, Croft, et al., 1999; Anda, Chapman, et al., 2002; Breslau, 2002; Breslau, et al., 1998; Elliot, 1997). Given that traumatic events are common, mental health professionals must continually find ways to effectively address traumatic stress (DePrince & Freyd, 2001). However, experiencing a traumatic event does not necessarily lead to traumatic stress (Breslau; Breslau et al.). Breslau et al. found that women and culturally diverse individuals were more likely to develop PTSD over the lifetime, when compared to men and European American individuals respectively. As such, it is important to understand what factors may impact the development of traumatic stress in individuals.

Carlson's (1997) theory of traumatic stress is comprised of five factors that influence an individual's response to the traumatic event: (a) individual biological factors, (b) developmental level at the time of the trauma, (c) severity of the trauma, (d) the social context of the individual both before and after the trauma, and (e) life events that occur prior and subsequent to the trauma. These factors influence the individual's perception of the traumatic event as negative, sudden, and uncontrollable, thereby increasing or decreasing the individual's experience of traumatic stress. The symptoms of traumatic stress can be varied and may include reexperiencing (e.g. flashbacks, nightmares) avoidance (e.g. dissociation, numbing), depression, aggression, and guilt or shame (Carlson, 1997; Elliot, 1997; Hodges, 2003; Kellerman, 2001; Marotta, 2000). Traumatic stress may also impact an individual's self-esteem, identity, and interpersonal relationships.

Physiological symptoms of trauma develop due to the body's nervous system response to a traumatic event, which mobilizes resources to respond to a traumatic event (Levine, 1997). The physiological response to trauma allows the body to fight, flee, or freeze in the presence of danger. In an individual who experiences a traumatic event, the limbic system may become dysfunctional, causing a state of arousal without the presence of a threat (Rothschild, 2000). Research on individuals who have experienced trauma indicates that heightened arousal may result from reduced cortisol levels that are ineffective in halting the arousal (van der Kolk, 1994; van der Kolk & Saporta, 1993). Individuals who have experienced trauma may be more likely to experience arousal without the presence of a threat when they are reminded of the threat through external stimulus, such as the smell and sound, or through internal stimulus, such as somatic symptoms (Rothschild). Thus there is a cycle of somatic symptoms and post-trauma symptoms that can be triggered both internally and externally following the traumatic experience. Indeed, somatic symptoms, such as pain in specific areas of the body, nausea, and tiredness, have been linked to traumatic experiences (Allwood, Bell-Dolan & Husain, 2002; Zatzick, Russo & Katon, 2003).

Traumatic Stress without an Identified Event

While traumatic stress research traditionally focused on an identified event, there is significant research demonstrating that traumatic stress can be identified through symptoms without an identified event. Research has shown that traumatic stress can be passed down from one generation to another, which is known as transgenerational trauma (Dass-Brailsford, 2007). While an individual may not have directly experienced a traumatic event, he or she is may experience traumatic stress that is transmitted through a parent's traumatic experience (Davidson & Mellor, 2001; Goodman & West-Olatunji, 2008; Nagata, 1990). This type of trauma has been researched with Nazi Holocaust survivors' children (Danieli, 1998), families of veterans from

World War II and the Vietnam War (Aarts, 1998; Bernstein, 1998; Rosenheck & Fontana, 1998a, 1998b), indigenous peoples (Duran, Duran, Yellow Horse Brave Heart & Yellow Horse-Davis, 1998; Raphael, Swan & Martinek, 1998), and survivors of domestic violence and child abuse (Gardner, 1999; Schechter, Brunelli, Cunningham, Brown & Baca, 2002; Simons & Johnson, 1998; Walker, 1999). In the United States, the internment of Japanese Americans during World War II, the enslavement of Africans, and genocidal acts against indigenous peoples are three poignant examples of transgenerational trauma (Dass-Brailsford, 2007). Traumatic stress symptoms from transgenerational trauma include depression, anxiety, hypervigilance, low self-esteem, suicidal ideation and behavior, substance abuse, violence, and loss of cultural identity (Dass-Brailsford; Duran et al.; Felsen, 1998; Raphael et al.; Simons & Johnson).

Furthermore, systemic oppression is another source of traumatic stress symptoms in which a specific traumatic event may not be identified. Researchers in the fields of counseling, psychology, and public health have noted the harmful mental and physical health effects of discrimination on culturally diverse groups, including African Americans, Latina/os, Asian Americans, and Native Americans (Harrell et al., 2003; Paradies, 2006; Williams et al., 2003). Numerous studies have linked discrimination to higher levels of psychological distress for culturally diverse individuals (Broman, Mavaddat & Hsu, 2000; Fisher, Wallace & Fenton, 2000; Forman, 2003; Lightsey & Barnes, 2007; Moradi & Subich, 2003; Murry, Brown, Brody, Cutrona & Simons, 2001; Neville, Heppner, Ji & Thye, 2004; Schultz et al., 2000; Taylor & Turner, 2002). Additional psychological impacts of discrimination include lower levels of life satisfaction (Schultz et al.), lower levels of mastery (Broman et al.; Forman), lower emotional well-being (Deitch et al., 2003; Forman), depression and nonspecific distress (Kessler, Mickelson & Williams, 1999), and lower self-esteem (Fisher et al.). Indeed, systemic oppression

experienced by culturally diverse individuals can be a cause of traumatic stress (Burstow, 2003; Carter, 2007; Ponterotto, Utsey & Pedersen, 2006). Emergent literature in this area suggests that hegemony within the school setting may cause psychological distress for students as well (Cholewa & West-Olatunji, 2008). As such, even when a specific, one-time incident is not identified as a traumatic event, there is sufficient evidence to support that an individual may still experience traumatic stress (Goodman & West-Olatunji, 2009). Thus, it may be useful to use symptoms of traumatic stress in order to identify the presence of traumatic stress instead of relying only on the identification of a single traumatic event.

Traumatic Stress among School Aged Children

Among children, traumatic stress is often overlooked, misinterpreted, or mistaken for other disorders (Halpern & Tramontin, 2007). Until Lenore Terr's groundbreaking study in 1976 of kidnapped school children in Chowchilla, CA, very little was known about the symptoms of traumatic stress on children (Terr, 1990). Trauma can significantly impact child development; however, identification of traumatic stress among children can be more difficult since children express themselves in different ways than adults (Halpern & Tramontin). For school aged children, traumatic stress often appears in behaviors notable in the classroom and often labeled as an attention deficits, conduct problems, or autism (Levine & Kline, 2007).

Etiology of Traumatic Stress for Children

For children, as for adults, a traumatic event is one that is perceived as negative, is sudden, and is uncontrollable (Carlson, 1997). A child's age can have an important impact on these factors in that developmental age may influence perceptions of events and feelings of control. A child with more secure attachments and coping skills may be more resistant to traumatic stress symptoms due to increased ability to exert control over her or his environment. Symptoms of traumatic stress differ by age and developmental level for children in the way that symptoms are

manifested (Dass-Brailsford, 2007). Reexperiencing may be manifested in play where a traumatic event is reenacted. Children may exhibit increased arousal through night terrors or bed-wetting. Avoidance and numbing may be evident in children through the loss of previously acquired developmental skills or through constricted play. Symptoms may be more evident at school, where interactions with others provide greater opportunities for stimulation and where children may show signs of traumatic stress through struggling to concentrate on and process information (Levine & Kline, 2007).

Traumatic experiences may erode children's abilities to form safe boundaries with caregivers and with the world, as well as a sense of self, making them vulnerable to further trauma (Scaer, 2001). The physiological responses experienced by children during trauma can impact their ability to create narrative memories and make sense of the traumatic event (Rothschild, 2000). For children, failure to create a coherent memory of trauma results in misunderstandings of the trauma, including self-blame (Gaensbauer, 2003; Terr, 1990). Without intervention, children who have experienced trauma often have difficulty responding to daily stressors, and may exhibit hypervigilant behaviors, increased startle response, and dissociation (Levine & Kline, 2007).

The Impact of Traumatic Stress

The impact of traumatic stress has been studied for a variety of traumatic events in school aged children. Several notable literature reviews have provided a summary of the outcomes for children who experience traumatic stress. Kaplan and colleagues (1999) reviewed studies of the previous decade that examined the effects of physical and emotional abuse and neglect for children and adolescents. The outcomes of physical maltreatment in the reviewed studies demonstrated interpersonal problems, cognitive/academic impairment, aggression, and suicidal behavior and risk-taking. Children and adolescents in these studies also had higher rates of

psychiatric diagnoses than non-physically maltreated children, including depression, anxiety, conduct disorders, attention deficit hyperactivity disorder (ADHD), and substance abuse. While emotional abuse has received less attention, the authors noted that studies have found it can result in externalizing behaviors, social impairment, psychiatric disorders, low self-esteem, and suicidal behavior. In reviewing studies on child victims of sexual abuse, Trickett and Putnam (1998) noted the presence of internalizing behaviors, such as depression and anxiety, as well as externalizing behaviors, such as aggression and conduct problems. Holmes and Slap (1998) reviewed empirical studies of sexual abuse among boys in order to further the understanding of this type of trauma and ascertain its prevalence. Of the 166 studies, the prevalence rate varied widely. The authors were able to determine that boys of less than 13 years who are not European American, of low socioeconomic status, and not living with their fathers are at greatest risk for sexual abuse. Boys who have experienced sexual abuse had higher rates of the following: PTSD, major depression, anxiety disorders, borderline personality disorder, antisocial personality disorder, paranoia, dissociation, somatization, bulimia, anger, aggressive behavior, poor self-image, poor school performance, running away from home, legal trouble, suicide attempts, substance use, sexually related problems, and dropping out of school. Additionally, disclosure rates were low, indicating a significant barrier to treatment. Margolin and Gordis (2000) reviewed literature that addressed the impact of child maltreatment, community violence, and interparental violence on children. In general, the studies linked these types of trauma with externalizing behaviors, internalizing behaviors, and PTSD symptoms. Psychobiological effects, cognitive consequences, and peer relations were also notable outcomes of these traumatic experiences.

Empirical evidence echoes the findings of these literature reviews for various types of traumatic experiences. Some studies have investigated the outcomes of direct abuse on children as well as other traumatic experiences. Anda, Croft, et al. (1999) investigated the relationship between childhood adverse experiences and smoking as well as childhood adverse experiences and depression. The researchers defined childhood adverse experiences somewhat broadly as experiencing verbal abuse, physical abuse, sexual abuse, household substance abuse, a mentally ill household member, an incarcerated household member, parental separation or divorce occurred, or battered mother. The study found that both smoking and depression increased as the number of childhood adverse events increased. In a similar study, Anda, Chapman, et al. (2002) found that boys who experienced adverse childhood experiences were more likely to impregnate a teenage girl. A derivation of the study also found that boys who were abused as children had increased involvement with teen pregnancy (Anda, Feletti, et al., 2001).

Other studies have examined only direct abuse and its effects on children. Flaherty et al. (2006) found that experiences of physical, sexual, or emotional abuse increased the rate of parent-reported poor health and serious illness. Streeck-Fischer and van der Kolk (2000) note that children who were exposed to chronic abuse or maltreatment may exhibit particularly complex traumatic stress symptoms that included aggression, learning difficulties, behavior problems, dissociation, and hyperarousal. Boney-McCoy and Finkelhor (1995, 1996) investigated the outcomes of victimization, including physical assault, sexual assault, or completed or attempted kidnapping for youths ages 10-16. Compared to youths who had not been victimized, victimized youths showed higher rates of PTSD symptoms (avoidance/numbing, reexperiencing, and high arousal) depression, sadness, and trouble with a teacher. Females exposed to nonparental family violence showed depressive symptomology,

while males did not (Boney-McCoy & Finkelhor, 1996). Wozniak et al. (1999) found that children and adolescents who experienced trauma were more likely to develop major depression. Briscoe-Smith and Hinshaw (2006) found that girls with ADHD had a higher rate of past abuse than did girls not diagnosed with ADHD. The girls who had been diagnosed with ADHD and who had an abuse history also had a higher rate of externalizing behaviors and peer rejection.

Studies have also examined the effects of disasters on children. Following Hurricane Andrew, children in grades 4, 5, and 6 exhibited increased anxiety (La Greca, Silverman & Wasserstein, 1998). Additionally, African American children exhibited more post-trauma symptoms. Of the children exposed to Hurricane Andrew, 76% had some degree of posttraumatic symptomology, including reexperiencing, arousal, or numbing (Vernberg, La Greca, Silverman & Prinstein, 1996). In a national survey following the September 11th terrorist attacks, 35% of children, as reported by their parents, exhibited at least one of the following traumatic stress symptoms: avoidance, difficulty concentrating, sleep disturbance, irritability, and nightmares (Schuster et al., 2001). Additionally, parents reported that 47% of children were worried for their own safety or the safety of loved ones.

Other studies have examined the impact on children exposed to domestic violence. Children who were either exposed to domestic violence or exposed to domestic violence and also abused were more likely than children who did not experience exposure to violence or abuse to exhibit PTSD symptoms and have difficulty regulating their emotions (Shipman, Rossman & West, 1999). Graham-Bermann and Levendosky (1998) studied the impact of domestic violence on children (ages 7-12). They found that of those children exposed to the emotional or physical abuse of their mother, 13% met criteria for PTSD diagnosis. However, over half suffered from at least one of the PTSD symptoms (avoidance, reexperiencing, and arousal). Additionally, children

experiencing PTSD symptoms also had significantly greater internalizing and externalizing behavior problems than did children without PTSD symptoms.

Kernic, Wolf, et al. (2003) and Kernic, Holt, et al. (2002) have studied the outcomes for children who are exposed to intimate partner violence (IPV) perpetrated on their mothers. Kernic, Wolf, et al. found that children who were exposed to their mother's IPV were more likely to exhibit externalizing behaviors, such as aggression and delinquency, and overall behavior problems, while children who were also maltreated were also more likely to also exhibit internalizing behaviors, such as anxiousness, depression, or withdrawing. Kernic, Holt, et al. found that children exposed to their mother's IPV were more likely to be suspended from school and more likely to express health or emotional concerns that resulted in a school nurse visit and being sent home from school.

Empirical evidence also shows the effects of traumatic stress on adolescents. Cuffe et al. (1998) studied older adolescents (ages 16 to 22) and found that female adolescents and African American adolescents were more likely to experience a traumatic event than male adolescents and European American adolescents, respectively. Of those who had experienced a traumatic event, over half had at least one PTSD symptom, while 3% of females and 1% of males satisfied the PTSD criteria. Carrion and Steiner (2000) studied the rates of trauma and disassociation among adolescent juvenile probation detainees. The study found that almost 100% of the detainees had a history of traumatic events, as measured by physical, emotional, and sexual abuse or emotional and physical neglect. Additionally, almost 30% presented with disassociation. Lansford et al. (2002) found that maltreated adolescents were significantly more likely than non-maltreated adolescents to have the following symptoms: aggression, depression, anxiety, dissociation, PTSD symptoms, social problems, thought problems, and social

withdrawal. Also, maltreated adolescents were absent from school at higher rates and were less likely to anticipate that they would attend college.

Overall, empirical evidence shows that children who experience various types of traumatic events resulting in traumatic stress tend to exhibit the traditional PTSD symptoms of reexperiencing, avoidance, and arousal. These studies indicate that internalizing behaviors and externalizing behaviors are prevalent outcomes of traumatic stress as well. This is significant in that measures of traumatic stress that rely only on identifying trauma through the symptoms of reexperiencing, avoidance, and arousal, may not effectively identify all children who are experiencing traumatic stress. As such, traumatic stress could be misidentified in children and therefore untreated. Table 2-1 outlines the symptoms of traumatic stress in school aged children.

Interventions for Traumatic Stress

Treatment for traumatic stress among children has lagged behind treatment for adults (Carlson, 1997). Studies examining treatments for traumatic stress among children and adolescents have investigated various modalities. Chemtob, Nakashima, and Hamada (2002) tested the efficacy of a school-based community-wide screening followed by a psychosocial intervention in treating the disaster-related trauma symptoms of children, including reexperiencing, avoidance, and arousal. The study found that group treatment had a higher retention rate than individual treatment, but that the two treatments did not differ in efficacy. Kaplan et al. (1999) also reviewed treatment of children and adolescents who had been emotionally or physically abused or neglected. They found that treatments typically focus on play therapy, as well as anger management, social skills, and cognitive-behavioral therapy.

Effective trauma treatment should address the physiological symptoms children experience due to nervous system arousal. Psychoeducation can be used to normalize the presence of somatic symptoms (Lieberman & Van Horn, 2003). Next, techniques can be used

that address somatic symptoms, including body awareness (Rothschild, 2000) and Somatic Experiencing (Levine, 1997). Both techniques help an individual become aware of and understand bodily sensations related to trauma. Interventions might include drawing or talking about body sensations to allow the child to gradually and safely experience sensations and discharge energy immobilized due to the trauma (Levine & Kline, 2007). Such interventions assist in reducing arousal in the absence of a threat, while also promoting trust in arousal sensations when a threat is present (Lieberman & Van Horn).

Treatment for school aged children can also focus on processing the traumatic event with the child to increase their understanding (Halpern & Tramontin, 2007). Therapies that focus on using a child's internal and external resources can be effective in helping a child feel empowered in the process of transforming traumatic symptoms (Levine & Kline, 2007). Furthermore, as narrative memory is often compromised by a traumatic event, counseling interventions can assist children in contextualizing the event so that arousal and fear associated with the event are reduced (Scaer, 2001).

Underachievement among School Aged Children

The chronic underachievement among students in the U.S. is evident in the National Assessment of Educational Progress (NAEP), known as the Nation's Report Card, produced by the National Center for Education Statistics (NCES), the U.S. Department of Education. In fourth grade, only 32% of students were found to be at or above proficient in reading (Donahue, Finnegan, Lutkus, Allen & Campbell, 2001). Academic underachievement can have negative outcomes for the child, including reduced opportunities in life, disengagement from school, and deviant behaviors (Masten & Coatsworth, 1998). Only 68% of students who enter 9^{th} grade in the U.S. will graduate with a regular diploma in 12^{th} grade (Orfield et al., 2004). As a high school

diploma is considered necessary to earn a living wage, failure to persist in school presents a significant problem. Therefore, academic underachievement is a critical issue.

Cyclical Nature of Behavior Problems and Academic Underachievement

Arnold and colleagues (1999) described a cyclical model of behavior problems and academic underachievement for school aged children where each contributes to and exacerbates the other. Children who are not achieving academically are more likely to engage in aggressive behavior, to feel increasingly frustrated, to disengage, and to have lower self-esteem. Furthermore, behavior problems are associated with behaviors that contribute to academic underachievement, including noncompliance, lack of attention, and elevated activity levels. The comprehensive review of literature from 1961 to 2000 on the academic achievement of children who were considered emotionally and behaviorally disordered conducted by Trout et al. (2003) confirmed that there is a reciprocal relationship between academic underachievement and problem behaviors. In a study of children that develop conduct disorder, Holmes et al. (2001) observed that the associated behavior problems, including delinquency and disruptiveness, often contributed to academic underachievement but academic problems may also have contributed to the development of behavior problems. Rabiner and Coie (2000) found that attention problems predicted reading underachievement in a longitudinal study of children in kindergarten through second grade.

Disparities in Academic Underachievement

The problem of academic underachievement is differential among various groups, in particular culture, gender, and SES (Harry & Anderson, 1995; Steele, 1997; Tate, 1997). Educational research has consistently found that SES has a significant impact on student academic achievement (Sirin, 2005). According to the 2000 National Assessment of Educational Progress (NAEP), 14% of 4th grade students eligible for free or reduced lunch (FRL) were found

to be at or above proficient in reading achievement, while 41% of students not eligible for FRL tested at or above proficient (Donahue et al., 2001). In mathematics the gap was even wider, with only 9% of students eligible for FRL at or above proficient, while 33% of ineligible students were in this same category (Braswell et al., 2001). Schools with a high percentage of FRL eligible students also have lower graduation rates than schools with a low percentage of FRL students (Orfield et al., 2004).

Students from lower SES backgrounds face additional barriers to academic achievement. Across the U.S., states spend an average of $900 less per student each year on students from low income districts versus districts with the fewest poor students (Education Trust, 2002). At the secondary level an average of 24% of teachers lack either a major or minor in their subject area; in high poverty schools this number increases to 34%, putting low income students at greater risk for underachievement due to poor teacher quality (Jerald, 2002).

Culturally diverse children, African American, Latina/o, and Native American, exhibit academic underachievement (Moore, Ford & Milner, 2005). Disparities in achievement are greater among culturally diverse students; while 40% of European American students were at or above proficient in reading, African American, Latina/o, and Native American proficiency levels were 12%, 16%, and 17%, respectively. Similar disparities are found in other school subject areas, where African American and Latina/o students scored significantly lower than European American students in: mathematics (Braswell et al., 2001), history (Lapp, Grigg & Tay-Lim, 2002), and geography (Weiss, Lutkus, Hildebrant & Johnson, 2002). Although Asian American students are viewed as the "model minority," certain ethnic groups within this cultural group also experience chronic underachievement. Specifically, Vietnamese and Pacific Islander students suffer from high dropout rates, and poor standardized test performance (Kim, Rendon &

Valadez, 1998).Educational success varies by gender, with 27% of fourth grade males at or above proficient in reading and 36% of females at the same level (Donahue et al., 2001). However, 28% of males were at or above proficient in mathematics, while 24% of females were at this level (Braswell et al.).

Females, African Americans, and lower SES individuals may experience stereotyped threat in regards to their presumed lack of academic ability (Steele, 1997). Teacher expectations of these culturally diverse and lower income students also tend to be lower, negatively impacting student performance (Hale, 2001; Tatum, 2007). Junior high school students perceive that culturally diverse males are academically disengaged (Hudley & Graham, 2001). African Americans are under-represented in gifted programs and over-represented in special education programs (Ford, 1995). Additionally, African American males continue to show disparity when compared to their peers in terms of academic achievement (Davis, 2003; McMillan, 2003; Osborne, 1999) and are over-represented in special education (Harry & Anderson, 1994). African American females tend to be excluded from advanced coursework in critical areas of mathematics and science (West-Olatunji et al., 2007). Indeed, culture, class, and gender may all affect academic achievement and therefore the intersection of these identities must be considered (O'Connor, 1999).

Attempts to Address Academic Underachievement

Efforts to address academic underachievement have generally been based on deficit-oriented views that actually contribute to academic underachievement, particularly for culturally diverse students (Crozier, 2005; Ford et al., 2002). Reductionist views have informed programs such as special education and remediation, which tend to hypothesize that students fail to succeed due to deficits within the child or within the child's culture (Robinson & Biran, 2006; Trent, Artiles & Englert, 1998). Deficit-oriented programs within the educational system have

failed to improve academic outcomes (Garza & Merchant, 2006; Hudley & Graham, 2001). As such, there is increasing focus in educational research on the use of strength-based approaches (Farmer et al., 2005; Trent et al.).

Research has shown the cyclical nature of behavior problems with academic underachievement as well as the similarity of these behavioral problems. Indeed, Levine and Kline (2007) noted that traumatic stress symptoms are often observed as behavioral problems, posing the problem of differentiating between symptoms of traumatic stress. For school aged children, academic underachievement-related behaviors appear to correspond in large part to the symptoms of traumatic stress (see table 2-2). As such, explicitly examining the relationship between traumatic stress and academic underachievement may provide educators, counselors, and educational policy makers with strength-based ways in which to intervene with children to address underachievement.

Traumatic Stress and Underachievement

Some studies have examined the association between traumatic stress and academic underachievement. While results have been somewhat mixed, in general studies have found that abuse and exposure to violence are linked to academic underachievement (Harris et al., 2004; Margolin & Gordis, 2000; Trickett & Putnam, 1998; Veltkamp et al., 1994). Kinard (2001) found that children who were maltreated had significantly lower academic achievement scores than children who were not maltreated. Jones, Trudinger, and Crawford (2004) found that among children who were referred for sexual abuse, over one quarter showed academic underachievement or intellectual impairment. Zolotor et al. (1999) found that maltreated children had both poorer academic and poorer adaptive functioning. Holmes et al. (2001) observed that children who are exposed to violence or neglect were more likely to develop conduct disorder, which was associated with academic underachievement. Shonk and Cicchetti (2001) studied the

impact of maltreatment on children, ages 5 to 12, who were socioeconomically disadvantaged. As compared to non-maltreated children, the maltreated children exhibited more social skills deficits, lower ego resiliency, and less academic engagement. The authors used these measures to assess the children's academic achievement as these are considered essential capacities for academic achievement. Further research is needed to explore the links between traumatic stress and academic underachievement in school aged children.

In summary, traumatic stress has been shown to have a significant impact on psychological functioning. Indeed, among children, traumatic stress has five primary symptoms: reexperiencing, avoidance, arousal, internalizing behaviors, and externalizing behaviors. For children, academic underachievement is also related to behavior problems and more so for culturally diverse children. Some research has found correlations between academic underachievement in children and traumatic stress symptoms. This study extended prior research that has examined traumatic stress without having identified a known traumatic event. This study investigated issues of culture, gender, and SES on the prevalence of traumatic stress and its relationship to academic underachievement among 5th grade students. By recognizing traumatic stress through symptoms at the fifth grade level, educators and counselors can than intervene to prevent the long-term outcomes of academic underachievement.

Table 2-1. Symptoms of trauma stress in school aged children

Traumatic stress symptom	Explication of symptom
Reexperiencing	Nightmares
American Psychiatric Association, 2000; Carlson, 1997; Elliot; 1997; Marotta, 2000	Flashbacks
	Psychological reactivity
	Intrusive thoughts
Avoidance	Inability to recall parts of the trauma
American Psychiatric Association; 2000; Carlson, 1997; Elliot; 1997; Kellerman, 2001; Marotta, 2000	Efforts to avoid thoughts or activities
	Emotional detachment
	Numbing, restricted range of affect
	Dissociation
	Sense of foreshortened future
Arousal	Hyperactivity
American Psychiatric Association, 2000; Elliot; 1997; Marotta, 2000	Restlessness
	Difficulty concentrating
	Irritability
	Sleep disturbance
	Exaggerated startle response
	Hypervigilance
Internalizing behaviors	Anxiety
Carlson, 1997; Elliot; 1997; Hodges, 2003; Kellerman, 2001	Depression
	Withdrawal
	Low self-esteem
	Guilt/shame
Externalizing behaviors	Aggression
Carlson, 1997; Elliot; 1997; Kellerman, 2001	Delinquency
	Acting out behaviors

Table 2-2. Symptoms of trauma stress and similar academic underachievement-related behaviors in school aged children

Traumatic stress symptom	Explication of symptom	Academic underachievement behaviors
Reexperiencing American Psychiatric Association, 2000; Carlson, 1997; Elliot; 1997; Marotta, 2000	Nightmares Flashbacks Psychological reactivity Intrusive thoughts	Social skills problems Frustration
Avoidance American Psychiatric Association; 2000; Carlson, 1997; Elliot; 1997; Kellerman, 2001; Marotta, 2000	Inability to recall parts of the trauma Efforts to avoid thoughts or activities Emotional detachment Numbing, restricted range of affect Dissociation Sense of foreshortened future	Disengagement
Arousal American Psychiatric Association, 2000; Elliot; 1997; Marotta, 2000	Hyperactivity Restlessness Difficulty concentrating Irritability Sleep disturbance Exaggerated startle response Hypervigilance	Elevated activity levels Difficulty concentrating
Internalizing behaviors Carlson, 1997; Elliot; 1997; Hodges, 2003; Kellerman, 2001	Anxiety Depression Withdrawal Low self-esteem Guilt/shame	Low self-esteem Disengagement
Externalizing behaviors Carlson, 1997; Elliot; 1997; Kellerman, 2001	Aggression Delinquency Acting out behaviors	Aggression Delinquency Disruptiveness

CHAPTER 3
METHODOLOGY

This study examined the relationship between traumatic stress and underachievement among school aged children. The purpose of this chapter is to provide an overview of the methodology, including the setting, participants, variables, instrumentation, data collection, and data analysis.

Setting

This study utilized data from The Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (ECLS-K), which was a data set collected by the National Center for Education Statistics (NCES). The dataset included students from public and private schools across the United States. Data for the study was collected on the same children beginning in the kindergarten year through 8th grade at the following intervals: fall and the spring of kindergarten (1998-99), fall and spring of 1st grade (1999-2000), spring of 3rd grade (2002), spring of 5th grade (2004), and spring of 8th grade (2007).

Participants

The participants in the ECLS-K longitudinal study were a nationally representative cohort of children who attended kindergarten during the 1998-99 school year. For the purpose of this study, data collected when the children were in fifth grade, in spring of the 2003-04 school year, was used. The sample in the fifth grade year was based on the selected participants from earlier years. For the base year data collection, a multistage probability design was used to select participants that would be a nationally representative sample of kindergarteners (Tourangeau et al., 2005). For the first grade data collection, the sample was freshened to include children who were not enrolled in kindergarten and thus has been excluded from the base year sample. Only a subsample of students who moved to a new school between kindergarten and firth grade

continued to be included. For the third grade sampling, the same participants were included as in first grade. A subsample was included of children who transferred to a new school, except for children who did not speak English at home who were all followed. In the fifth grade year, children were excluded due to (a) ineligibility in a previous collection (due to death or moving out of the country), (b) parental refusal, (c) missing prior data, or (d) former subsamples. Children who moved to a new school were subsampled at a lower rate than in previous data collections. Thus, the total number of respondents was 11,820. Data on these children was obtained from the children, their parents/guardians, their teachers, their school administrators, and their school office staff.

Operational Definition of Variables

The following variables were used for the study: traumatic stress, academic achievement, school disengagement, low-ability tracking, gender, culture, and socioeconomic status. Operational definitions of the variables were as follows.

- **Traumatic stress:** Indicates that the student exhibited four of the five criteria for traumatic stress, including reexperiencing, avoidance, and arousal, and either internalizing behaviors or externalizing behaviors. Table 3-1 provides a description of the measures used for each of the criteria of traumatic stress.
- **Academic achievement:** Refers to the student's performance on the direct cognitive assessment of reading, mathematics, and science.
- **School disengagement:** Refers to the number of times the student was absent during the 2003-2004 school year. Five categories were used for the number of absences: less than one, including zero; one to less than two; two to less than five; five to less than ten, and ten or more.
- **Low-ability tracking:** Indicates that the student had an individualized education plan (IEP) on file with the school.
- **Gender:** Refers to identification as male or female.
- **Culture:** Refers to identification with one of seven ethnic or cultural groups or categories. The seven categories were: European American, including students who identified as "White"; Latina/o, including students who identified as "Hispanic, with race" and

"Hispanic, without race"; African American, including students who identified as "Black"; Asian; Native American, including Alaska Natives; Hawaiian Natives, including Pacific Islanders; and multi-cultural, including students who identified as "more than one race."

- **Socioeconomic status (SES):** Refers to identification in one of five quintiles of socioeconomic status, a composite measure of parents' occupation, parent's education level, and household income. The five categories were: low SES, mid-low SES, mid SES, mid-high SES, and high SES.

All of the study variables were measured. This study theorized that the dependent variable, academic achievement, was impacted by the independent variable, traumatic stress. Gender, culture, and SES serve as control variables that impacted the relationship between traumatic stress and academic achievement. School disengagement and low-ability tracking were considered related to academic achievement, and the impact of traumatic stress, gender, culture, and SES was also assessed on these dependent variables.

Instrumentation

During the fifth-grade data collection for the ECLS-K in the spring of 2004, instruments included direct child assessments, interviews with parents, teacher and school questionnaires, student record abstract, and facilities checklist. For the purpose of this study data collected from the child assessments, parent interviews, teacher questionnaires, and the student record abstract was used.

One child assessment used was the Self-Description Questionnaire (SDQ). This study used the following scales from the SDQ instrument: the SDQ Peer Interest scale, the SDQ Anger/Distractibility scale, and the SDQ Sad/Lonely/Anxious scale, which have reliability coefficients of .82, .78, and .79 respectively (Tourangeau, Nord, Lê, Pollack & Atkins-Burnett, 2006). Each scale was comprised of items for which the student rated the accuracy of the statement to be true "never," "sometimes," "often," or "very often." The SDQ

Sad/Lonely/Anxious scale had 8 items, while the SDQ Peer Interest and the SDQ Anger/Distractibility scales each had 6 items.

A second child assessment, the direct cognitive assessment battery, was also be used. Three content areas were tested: reading, mathematics, and science. The questions for the cognitive assessments were developed through consultation with experts in the field of education to determine questions reflected content areas that are typically taught and developmentally important provides content validity (Pollack, Atkins-Burnett, Najarian & Rock, 2005; Tourangeau et al., 2006). Once questions had passed screening for construct validity evidence and sensitivity, approximately 120 to 150 questions were field tested on about 50 children in spring 1999. In spring 2002, between 120 and 136 questions were field tested on 1,800 participants in fourth and fifth grade. Three forms of the cognitive assessment data were generated for each of the three content areas: number-right scores or raw score count, Item Response Theory (IRT) scale scores, and standardized scores (T-scores). The reliability for the reading, mathematics, and science cognitive assessments were .93, .94, and .87, respectively (Tourangeau et al.). Direct child assessments also provided the information on the student's gender and culture.

For the purpose of this study, the Item Response Theory (IRT) scale scores were used as they decreased the distortion due to guessing or omission by establishing an overall pattern. In order to establish criterion referenced validity evidence for the reading and mathematics assessments, the Woodcock-McGrew-Werder Mini-Battery of Achievement (MBA) was included in the fifth grade testing administration. The correlations between the two measures were close to the square roots of each test's reliability; therefore the tests appeared to be measuring similar constructs (Tourangeau et al., 2006).

The parent interview consisted of approximately 330 questions and covered topics such as child health, parent and family characteristics, child care, and school experiences. For the purpose of this study, three items from the Child Health and Wellbeing questionnaire were used. These three questions asked the parent to rate the following: (a) how well the child behaves and relates to others, (b) how the child pays attention in comparison to other children his or her age, (c) how the child's activity level compares to other children of his or her age.. For the first two questions the parent had the following response choices: "better than other children his/her age," "as well as other children," slightly less well than other children," or "much less well than other children." The parent had the following choices for the third question: "less active than other children of his/her age," "about as active," "slightly more active," or "a lot more active than other children of his/her age." In order to obtain validation of the parent interviews, 10% of each assessor's cases were called for a follow-up phone interview lasting approximately 5 minutes. Of those re-interviewed, 94% reported the same answers as in the original interview (Tourangeau et al., 2006). Socioeconomic status (SES) was calculated by the NCES through a composite of parent responses to the following questions: father/male guardian's education; mother/female guardian's education; father/male guardian's occupation; mother/female guardian's occupation; and household income (Tourangeau et al.).

Teacher Social Rating Scale from the reading teacher's questionnaire were used as well. The Social Rating Scale (SRS) was an adaptation, used with permission, of the *Social Skills Rating Scale: Elementary Scale A ("How Often?")* (SSRS) by Gresham and Elliott. From the SRS, the Self-Control scale and the Interpersonal Skills scale were used, which had split-half reliabilities of .79 and .88, respectively (Tourangeau et al., 2006). Each of the scales was comprised of items for which the teacher rated the frequency with the child exhibit the social

skill or behavior on the following scale: “never,” “sometimes,” “often,” or “very often.” The student record abstract form provided information on the number of absences the child had during the 2003-2004 school year and whether or not the child had an individualized education plan (IEP) on file.

Measures of Existing Variables

Existing variables were used from the ECLS-K instruments detailed. Variable names for each variable are shown in parentheses. Reading, mathematics, and science cognitive achievement were scaled using Item Response Theory (IRT) on the cognitive assessments for reading (C6R3RSCL), mathematics (C6R3MSCL), and science (C6SR1SSCL), respectively. Low ability tracking was indicated if the student had an individual education plan (IEP) on file (U6RIEP). School disengagement was measured by yearly absences (U6ABSTOT). The three control variables used in this study were: culture (R6RACE), gender (R6GENDER), and SES (W5SESL). Detail on these measures is presented in Table 3-1.

Measure of Traumatic Stress

The latent independent variable, traumatic stress, was determined to be present through identification of the following symptoms of traumatic stress: (a) reexperiencing, (b) avoidance, and (c) arousal, as well as either (d) internalizing behaviors or (e) externalizing behaviors. Reexperiencing was indicated if the child had difficulty with self-control in relationships with peers (T6CONTRO). Avoidance was indicated by any of the following: the child had trouble making friends (C6SDQPRC), the child had trouble relating to other children (P6BEHAVE), or the child had trouble getting along with others and forming and maintaining friendships (T6INTERP). Arousal was indicated if the child was more active than other children (P6ACTIVE) or had trouble paying attention (P6ATTENI). Internalizing behaviors were indicated if the child appeared to be sad, lonely, or anxious (C6SDQINT). Externalizing

behaviors were indicated if the child fought, argued, or disturbed others (C6SDQEXT). A dichotomous indicator of "Traumatic Stress" was created from these measures:

Traumatic Stress = (T6CONTRO < 3) & ((C6SDQPRC < 3) OR (P6BEHAVE > 2) OR (T6INTERP < 3)) & ((P6ACTIVE > 2) OR (P6ATTENI > 2)) & ((C6SDQEXT > 2) OR (C6SDQINT > 2))

Detail on the measures used is presented in Table 3-2. Thus, "Traumatic Stress" was defined when the child met the high stress condition on four variables: reexperiencing, avoidance, arousal and internalizing or externalizing behaviors.

Weights

A series of design weights were included to account for the multistage stratified sampling design used in the ECLS-K. Longitudinal NCES studies, including the ECLS-K, require the use of weights to compensate for both unequal probabilities of selection and non-response effects. The researcher weighted all of the analyses using the child-parent-teacher base weight (C6CPTR0) and replicate weights (C6CPTR1 through C6CPTR90), normalized to preserve the nationally representative sample size for statistical testing.

Data Collection

The data collection preparation for the fifth grade measurement of the ECLS-K data set began in Fall 2003. Sampled schools were contacted in order to set appointments for child assessments, verify parental consent, identify teachers for each participating child, and updating withdrawal and location records. Training was provided to the assessment administrators and supervisors in the fall as well. There were 242 assessors and 81 field supervisors that completed a 5-day training and completed an examination in order to become certified as child assessors and parent interviewers. An additional 20 assessors completed 1 ½ days of training and were

trained to complete only the parent interviews. The 81 field supervisors also received an additional 3-day training.

Actual data collection occurred during the Spring of 2004. Direct child assessments, including the SDQ and the cognitive battery assessment, were conducted from February through June 2004, with more than 75% conducted in February. On average the assessment took 97 minutes to complete. The assessments were administered in person using both hard copy and computer-assisted personal interviewing (CAPI). Most were conducted in the school classroom or library and all were completed in English. One percent of the children received accommodations, such as special assistance. The direct cognitive battery assessment was administered in two stages for each of the three subjects: reading, mathematics, and science. The first stage was a routing test with 18 to 25 items that was used to determine the appropriate level of difficulty for the second stage of the test.

All parent interviews were conducted between February and June of 2004, with 50% conducted in February and March. Assessors used computer-assisted interviewing (CAI). Parent interviews were almost all conducted via telephone, with 2.7% conducted in person. Most of the interviews were conducted in English, with 8.1% completed in language other than English. Self-administered questionnaires were used to collect data from teachers. The teachers were reimbursed $7 for each child they rated in reading and mathematics or science.

Data Analysis

SPSSv.11.5 was used for data management and AM v.0.06 was used for data analysis. Only students on grade level at fifth grade were retained in the sample. Participants with base weight of zero were removed from the sample. The final analytic unweighted sample size was 9,135. To account for missing data, imputation was performed using NORM v.2.03. Analysis began by reporting descriptive statistics for all variables.

Analysis of Differences

Multinomial logit was performed to analyze the relationship between socioeconomic status and culture, with culture as the independent variable. Multinomial logit has been used when testing the impact of multiple predictors on a categorical dependent variable (Blizzard & Hosmer, 2007; Park, 2008). European American and low SES were the reference categories for the independent and dependent variables, respectively. To analyze mean differences, t-tests are used to determine if two means are significantly different (McMillan & Schumacher, 2006). Follow-up t-tests were performed to examine relationships of significance. Native American, Hawaiian Native, and multi-cultural categories were excluded from this and other follow-up analysis due to the small sample size among these groups.

To analyze the relationship between academic achievement and gender, t-tests were used for the three achievement tests as well yearly absences and individualized education plan (IEP) on file. Multiple linear regression analysis has been recommended to determine whether multiple selected independent variables are significant predictors of the dependent variable (McMillan & Schumacher, 2006). Therefore, this procedure was used to determine if culture was a significant predictor of achievement score, with European American as the reference category. Follow-up t-tests examined significant relationships. Multinomial logit was used to assess the relationship between absences and culture, with fewer than two absences and European American as the reference categories. Follow-up t-tests were used to examine relationships of interest for groups with an appropriate sample size. Logit or logistic regression identifies significant predictors for dichotomous dependent variables (McMillan & Schumacher). Logit and t-test analyses were conducted to analyze the relationship between culture and individualized education plan (IEP). European American was the reference category for the logit analysis.

Multiple linear regression analysis was used to determine if socioeconomic status (SES) was a significant predictor of achievement score, with low SES as the reference category. Follow-up t-tests examined significant relationships. Multinomial logit was used to assess the relationship between absences and SES, with fewer than two absences and low SES as the reference categories. Follow-up t-tests were used to examine relationships of interest. Logit analysis was conducted to analyze the relationship between SES and individualized education plan (IEP). Low SES was the reference category for the logit analysis.

To analyze the relationship between academic achievement and traumatic stress, t-tests were used for the three achievement tests as well yearly absences and individualized education plan (IEP) on file. The relationship between traumatic stress and gender was assessed through t-test analysis. Logit and follow-up t-tests were used to assess the relationships between traumatic stress and culture, with European American as the reference category. Logit analysis was used to assess the relationships between traumatic stress and SES, with low SES as the reference category.

Regression Analysis

Multiple linear regressions were performed to analyze the relationship between academic achievement and traumatic stress, as controlled by gender, culture, and SES. The following equation was used:

Y(C6R3RSCL) = B0 + B1*Traumatic Stress + B2*R6RACE + B3*R6GENDER
+ B4*W5SESL + B5*Traumatic Stress*R6RACE +
B6*Traumatic Stress*R6GENDER + B7*Traumatic Stress*W5SESL +E

Analogous regression equations were conducted for dependent variables: mathematics cognitive achievement (C6R3MSCL), science cognitive achievement (C6SR1SSCL), and disengagement (U6ABSTOT). An analogous logistic regression was run for dependent variable low ability

tracking (U6RIEP) as it is a dichotomous variable. The reference categories were: male for gender, European American for all other cultural groups, low SES for all other SES groups, and no traumatic stress.

Table 3-1. Measurements for existing variables

Measure	ECLS-K Variable
Reading achievement	C6R3RSCL
Mathematics achievement	C6R3MSCL
Science achievement	C6SR1SSCL
IEP on file (Low ability tracking)	U6RIEP
Absences (School disengagement)	U6ABSTOT
Gender	R6GENDER
Culture	R6RACE
Socioeconomic Status (SES)	W5SESL

Table 3-2. Measurements for traumatic stress

Symptom	ECLS-K Variable (Instrument*)	Scale/Question Information	Response Scale	Traumatic Stress
Reexperiencing	T6CONTRO (SRS): Self-control	Four items that indicate the child's ability to control behavior by respecting the property rights of others, controlling temper, accepting peer ideas for group activities, and responding appropriately to pressure from peers.	1. never 2. sometimes 3. often 4. very often	Less than 3
Avoidance	C6SDQPRC (SDQ): Peer Interest	Six items on how easily the child makes friends and get along with children as well as their perception of their popularity.	1. never 2. sometimes 3. often 4. very often	Less than 3
	P6BEHAVE (PI)	CHQ.325 Would you say {CHILD} behaves and relates to other children and adults ...[compared to others]	1. better than 2. as wells as 3. slightly less well 4. much less well	Greater than 2
	T6INTERP (SRS): Interpersonal Skills	Five items that rate the child's skill in forming and maintaining friendships; getting along with people who are different; comforting or helping other children; expressing feelings ideas and opinions in positive ways; and showing sensitivity to the feelings of others.	1. never 2. sometimes 3. often 4. very often	Less than 3
Arousal	P6ACTIVE (PI)	CHQ.080 Thinking about {CHILD}'s overall activity level would you say {he/she} is …[compared to others]	1. less active 2. about as active 3. slightly more 4. a lot more	Greater than 2

Table 3-2. Continued.

	P6ATTENI (PI)	CHQ.020 Does {CHILD} pay attention ....[compared to others]	1. better than 2. as wells as 3. slightly less well 4. much less well	Greater than 2
Internalizing	C6SDQINT (SDQ): Sad/Lonely/ Anxious	Eight items on child's internalizing problem behaviors such as feeling "sad a lot of the time" feeling lonely feeling ashamed of mistakes feeling frustrated and worrying about school and friendships.	1. never 2. sometimes 3. often or 4. very often	Greater than 2
Externalizing	C6SDQEXT (SDQ): Anger/ Distractibility	Six items on child's externalizing problem behaviors such as fighting and arguing "with other kids" talking and disturbing others and problems with distractibility.	1. never 2. sometimes 3. often or 4. very often	Greater than 2

*Note: SDQ: Direct Child Assessment Self-Description Questionnaire
SRS: Reading Teacher Social Rating Scale
PI: Parent Interview on Child Health and Well Being

CHAPTER 4
RESULTS

This study examined the impact of traumatic stress on the academic achievement for primary school students, as well as the influence of gender, culture, and socioeconomic status (SES). The purpose of this chapter is to present the findings of the study in relation to the research questions.

Participant Descriptive Information

Of the 3,387,565 fifth grade students in the weighted sample, 50.4% were male and 49.6% were female. The following cultural groups were represented in the sample: European American (58.9%), Latina/o (19.3%), African American (14.4%), Asian (2.9%), Native American, (1.5%), Hawaiian Native (0.7%), multi-cultural (2.4%). The socioeconomic status (SES) backgrounds of students in the sample were as follows: 16.9% were from low SES families, 19.2% were from mid-low SES families, 21.4% were from mid SES families, 21.2% were from mid-high SES families, and 21.3% were from high SES families.

Analyses were conducted to assess the intersection between SES and culture, as shown in Table 4-1. While 29.0% of European Americans were in the high SES category, only 7.9% of Latina/o students and 8.1% of African American students were in this category (see Figure 4-1). In examining the percentages of students in the low SES category, almost the opposite distribution was found: 7.9% of European American students, 34.5% Latina/o students, and 27.8% African American students from low SES families. Results of the multinomial logit found significant differences for both Latina/o and African American students in all SES categories when compared to low SES European American students (see Table 4-2). Follow-up t-tests of differences between European American, Latina/o, and African American students showed significant differences between the percentages of students in each SES group (see Table 4-3).

Further, the percentage of Asian students in both low and high SES groups was significantly different than the percentage of Latina/o and African American students in each group. As such, these results indicate that African American and Latina/o students are disproportionately of lower socioeconomic status.

In examining the academic achievement measures for the students, the mean reading achievement score for all students was 140.9, with a range from 59.1 to 181.2. The mean mathematics achievement score was 114.9, with a minimum of 47.0 and a maximum of 50.9. Students' scores on the science achievement test averaged 58.2, with a range from 17.5 to 87.6. In assessing school disengagement, the analysis showed that the largest percentage of students had fewer than two yearly absences, at 28.9% (see Figure 4-2). Approximately half as many students (19.8%) were in the highest category of absences, with 10 or more absences. Of the total sample, 11.8% had an individualized education plan (IEP) on file with the school, indicating low-ability tracking (see Figure 4-3).

Academic Achievement and Gender

The first research question was as follows: What is the relationship between academic achievement and gender for primary school students? This question was examined using t-t-tests, which found that scores for male students were significantly different than those of female students on reading, mathematics, and science (see Table 4-4). The average reading score was higher for females, while males scored higher on average in mathematics and science. The percentages of students in each of the four categories of yearly absences were then compared by gender using t-tests. These analyses found that only the difference between males and females who were absent less than two times per year was significant (see Table 4-5). Finally, there was a significant difference between the percentage of male students with an IEP on file (15.6%) and the percentage of female students (7.9%) ($t=5.016$, $p<0.001$) (see Figure 4-4). Therefore, results

from the analysis of academic achievement and gender are mixed. While males perform better than females on two of three achievement tests, males are twice as likely to be placed in special education programs.

Academic Achievement and Culture

The second research question asked: What is the relationship between academic achievement and culture for primary school students? In examining the sample, achievement scores for European American students were highest in reading and science, while Asian students had the highest average in mathematics (see Table 4-6). Latina/o and African American students had average scores among the bottom three of all three subjects.

Linear regression analysis examined the influence of culture on achievement scores. In comparison to the reference category of European American cultural identity, results showed that identification as Latina/o, African American, Native American, and Native Hawaiian were all significant negative predictors of reading, mathematics, and science achievement (see Table 4-7). Asian cultural identity was a significant positive predictor of mathematics achievement. Follow-up t-tests examined differences among European American, Latina/o, and African American, and Asian students. In mathematics and science, all groups were significantly different (see Table 4-8). On reading achievement, only European American compared to Asian students and Latina/o compared to African American students were not significant. These results indicated that the cultural identity of Latina/o and African American students is negative predictor of their academic achievement. Native American and Native Hawaiian culture identity also serves as a negative predictor, although results are tentative due to the small sample size.

Analysis of academic achievement-related measures by culture examined the percentages of yearly absences by cultural group. Asian students had the lowest percentage of students with 10 or more absences (6.9%), while Native American students had the highest percentage within

this category (40.9%) (see Table 4-9). Among all cultural groups, Asian students had by far the largest percentage with fewer than two absences (53.3%) (see Figure 4-5). Results of the multinomial logit found significant differences for Asian and Native American students for two to less than five and ten or more absences as compared to European American students with less than two absences (see Table 4-10). Latina/o, and African American, and Asian students with five to less than ten absences were also significantly different. Using t-tests to examine the differences at the highest category of absences, only the differences between Asian students and each of the other cultural groups were significant (see Table 4-11). Results show high engagement among Asian students. Engagement appears to be significantly low among Native American students, although inferences are limited by the sample size.

Among all the cultural groups in the sample, Native American students were the most likely to have an individualized education plan (IEP) on file (22.0%) (see Table 4-12). Asian students were the most likely to have an IEP (4.2%) (see Figure 4-6). Among European American, Latina/o, and African American students the range was between 10.4% and 12.4% for students having an IEP on file. Logit analysis and follow-up t-tests confirmed the significant difference between Asian students and the following groups: European American, Latina/o, and African American (see Table 4-13 and Table 4-14). The odds ratio of 1.98 indicated Native American students are almost twice as likely to have an IEP on file as European American students. Differences between European American, Latina/o, and African American cultural groups were not significant.

The measures of academic achievement show that European American and Asian students tend to perform significantly better as compared to their counterparts from other cultural backgrounds. Of particular significance is that European American and Asian students had

significantly higher achievement scores that their Latina/o and African American counterparts on all three academic subjects. In achievement-related measures, the evidence for disengagement as measured by absences indicated that Asian students were more engaged than students from other cultural backgrounds. Native Americans appeared significantly disengaged, although due to the small sample size results are tentative. Also with respect to IEP, Asian students are much less likely than other students to be tracked for low-ability placement. Native Americans are more likely to have an IEP, while European American, Latina/o, and African American were not significantly different.

Academic Achievement and Socioeconomic Status

The third research question was as follows: What is the relationship between academic achievement and socioeconomic status (SES) for primary school students? Among students in the sample, mean achievement scores increased in each subject as SES increased (see Table 4-15). Regression analysis (see Table 4-16) and follow-up t-tests (see Table 4-17) found that all differences were significant, showing a consistent increase as students' SES increased.

Similarly, with student absences, as SES increased, the percentage of students with ten or more absences decreased (see Figure 4-7). Multinomial logit analysis showed that the percentages of students in the higher three categories of SES who had ten or more absences were significantly different than those in the lowest SES category with less than two absences (see Table 4-18). Follow-up t-tests examined the difference between the percentage of absences in each of the four categories for students with low SES as compared to students with high SES, finding that all except those for the five to less than ten absences category were significantly different (see Table 4-19). Additionally, for the highest absence category, significant differences were found between low SES students and all other categories.

The percentage of students with an individualized education plan (IEP) on file tended to decrease as SES increased. While 18.4% of low SES students had an IEP on file, only 9.1% of high SES students were tracked for low-ability placement (see Figure 4-8). Logit analysis showed that, as compared to low SES students, mid, mid-high, and high SES students were significantly more likely to have an IEP on file (see Table 4-20). The odds ratio of .45 indicated that high SES students were 50% less likely to have an IEP on file than low SES students.

Analysis of both the direct and related academic achievement measures shows that socioeconomic status (SES) is a significant factor in the educational success of primary school students. Students of higher SES tend to score higher on achievement test, have fewer absences, and are less likely to be placed in special education. The results indicate that SES has a strong, positive relationship with academic achievement.

Academic Achievement and Traumatic Stress

The fourth research question asked: What is the relationship between academic achievement and traumatic stress for primary school students? Among all students in the sample, 10.3% met the criteria for traumatic stress (see Figure 4-9). Students with traumatic stress had average academic achievement scores that were significantly lower than those without traumatic stress (see Figure 4-10). Differences were found to be significant for all three academic subjects based on t-tests (see Table 4-21). Number of absences showed little difference for students with traumatic stress as compared to those without; t-tests confirmed none of the differences were significant (see Table 4-22). In terms of low-ability tracking, students with traumatic stress were more than twice as likely to have an IEP on file (see Figure 4-11). The difference was found to be significant by t-test ($t=5.125$, $p<0.001$). Evidence that traumatic stress has a significant negative impact on academic achievement is strong based on the academic achievement scores

and special education placement. Interestingly, students with traumatic stress were not found to be less engaged in school, as indicated by absences.

Academic Achievement and Gender, Culture, SES, and Traumatic Stress

The fifth research question asked: What is the relationship between traumatic stress and academic achievement for primary school students when controlled by culture, gender, and SES? To examine this question, first the relationships between traumatic and the control variables, gender, culture, and SES, were assessed. Male students were almost three times as likely to have traumatic stress as females ($t=6.588$, $p<0.001$) (see Figure 4-12). Asian students had the lowest percentage of traumatic stress, with only 2.6% of students meeting the criteria (see Figure 4-13). While African Americans had the largest percent (13.4%), the only significant differences found by the logit analysis and follow-up t-tests were between Asian students and European American, Latina/o, and African American students (see Table 4-23 and Table 4-24). As SES increased, the percentage of students with traumatic stress generally decreased. While only 6.9% of high SES students met the criteria, 16.1% of low SES students were found to have traumatic stress (see Figure 4-14). The percentage of students with traumatic stress in the low SES group was significantly different from the percentage of students meeting the criteria in all other SES categories according to the logit analysis (Table 4-25). High SES students were almost 50% less likely to have traumatic stress than low SES students, based on the odds ratio of 0.39. These analyses showed that male students and lower SES students were more likely to have traumatic stress when compared to female students and middle and upper SES students, respectively. As compared to other cultural groups, Asian students were less likely to have traumatic stress.

Following these analyses, linear regressions were used to address the research question, with gender, culture, SES, and traumatic stress as independent variables. The reference categories were: male, European American, low SES, and no traumatic stress, respectively.

Regression analysis with reading achievement as the dependent variable found that female gender and all four higher SES categories were significant positive predictors of higher academic achievement scores (see Table 4-26). Significant negative predictors were having traumatic stress and belonging to any of the following cultural groups: Latina/o, African American, Native American, and Native Hawaiian. Results of the regression with mathematics as the dependent variable mirrored the results for reading achievement, with two differences: female gender was a negative predictor and Asian cultural identity was a positive predictor (see Table 4-27). For science achievement, the differences in the results were that female gender was a negative predictor, as was found with mathematics, and that Asian cultural identity was a negative predictor (see Table 4-28). Across all academic subjects, higher SES was a positive predictor of achievement, while Latina/o, African American, Native American, or Native Hawaiian cultural identity was a negative predictor. Female gender was a positive predictor of reading achievement only. Asian cultural identity was positive for mathematics achievement, but negative for science achievement.

In terms of school disengagement, the following were significant negative predictors of higher absences, indicating that these factors would imply positive school engagement: Latina/o, African American, Asian, and Native American cultural identity, as well as any of the upper four SES categories (see Table 4-29). Gender and traumatic stress were not significant predictors of absences in the linear regression. Logit analysis was used to assess the dichotomous dependent variable, IEP on file. The following were significant negative predictors, meaning that they implied the absence of low-ability and therefore predict a positive achievement-related factor: female gender; Latina/o, African American, Asian, Native American, and multi-cultural cultural identity; and the upper four SES categories (see Table 4-30). Traumatic stress was the only

positive predictor of having an IEP on file. The odd ratio was 2.58, indicating that the odds of having an IEP are almost three times as large when the student has traumatic stress.

In summary, regression analysis found that traumatic stress as well as the controlling factors, gender, culture, and SES, were significant predictors of academic achievement. Socioeconomic status is a clear predictor of higher achievement across all measures used. Cultural identity of Latina/o, African American, and Native American were negative predictors of academic subject achievement scores, but also a negative predictor of having an IEP on file and a negative predictor of absences. Some differences in predictions were found with gender, as female gender positively predicted reading achievement and negatively predicted having an IEP on file. However, female gender negatively predicted mathematics and science achievement. Asian cultural identity positively predicted mathematics achievement, but negatively predicted science achievement. Finally, traumatic stress was a significant negative predictor of achievement scores, as well as a significant positive predictor and having an IEP. However, traumatic stress did not predict absences.

Table 4-1. Distribution of students in socioeconomic status (SES) categories by culture

Culture	Low SES	Mid-Low SES	Mid SES	Mid-High SES	High SES
All Students	16.9%	19.2%	21.4%	21.2%	21.3%
European American	7.9%	15.8%	22.2%	25.1%	29.0%
Latina/o	35.4%	24.6%	19.9%	12.2%	7.9%
African American	27.8%	25.6%	19.3%	19.2%	8.1%
Asian	15.6%	19.1%	16.2%	17.1%	32.0%
Native American	34.5%	18.7%	28.1%	12.5%	6.3%
Native Hawaiian	15.7%	30.7%	34.9%	13.0%	5.7%
Multi-cultural	13.6%	18.0%	23.8%	23.6%	21.1%

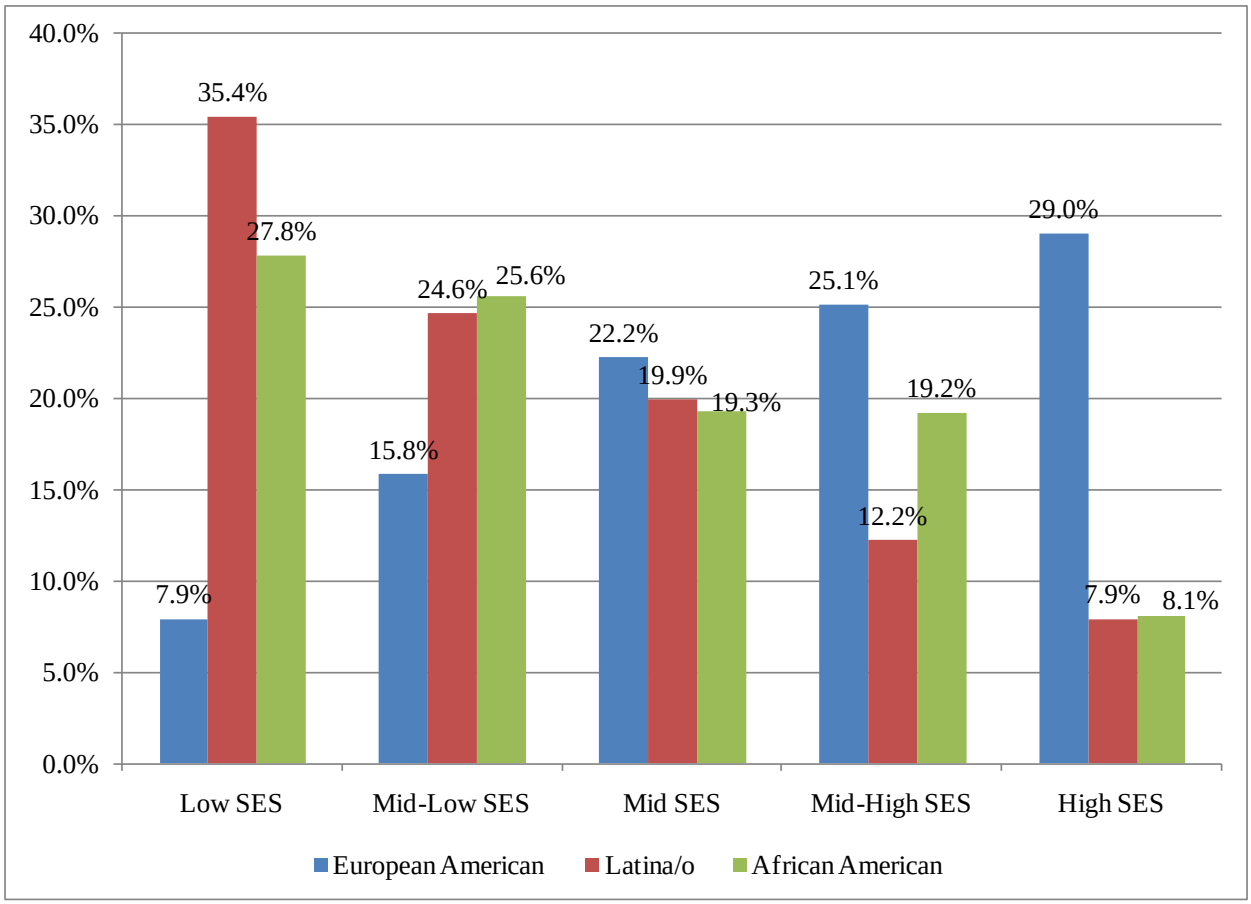

Figure 4-1. Distribution of European American, Latina/o, and African American students in socioeconomic status (SES) categories by culture

Table 4-2. Results of multinomial logit analyzing the relationship between socioeconomic status (SES) and culture

Parameter Name	Estimate	Standard Error	t-statistic	p > |t|	
Mid-Low SES					
Latina/o	-1.066	0.160	-6.671	0.000	***
African American	-0.786	0.211	-3.721	0.000	***
Asian	-0.494	0.271	-1.824	0.071	
Native American	-1.311	0.329	-3.988	0.000	***
Native Hawaiian	-0.030	0.402	-0.074	0.941	
Multi-cultural	-0.417	0.399	-1.043	0.300	
Mid SES					
Latina/o	-1.612	0.185	-8.702	0.000	***
African American	-1.402	0.249	-5.627	0.000	***
Asian	-0.998	0.352	-2.840	0.006	**
Native American	-1.242	0.785	-1.581	0.117	
Native Hawaiian	-0.237	0.521	-0.455	0.650	
Multi-cultural	-0.475	0.459	-1.033	0.304	
Mid-High SES					
Latina/o	-2.225	0.175	-12.712	0.000	***
African American	-1.531	0.218	-7.015	0.000	***
Asian	-1.068	0.264	-4.052	0.000	***
Native American	-2.175	0.437	-4.979	0.000	***
Native Hawaiian	-1.346	0.690	-1.952	0.054	
Multi-cultural	-0.607	0.417	-1.454	0.149	
High SES					
Latina/o	-2.811	0.188	-14.940	0.000	***
African American	-2.539	0.259	-9.815	0.000	***
Asian	-0.584	0.290	-2.017	0.047	*
Native American	-3.005	0.559	-5.372	0.000	***
Native Hawaiian	-2.326	0.843	-2.761	0.007	**
Multi-cultural	-0.865	0.398	-2.171	0.033	*

Note: Culture reference category was European American; SES reference category was Low SES
Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-3. Results of follow-up t-tests analyzing the relationship between socioeconomic status (SES) and culture

Culture	Percentage	Culture	Percentage	T-statistic	p > t	
Low SES						
European American	7.9%	Latina/o	35.4%	-12.626	0.000	***
European American	7.9%	African American	27.8%	-6.132	0.000	***
European American	7.9%	Asian	15.6%	-2.404	0.018	*
Latina/o	35.4%	African American	27.8%	2.256	0.027	*
Latina/o	35.4%	Asian	15.6%	5.025	0.000	***
African American	27.8%	Asian	15.6%	2.601	0.011	*
Mid-Low SES						
European American	15.8%	Latina/o	24.6%	-4.538	0.000	***
European American	15.8%	African American	25.6%	-3.723	0.000	***
European American	15.8%	Asian	19.1%	-1.195	0.235	
Latina/o	24.6%	African American	25.6%	-0.315	0.754	
Latina/o	24.6%	Asian	19.1%	1.854	0.067	
African American	25.6%	Asian	19.1%	1.858	0.066	
Mid-High SES						
European American	25.1%	Latina/o	12.2%	8.858	0.000	***
European American	25.1%	African American	19.2%	2.102	0.038	*
European American	25.1%	Asian	17.1%	3.318	0.001	**
Latina/o	12.2%	African American	19.2%	-2.499	0.014	*
Latina/o	12.2%	Asian	17.1%	-1.942	0.055	
African American	19.2%	Asian	17.1%	0.669	0.505	
High SES						
European American	29.0%	Latina/o	7.9%	14.420	0.000	***
European American	29.0%	African American	8.1%	10.558	0.000	***
European American	29.0%	Asian	32.0%	-0.900	0.371	
Latina/o	7.9%	African American	8.1%	-0.140	0.889	
Latina/o	7.9%	Asian	32.0%	-7.558	0.000	***
African American	8.1%	Asian	32.0%	-6.676	0.000	***

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

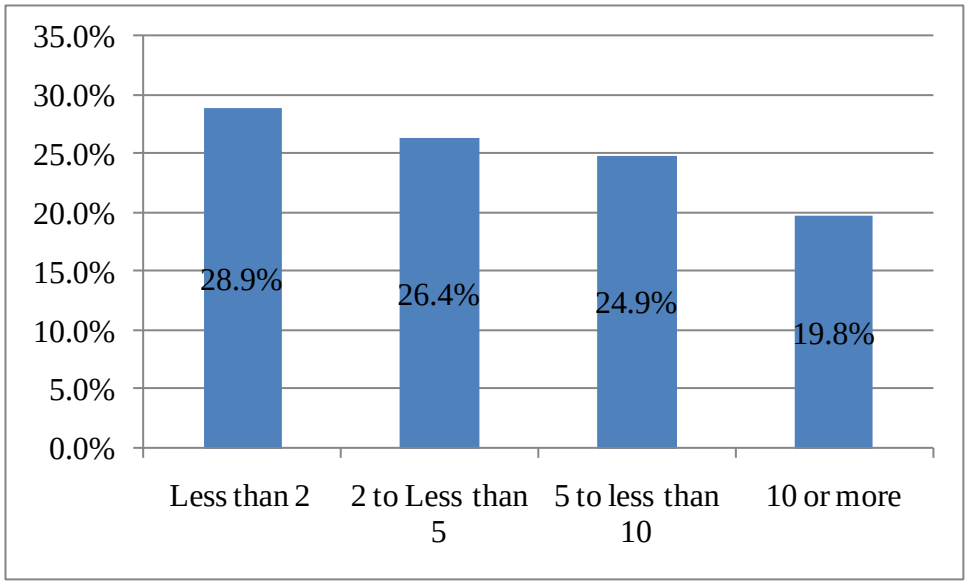

Figure 4-2. Distribution of yearly absences for sample

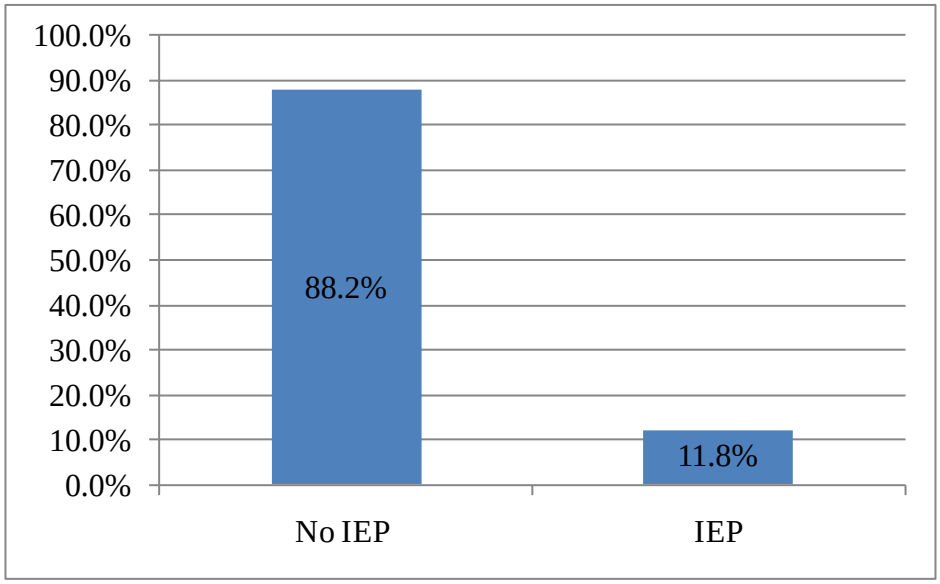

Figure 4-3. Distribution of individualized education plan (IEP) on file for sample

Table 4-4. Results of t-tests analyzing the relationship between average academic achievement scores by gender

Subject	Male	Female	T-statistic	p > t	
Reading	139.3	142.5	-3.642	0.000	***
Mathematics	116.7	113.1	4.248	0.000	***
Science	59.9	56.5	5.688	0.000	***

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-5. Results of t-tests analyzing the relationship between yearly absences and socioeconomic status (SES)

Yearly Absences	Male	Female	Difference	T-statistic	p > t	
Less than 2	27.2%	30.7%	-0.034	-2.097	0.039	*
2 to Less than 5	28.3%	24.4%	0.038	1.934	0.056	
5 to less than 10	24.1%	25.8%	-0.017	-0.97	0.335	
10 or more	20.4%	19.1%	0.013	0.819	0.415	

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

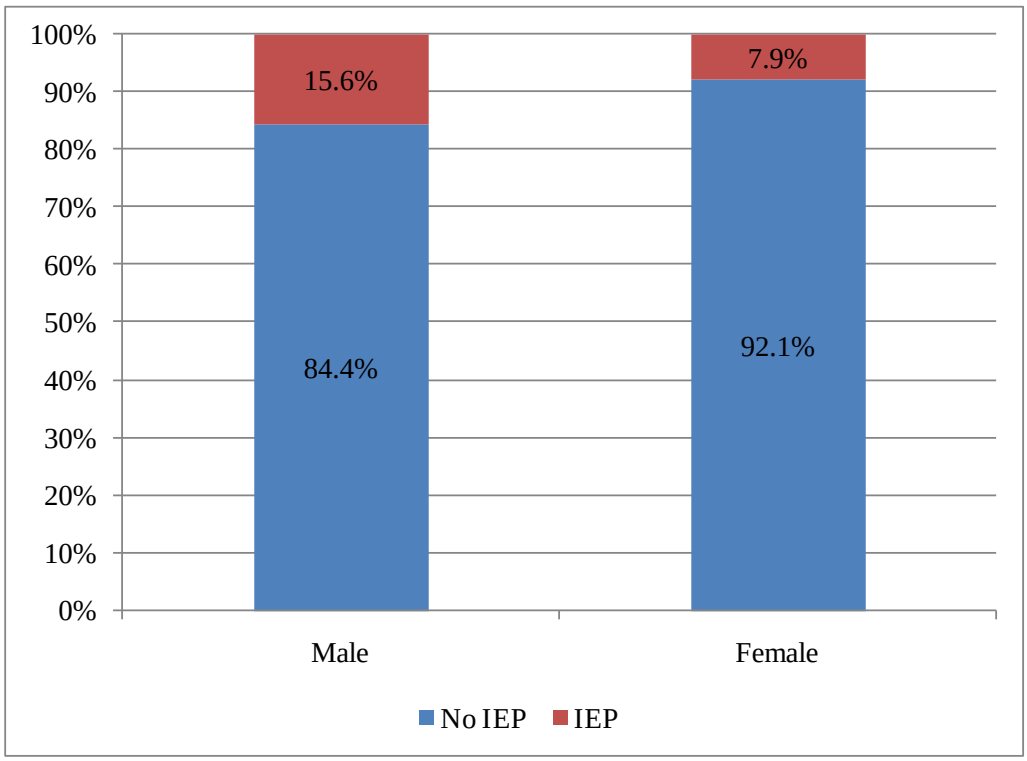

Figure 4-4. Distribution of students with an individualized educational plan (IEP) on file by gender

Table 4-6. Mean academic achievement scores by culture

Culture	Reading	Mathematics	Science
European American	146.2	119.6	62.7
Latina/o	132.7	109.1	52.3
African American	131.0	103.5	48.7
Asian	145.1	122.9	59.5
Native American	125.2	99.8	47.5
Native Hawaiian	133.8	108.4	50.0
Multi-cultural	144.7	118.5	61.3

Table 4-7. Results of linear regression analyzing the relationship between academic achievement by culture

Parameter Name	Estimate	Standard Error	t Statistic	p > |t|	
Reading		R-Square = 0.099			
Latina/o	-13.443	1.009	-13.317	0.000	***
African American	-15.202	1.548	-9.821	0.000	***
Asian	-1.106	1.370	-0.807	0.422	
Native American	-20.958	7.469	-2.806	0.006	**
Native Hawaiian	-12.350	3.913	-3.157	0.002	**
Multi-cultural	-1.454	2.152	-0.676	0.501	
Mathematics		R-Square = 0.104			
Latina/o	-10.479	1.057	-9.918	0.000	***
African American	-16.035	1.421	-11.287	0.000	***
Asian	3.331	1.612	2.067	0.042	*
Native American	-19.771	3.872	-5.106	0.000	***
Native Hawaiian	-11.163	2.652	-4.209	0.000	***
Multi-cultural	-1.059	2.206	-0.480	0.632	
Science		R-Square = 0.174			
Latina/o	-10.419	0.639	-16.295	0.000	***
African American	-13.926	0.963	-14.463	0.000	***
Asian	-3.176	1.070	-2.968	0.004	**
Native American	-15.221	2.751	-5.533	0.000	***
Native Hawaiian	-12.644	2.289	-5.524	0.000	***
Multi-cultural	-1.332	1.346	-0.990	0.325	

Note: Culture reference category was European American

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-8. Results of follow-up t-tests analyzing the relationship between academic achievement and culture

Culture	Mean	Culture	Mean	T-statistic	p > t	
Reading						
European American	146.2	Latina/o	132.7	13.317	0.000	***
European American	146.2	African American	131.0	9.821	0.000	***
European American	146.2	Asian	145.1	0.807	0.422	
Latina/o	132.7	African American	131.0	1.037	0.302	
Latina/o	132.7	Asian	145.1	-8.017	0.000	***
African American	131.0	Asian	145.1	-7.36	0.000	***
Mathematics						
European American	119.6	Latina/o	109.1	9.918	0.000	***
European American	119.6	African American	103.5	11.287	0.000	***
European American	119.6	Asian	122.9	-2.067	0.042	*
Latina/o	109.1	African American	103.5	3.328	0.001	**
Latina/o	109.1	Asian	122.9	-7.857	0.000	***
African American	103.5	Asian	122.9	-10.386	0.000	***
Science						
European American	62.7	Latina/o	52.3	16.295	0.000	***
European American	62.7	African American	48.7	14.463	0.000	***
European American	62.7	Asian	59.5	2.968	0.004	**
Latina/o	52.3	African American	48.7	3.353	0.001	**
Latina/o	52.3	Asian	59.5	-6.329	0.000	***
African American	48.7	Asian	59.5	-8.152	0.000	***

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001

Table 4-9. Distribution of yearly absences by culture

Absences	European American	Latina/o	African American	Asian	Native American	Native Hawaiian	Multi-cultural
Less than 2	25.7%	32.2%	33.7%	53.5%	23.8%	22.8%	28.9%
2 to Less than 5	26.4%	27.2%	27.9%	22.9%	10.5%	26.3%	24.8%
5 to less than 10	28.4%	21.2%	18.3%	16.7%	24.8%	25.5%	20.5%
10 or more	19.5%	19.5%	20.1%	6.9%	40.9%	25.5%	25.8%

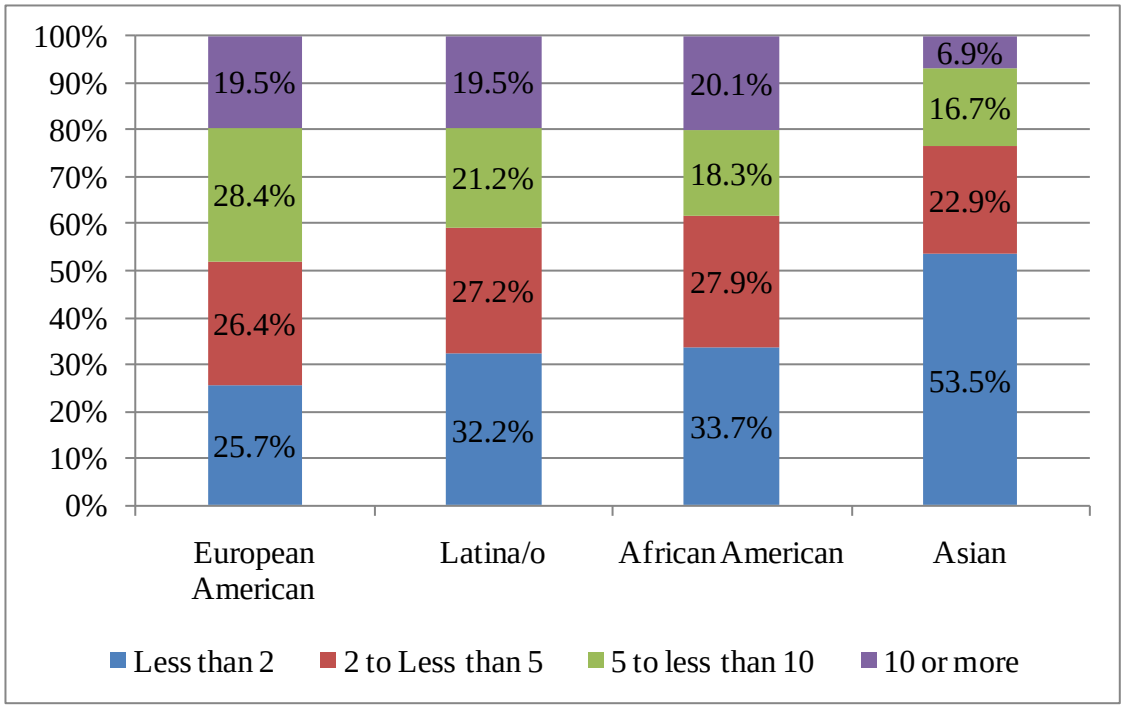

Figure 4-5. Distribution of yearly absences by culture for European American, Latina/o, African American, and Asian students

Table 4-10. Results of multinomial logit analyzing the relationship between yearly absences and culture

Parameter Name	Estimate		Standard Error	t-statistic	p > |t|
2 to Less than 5					
Latina/o	-0.194	0.129	-1.504	0.136	
African American	-0.215	0.179	-1.198	0.234	
Asian	-0.874	0.180	-4.856	0.000	***
Native American	-0.843	0.315	-2.679	0.009	**
Native Hawaiian	0.119	0.483	0.246	0.806	
Multi-cultural	-0.177	0.316	-0.563	0.575	
5 to less than 10					
Latina/o	-0.518	0.134	-3.876	0.000	***
African American	-0.713	0.198	-3.606	0.001	**
Asian	-1.262	0.197	-6.414	0.000	***
Native American	-0.060	0.802	-0.075	0.941	
Native Hawaiian	0.013	0.490	0.027	0.978	
Multi-cultural	-0.446	0.306	-1.456	0.149	
10 or more					
Latina/o	-0.225	0.119	-1.887	0.062	
African American	-0.242	0.155	-1.565	0.121	
Asian	-1.774	0.324	-5.473	0.000	***
Native American	0.816	0.220	3.716	0.000	***
Native Hawaiian	0.388	0.380	1.020	0.311	
Multi-cultural	0.160	0.308	0.521	0.604	

Note: Culture reference category was European American; Absences reference category was Less than 2

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-11. Results of follow-up t-tests analyzing the relationship between yearly absences and culture

Parameter1	Mean 1	Parameter 2	Mean 2	T-statistic	p > t	
Less than 2						
European American	0.257	Latina/o	0.322	-3.269	0.002	**
European American	0.257	African American	0.337	-2.676	0.009	**
European American	0.257	Asian	0.535	-7.587	0.000	***
Latina/o	0.322	African American	0.337	-0.463	0.645	
Latina/o	0.322	Asian	0.535	-5.969	0.000	***
African American	0.337	Asian	0.535	-4.169	0.000	***
2 to Less than 5						
European American	0.264	Latina/o	0.272	-0.351	0.726	
European American	0.264	African American	0.279	-0.515	0.608	
European American	0.264	Asian	0.229	1.184	0.240	
Latina/o	0.272	African American	0.279	-0.217	0.829	
Latina/o	0.272	Asian	0.229	1.350	0.180	
African American	0.279	Asian	0.229	1.196	0.235	
5 to less than 10						
European American	0.284	Latina/o	0.212	3.310	0.001	**
European American	0.284	African American	0.183	3.551	0.001	**
European American	0.284	Asian	0.167	4.294	0.000	***
Latina/o	0.212	African American	0.183	1.069	0.288	
Latina/o	0.212	Asian	0.167	1.551	0.124	
African American	0.183	Asian	0.167	0.458	0.648	
10 or more						
European American	0.195	Latina/o	0.195	0.007	0.994	
European American	0.195	African American	0.201	-0.253	0.801	
European American	0.195	Asian	0.069	5.544	0.000	***
Latina/o	0.195	African American	0.201	-0.256	0.799	
Latina/o	0.195	Asian	0.069	5.559	0.000	***
African American	0.201	Asian	0.069	4.643	0.000	***

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-12. Distribution of individualized education plan (IEP) on file by culture

Culture	No IEP	IEP
European American	87.6%	12.4%
Latina/o	88.2%	11.8%
African American	89.6%	10.4%
Asian	95.8%	4.2%
Native American	78.0%	22.0%
Native Hawaiian	89.9%	10.1%
Multi-cultural	94.7%	5.3%

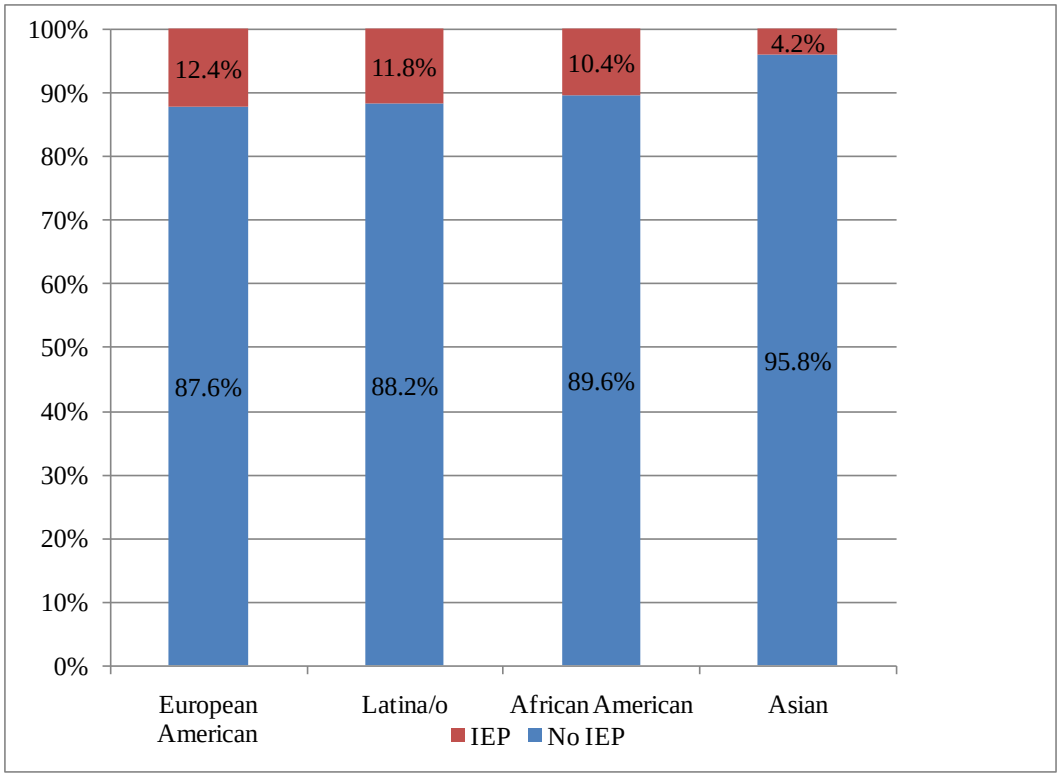

Figure 4-6. Distribution of individualized educational plan (IEP) on file by culture for European American, Latina/o, African American, and Asian students

Table 4-13. Results of logit analyzing the relationship between individualized educational plan (IEP) on file and culture

Parameter Name	Estimate	Odds Ratio	Standard Error	t Statistic	p > |t|	
Latina/o	-0.057	0.945	0.140	-0.405	0.686	
African American	-0.199	0.820	0.209	-0.954	0.343	
Asian	-1.188	0.305	0.263	-4.525	0.000	***
Native American	0.682	1.978	0.222	3.075	0.003	**
Native Hawaiian	-0.237	0.789	0.501	-0.472	0.638	
Multi-cultural	-0.924	0.397	0.318	-2.906	0.005	**

Note: Culture reference category was European American; IEP reference category was No IEP
Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-14. Results of follow-up t-tests analyzing the relationship between individualized educational plan (IEP) on file and culture

Culture	Percentage	Culture	Percentage	T-statistic	p > t	
Latina/o	11.8%	African American	10.4%	0.620	0.537	
Latina/o	11.8%	Asian	4.2%	4.714	0.000	***
African American	10.4%	Asian	4.2%	3.087	0.003	**

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-15. Distribution of mean academic achievement by socioeconomic status (SES)

SES Category	Reading	Mathematics	Science
High SES	154.0	126.7	66.3
Mid-High SES	146.1	118.9	61.6
Mid SES	141.3	115.2	58.9
Mid-Low SES	135.2	109.0	54.3
Low SES	123.8	101.4	47.3

Table 4-16. Results of linear regression analyzing the relationship between academic achievement and socioeconomic status (SES)

Parameter Name	Estimate	Standard Error	t Statistic	p > |t|	
Reading		R-Square = 0.201			
Mid-Low SES	11.361	1.639	6.932	0.000	***
Mid SES	17.493	1.530	11.434	0.000	***
Mid-High SES	22.274	1.385	16.079	0.000	***
High SES	30.166	1.557	19.380	0.000	***
Mathematics		R-Square = 0.168			
Mid-Low SES	7.602	1.167	6.515	0.000	***
Mid SES	13.765	1.336	10.301	0.000	***
Mid-High SES	17.498	1.463	11.963	0.000	***
High SES	25.289	1.364	18.536	0.000	***
Science		R-Square = 0.203			
Mid-Low SES	7.033	0.879	8.002	0.000	***
Mid SES	11.584	0.958	12.090	0.000	***
Mid-High SES	14.284	0.952	15.012	0.000	***
High SES	19.015	1.040	18.288	0.000	***

Note: SES reference category was Low SES

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-17. Results of follow-up t-tests analyzing the relationship between academic achievement and socioeconomic status (SES)

SES	Mean IRT	SES	Mean IRT	T-statistic	p > t	
Reading IRT						
Low SES	123.8	Mid-Low SES	135.2	-6.932	0.000	***
Low SES	123.8	Mid SES	141.3	-11.434	0.000	***
Low SES	123.8	Mid-High SES	146.1	-16.079	0.000	***
Low SES	123.8	High SES	154.0	-19.380	0.000	***
Mid-Low SES	135.2	Mid SES	141.3	-4.284	0.000	***
Mid-Low SES	135.2	Mid-High SES	146.1	-7.920	0.000	***
Mid-Low SES	135.2	High SES	154.0	-14.129	0.000	***
Mid SES	141.3	Mid-High SES	146.1	-3.955	0.000	***
Mid SES	141.3	High SES	154.0	-10.966	0.000	***
Mid-High SES	146.1	High SES	154.0	-6.719	0.000	***
Mathematics IRT						
Low SES	101.4	Mid-Low SES	109.0	-6.515	0.000	***
Low SES	101.4	Mid SES	115.2	-10.301	0.000	***
Low SES	101.4	Mid-High SES	118.9	-11.963	0.000	***
Low SES	101.4	High SES	126.7	-18.536	0.000	***
Mid-Low SES	109.0	Mid SES	115.2	-5.176	0.000	***
Mid-Low SES	109.0	Mid-High SES	118.9	-7.752	0.000	***
Mid-Low SES	109.0	High SES	126.7	-16.259	0.000	***
Mid SES	115.2	Mid-High SES	118.9	-3.258	0.002	**
Mid SES	115.2	High SES	126.7	-11.550	0.000	***
Mid-High SES	118.9	High SES	126.7	-6.568	0.000	***
Science IRT						
Low SES	47.3	Mid-Low SES	54.3	-8.002	0.000	***
Low SES	47.3	Mid SES	58.9	-12.090	0.000	***
Low SES	47.3	Mid-High SES	61.6	-15.012	0.000	***
Low SES	47.3	High SES	66.3	-18.288	0.000	***
Mid-Low SES	54.3	Mid SES	58.9	-5.380	0.000	***
Mid-Low SES	54.3	Mid-High SES	61.6	-8.543	0.000	***
Mid-Low SES	54.3	High SES	66.3	-14.306	0.000	***
Mid SES	58.9	Mid-High SES	61.6	-4.114	0.000	***
Mid SES	58.9	High SES	66.3	-9.259	0.000	***
Mid-High SES	61.6	High SES	66.3	-5.994	0.000	***

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

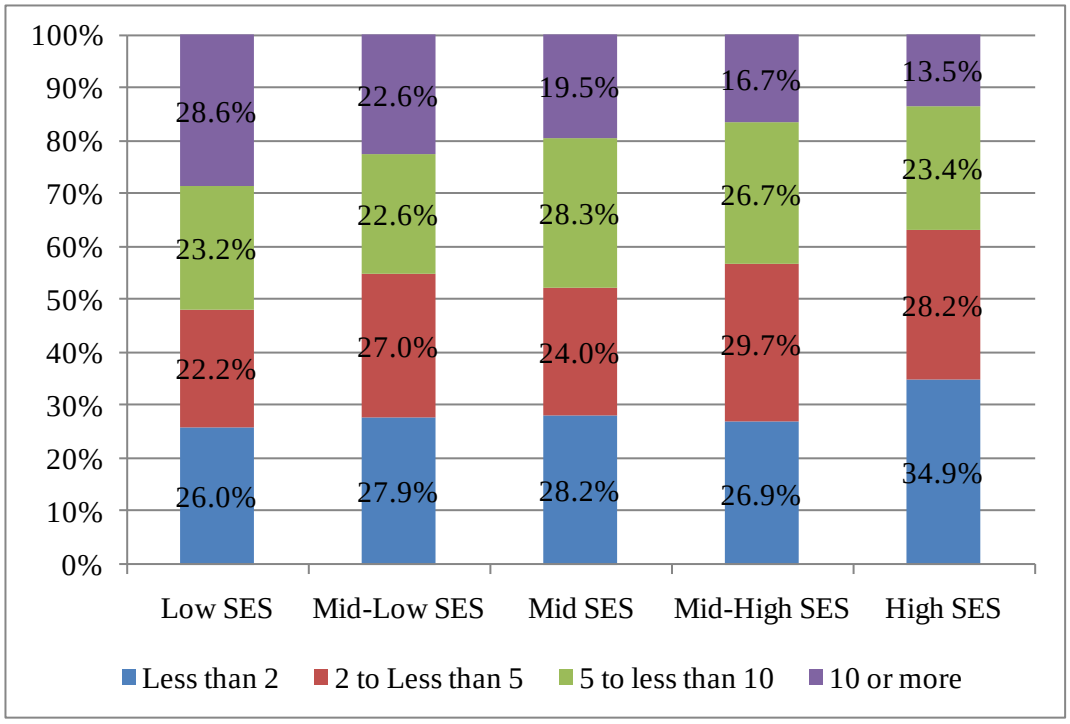

Figure 4-7. Distribution of yearly absences by socioeconomic status (SES)

Table 4-18. Results of multinomial logit analyzing the relationship between yearly absences and socioeconomic status (SES)

Parameter Name	Estimate	Standard Error	t-statistic	p > |t|	
2 to Less than 5					
Mid-Low SES	0.128	0.165	0.776	0.440	
Mid SES	-0.004	0.181	-0.021	0.983	
Mid-High SES	0.259	0.156	1.656	0.101	
High SES	-0.056	0.159	-0.356	0.723	
5 to less than 10					
Mid-Low SES	-0.096	0.179	-0.539	0.591	
Mid SES	0.115	0.172	0.669	0.505	
Mid-High SES	0.106	0.180	0.587	0.559	
High SES	-0.287	0.166	-1.724	0.088	
10 or more					
Mid-Low SES	-0.304	0.149	-2.044	0.044	*
Mid SES	-0.461	0.162	-2.841	0.006	**
Mid-High SES	-0.573	0.181	-3.176	0.002	**
High SES	-1.040	0.159	-6.555	0.000	***

Note: SES reference category was Low SES; Absences reference category was Less than 2
Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-19. Results of follow-up t-tests analyzing the relationship between yearly absences and socioeconomic status (SES)

Parameter1	Mean 1	Parameter 2	Mean 2	T-statistic	p > t	
Less than 2						
Low SES	26.0%	High SES	34.9%	-3.555	0.001	**
2 to Less than 5						
Low SES	22.2%	High SES	28.2%	-2.358	0.021	*
5 to less than 10						
Low SES	23.2%	High SES	23.4%	-0.059	0.953	
10 or more						
Low SES	28.6%	Mid-Low SES	22.6%	2.058	0.042	*
Low SES	28.6%	Mid SES	19.5%	3.161	0.002	**
Low SES	28.6%	Mid-High SES	16.7%	3.883	0.000	***
Low SES	28.6%	High SES	13.5%	5.760	0.000	***
Mid-Low SES	22.6%	Mid SES	19.5%	1.404	0.164	
Mid-Low SES	22.6%	Mid-High SES	16.7%	2.567	0.012	*
Mid-Low SES	22.6%	High SES	13.5%	4.108	0.000	***
Mid SES	19.5%	Mid-High SES	16.7%	1.044	0.299	
Mid SES	19.5%	High SES	13.5%	2.755	0.007	**
Mid-High SES	16.7%	High SES	13.5%	1.305	0.195	

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

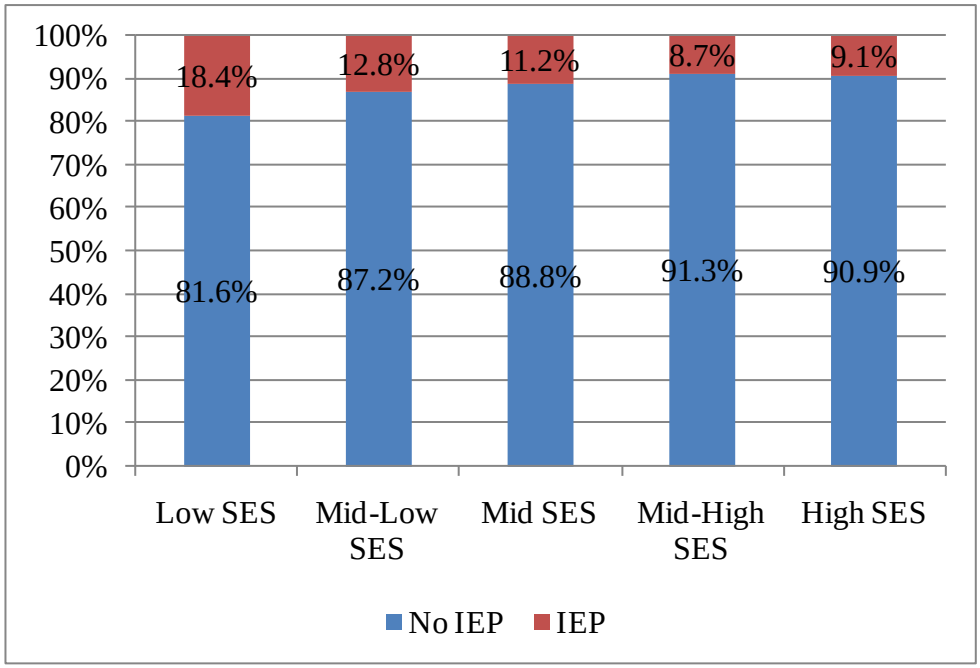

Figure 4-8. Distribution of individualized educational plan (IEP) on file by socioeconomic status (SES)

Table 4-20. Results of logit analyzing the relationship between individualized educational plan (IEP) on file and socioeconomic status (SES)

Parameter Name	Estimate	Odds Ratio	Standard Error	t Statistic	p > |t|	
Mid-Low SES	-0.432	0.649	0.231	-1.872	0.064	
Mid SES	-0.576	0.562	0.241	-2.394	0.019	*
Mid-High SES	-0.859	0.424	0.203	-4.233	0.000	***
High SES	-0.807	0.446	0.214	-3.774	0.000	***

Note: SES reference category was Low SES; IEP reference category was No IEP
Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

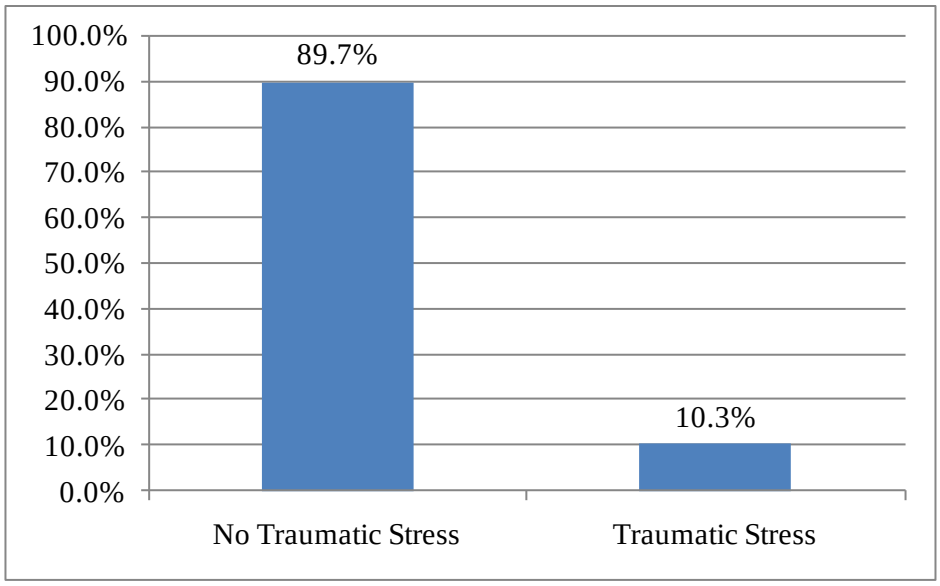

Figure 4-9. Distribution of students with traumatic stress for sample

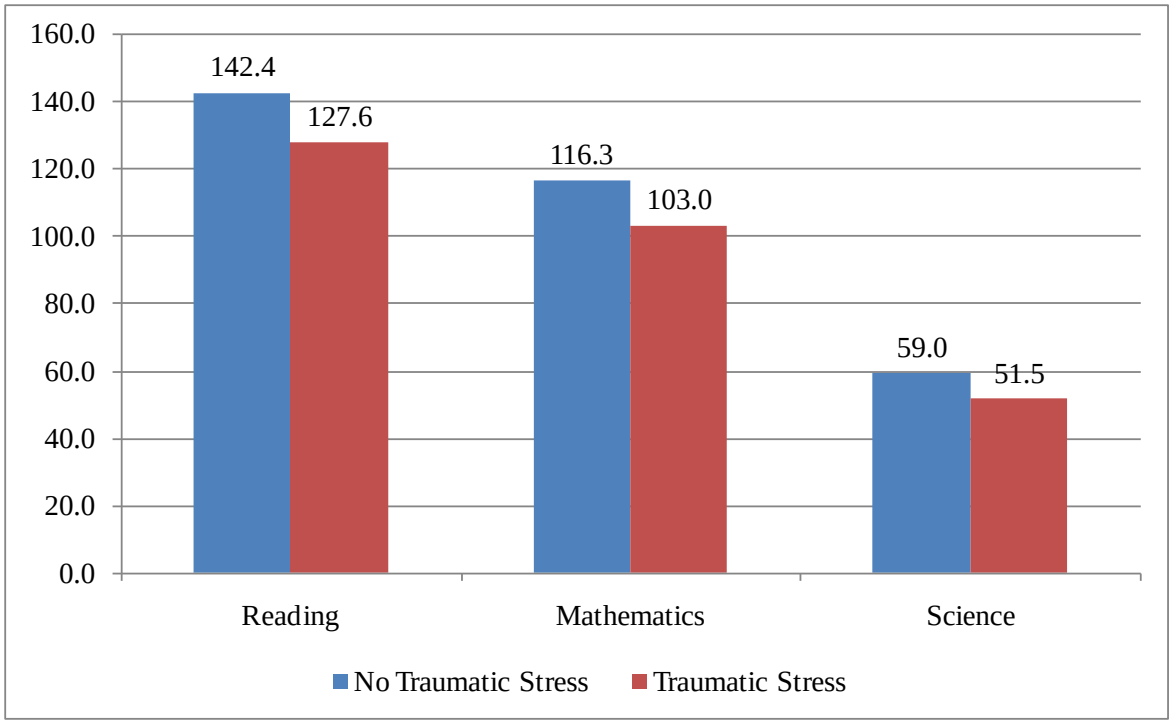

Figure 4-10. Distribution of average achievement scores by traumatic stress

Table 4-21. Results of t-tests analyzing the relationship between average achievement scores and traumatic stress

Subject	No Traumatic Stress	Traumatic Stress	T-statistic	p > t	
Reading	142.4	127.6	8.982	0.000	***
Mathematics	116.3	103.0	8.408	0.000	***
Science	59.0	51.5	6.757	0.000	***

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-22. Results of t-tests analyzing the relationship between yearly absences and traumatic stress

Absences	No Traumatic Stress	Traumatic Stress	T-statistic	p > t
Less than 2	29.6%	23.4%	1.973	0.052
2 to Less than 5	26.1%	28.9%	-1.032	0.305
5 to less than 10	25.1%	23.8%	0.452	0.653
10 or more	19.3%	23.9%	-1.558	0.123

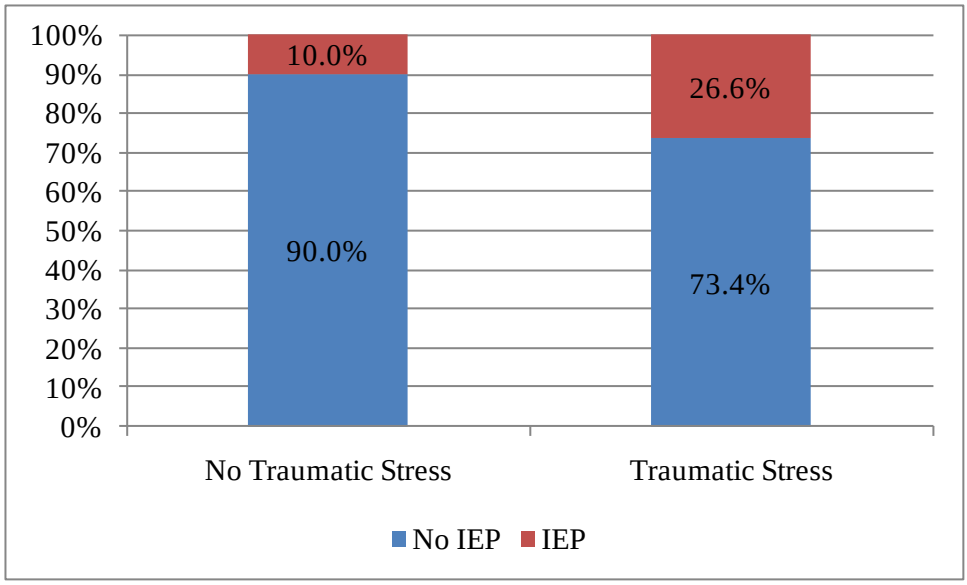

Figure 4-11. Distribution of individualized education plan (IEP) on file by traumatic stress

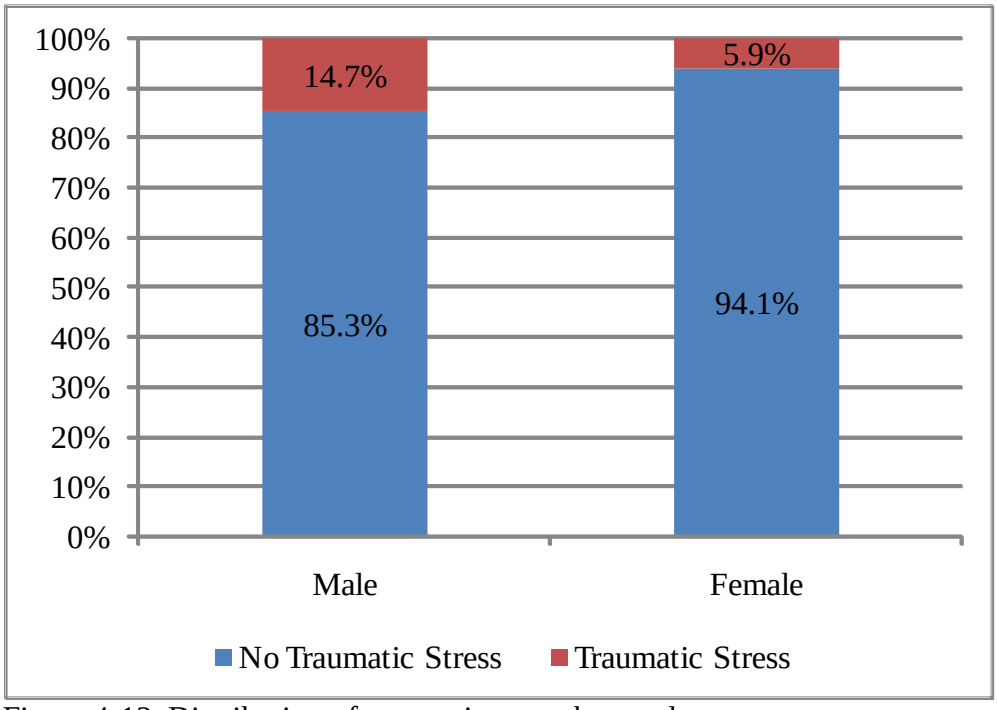

Figure 4-12. Distribution of traumatic stress by gender

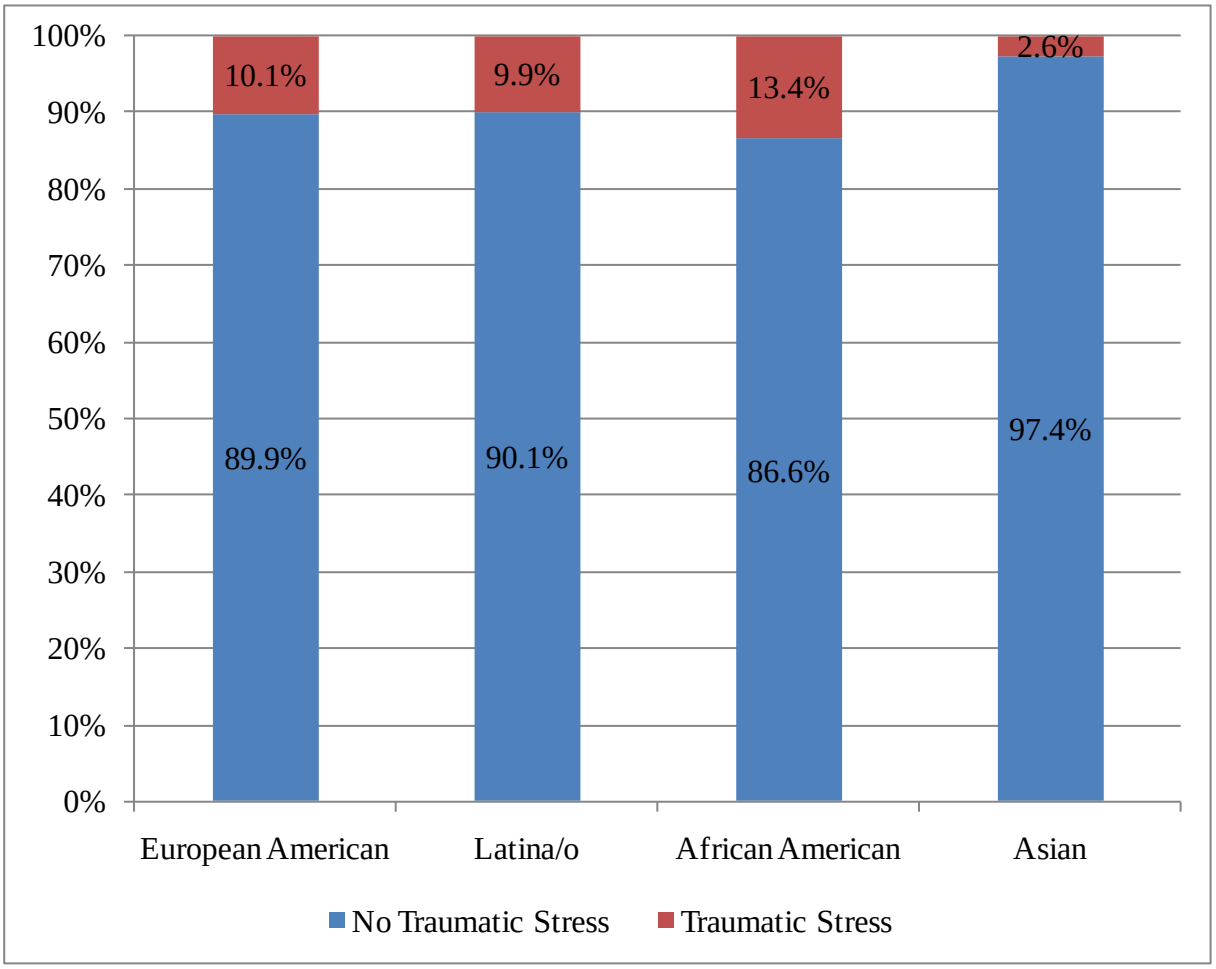

Figure 4-13. Distribution of traumatic stress by culture for European American, Latina/o, African American, and Asian students

Table 4-23. Results of logit analyzing the relationship between traumatic stress and culture

Parameter Name	Estimate	Odds Ratio	Standard Error	t Statistic	p > |t|	
Latina/o	-0.027	0.973	0.173	-0.158	0.875	
African American	0.317	1.373	0.192	1.649	0.103	
Asian	-1.436	0.238	0.276	-5.203	0.000	***
Native American	0.230	1.259	0.216	1.066	0.289	
Native Hawaiian	0.240	1.271	0.440	0.546	0.587	
Multi-cultural	-0.111	0.895	0.339	-0.328	0.744	

Note: Culture reference category was European American; Traumatic Stress reference category was No Traumatic Stress

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-24. Results of follow-up t-tests analyzing relationship between traumatic stress and culture

Culture	Percentage	Culture	Percentage	T-statistic	p > t
European American	10.1%	Asian	2.6%	6.652	0.000 ***
Latina/o	9.9%	Asian	2.6%	5.085	0.000 ***
African American	13.4%	Asian	2.6%	5.700	0.000 ***

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

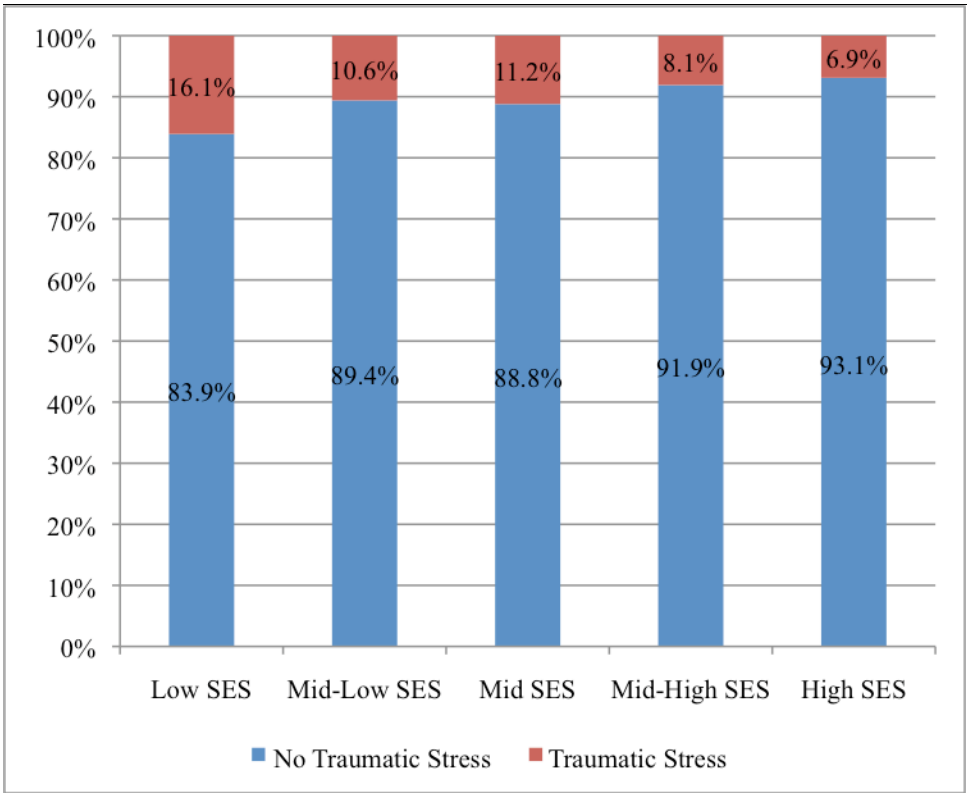

Figure 4-14. Distribution of traumatic stress by socioeconomic status (SES)

Table 4-25. Results of logit analyzing the relationship between traumatic stress and socioeconomic status (SES)

Parameter Name	Estimate	Odds Ratio	Standard Error	t Statistic	p > |t|	
Mid-Low SES	-0.480	0.619	0.170	-2.817	0.006	**
Mid SES	-0.414	0.661	0.203	-2.037	0.045	*
Mid-High SES	-0.776	0.460	0.237	-3.280	0.001	**
High SES	-0.949	0.387	0.212	-4.480	0.000	***

Note: SES reference category was Low SES; Traumatic Stress reference category was No Traumatic Stress

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-26. Results of linear regression analyzing the relationship between reading achievement and gender, culture, socioeconomic status (SES), and traumatic stress

Parameter	Estimate	Standard Error	t Statistic	p > |t|	
Gender	2.686	0.758	3.542	0.001	**
Latina/o	-6.421	1.031	-6.228	0.000	***
African American	-9.038	1.525	-5.925	0.000	***
Asian	-0.871	1.316	-0.662	0.510	
Native American	-14.083	5.673	-2.482	0.015	*
Native Hawaiian	-7.234	3.082	-2.347	0.021	*
Multi-cultural	0.454	1.859	0.244	0.808	
Mid-Low SES	9.150	1.520	6.021	0.000	***
Mid SES	14.424	1.554	9.281	0.000	***
Mid-High SES	18.281	1.469	12.443	0.000	***
High SES	24.988	1.606	15.555	0.000	***
Traumatic Stress	-11.208	1.531	-7.321	0.000	***
R-Square = 0.257					

Note: Culture reference category was European American; SES reference category was Low SES; Traumatic Stress reference category was No Traumatic Stress; Gender reference category was Male

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-27. Results of linear regression analyzing the relationship between mathematics achievement and gender, culture, socioeconomic status (SES), and traumatic stress

Parameter	Estimate	Standard Error	t Statistic	p > |t|	
Gender	-4.319	0.725	-5.954	0.000	***
Latina/o	-4.515	1.071	-4.216	0.000	***
African American	-10.791	1.394	-7.739	0.000	***
Asian	3.733	1.396	2.674	0.009	**
Native American	-13.575	2.751	-4.934	0.000	***
Native Hawaiian	-6.720	2.276	-2.952	0.004	**
Multi-cultural	0.057	2.140	0.027	0.979	
Mid-Low SES	5.502	1.187	4.636	0.000	***
Mid SES	10.888	1.414	7.697	0.000	***
Mid-High SES	13.634	1.532	8.902	0.000	***
High SES	20.222	1.471	13.750	0.000	***
Traumatic Stress	-11.719	1.590	-7.372	0.000	***
R-Square = 0.243					

Note: Culture reference category was European American; SES reference category was Low SES; Traumatic Stress reference category was No Traumatic Stress; Gender reference category was Male

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-28. Results of linear regression analyzing the relationship between science achievement and gender, culture, socioeconomic status (SES), and traumatic stress

Parameter	Estimate	Standard Error	t Statistic	p > |t|	
Gender	-3.567	0.476	-7.487	0.000	***
Latina/o	-6.187	0.695	-8.902	0.000	***
African American	-10.344	0.955	-10.834	0.000	***
Asian	-2.632	0.933	-2.820	0.006	**
Native American	-10.858	1.847	-5.878	0.000	***
Native Hawaiian	-9.782	1.876	-5.214	0.000	***
Multi-cultural	-0.603	1.280	-0.471	0.639	
Mid-Low SES	5.054	0.848	5.961	0.000	***
Mid SES	8.653	0.946	9.144	0.000	***
Mid-High SES	10.451	0.985	10.606	0.000	***
High SES	14.124	1.100	12.844	0.000	***
Traumatic Stress	-6.528	1.012	-6.453	0.000	***
R-Square = 0.309					

Note: Culture reference category was European American; SES reference category was Low SES; Traumatic Stress reference category was No Traumatic Stress; Gender reference category was Male

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-29. Results of linear regression analyzing the relationship between absences and gender, culture, socioeconomic status (SES), and traumatic stress

Parameter	Estimate	Standard Error	t Statistic	p > |t|	
Gender	-0.031	0.039	-0.781	0.437	
Latina/o	-0.272	0.048	-5.622	0.000	***
African American	-0.285	0.062	-4.557	0.000	***
Asian	-0.657	0.081	-8.153	0.000	***
Native American	0.276	0.104	2.660	0.009	**
Native Hawaiian	0.020	0.167	0.123	0.903	
Multi-cultural	-0.025	0.134	-0.183	0.855	
Mid-Low SES	-0.191	0.055	-3.489	0.001	**
Mid SES	-0.240	0.062	-3.864	0.000	***
Mid-High SES	-0.314	0.071	-4.415	0.000	***
High SES	-0.505	0.058	-8.666	0.000	***
Traumatic Stress	0.078	0.085	0.923	0.358	
R-Square = 0.036					

Note: Culture reference category was European American; SES reference category was Low SES; Traumatic Stress reference category was No Traumatic Stress; Gender reference category was Male

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

Table 4-30. Results of logit analyzing the relationship between having an individualized education plan (IEP) on file and gender, culture, socioeconomic status (SES), and traumatic stress

Parameter	Estimate	Odds Ratio	Standard Error	t Statistic	p > |t|	
Gender	-0.690	0.502	0.156	-4.420	0.000	***
Latina/o	-0.328	0.720	0.149	-2.197	0.031	*
African American	-0.472	0.624	0.227	-2.082	0.040	*
Asian	-1.139	0.320	0.261	-4.361	0.000	***
Native American	0.474	1.606	0.210	2.253	0.027	*
Native Hawaiian	-0.396	0.673	0.527	-0.752	0.454	
Multi-cultural	-1.040	0.353	0.342	-3.043	0.003	**
Mid-Low SES	-0.458	0.633	0.227	-2.014	0.047	*
Mid SES	-0.665	0.514	0.236	-2.822	0.006	**
Mid-High SES	-0.950	0.387	0.222	-4.285	0.000	***
High SES	-0.893	0.409	0.228	-3.927	0.000	***
Traumatic Stress	0.946	2.575	0.193	4.910	0.000	***

Note: Culture reference category was European American; SES reference category was Low SES; Traumatic Stress reference category was No Traumatic Stress; Gender reference category was Male; IEP reference category was No IEP

Note: * Significant at α=0.05 level, ** Significant at α=0.01 level, *** Significant at α=0.001 level

CHAPTER 5
DISCUSSION

The purpose of the chapter is to discuss the findings regarding the factors impacting academic achievement for fifth grade students. Limitations of the study will be discussed, as well as implications for practice and policy and future research.

Factors Influencing Academic Achievement

The results of this study indicated that traumatic stress as well as gender, culture, and socioeconomic status (SES) were significant influences on the academic achievement of the fifth grade students sampled.

Traumatic Stress

Findings of the study indicate that traumatic stress has a significant, detrimental effect on academic achievement of fifth grade students. Achievement scores were significantly lower for students with traumatic stress than students without. Furthermore, students with traumatic stress were more than twice as likely to be tracked for low ability. These findings are consistent with the hypothesized framework that traumatic stress would negatively impact academic achievement. Of particular interest is the relationship between having an individualized education plan (IEP) on file and traumatic stress. These findings suggest that not only do students' achievement scores suffer due to trauma, but counselors and educators find traumatized students to have learning disabilities and other special needs. As suggested by Levine and Kline (2007), this raises the concern that symptoms of traumatic stress are being misunderstood as problems of attention deficit, conduct disorder, or autism.

While the other academic achievement measures revealed negative effects due to trauma, the rate of absences did not differ by traumatic stress, suggesting that students with traumatic stress are not more disengaged from school than those without. Given the symptoms of traumatic

stress, it is notable that absences were not higher for students with traumatic stress. It would be reasonable to expect that the somatic complaints, such as headaches or stomachaches, related to trauma might negatively affect student attendance at school. A possible implication of this result is that students may be experiencing traumatic stress within the school setting. This theory is supported by research in the area of educational hegemony that discusses the systemic oppression and bias inherent in the school setting (Tatum, 2007), as well as research demonstrating the traumatic impact of discrimination (Carter, 2007).

Gender

Gender was found to play a significant role in the academic performance of students. While males performed better in mathematics and science, females performed better in reading. This is consistent with current research showing that females tend to underperform in science and mathematics, limiting their entry into related fields including engineering and medicine (West-Olatunji et al., 2007). Male students were twice as likely to be tracked for low-ability special education as were female students. This raises the concern that males are disproportionately tracked for special education, which may be due to gendered behaviors that tend to be more disruptive and less compliant than females (Hale, 2001). As Hale asserted, teacher expectations about appropriate and compliant behaviors in the classroom are often based on female perspectives. Furthermore, young boys tend to have difficulty inhibiting movement, which studies show corresponds to lower standardized test scores.

The issue of gender, achievement, and remedial tracking is further complicated by the findings regarding traumatic stress: males were almost three times as likely to have traumatic stress as compared to females. These findings appear to contradict previous literature that has suggested that females are more vulnerable to trauma than males (Anda, Croft, et al., 1999; Cuffe et al., 1998). However, research has found that females are more likely to have

internalizing symptoms, such as depression and anxiety, while externalizing symptoms are more common for males (Levine & Kline, 2007). Internalizing behaviors, such as depression, withdrawal, or sadness, are less disruptive in the educational setting than are the aggressive, acting out behaviors that connote externalizing symptoms. However, the symptoms of traumatic stress that are easily recognized and also problematic for educators, including hyperactivity, aggression, and other disruptive behaviors, are consistent with male tendencies of behavior. Therefore, the results of this study imply that males may be exhibiting traumatic stress symptoms in behaviors that are consistent with traditional views of trauma, while females are not. As such, traumatic stress among female students may go unrecognized by educators and counselors in the school setting. The intersection between low-ability tracking and traumatic stress symptoms for boys suggests that boys are at risk to be placed in special education when they may in fact be demonstrating symptoms of trauma.

Culture

Across the academic subjects evaluated, European American, Asian, and multi-cultural students outperformed their Latina/o, African American, Native American, and Native Hawaiian counterparts. In addition, there was only a small percentage of Asian students with ten or more absences (6.9%), contrasted with a large percentage of Native American students with ten or more absences (40.9%). Similarly, while most cultural groups sampled had between 10.1% and 12.4% of students with an IEP on file, Native Americans had about twice this rate (22.0%) and Asian students had about half this rate (4.2%). Results relating to Native Americans are tentative, as the sample size was small. However, they suggest that Native Americans may face additional barriers in terms of being engaged in school and also succeeding in the schooling environment. Additional research is needed to assess factors contributing to high absence rates, as well as the high placement in special education. Additionally, the results regarding Asian students are

limited as this study did not examine sub-groups who consistently show underperformance (Kim et al., 1998). More investigation is needed to examine the differential achievement of some Asian students.

The low incidence of disengagement and low-ability tracking for Asian students is consistent with the high achievement scores found as well as previous literature on high achievement among this cultural group (Braswell et al., 2001). Given the high achievement scores of European American students, it would be excepted that these students have low absence rates and low rates of having an IEP. However, this was not the case; European American students had a higher, but nonsignificant, rate of low-ability tracking than did their Latina/o and African American counterparts, who underperformed on the cognitive achievement measures.

These results are further contextualized by the findings on traumatic stress and culture. While African American, Native American, and Native Hawaiian students all had a higher rate of traumatic stress than European American students, these differences were not significant. Among cultural groups, the only significant difference was the percentage of Asian students with traumatic stress, which was much lower than any other cultural group (2.6%). These results suggest that perhaps the lower rate of traumatic stress symptoms identified allow Asian students to perform successfully in the school setting. However, European American students had cognitive achievement scores comparable to the high achievement of Asian students.

Thus, the absence of traumatic stress does not fully explain the high achievement of Asian and European American students as compared to Latina/o and African American students. The implications are twofold. First, these results suggest a disproportionately low rate of traumatic stress for Asian students, which may be due to culturally based behaviors that tend to emphasize

compliance. For Asian students, traumatic stress might not be exhibited as disruptive, externalizing behaviors. As such, traumatic stress among Asian students could go unnoticed and untreated. Given that Asian students' achievement does not appear to be compromised by any underlying traumatic stress, further exploration is needed not only of traumatic stress symptoms for Asian students, but the effective protective and resilience factors that aid in their success within the school setting. Second, traumatic stress does not explain the high achievement among European American students as compared to Latina/o and African American students. While African American students experienced more traumatic stress than European American students, these differences were not significant. As such, culture seems to play a unique role in the achievement of the students sampled. This role may be contextualized by the hegemony inherent in the school setting, including lower teacher expectations and stereotype threat (Steele, 1997; Tatum, 2007). Furthermore, attention should be given to the intersection of culture and class as Latina/o and African American students are disproportionately represented among lower socioeconomic status groups; this issue is addressed below.

Socioeconomic Status

Among the students sampled, as socioeconomic status (SES) increased achievement, scores increased in reading, science, and mathematics. Lower SES students were also found to have higher rates of absences, indicating a higher level of school disengagement among these students. The percentage of low SES students with an IEP (18.4%) was approximately twice that of the mid-high (8.7%) and high (9.1%) SES students. This is of particular interest as it indicates that lower SES students are more likely to be deemed needing special education services. While the IEP rate generally decreased as SES increased, the slight, nonsignificant, increase for high SES students might be explained by upper income parents soliciting testing and other

accommodations to give their children advantages on school achievement measures (Hale, 2001).

The comparatively high rate of low SES students with an IEP could be related to deficit-orientated views educators often take of lower income students noted in previous scholarship (Steele, 1997). Further, higher income students often have access to education supplements, such as tutoring, or to informal information from the social relationships their parents have with teachers (Hale, 2001). Additional help offered to higher income students places their lower income peers at a disadvantage as lower income students appear to be inherently less competent in school, while this may not be the reality.

As noted above, the intersection of culture and class may be significant as Latina/o and African American students are much more likely than their European American counterparts to be from lower SES background. In fact, while fewer then 10% of Latina/o and African American students are from high SES families, fewer than 10% of European American students are from low SES families. Issues of low teacher expectations, stereotyped threat, and hegemony may intersect for low income, culturally diverse students. Due to the disproportionate number of lower SES Latina/o and African American students, teacher assumptions about student ability based on class bias may transfer to lower expectations for culturally diverse students.

Limitations

Limitations of this study include the use of pre-created variables to assess traumatic stress symptoms in post-hoc analysis. Review of the literature and consultation were used to develop an effective measure of traumatic stress, relying on the social and emotional behavior indicators available in the ECLS-K dataset. Specific physiological and somatic symptoms such as headaches, stomachaches, or enuresis were not available. Also, these indicators cannot reveal the children's perceptions of experiences in order to ascertain if they were perceived as sudden,

negative, and uncontrollable (Carlson, 1997). The nascent understanding of trauma and academic achievement should be augmented by investigations which can measure additional symptoms of trauma and also children's perceptions in order to determine their experiences of traumatic stress.

Furthermore, longitudinal research would be needed to determine a cause and effect relationship between trauma and achievement. Such a study would be possible if only one-time traumatic incidents were being examined. Measures would need to be available from both before and after the event, thus regular measurements, such as yearly testing or grades, could be used as a traumatic event could ethically not be planned for the study. However, the literature on long-term, systemic trauma makes longitudinal research difficult, as there is not necessarily a clear beginning or end to the trauma. This further implies the need for studies that can explore individual perceptions of traumatic stress events, symptoms, and outcomes in order to understand relationship between trauma and achievement.

Implications for Practice

In order to address the issues of traumatic stress, there is a need for school-based interventions that both counselors and educators can facilitate. Awareness that children's disruptive behaviors may actually be symptoms of traumatic stress can enable counselors and educators to make more accurate assessments of children's abilities and needs. Thus, children can be provided with appropriate interventions in order to ameliorate the effects of traumatic stress and address chronic underachievement.

Traumatic Stress Assessment

The results of this study, which identify traumatic stress as a significant factor in academic achievement, imply that students who are experiencing traumatic stress need to be identified in order to receive the appropriate interventions. Ensuring that all school counselors are able to identify symptoms of trauma is a first step toward addressing this issue. Furthermore,

educators can be trained by school counselors to be able to recognize the symptoms of trauma. Ensuring that children exhibiting such symptoms are then referred to the counselor and given appropriate screening is an essential element of educational practice. Training on traumatic stress assessment should include somatic and physiological symptoms as well and behavioral indicators (Levine & Kline, 2007). Additionally, these assessments should not limit the concept of trauma to a one-time event, but should include individual perception and systemic experiences as sources of trauma.

Results of this study showing a higher rate of traumatic stress among lower SES students imply that counselors need to be proactive in indentifying symptoms of traumatic stress for these students. Lower SES students face not only the increased risk for trauma, but also may have limited economic resources with which to seek assessment and assistance. Counselors should be proactive in serving as advocates for these students and families so that vulnerable students are appropriately identified. Counselor training should include advocacy training for working with lower SES students around the issue of traumatic stress.

The disproportionately high rate of traumatic stress found among boys versus girls indicates that traumatic stress assessment practices are needed that can identify symptoms of both genders. Given the findings of previous studies that girls experience more traumatic events than boys (Anda, Croft, et al., 1999; Cuffe et al., 1998), the low rate of traumatic stress found among girls suggests that assessments should be designed to include the internalizing symptoms prevalent among girls (Levine & Kline, 2007). Educators and counselors may also tend to over-refer boys due to their tendency for more disruptive behaviors; therefore assessments for boys should be examined.

Related to the issue of the disproportionately high rate of traumatic stress among boys is the issue of IEP disproportionality. Low-ability tracking was twice as common among males as compared to females. Therefore, it is critical to examine assessment practices to see that they account for gender-related behaviors, as it appears that current tracking measures may pathologize male behaviors and may fail to identify special education indicators among females.

This study raises concerns about the appropriate placement of students in low ability programs. As such, it is critical that the expertise of counselors in traumatic stress and psychological health be utilized in such decisions. Counselors need to insert themselves into the special education process to provide information and advocacy for students and ensure that the tracking is appropriate. Screening is needed before students are given an IEP so that there can be a differential diagnosis for traumatic stress. School counselor education programs can train students to differentiate between traumatic stress and special needs so that counselors can serve as consultants within the school setting.

Special Education Assessment

Related to the issue of traumatic stress assessment is that of special education assessment. The disproportionately high rate of having an IEP among Native American students as well as the disproportionately low rate among Asian students indicates the need for improved screening practices when placing students in special education. It appears that the current screening practices are not able to identify learning or other behavior problems that would connote the need for an IEP among Asian students, perhaps due to culturally-based behaviors that are viewed as more compliant and less problematic among educators. For Native American students, it appears that educators and other school personnel responsible for low-ability tracking are over-identifying special education needs among these students, perhaps also due to culturally-based behaviors.

Educators need to examine the placement practices to address the barriers faced by lower income students, as well as the advantages provided to higher income students. Hale (2001) suggested that both formal and informal education supplements given to higher income students increases the educational standards all students are measured against, creating a systemic disadvantage for students whose families are not as privileged. Educators can also examine placement practices to determine what imbedded class assumptions or biases are present.

Traumatic Stress Interventions in Schools

The results of this study indicate that counselors need to develop treatments that ameliorate traumatic stress in school settings. In order to address the chronic underachievement of students experiencing traumatic stress, counselors can provide interventions that specifically address behaviors that negatively impact students' ability to learn and perform academically, such as acting out, difficulty concentrating, and hyperactivity. Intervention for traumatic stress can be delivered by counselors in individual sessions or in group or school-wide formats. Educators can also ameliorate or prevent traumatic stress through their pedagogical practices.

Individual sessions with students identified to have traumatic stress can focus on both physiological symptomology and developing understanding of the traumatic experience. Counselors can assist students with reducing somatic symptoms and other symptoms that make learning difficult, such as dissociation, hyperactivity, and aggression (Levine & Kline, 2007). Counselors can also work with students to create an understanding of the traumatic experience. In the case of systemic, long-term traumas, such as discrimination or domestic violence, counselors can assist students in deconstructing such events in order to reduce any personal blame they may feel. Understanding the pathology of a system in which certain individuals are marginalized or victimized repeatedly can facilitate healing (Herman, 1997).

In additional to individual interventions, counselors can offer group or school-wide

interventions for students within the school setting. Students who are identified as vulnerable to traumatic experiences, such as systemic oppression, would be candidates for such interventions. Such services may be particularly important for lower SES students who are vulnerable to trauma and whose families may not be able to obtain outside services. An example of a large group intervention for traumatic stress is the Rites of Passage (ROP) program used with African American male students (Brooks, West-Olatunji & Baker, 2005). This program uses culturally congruent rituals to develop the resilience of students who may be impacted by hegemony both inside and outside of the school setting. Counselor education programs can train counseling students to be able to deliver such interventions, as well as to serve as advocates for marginalized, low-SES students to receive strength-base programming.

Finally, interventions for traumatic stress can be imbedded in the educational curriculum and pedagogical practices. Scholars in the area of culturally appropriate pedagogy have noted that culturally diverse learners are negatively impacted by the lack of positive affirmations of their culture and the absence of teaching methods that incorporate their culturally based learning styles (Tatum, 2007). Furthermore, psychological distress can be caused by hegemony inherent in teaching practices and imbedded in curriculum (Cholewa & West-Olatunji, 2008). Hale (2001) recommended that educators have accountability measures in place to ensure that hegemony is reduced in the learning environment and that diverse cultures and learning styles are affirmed. In order to accomplish these tasks, teachers need increased awareness of their own biases and assumptions about students. Counselors can serve to facilitate this awareness among educators by serving as consultants on culture, bias, and traumatic stress.

Implications for Policy

The chronic underachievement of students from lower SES and culturally diverse families found in this study confirms the importance of the ongoing struggle for education policy makers

to improve the educational performance of these students. The results of this study may assist policy makers in reexamining how standards and accountability are viewed in education, particularly in low-resourced schools that so often serve culturally diverse students (Lipman, 2006). The relationship between traumatic stress and academic achievement demonstrates a need for policy makers to address both issues of reducing systemic oppression within the school as well as providing resources to support the amelioration of trauma. This is of particular concern given the high rate of traumatic stress among lower SES students, whom are disproportionately culturally diverse. These results help contextualize the disproportionate educational outcomes and the relationship between historical inequities in income and access to resources (King, 2005). This study provides evidence that disparities in school funding serve to further marginalize students who are already facing significant barriers to success that are not based on personal or cultural deficits.

Furthermore, this study's results on the disproportionate number of boys with an IEP on file and with traumatic stress suggest that policy makers can be instrumental in reexamining the issues of special education placement. Improvements are needed in conceptualization of student needs as well as differentiating traumatic stress and learning disorders. Education policy makers can emphasize accountability among counselors and educators to ensure that school personnel have knowledge of traumatic stress in order to develop accurate conceptualizations and deliver the appropriate services. Students inaccurately placed on low-ability tracking may continue to experience unhealed traumatic stress, receiving interventions for a problem they may not have and no assistance to heal their psychological trauma.

Implications for Future Research

Traumatic Stress Assessment

Qualitative research is needed in order to develop greater understanding of how school-aged children experience traumatic stress from non-traditional perspectives. As traditional trauma has focused on one-time, identified events, research into the impact of long-term, systemic trauma, such as systemic oppression and transgenerational trauma is needed among this population (Carter, 2007; Goodman & West-Olatunji, 2008). Students may also experience traumatic stress within the school setting, which requires further research to ascertain how within-school traumatic experiences impact school performance and engagement. Research can examine how symptoms may manifest differently from different types of trauma so that accurate traumatic stress assessments can be developed.

Furthermore, qualitative research is needed that explores traumatic stress for students who are less likely to express symptoms as externalizing behaviors. This includes female students who are socialized to exhibit more internalizing behaviors that are less likely to cause disruptions in the classroom and receive attention or cause concern (Levine & Kline, 2007). Asian students may also appear more compliant in the classroom, as their culture often dictates less disruptive behaviors (Sue & Sue, 2003). Research is needed to ascertain the experiences of such students in order to determine how traumatic stress symptoms may be expressed differently among students who tend to appear more compliant. Furthermore, research can investigate differential academic achievement among some Asian students who tend to underperform as compared to high achievement Asian students, often viewed as the model minority (Kim et al., 1998).

Traumatic Stress Treatment

Studies of counseling interventions and programs should be developed to determine effective trauma treatments. Such interventions can be evaluated using outcomes measures of

academic achievement as well as measures of psychological wellbeing. For socially marginalized students, it is critical that interventions be created and evaluated using culturally appropriate methods that incorporate the lived experiences and intersecting identities of these individuals. Research in this area can provide counselors with effective, evidence-based practices, which counselor educators can incorporate in counselor training.

Research is needed that includes the voices of socially marginalized students so that counselors can provide preventative and remedial interventions for these students that address their unique concerns and experiences. While physiological trauma symptoms appear to be universal (Levine & Kline, 2007), behavioral symptoms may manifest differently. As cultural norms and values shape individuals' behaviors and interactions (Sue & Sue, 2003), it is likely that culture may also shape those behaviors that are manifestations of traumatic stress.

Program evaluation is needed to identify effective interventions for traumatic stress in school settings. Individual interventions may be effective, however, group interventions are needed to reach a larger number of students, particularly in schools with limited resources. Such interventions should be evaluated to determine their effectiveness, particularly with populations that are vulnerable to traumatic stress and have limited resources. School-wide programs could be useful in addressing traumatic stress among individuals that manifest symptoms in difficult to recognize ways. If effective interventions or programs can be identified, they might be infused into curriculum, thereby reaching students who were not able to be identified as having traumatic stress. Culturally appropriate pedagogy could serve as a way to provide healing without targeting particular students, as it can affirm identify and promote resilience (Tatum, 2007).

To further the understanding of resilience, additional ecosystemic factors can be incorporated into research on traumatic stress and academic achievement research. Such research

should examine parenting factors that can promote resilience among students, thereby improving academic functioning despite exposure to stressful experiences. Some research has found that certain parenting practices among culturally diverse students can assuage the impact of hegemony and traumatic stress, leading to educational success (West-Olatunji, Mehta, Sanders & Behar-Horenstein, in press). In addition, research in the area of transgenerational trauma indicates that a parent's traumatic experience can be a source of trauma for a child. As such, research is needed to examine how transgenerational trauma might also impact academic functioning. Transgenerational trauma can also lead to the development of resilience and coping skills that may assist in mitigating the impact of traumatic experiences (Goodman & West-Olatunji, 2008). A greater understanding of this is needed in terms of the educational success of students.

Further research is needed on the intersection of gender, culture, and SES so that these identities are not essentialized but understood as multidimensional and interconnected parts of an individual's life experiences. Large-scale, nationally representative datasets such as the ECLS-K can be used to perform quantitative analysis to further the understanding of traumatic stress for students who are marginalized due to gender, culture, and SES. Complimentary qualitative methods are also needed to further the understanding of how the multiple dimensions of an individual's identity intersect to inform educational and traumatic experiences.

Academic Achievement

This study also implies the need for research to understand chronically underachieving students. In particular, research is needed to further understand the factors influencing the high percentage of Native American students with ten or more absences. The small sample size of Native Americans in this study limits the conclusions that can be drawn from this study regarding this population and the intersection of achievement and traumatic stress. Culture-

centered research methodologies can be used to develop greater understanding of Native American students' schooling experiences, including disengagement and low achievement scores. Furthermore, research on IEP tracking must also include a study of the cultural disparity in placement. The low percentage of Asian students and the high percentage of Native American students both indicate problems with the IEP system. Studies that can illuminate the culturally-based behaviors that educators may miss-label as indicative of special needs, as well as the culturally-based behaviors that actually do represent the need for an IEP, are required for the effective placement and education of students.

Similarly, research that examines class-based behaviors disproportionately determined to indicate the need for special education placement is also needed. Qualitative research that gives voice to parents and students from lower SES backgrounds could enhance counselors' and educators' understanding of their experiences with placement. While there is research on the barriers facing lower SES students that may lead to high absence rates and disengagement from schools, research is needed to examine what interventions are effective in ameliorating this problem. Research is also needed that identifies the gendered behaviors of male and female students in order to correctly screen for special education services. Indeed, the disproportionately high number of males with an IEP as compared to the number of females indicates the need for research that assists in differentiating both common male and female behaviors that require special education as compared to other types of services.

REFERENCES

Aarts, P. G. H. (1998). Intergenerational effects in families of World War II survivors from the Dutch East Indies: Aftermath of another Dutch War. In Y. Danieli (Ed.), *International handbook of multigenerational legacies of trauma* (pp. 175-187). New York: Plenum.

Alexander, K. L., Entwisle, D. R., & Horsey, C. S. (1997). From first grade forward: Early foundations of high school dropout. *Sociology of Education, 70,* 87-107.

Allwood, M. A., Bell-Dolan, D., & Husain, S. A. (2002). Children's trauma and adjustment reactions to violent and nonviolent war experiences. *Journal of the American Academy of Child & Adolescent Psychiatry. 41*, 450-457.

Amaro, H., & de la Torre, A. (2002). Public health needs and scientific opportunities in research on Latinas. *American Journal of Public Health, 92,* 525-529.

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Arlington, VA: Author.

Anda, R. F., Chapman, D. P, Feletti, V. J., Edwards, V., Williamson, D. F., Croft, J. B., et al. (2002). Adverse childhood experiences and risk of paternity in teen pregnancy. *Obstetrics and Gynecology 100,* 37-45.

Anda, R. F., Croft, J. B., Feletti, V. J., Nordenberg, D., Giles, W. H., Williamson, D. F., et al. (1999). Adverse childhood experiences and smoking during adolescence and adulthood. *Journal of the American Medical Association, 282,* 1652-1658.

Anda, R. F., Feletti, V. J., Chapman, D. P, Croft, J. B., Williamson, D. F., Santelli, J., et al. (2001). Abused boys, battered mothers, and male involvement in teen pregnancy. *Pediatrics, 107,* E19.

Arnold, D. H., Ortiz, C., Curry, J. C., Stowe, R. M., Goldstein, N. E., Fisher, P. H., et al. (1999). Promoting academic success and preventing disruptive behavior disorders through community partnership. *Journal of Community Psychology, 27,* 589-598.

Becker, D. (1995). The deficiency of the concept of posttraumatic stress disorder when dealing with victims of human rights violations. In R. J. Kleber, C. R. Figley, & B. P. R. Gersons (Eds.), *Beyond trauma: Cultural and societal dynamics* (pp. 99-110). New York: Plenum Press.

Ben-Ezra, M. (2004). Trauma in antiquity: 4000 year old post-traumatic reactions? *Stress and Health, 20*, 121-125.

Bernstein, M. M. (1998). Conflicts in adjustment: World War II prisoners of war and their families. In Y. Danieli (Ed.), *International handbook of multigenerational legacies of trauma* (pp. 119-124). New York: Plenum.

Blizzard, L., & Hosmer, D. W. (2007). The log multinomial regression model for nominal outcomes with more than two attributes. *Biometrical Journal, 49,* 889-902.

Boney-McCoy, S., & Finkelhor, D. (1995). Psychosocial sequelae of violent victimization in a national youth sample. *Journal of Consulting and Clinical Psychology, 63,* 726-736.

Boney-McCoy, S., & Finkelhor, D. (1996). Is youth victimization related to trauma symptoms and depression after controlling for prior symptoms and family relationship? A longitudinal, prospective study. *Journal of Consulting and Clinical Psychology, 64,* 1406-1416.

Bradley, R. H., & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual Review of Psychology, 53,* 371-399.

Braswell, J. S., Lutkus, A. D., Grigg, W. S., Santapau, S. L., Tay-Lim, B.S.-H., & Johnson, M. S. (2001). *The Nation's Report Card: Mathematics 2000* (NCES 2001–517). U.S. Department of Education. Office of Educational Research and Improvement, National Center for Education Statistics. Washington, DC: Government Printing Office.

Breslau, N. (2002). Epidemiologic studies of trauma, posttraumatic stress disorder, and other psychiatric disorders. *Canadian Journal of Psychiatry, 47,* 923-929.

Breslau, N., Kessler, R. C., Chilcoat, H. D., Schultz, L. R., Davis, G. C., & Andreski, P. (1998). Trauma and posttraumatic stress disorder in the community: The 1996 Detroit Area Survey of Trauma. *Archives of General Psychiatry, 55,* 626-632.

Breuer, J., & Freud, S. (1962). Studies on hysteria. On the psychical mechanism of hysterical phenomena: Preliminary communication. In J. Strachey (Ed. & trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 2, pp. 3–17). London: Hogarth Press. (Original work published 1893).

Briscoe-Smith, A. M., & Hinshaw, S. P. (2006). Linkages between child abuse and attention-deficit-hyperactivity disorder in girls: Behavioral and social correlates. *Child Abuse and Neglect, 30,* 1239-1255.

Broman, C. L., Mavaddat, R., & Hsu, S. (2000). The experience and consequences of perceived racial discrimination: A study of African Americans. *Journal of Black Psychology, 26,* 165-180.

Brooks, M., West-Olatunji, C., & Baker, J. (2005). Use of Rites of Passage program to foster resilience in African American students. *The Counseling Interviewer,37,* 54-59.

Bryant-Davis, T., & Ocampo, C. (2005). The trauma of racism: Implications for counseling, research, and education. *The Counseling Psychologist, 33,* 574-578.

Burstow, B. (2003). Toward a radical understanding of trauma and trauma work. *Violence Against Women, 9*, 1293-1317.

Burstow, B. (2005). A critique of posttraumatic stress disorder and the *DSM*. *Journal of Humanistic Psychology, 45*, 429-445.

Carlson, E. B. (1997). *Trauma assessments: A clinician's guide*. New York: The Guildford Press.

Carrion, V. G., & Steiner, H. (2000). Trauma and dissociation in delinquent adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 39*, 353-359.

Carter, R. T. (2007). Racism and psychological and emotional injury: Recognizing and assessing race-based traumatic stress. *The Counseling Psychologist, 35*, 13-105.

Chemtob, C. M., Nakashima, J. P., Hamada, R. S. (2002). Psychosocial intervention for postdisaster trauma symptoms in elementary school children: A controlled community field study. *Archives of Pediatric and Adolescent Medicine,156*, 211-216.

Cholewa, B. & West-Olatunji, C. (2008). Exploring the relationship among cultural discontinuity, psychological distress, and academic outcomes with low-income, culturally diverse students. *Professional School Counseling, 12*, 54-61.

The Civil Rights Project. (2002 June). Racial inequality in special education: Executive summary for policy makers. Retrieved March 28, 2007, from The Civil Rights Project, Harvard University Web Site: http://www.civilrightsproject.harvard.edu/research/specialed/IDEA_paper02.php

Cosgrove, L. (2005). When labels mask oppression: Implications for teaching psychiatric taxonomy. *Journal of Mental Health Counseling, 27*, 283-296.

Crozier, G. (2005). "There's a war against our children": Black educational underachievement revisted. *British Journal of Sociology of Education, 26*, 585-598.

Cuffe, S. P., Addy, C. L., Garrison, C. Z., Waller, J. L., Jackson, K. L., McKeown, R. E., et al. (1998). Prevalence of PTSD in a community sample of older adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 37*, 147-154.

Danieli, Y. (1998). Introduction: History and conceptual foundations. In Y. Danieli (Ed.), *International handbook of multigenerational legacies of trauma* (pp. 1-20). New York: Plenum.

Dass-Brailsford, P. (2007). *A practical approach to trauma: Empowering interventions*. Los Angeles: Sage.

Davidson, A. C., & Mellor, D. J. (2001). The adjustment of children of Australian Vietnam veterans: Is there evidence for the transgenerational transmission of the effects of war-related trauma? *Australian and New Zealand Journal of Psychiatry, 35*, 345-351.

Davis, J. E. (2003). Early schooling and academic achievement of African American males. *Urban Education, 38,* 515-537.

Deitch, E. A., Barsky, A., Butz, R. M., Brief, A. P., Chan, S. S. Y., & Bradley, J. C. (2003). Subtle yet significant: The existence and impact of everyday racial discrimination in the workplace. *Human Relations, 56,* 1299-1324.

DePrince, A. P., & Freyd, J. J. (2001). The meeting of trauma and cognitive science: Facing challenges and creating opportunities at the crossroads. *Journal of Aggression, Maltreatment & Trauma, 4,* 1-8

Diller, J. V. (2007). *Cultural diversity: A primer for the human services* (3rd ed.). Belmont, CA: Brooks/Cole.

Donahue, P. L., Finnegan, R. J., Lutkus, A. D., Allen, N. L., & Campbell J. R. (2001). U.S. Department of Education. Office of Educational Research and Improvement, National Center for Education Statistics. *The Nation's Report Card: Fourth-Grade Reading 2000* (NCES 2001–499). Washington, DC: Government Printing Office.

Duran, E., Duran, B., Yellow Horse Brave Heart, M., & Yellow Horse-Davis, S. (1998). Healing the American Indian soul wound. In Y. Danieli (Ed.), *International handbook of multigenerational legacies of trauma* (pp. 341-354). New York: Plenum.

Education Trust. (2005). *The funding gap: Low-income and minority students shortchanged by most states.* Washington, DC: Author.

Elliot, D. M. (1997). Traumatic events: Prevalence and delayed recall in the general population. *Journal of Consulting and Clinical Psychology, 65,* 811-820.

Erichsen, J. E. (1866). *On railway and other injuries of the nervous system.* London: Walton and Maberly.

Eriksen, K., & Kress, V. E. (2006). The *DSM* and the professional counseling identity: Bridging the gap. *Journal of Mental Health Counseling, 28,* 202-217.

Farmer, T. W., Clemmer, J. T., M.A., Leung, M.-C., Goforth, J. B., Thompson, J. H., Keagy, K., et al**.** (2005). Strength-Based Assessment of Rural African American Early Adolescents: Characteristics of Students in High and Low Groups on the Behavioral and Emotional Rating Scale. *Journal of Child and Family Studies, 14,* 57–69.

Felsen, I. (1998). Transgenerational transmission of effects of the Holocaust. In Y. Danieli (Ed.), *International handbook of multigenerational legacies of trauma* (pp. 43-68). New York: Plenum.

Figley, C. R. (1978). *Stress disorders among Vietnam veterans: Theory, research, and treatment*. New York: Brunner/Mazel, Publishers.

Figley, C.R. (1985). Introduction. In C.R. Figley (Ed.), *Trauma and its wake: The study and treatment of posttraumatic stress disorder (*pp. xvii-xxvi). New York: Brunner/Mazel Publishers.

Figley, C. R. (1988). Toward a field of traumatic stress. *Journal of Traumatic Stress, 1,* 3-15.

Fisher, C. B., Wallace, S. A., & Fenton, R. E. (2000). Discrimination distress during adolescence. *Journal of Youth and Adolescence, 29,* 679-695.

Flaherty, E. G., Thompson, R., Litrownik, A. J., Theodore, A., English, D. J., Black, M. M., et al. (2006). Effect of early childhood adversity on child health. *Archives of Pediatrics and Adolescent Medicine, 160,* 1232-1238.

Ford, D. Y. (1995). Desegregating gifted education: A need unmet. *The Journal of Negro Education, 64,* 52-62.

Ford, D. Y., Harris, J. J., Tyson, C. A., & Trotman, M. F. (2002). Beyond deficit thinking. *Roeper Review, 242,* 52-59.

Forman, T. A. (2003). The social psychological costs of racial segmentation in the workplace: A study of African Americans' well-being. *Journal of Health and Social Behavior, 44,* 332-352.

Freud, S. (1962). The aetiology of hysteria. In J. Strachey (Ed. & Trans.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 3, pp. 191-221). London: Hogarth Press. (Original work published 1896)

Gardner, F. (1999). Transgenerational processes and the trauma of sexual abuse. *European Journal of Psychotherapy, Counseling & Health, 2,* 297-308.

Garza, E., & Merchant, B. (2006, October). *American culture: Latino realities*. Paper presented at Commonwealth Council for Educational Administration and Management (CCEAM) Conference, Nicosia, Cyprus.

Gillborn, D. (2006). Public interest and the interests of White people are not the same: Assessment, education policy, and racism. In G. Ladson-Billings & W. F. Tate (Eds.), *Education research in the public interest: Social justice, action, and policy* (pp. 173-195). New York: Teachers College Press.

Graham-Bermann, S. A., & Levendosky, A. A. (1998). Traumatic stress symptoms in children of battered women. *Journal of Interpersonal Violence, 13,* 111-129.

Gaensbauer, T. J. (2003). Traumatized young children: Assessment and treatment processes. In J. D. Osofsky (Ed.), *Young children and trauma: Intervention and treatment* (pp. 194-216). New York: The Guildford Press.

Goodman, R. D., & West-Olatunji, C. A. (2008). Transgenerational trauma and resilience: Improving mental health counseling for survivors on Hurricane Katrina. *Journal of Mental Health Counseling, 30,* 121-136.

Goodman, R. D., & West-Olatunji, C. A. (2009). Traumatic stress, systemic oppression, and resilience in post-Katrina New Orleans. *Spaces for Difference: An Interdisciplinary Journal.*

Hale, J. E. (2001). *Learning while black: Creating educational excellence for African American children.* Baltimore: John Hopkins University Press.

Halpern, J., & Tramontin, M. (2007). *Disaster mental health: Theory and practice.* Belmont: CA. Thompson Brooks/Cole.

Harrell, J. P., Hall, S., & Taliaferro, J. (2003). Physiological responses to racism and discrimination: An assessment of the evidence. *American Journal of Public Health, 93,* 243-248.

Harris, W. W., Putnam, F. W., & Fairbank, J. A. (2004, January). *Mobilizing trauma resources for children*. Paper presented at the meeting of the Johnson and Johnson Pediatric Institute: Shaping the Future of Children's Health, San Juan, Puerto Rico.

Harry, B., & Anderson, M. G. (1995). The disproportionate placement of African American males in special education programs: A critique of the process. *The Journal of Negro Education, 63,* 602-619.

Herman, J. (1997). *Trauma and recovery*. New York: Basic Books.

Hodges, S. (2003). Borderline personality disorder and posttraumatic stress disorder: Time for integration? *Journal of Counseling and Development, 81,* 409-417.

Holmes, S. E., Slaughter, J. R., & Kashini, J. (2001). Risk factors in childhood that lead to the development of conduct disorder and antisocial personality disorder. *Child Psychiatry and Human Development, 31,* 183-193.

Holmes, W. C., & Slap, G. B. (1998). Sexual abuse of boys: Definition, prevalence, correlates, sequelae, and management. *Journal of the American Medical Association, 280,* 1855-1862.

Hudley, C., & Graham, S. (2001). Stereotypes of achievement striving among early adolescents. *Social Psychology of Education, 5,* 201-224.

Ivey, A. E., & Ivey, M. B. (1998). Reframing *DSM-IV*: Positive strategies from developmental counseling theory. *Journal of Counseling & Development, 76,* 334-350.

James, R. K., & Gilliland, B. E. (2005). *Crisis intervention* strategies (5th ed.). Belmont, CA: Brooks/Cole.

Janet, P. (1965). *The major symptoms of hysteria (2nd ed.).* New York: Hafner Publishing Company. (Original work published 1929)

Jerald, C. (2002). *All talk, no action: Putting an end to out-of-field teaching*. Washington, DC: The Education Trust, Inc.

Jones, D. A., Trudinger, P., & Crawford, M. (2004). Intelligence and achievement of children referred following sexual abuse. *Journal of Paediatrics and Child Health, 40*, 455-460.

Kaplan, S. J., Pelcovitz, D., & Labruna, V. (1999). Child and adolescent abuse and neglect research: A review of the past 10 years. Part I: Physical and emotional abuse and neglect. *Journal of the American Academy of Child & Adolescent Psychiatry, 38*, 1214-1222.

Kardiner, A., & Spiegel, H. (1947). *War stress and neurotic illness* (2nd ed.). New York: Hoeber, Inc.

Kellerman, N. P. F. (2001). The long-term psychological effects and treatment of Holocaust trauma. *Journal of Loss and Trauma, 6*, 197-218.

Kernic, M. A., Holt, V. L., Wolf, M. E., McKnight, B., Huebner, C. E., & Rivara, F. P. (2002). Academic and school health issues among children exposed to maternal intimate partner abuse. *Archives of Pediatric and Adolescent Medicine,156*, 549-555.

Kernic, M. A., Wolf, M. E., Holt, V. L., McKnight, B., Huebner, C. E., & Rivara, F. P. (2003). Behavior problems among children whose mothers are abused by an intimate partner. *Child Abuse and Neglect, 27*, 1231-1246.

Kessler, R. C. (2000). Posttraumatic stress disorder: The burden to the individual and to society. *Journal of Clinical Psychiatry, 61*, 4-12.

Kessler, R. C., Mickelson, K. D., & Williams, D. R. (1999). The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. *Journal of Health and Social Behavior, 40*, 208-230.

Kim, H., Rendon, L., & Valadez, J. (1998). Student characteristics, school characteristics, and educational aspiration of six Asian American ethnic groups. *Journal of Multicultural Counseling & Development, 26*, 166-176.

Kinard, E. M. (2001). Perceived and actual academic competence in maltreated children. *Child Abuse and Neglect, 25*, 33-45.

King, J. E. (2005). A transformative vision of Black education for human freedom. In J. E. King (Ed.), *Black education: A transformative research and action agenda for the new century* (pp. 3-17). Washington, DC: American Educational Research Association.

La Greca, A. M., Silverman, W. K., & Wasserstein, S. B. (1998). Children's predisaster functioning as a predictor of posttraumatic stress following Hurricane Andrew. *Journal of Consulting and Clinical Psychology, 66*, 883-892.

Lansford, J. E., Dodge, K. A., Pettit, G. S., Bates, J. E., Crozier, J., & Kaplow, J. (2002). A 12-year prospective study of the long-term effects of early child physical maltreatment on psychological, behavioral, and academic problems in adolescence. *Archives of Pediatric and Adolescent Medicine,156*, 824-830.

Lapp, M. S., Grigg, W. S., & Tay-Lim, B. S.-H. (2002). *The Nation's Report Card: U.S. History 2001* (NCES 2002–483). U.S. Department of Education. Office of Educational Research and Improvement, National Center for Education Statistics. Washington, DC: Government Printing Office.

Levine, P. A. (1997). *Waking the tiger: Healing trauma*. Berkeley, CA: North Atlantic Books.

Levine, P. A., & Kline, M. (2007). *Trauma through a child's eyes: Awakening the ordinary miracle of healing*. Berkeley, CA: North Atlantic Books.

Lieberman, A. F. & Van Horn, P. (2003). Assessment and treatment of young children exposed to traumatic events. In J. D. Osofsky (Ed.), *Young children and trauma: Intervention and treatment* (pp. 111-138). New York: The Guildford Press.

Lifton, R. J. (1967). *Death in life: Survivors of Hiroshima*. New York: Random House.

Lightsey, O. R., & Barnes, P. W. (2007). Discrimination, attributional tendencies, generalized self-efficacy, and assertiveness as predictors of psychological distress among African Americans. *Journal of Black Psychology, 33*, 27-50.

Lipman, P. (2006). "This is America" 2005: The political economy of education reform against the public interest. In G. Ladson-Billings & W. F. Tate (Eds.), *Education research in the public interest: Social justice, action, and policy* (pp. 98-116). New York: Teachers College Press.

Margolin, G., & Gordis, E. B. (2000). The effects of family and community violence on children. *Annual Review of Psychology, 51*, 445-479.

Marotta, S. A. (2000). Best practices for counseling who treat posttraumatic stress disorder. *Journal of Counseling and Development, 78*, 492-495.

Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments. *American Psychologist, 53*, 205-220.

McFarlane, A. C. (2000). Traumatic stress in the 21st century. *Australian and New Zealand Journal of Psychiatry, 34*, 896-902.

McLaughlin, J. E. (2002). Reducing diagnostic bias. *Journal of Mental Health Counseling, 24*, 256-269.

McMillan, J., Schumacher, S. (2006). *Research in education: Evidenced based inquiry* (6th ed.) New York: Pearson Education, Inc.

McMillan, M. (2003). Is No Child Left Behind "wise schooling" for African American male students? *High School Journal, 87*, 25-33.

Mead, M. A., Hohenshil, T. H., & Kusum, S. (1997). How the DSM system is used by clinical counselors: A national study. *Journal of Mental Health Counseling, 19*, 383-402.

Moore, J. L., Ford, D. Y., & Milner, H. R. (2005). Underachievement among gifted students of color: Implications for educators. *Gifted Education, 44*, 167-177.

Moradi, B., & Subich, L. M. (2003). A concomitant examination of the relations and perceived racist and sexist events to psychological distress for African American women. *The Counseling Psychologist, 31*, 451-469.

Murry, V. M., Brown, P. A., Brody, G. H., Cutrona, C.E., & Simons, R. L. (2001). Racial discrimination as a moderator of the links among stress, maternal psychological functioning, and family relationships. *Journal of Marriage and the Family, 63*, 915-926.

Nagata, D. K. (1990). The Japanese American Internment: Exploring the transgenerational consequences of traumatic stress. *Journal of Traumatic Stress, 3*, 47-69.

Naidoo, A.V. (1996). Challenging the hegemony of Eurocentric psychology. *Journal of Community and Health Sciences, 2:2*, 9-16.

Neville, H. A., Heppner, P. P., Ji, P., & Thye, R. (2004). The relations among general and race-related stressors and psychoeducational adjustment in Black students attending predominantly White institutions. *Journal of Black Studies, 34*, 599-618.

Nguyen, P., Terlouw, C., & Pilot, A. (2006). Culturally appropriate pedagogy: The case of group learning in a Confucian Heritage Culture context. *Intercultural Education, 17*, 1-19.

O'Connor, C. (1999). Race, class, and gender in America: Narratives of opportunity among low-income African American youths. *Sociology of Education, 72*, 137-157.

Orfield, G., Losen, D., Wald, J., & Swanson, C. B. (2004). *Losing our future: How minority youth are being left behind by the graduation rate crisis*. Cambridge, MA: The Civil Rights Project at Harvard University. Contributors: Urban Institute, Advocates for Children of New York, and The Civil Society Institute. Retrieved March 28, 2007, from http://www.civilrightsproject.harvard.edu/research/dropouts/LosingOurFuture.pdf

Osborne, J. W. (1999). Unraveling underachievement among African American boys from an identification with academics perspective. *The Journal of Negro Education, 68*, 555-565.

Paniagua, F. A. (2005). *Assessing and treating culturally diverse clients: A practical guide* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Paradies, Y. (2006). A systematic review of empirical research on self-reported racism and health. *International Journal of Epidemiology, 35*, 888-901.

Park, H. M. (2008). *Estimating regression models for categorical dependent variables using SAS, Stata, LIMDEP, and SPSS*. Technical Working Paper. The University Information Technology Services (UITS) Center for Statistical and Mathematical Computing, Indiana University."

Perry, B. D., Pollard, R. A., Blakely, T. L., Baker, W. L., & Vigilante, D. (1995). Childhood trauma, the neurobiology of adaptation, and "use-dependent" development of the brain: How "states" become "traits." *Infant Mental Health Journal, 16*, 271-291.

Pollack, J.M., Atkins-Burnett, S., Najarian, M., and Rock, D.A. (2005). *Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS–K), Psychometric Report for the Fifth Grade* (NCES 2006–036). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Ponterotto, J. G., Utsey, S. O., & Pedersen, P. B. (2006). *Preventing prejudice: A goide for counselors, educators, and parents* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Rabiner, D., & Coie, J. D. (2000). Early attention problems and children's reading achievement: A longitudinal investigation. *Journal of the American Academy of Child & Adolescent Psychiatry, 39*, 859-867.

Raphael, B., Swan, P., & Martinek, N. (1998). Intergenerational aspects of trauma for Australian Aboriginal people. In Y. Danieli (Ed.), *International handbook of multigenerational legacies of trauma* (pp. 327-339). New York: Plenum.

Reis, S. M., & McCoach, D. B. (2002). Underachievement in gifted and talented students with special needs. *Exceptionality, 10*, 113-125.

Robinson, J., & Biran, M. (2006). Discovering self: Relationships between African identity and academic achievement. *Journal of Black Studies, 37*, 46-68.

Rosenheck, R., & Fontana, A. (1998a). Transgenerational effects of abusive violence on the children of Vietnam combat veterans. *Journal of Traumatic Stress, 11*, 731-742.

Rosenheck, R., & Fontana, A. (1998b). Warrior fathers and warrior sons: Intergenerational aspects of trauma. In Y. Danieli (Ed.), *International handbook* of *multigenerational legacies of trauma* (pp. 225-242). New York: Plenum.

Rosenthal, B. S., & Wilson, W. C. (2003). The association of ecological variables and psychological distress with exposure to community violence among adolescents. *Adolescence, 38*, 459-479.

Rothschild, B. (2000). *The body remembers: The psychophysiology of trauma and trauma treatment.* New York: W. W. Norton & Company, Inc.

Scaer, R. C. (2001). *The body bears the burden: Trauma, dissociation, and disease*. Binghamton, NY: The Haworth Press, Inc.

Schechter, D. S., Brunelli, S. A., Cunningham, N., Brown, J., & Baca, P. (2002). Mother-daughter relationships and sexual abuse: A pilot study of 35 days. *Bulletin of the Menninger Clinic, 66,* 39-60.

Schneider, B., Carnoy, M., Kilpatrick, J., Schmidt, W. H., & Shavelson, R. J. (2007). *Estimating causal effects using experimental and observational designs* (report from the Governing Board of the American Educational Research Association Grants Program). Washington, DC: American Educational Research Association.

Schultz, A., Williams, D., Israel, B., Becker, A., Parker, E., James, S. A., et al. (2000). Unfair treatment, neighborhood effects, and mental health in Detroit metropolitan area. *Journal of Health and Social Behavior, 41,* 314-331.

Schuster, M. A., Stein, B. D., Jaycox, L. H., Collins, R. L., Marshall, G. N., Elliot, M. N., et al. (2001). A national survey of stress reactions after the September 11, 2001, terrorist attacks. *New England Journal of Medicine, 345,* 1507-1512.

Seligman, L. (1999). Twenty years of diagnosis and the DSM. *Journal of Mental Health Counseling, 21,* 229-240.

Shipman, K. L., Rossman, B. B. R., & West, J. C. (1999). Co-occurrence of spousal violence and child abuse: Conceptual implications. *Child Maltreatment, 4,* 93-102.

Shonk, S. M., & Cicchetti, D. (2001). Maltreatment, competency deficits, and risk for academic and behavior maladjustment. *Development Psychology, 37,* 3-17.

Simons, R. L., & Johnson, C. (1998). An examination of competing explanations for the intergenerational transmission of domestic violence. In Y. Danieli (Ed.), *International handbook* of *multigenerational legacies of trauma* (pp. 553-570). New York: Plenum.

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research, 75,* 417-453.

Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist, 52,* 613-629.

Straker, G., Watson, D., & Robinson, T. (2002). Trauma and disconnection: A trans-theoretical approach. *International Journal of Psychotherapy, 7,* 145-158.

Streeck-Fischer, A., & van der Kolk, B. A. (2000). Down will come baby, cradle and all: Diagnostic and therapeutic implications of chronic trauma on child development. *Australian and New Zealand Journal of Psychiatry, 34,* 903-918.

Sue, D. W., Arredondo, P., & McDavis, R. J. (1992). Multicultural counseling competencies: A call to the profession. *Journal of Counseling and Development, 70,* 477-486.

Sue, D. W., & Sue, D. (2003). *Counseling the culturally diverse: Theory and practice* (4th ed.). New York: Wiley & Sons.

Tate, W. F. (1997). Race-ethnicity, SES, gender, and language proficiency trends in mathematics achievement: An update. *Journal for Research in Mathematics Education, 28*, 652-679.

Tatum, B. D. (2007). *Can we talk about race? And other conversations in an era of school resegregation*. Boston: Beacon Press.

Taylor, J., & Turner, R. J. (2002). Perceived discrimination, social stress, and depression in the transition to adulthood. *Social Psychology Quarterly, 65*, 213-225.

Terr, L. (1990). *Too scared to cry: Psychic trauma in childhood*. New York: Harper & Row.

Tourangeau, K., Lê, T., and Nord, C. (2005). *Early Childhood Longitudinal Study, Kindergarten Class of 1998–99(ECLS–K), Fifth-Grade Methodology Report* (NCES 2006–037). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Tourangeau, K., Nord, C., Lê T., Pollack, J.M., and Atkins-Burnett, S. (2006). *Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), Combined User's Manual for the ECLS-K Fifth-Grade Data Files and Electronic Codebooks* (NCES 2006–032). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

Townsend, B. L. (2000). The disproportionate discipline of African American learners: Reducing school suspensions and expulsions. *Exceptional Children, 66*, 381-391.

Trent, S. C., Artiles, A. J., & Englert, C. S. (1998). From deficit thinking to social constructivism: A review of theory, research, and practice in special education. *Review of Research in Education, 23*, 277-307.

Trickett, P. K., & Putnam, F. W. (1998). Developmental consequences of child sexual abuse. In P. K. Trickett & C. J. Schellenbach (Eds.), *Violence against children in the family and the community* (pp. 39-56). Washington, DC: American Psychological Association.

Trimble, J. E., & Thurman, P. J. (2002). Ethnocultural considerations and strategies for providing counseling services to Native American Indians. In P. B. Pedersen, J. G. Draguns, W. J. Lonner, & J. E. Trimble (Eds.), *Counseling across cultures* (5th ed., 53-91). Thousand Oaks, CA: Sage Publications.

Trimble, M. R. (1981). *Post-traumatic neurosis: From railway spine to whiplash*. New York: John Wiley & Sons.

Trimble, M. R. (1985). Post-traumatic stress disorder: History of a concept. In C. R. Figley (Ed.), *Trauma and its wake: The study and treatment of post-traumatic stress disorder* (pp. 5–14). New York: Brunner/Mazel Publishers.

Trout, A. L., Nordness, P. D., Pierce, C. D., & Epstein, M. H. (2003). Research on the academic status of children with emotional and behavioral disorders: A review of the literature from 1961 to 2000. *Journal of Emotional and Behavioral Disorders, 11*, 198-210.

van der Kolk, B. A. (1994). The body keeps the score. *Harvard Review of Psychiatry, 1*, 253-265. Retrieved November 1, 2007, from http://www.trauma-pages.com/a/vanderk4.php

van der Kolk, B. A., & McFarlane, A. C. (1996). The black hole of trauma. In B. A. van der Kolk, A. C. McFarlance, & L. Weisaeth (Eds.), *Traumatic stress* (pp.3-23). New York: The Guilford Press.

van der Kolk, B. A., & Saporta, J. (1993). Biological response to psychic trauma. In J. P. Wilson & B. Raphael (Eds.), *International handbook of traumatic stress syndromes* (pp. 25-33). New York: Plenum Press.

van der Kolk, B. A., & van der Hart, O. (1989). Pierre Janet and the breakdown of adaptation in psychological trauma. *American Journal of Psychiatry, 146*, 1530-1540.

Veltkamp, L. J., Miller, T. W., & Silman, M. (1994). Adult non-survivors: The failure to cope of victims of child abuse. *Child Psychiatry and Human Development, 24*, 231-243.

Vernberg, E. A., La Greca, A. M., Silverman, W. K, & Prinstein, M. J. (1996). Prediction of posttraumatic stress symptoms in children after Hurricane Andrew. *Journal of Abnormal Psychology, 105*, 237-248.

Walker, M. (1999). The inter-generational transmission of trauma: The effects of abuse on the survivor's relationship with their children and on the children themselves. *The European Journal of Psychotherapy, Counseling & Health, 2*, 281-296.

Watts, R. J., Griffith, D. M., & Abdul-Adil, J. (1999). Sociopolitical development as an antidote for oppression: Theory and action. *American Journal of Community Psychology, 27*, 255-271.

Weiss, A. R., Lutkus, A. D., Hildebrant, B. S., & Johnson, M. S. (2002). *The Nation's Report Card: Geography 2001* (NCES 2002–484). U.S. Department of Education. Office of Educational Research and Improvement, National Center for Education Statistics. Washington, DC: Government Printing Office.

Weisaeth, L. (2002). The European history of traumatology. *Journal of Traumatic Stress, 15,* 443-452.

West-Olatunji, C., Mehta, S., Sanders, T., & Behar-Horenstein, L. (in press). Effective parenting practices among parents of high achieving African American elementary students in high poverty schools. *Multicultural Perspectives.*

West-Olatunji, C., Pringle, R., Adams, T., Baratelli, A., Goodman, R. D., & Maxis, S. (2007). How African American middle school girls position themselves as mathematics and science learners. *The International Journal of Learning, 14*, 219-227.

White, V. E. (2002). Developing counseling objectives and empowering clients: A strength-based intervention. *Journal of Mental Health Counseling, 24*, 270-279.

Williams, D. R., Neighbors, H. W., & Jackson, J. S. (2003). Racial/ethnic discrimination and health: Findings from community studies. *American Journal of Public Health, 93*, 200-208.

Wozniak, J., Crawford, M. H., Biederman, J., Faraone, S. V., Spencer, T. J., Taylor, A., et al. (1999). Antecedents of complications of trauma in boys with ADHD: Findings from a longitudinal study. *Journal of the American Academy of Child & Adolescent Psychiatry, 38*, 48-55.

Zatzick, D. F., Russo, J. E., & Katon, W. (2003)**.** Somatic, posttraumatic stress, and depressive symptoms among injured patients treated in trauma surgery. *Psychosomatics, 44*, 479-484.

Zimmerman, M., & Mattia, J. I. (1999). Is posttraumatic stress disorder underdiagnosed in routine clinical settings? *Journal of Nervous & Mental Disease*. *187*, 420-428.

Zolotor, A., Kotch, J., Dufort, V., Winsor, J., Catellier, D., & Bou-Saada, I. (1999). School performance in a longitudinal cohort of children as risk of maltreatment. *Maternal and Child Health Journal, 3*, 19-27.

BIOGRAPHICAL SKETCH

Rachael Donelson Goodman was born in 1980 in Williamsburg, Virginia. She grew up primarily in Indianapolis, Indiana. In 2002, she received a Bachelor of Science in Business Administration from the University of North Carolina at Chapel Hill. She received her Master of Education and Specialist of Education degrees in Mental Health Counseling from the University of Florida in 2006. Her research focuses on traumatic stress for socially marginalized populations using quantitative and qualitative culture-centered methodologies.