THE RELATIONSHIP BETWEEN HOPE, EXECUTIVE FUNCTION, BEHAVIORAL/EMOTIONAL STRENGTHS AND SCHOOL FUNCTIONING IN 5TH AND 6TH GRADE STUDENTS

DISSERTATION

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ABSTRACT

A non-experimental, exploratory survey design was used to determine the relationships between hope, executive function, behavioral/emotional strengths, and school functioning. The sample (N=236) included 10-12 year old students in a large Central Ohio school district. Data were gathered from students in two intermediate schools during group sessions in each building. Three self-report measures were used, including The Children’s Hope Scale (CHS), The Behavioral and Emotional Rating Scale- 2nd edition (BERS-2) and the Behavior Rating Inventory of Executive Function-Self-Report Version (BRIEF-SR). The relationship between hope and demographic variables such as gender, race, and age were considered. No significant differences were discovered between hope and demographic variables, with the exception of special education status. Students receiving special education services reported significantly lower hope than students without special education status. More specifically, Hispanic males who speak English as a second language and receive special education services were significantly less hopeful than Hispanic males who speak English as a second language without special education status. Hope, then, may be a casualty of special education labels.

A mediational model was tested to determine if hope enhances school functioning, even in the presence of executive dysfunction. Results revealed a partially
mediated model, such that 74% of the total effect of executive dysfunction on school functioning was mediated by hope. Notably, students with high hope reported significantly higher levels of school functioning and behavioral/emotional strengths than their low hope peers, while students with low hope reported more executive dysfunction. Implications for school psychologists include the development and implementation of hope-enhancing interventions that aim to reduce the impact of various components of executive dysfunction on school functioning. Facilitating hope in children may reduce referrals for special education services and may effectively improve academic outcomes.
This dissertation is dedicated to the friendship and memory of my precious and closest friend, Caren Kassen. Caren’s strength and faith gave me a great appreciation for the meaning and importance of friendship. She lived her life well, acting upon her spiritual beliefs conscientiously by assisting both friends and strangers in need. It was her encouragement that gave me the strength to embark on this endeavor; her memory kept me working when I wanted to give up. Secondly, I dedicate this work to my wonderful mentor and professor, Dr. Sara Staats, who sparked the passion I now have for research in the area of hope.
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CHAPTER 1

INTRODUCTION

Research supports a wide range of protective and risk factors that contribute to academic functioning. The literature clearly indicates that risk factors such as poverty, unstable family units, and biological traits impact academic success (Bernard, 1991; Garmezy, 1991; Shaw, Filliom, Ingoldsby & Nagin, 2003). Faced with such adversities, children are at risk of poor long term outcomes (Benard). However, since “at risk” also implies that negative outcomes may be avoided, policy and practice might best be informed by considering the factors that lead to academic success. Studies that aim to identify how some children overcome adversity to excel in life, in spite of obstacles (Bernard), may be insightful in promoting positive academic outcomes.

New advances in the field of neurology may help delineate factors that support school functioning. Specifically, neuropsychological research has suggested that particular elements of executive function (EF) significantly contribute to learning (Bull & Scerif, 2001; Willcutt, Doyle, Jigg, Faraone & Pennington, 2005), while deficits in EF represent a considerable risk factor for academic progress. Additionally, a considerable body of research indicates that the positive psychological construct of hope is a significant contributor to well-being, including enhanced academic achievement. (Huebner, Suldo, Smith & McKnight, 2004; Moore, 2005; Snyder, 2002; Snyder &
Lopez, 2002; Staats, 1987, 1989; Staats & Partlo, 1993; Stassen & Staats, 1988; Terjesen, Jacofsky, Froh, & DiGiuseppe, 2004). Since a primary duty of educators is to assure that all children have an opportunity to receive an adequate education regardless of impediments (United States Department of Education, 2005), consideration of hope’s adaptive function in the presence of executive dysfunction (EdF) is pertinent to the field of education.

Technological advances in brain imaging have contributed to the growing field of neuropsychology, increasing knowledge concerning specific brain functions and how these neurological functions contribute to academic skill development (Colvin, Dunbar & Grafman, 2001; Dawson & Guare, 2004; Feifer & De Fina, 2000). Executive function (EF), the directive capacities of the mind that cue the use of other mental abilities (McCloskey, 2006), has a neurological basis associated with the prefrontal cortex of the frontal brain systems. EF comprises a group of cognitive components which include such tasks as cueing the initiation of effort (McCloskey), monitoring goal-directed behavior (Dawson & Guare) and inhibiting impulsive responding (Barkley, 1998). These functions are strongly associated with basic academic tasks such as planning and implementing steps to complete assignments and attending to teacher instruction in spite of competing, distracting stimuli (Feifer & De Fina; McCloskey; Worrell & Hale, 2001). Research conducted by Waber and colleagues (2006) suggested that neuropsychological variables (particularly EF) accounted for 40% of the variance in English scores and 30% in mathematics scores on state mandated standards-based testing. Delays or deficits in the development of these complex academic skills may result from executive dysfunction
(EdF) and could ultimately lead to school failure (Waber, Gerber, Turcios, Wagner, & Forbes, 2006).

Students are expected to use EF skills to accomplish a variety of academic tasks. Mounting evidence supports the essential role that executive function plays in learning (St. Clair-Thompson & Gathercole, 2006). EdF reduces the likelihood of achieving academic goals. For example, students with poor working memory function have reduced ability to remember the task at hand and carry out teacher instructions (Willcutt et al., 2005), read (Daneman & Carpenter, 1980) and perform mental math calculations (St. Clair-Thompson & Gathercole), which has important implications for scholastic outcomes. Thus, a major challenge of education researchers is to discover what factors improve school functioning in the presence of executive dysfunction. Research supports hope and other resiliency factors as having a significant impact on academic performance (Gilman et al., 2006; Onwuegbuzie & Daley, 1999; Shorey et al., 2003), and may therefore provide a buffer against school failure, even when EdF is apparent.

Theoretical Foundation

Historically, the study of mental processes and behavior has focused on pathological and maladaptive functioning (Akin-Little, Little, & Delligatti, 2004; Terjensen et al., 2004). This approach, based on a medical model, looks at ways of decreasing deficits to improve quality of life. The more recent approach of positive psychology places emphasis on human strengths, pathological health, and optimal functioning (Huebner et al., 2004; Seligman & Csikszentmihalyi, 2000; Terjesen et al., 2004). Positive psychology is having an interdisciplinary impact on policies and
practices. Empirical studies in this emerging field have focused on delineating factors and practices that lead to positive outcomes and ultimately improve quality of life (Benard, 1991; Diener, 2000; Larson, 2000; Rudolph & Epstein, 2000; Scheier & Carver, 1985; Seligman, 1991; Seligman & Csikszentmihalyi; Snyder, 2000d, 2002). Thus, the theoretical perspective of positive psychology may provide a useful framework from which to consider the factors that protect children from academic failure, even when faced with obstacles.

Purpose of the Study

The purpose of the current study is to explore the relationship between hope, executive function, behavioral/emotional strengths and school functioning. This study will primarily focus on three predictor variables of optimal school functioning: 1) hope, 2) executive function, and 3) behavioral/emotional strengths (resiliency factors). Importantly, hope will be considered as a mediating factor in the relationship between executive function and school functioning in 5th and 6th grade students. The relationships between hope and several demographic variables such as race, gender, special education status, ELL (English as a Second Language) status, and grade level will also be considered. Drawing from the philosophical underpinnings of the field of positive psychology, neuropsychological research, resiliency literature, and hope theory, the study proposes that children with executive dysfunction will report significantly lower levels of school functioning, but that hope will intervene in the relationship between EdF and school functioning. Specifically, school functioning will be enhanced by the presence of hope even when EdF is a limiting factor. Other study variables such as behavioral and
emotional strengths will also be considered in terms of their ability to predict school functioning.

Importance of the Study

By examining the relationship between hope, executive functioning, and school functioning, this paper will make important contributions to applied science, as well as theory. First, individual differences in hope levels may predict vulnerability to academic failure. Thus, in a school setting, it may be useful to monitor levels of hope in children with limited academic success and to provide academic support that aims to raise hope. Next, this research project will contribute to the body of knowledge concerning executive function’s relationship with school functioning. Finally, results may led to the development of interventions aimed at enhancing hope which may help build EF skills and thereby reduce the number of children who need special education services.

Research Questions and Suppositions

The current study is guided by five primary research questions:

Research Question One

What is the relationship between hope and demographic variables (i.e. age, grade level, gender, race, English as a Second Language [ELL] status, special education status)?

Since perceived ability is foundational to hope (Shorey et al., 2003), it is likely that children placed in special education services have reduced confidence in their academic abilities based on repeated failures. Thus, hope’s power to enhance academic outcomes in the presence of EdF may be challenged by special education status. On the other hand, due to limited empirical evidence to the contrary, no differences are expected
based on gender or grade level. Finally, while no research has considered whether grade level has any impact on hope, age differences have not been supported by the majority of studies. Also, some studies have found lower levels in hope based on race (specifically in the Black population). However, the majority of studies has not found significant interactions between race and hope levels (Snyder, 2005; Snyder, Hoza et al., 1997; Snyder, et al., 1999).

**Supposition 1:** Only special education status is expected to have a significant relationship with hope.

**Research Question Two**

What is the relationship between executive function and hope?

Theoretically, a strong relationship between hope and executive function is expected, since there is much overlap in characteristics associated with high hope and skills associated with executive function. The strongest relationships between hope and executive function are expected to be found on the subscales that form the Metacognitive Index (i.e. working memory, plan/organize, organization of materials, task completion), since those skills are directly related to goal-pursuits. For example, hopeful individuals are able to persist toward their goals, which require an ability to sustain attention and performance over time. Similar to the Pathways component of hope, the plan/organize subscale measures essential skills associated with planning, implementing, and initiate actions aimed at goal achievement. Organization of materials relates to the way in which a student organizes his/her environment in order to achieve the task at hand in an efficient manner. A lack of organization can lead to failure, which contributes to negative
feedback about the student’s competence. As such, a lack of organization can lead to lowered hopefulness about future endeavors. Furthermore, task completion has obvious implications for school successfulness as well as hope. For example, high hope individuals are able to complete tasks in an efficient and timely manner and have higher levels of perseverance in the face of obstacles than their low hope peers. As such, a significant relationship between executive function and hope is expected.

Supposition 2a. A strong, negative relationship is expected between hope and executive dysfunction.

Supposition 2b. Moderate, negative relationships are expected between hope and components of executive dysfunction.

Supposition 2c. The Strongest relationship between hope and EF is expected on the Metacognition Index.

Research Question Three

What is the relationship between behavioral/emotional strengths and hope?

Each of these variables (affective, interpersonal, intrapersonal, family involvement, and school functioning) have been reported as important resiliency factors (Benard, 1991) and should positively relate to hope.

Supposition 3a. Moderate, positive relationships are expected between subscales of the BERS-2 (measures of behavioral/emotional strengths) and hope.

Supposition 3b. Family Involvement and Intrapersonal Strengths have been theorized to contribute to hopefulness. As such, these two subscales are expected to have the strongest correlations with hope.
Research Question Four

How do hope, executive functioning, and behavioral/emotional strengths relate to school functioning?

Resiliency research supports the importance of behavioral/emotional strengths (protective factors) on academic achievement (Garmezy, 1991). Based on research which suggests the critical role that parents fulfill in the academic achievement of their children, it is expected that family involvement (a child’s participation in and relationship with his/her family) will have a positive, strong relationship with school functioning.

Additionally, interpersonal strengths (controlling ones emotions and behaviors in social settings) have been highlighted as important contributors to success in the classroom (Greenbaum et al., 1996). Finally, intrapersonal skills (self-confidence, enthusiastic about life) are also expected to significantly contribute to school functioning since, in many ways, this variable may indicate a higher level of hope. However, hope plays a significant role in persevering even in the presence of barriers and overcoming obstacles to goal attainment. Based on this and other empirical evidence that reveals higher GPA’s, higher likelihood of graduation, and higher rates of earning college degrees in people with high levels of hope (Chang, 1998), hope is expected to make a significant, positive contribution to school functioning. However, based on the theoretical assumption that executive function precedes hope, executive function is expected to be the strongest predictor of school functioning, followed by hope, and behavioral/emotional strengths.
Supposition 4a. A moderately strong correlation is expected between hope and school functioning.

Supposition 4b. Strengths will have a moderate relationship with school functioning.

Supposition 4c. There will be a strong, negative relationship between EdF and school functioning.

Research Question Five

Does hope mediate the relationship between EdF and school functioning?

The strong, positive relationship between hope and academic performance has been empirically supported (Hughes, Russell & Roggins, 1994; Ingersoll & Goldstein, 1993). Additionally, much theoretical and empirical evidence has established the predictive nature of executive function on academic performance (Bull & Scerif, 2001; Daneman & Carpenter, 1980). However, a mediational model may provide a deeper understanding of these relationships. Specifically, since many EF skills are necessary components of hope, it may be theorized that EF will predict hope, and that both hope and EF will predict school functioning.

Supposition 5: Since hope provides a buffer against negative outcomes, the relationship between EdF and academic functioning will be mediated by hope (see Figure 1).

Figure 1: Hope as a mediator between executive dysfunction and school functioning
CHAPTER 2
LITERATURE REVIEW

To build a foundation for the current study and provide solid support for the research suppositions, a careful review of the literature related to executive function, hope, and resiliency factors was conducted. This chapter will provide an overview of the relevant empirical and theoretical literature in each of these key areas, beginning with executive function, followed by hope and behavioral/emotional strengths.

Executive Function

Development of executive function (EF) varies not only between individuals but also within individuals; research shows wide-ranging differences in EF development (McCloskey, 2006). That is, areas of EF may develop concurrently or years apart without dependence on the development of other elements of EF. Interindividually, there is considerable variation in EF based on chronological age. According to McCloskey, these differences may be particularly noticeable as a child transitions from one educational level to another (i.e. preschool to elementary school, elementary school to middle school, middle school to high school), which may account for increased referrals to special education services in the first year following a major transition. Thus, neurodevelopmental delays or deficits may impact a child’s academic progress and ultimately contribute to identification as a student with a disability.
Executive Dysfunction and Special Education

EF deficits are evident cross-categorically in children who qualify for special education services, indicating that academic progress may depend on healthy development of frontal lobe functioning (Biederman et al., 2004; St Clair-Thompson & Gathercole, 2006). Regardless of the category under which students qualify for special education services, skills associated with EF tend to be underdeveloped.

EdF and ADHD. A recent trend in special education services reveals a growing number of children who qualify for services due to Attention Deficit Hyperactivity Disorder (ADHD). ADHD is a neurological disorder characterized by persistent patterns of inattention, hyperactivity, and impulsivity that are developmentally inappropriate (APA, 1994; Barkley, 2003). ADHD is the largest single source of referrals to child mental health centers, accounting for one-third to one-half of all referrals (Richters et al., 1995) with an estimated prevalence rate of 3% to 5% in school-age children (APA). Symptoms of ADHD are sometimes severe enough to handicap the child’s ability to progress in the curriculum, thereby qualifying for special education services. Although students with ADHD are served under IDEIA, it is not a discrete disability category.

Results of a parent survey reported that 41% of all elementary and middle school-aged students receiving special education services due to ADHD are served under the specific learning disabilities category (SLD), while the other disability categories of Other Health Impaired (OHI), Emotional Disturbance (ED) and Mental Retardation (CD) each contains more than 10% of students with ADHD (SRI International, 1999). The differences in categorical placement of students with ADHD may be primarily related to
issues of co-morbidity. That is, ADHD is frequently comorbid with other clinical diagnoses. Regardless of categorical placement, children with ADHD and similar behavioral disabilities are the groups of students at greatest risk for poor academic outcomes, demonstrating a greater risk for low academic achievement, school suspensions, grade-level retention and school expulsions (Barkley, 1998; Biederman et al., 2004; McHale, Obrzut, & Sabers, 2003). By adolescence, about one-third of these children have failed at least one grade in school and almost 80% are one or more years behind in at least one academic area (Ingersoll & Goldstein, 1993).

Children with behavior disorders such as ADHD are typically characterized as lacking appropriate social skills and having poor social interactions in the classroom (Barkley, 2003; Clark, Prior, & Kinsella, 2002). The skill set necessary to enjoy social competency is linked to EF, with deficits in this area posing serious academic concerns (Barkley, 2003). EF skills associated with ADHD include the capacity to initiate behavior, inhibit competing actions, select relevant goals, plan and organize ways to solve complex problems, shift problem-solving strategies flexibly when necessary, and monitor and evaluate behavior (Barkley, Grodzinsky, & DuPaul, 1992; Willcutt, et al., 2003). Working memory and emotional control are also included as areas of EF that impact academic progress in children with ADHD. Each of these skills are associated with areas of EF as delineated by neuropsychological researchers such as initiate, inhibit, select/focus, plan, shift, and monitor (Willcutt et al.). Behavior regulation and emotion control, areas of weakness in many children with ADHD, also differentiate between students with and without behavioral and emotional disturbances (Barkley et al.).
EdF and behavioral disabilities. Students with emotional and behavioral disorders severe enough to impact academic progress are categorized under the Individuals with Disabilities Education Improvement Act (IDEIA, 2005) as having an emotional disturbance (ED). This category accounts for 7.82% of all children receiving special education services in the United States (U.S. Department of Education, 2005). ED is highly correlated with brain-based activities such as emotional and behavioral control that are cued through the frontal lobe’s EF processes (McCloskey, 2006; Shaw, Gilliom, Ingoldsby & Nagin, 2003). The ability to control one’s behavior and get along with others is foundational to learning (Onwuegbuzie & Daley, 1999). Competent social interactions contribute to a wide array of adaptive outcomes in children including school readiness and academic success (Richards, Symons, Green, & Szuszkiewicz, 1995; Séguin, Boulerice, Harden, Tremblay, & Pihl, 1999). Several clinical classifications of mental illness such as conduct disorder, oppositional defiant disorder, anxiety, and obsessive-compulsive disorder have been associated with EdF (McCloskey; McHale et al., 2003; Pennington & Ozonoff, 1996). Such disorders may severely hinder academic progress. About 50% of students with severe emotional disturbances drop out of high school (U.S. Public Health Service, 2000).

The National Adolescent and Child Treatment Study (NACTS; Greenbaum et al., 1996), a longitudinal study concerning outcomes for children who experience emotional disturbances, reported that for those children with intelligence levels at or above 70, 75.4% were below grade level in reading, 96.9% were below grade level in mathematics, and 40.0% did not have a high school diploma or a GED. Much of the variance in
academic outcomes was attributed to skills related to EF (Greenbaum et al.). While children with ED have difficulty with self-control and interpersonal relationships (Clark et al., 2002; Shaw, et al., 2003), an adequate level of hope may alleviate these outcomes. For example, individuals with high hope tend to have better behavioral control than their low hope peers, as they focus their efforts on goal-related actions (Snyder & Shorey, 2004). As such, EdF may be minimized in the presence of hope.

*EdF and pervasive developmental disorders.* Similar to ED, children diagnosed with a Pervasive Developmental Disorder (PDD) such as Autism and Asperger’s Syndrome frequently qualify for special education services due to deficits in interpersonal relationships which hinder academic progress. Autism is a developmental disorder characterized by impaired social interaction and communication as well as repetitive behaviors and restricted interests (American Psychiatric Association, 1994). It is a lifelong disorder that impacts slightly more than 3% of the special education population in the United States (United States Department of Education, 2005). Recently, several cognitive theories have been foundational in considering the link between cerebral functions and the behaviors associated with PDDs. The cognitive theory of executive dysfunction may best account for repetitive behaviors and restricted interests. Studies linking EdF and autism have focused on four main components of executive function that are particularly relevant in children with a PDD—planning, flexibility, inhibition, and self-monitoring. Planning processes must be monitored, reevaluated, and updated for best outcomes. However, individuals with PDDs have displayed impairment on planning tests (Hill, 2004). Mental flexibility reflects the ability
to shift to a different thought or action according to changes in a situation. On tasks that require mental flexibility, the group of individuals with PDD was impaired in comparison with control groups (Hughes, Russell, & Robbins, 1994). The perseverative, stereotyped behavior is characteristic of people with autism, demonstrating poor mental flexibility skills.

Inhibition is another area of EF that is impacted by PDDs. Children with autism may have more difficulty inhibiting socially inappropriate responses to environmental stimuli than their normally-developing peers (Hill, 2004). Furthermore, self-monitoring skills which are essential to academic progress are limited in some individuals with PDDs (Hughes et al., 1994). However, students with high hope display superior planning, self-monitoring and flexibility skills compared to their low hope peers. As such, students with PDDs who have high hope levels may experience less academic dysfunction.

*EdF and specific learning disabilities.* Research shows that approximately 70% of children with PDDs also experience learning disabilities (Fombonne, 2003). The special education category of specific learning disability (SLD) accounts for nearly 50% of children with a PDD who qualify for services (U.S. Department of Education, 2005). Children with a SLD account for 45% of the special education population (United States Department of Education). According to the definition provided by IDEIA (2005), children with a SLD are characterized as having average intellectual ability accompanied by academic deficits in one or more areas of academic achievement due to the presence of a cognitive or information processing deficit.
A processing deficit refers to the way the brain processes information. Since the brain must process all information that it receives from the senses, if processing is impaired in some way then learning may be significantly hindered. For example, if visual processing is impaired then the student may have severe difficulties recalling information that was processed through visual channels (St. Clair-Thompson & Gathercole, 2006). The capacity to recall information is a function of working memory. Researchers have argued that working memory capacity reflects the efficiency of executive functions to maintain a few task-relevant representations when faced with distracting stimuli (Engle, Tuholski, Laughlin, & Conway, 1999). These tasks, which are linked to functions in the frontal brain areas, seem to reflect individual differences in ability to focus and maintain attention, particularly when other events are serving to capture attention (Kane & Engle, 2002). Thus, working memory impacts the capacity to plan and carry out school assignments, organize schoolwork, and manage present and future goals (Dawson & Guare, 2004). Each of these academic tasks has been highlighted as issues of concern for children with ADHD, as well as SLD.

Learning disabilities such as dyslexia, dysgraphia, dyscalculia, and dyspraxia have been associated with processing deficits in working memory. Studies show that working memory accounts for unique variance in mathematic scores (Bull & Scerif, 2001) reading (Swanson & Sachse-Lee, 2001) and reading comprehension (Daneman & Carpenter, 1980). As such, evidence of EdF is clearly evident in children with a SLD. However, individuals with high hope tend to have well-developed organizational and planning skills which may help compensate for EdF related to SLD.
EdF and cognitive disabilities. A final major category of special education services established under IDEIA (2005) concerns children with cognitive disabilities (CD). While the term "cognitive disabilities” is not used in the legislative language, there are two areas of cognitive dysfunction which are addressed in the regulations – mental retardation and traumatic brain injury (IDEIA). Mental retardation refers to significant sub-average intellectual functioning which coexist with deficits in adaptive behavior, while traumatic brain injury (TBI) indicates a brain injury caused by an external physical force which results in a functional disability and/or psychosocial impairment that adversely affects a child's educational performance (IDEIA). Over half a million children, or about 5% of all students in special education in the public schools, have cognitive disabilities (United States Department of Education, 2005).

To qualify for special education services as a student with a cognitive disability, significant limitations in adaptive functioning are required in a least two skills areas. Areas of adaptive functioning which have been linked to EF include social skills and academic skills. EF skills that are impacted by TBI include the ability to reflect on ones strengths, weaknesses, resources, and opportunities (self-evaluation); the ability to set a realistic goal and to create steps for attaining it (plan); the ability to get started (initiate); and the ability to note the passing of time, to stay on schedule, to keep appointments and to meet deadlines (time-awareness; Barker, Andrade, Romanowski, Morton, & Wasti, 2006). Furthermore, the ability to evaluate ones performance and to make needed corrections in the midst of a task or project (correct); and the ability to recognize when the actions you are taking are ineffective, to stop, re-evaluate, and to formulate or re-
formulate a plan (shift) are impacted by a TBI. Again, based on neuropsychological models of frontal lobe functions, cognitive disabilities are easily associated with EdF.

Considering the EF deficits commonly occurring in children with CD, it is not surprising that cognitive disabilities generally result in poor academic outcomes. For example, 35% of students with cognitive disabilities drop out of high school (Wagner, 1991), 60% of adults with severe literacy problems have undetected or untreated cognitive disabilities (National Adult Literacy and Learning Disabilities Center, 1994), 62% of students with cognitive disabilities were unemployed one year after graduation and 31% of adolescents with cognitive disabilities will be arrested 3-5 years out of high school (Wagner). As such, it is imperative that educational outcomes in children with CD be improved. However, resources may be wasted on ineffective interventions if educators ignore the impact of neurological functioning on learning. Incorporating hope-enhancing techniques into academic interventions aimed at improving EF may be effective since planning, initiation, time-awareness, self-evaluation and self-correction skills, typical areas of EdF in children with CD, are noticeably better developed in individuals with high hope (Snyder, Irving & Anderson, 1991).

*EdF and academic intervention.* Based on mounting brain-based research evidence, it is plausible that EdF is a complicating factor, if not the origin, of many educational disabilities. As such, improving EF skills through pre-referral interventions will likely lead to reduced numbers of children who qualify for special education services. Efforts to develop EF skills have shown promising results in children with neurodevelopmental delays (Feifer & De Fina, 2002). However, in the absence of
interventions aimed at improving neurological functioning, positive academic gains might not be expected.

Guy, Isquith, and Gioia (2004) make an argument for including and addressing EdF in educational models of intervention services for students with behavioral disorders. They suggest that defining behavior disorders by EF may be useful in identifying specific areas of dysfunction thereby leading to more effective academic interventions.

In the presence of EdF, interventions that tap individual strengths as a technique to compensate for and/or enhance EF skills may be particularly successful. Individuals with high hope tend to exhibit strong interpersonal skills, arouse themselves to action and regulate themselves in progress toward their goals (Shorey, Snyder, Yang & Lewin, 2003). High-hope individuals exhibit a propensity for planning and view obstacles as challenges rather than threats (Shorey et al., 2003). They also focus on goal accomplishment and apply themselves to a task with intense determination (Snyder et al., 1991). These skills associated with high hope may buffer the effects of EdF as it relates to academic progress in children.

A handful of recent studies have spotlighted the facilitation of hope as a technique that supports school functioning (Chang, 1998; Herth, 2001; McDermott & Snyder, 1999; Snyder, Feldman, Shorey, & Rand, 2002). High levels of hope have been found to buffer against academic failure and result in greater academic competence (Snyder, 2002; Snyder & Shorey, 2002). As such, the impact of EdF may be reduced in children with high hope. Due to overlapping skill sets in EF and hope, careful consideration of hope-
enhancing techniques may consequentially strengthen executive function, thereby improving academic outcomes as hope increases.

Hope

Growing bodies of knowledge concerning constructs central to positive academic outcomes have increased interest in dispositional traits such as hope (Snyder & Shorey, 2002). Hope, as a positive psychological construct, has mounting research evidence concerning its centrality to adaptive functioning. The claim that hope serves as an invaluable protective factor across domains (i.e. physical, emotional, psychological, spiritual, social) is solidly supported by the literature (Huebner et al., 2004; Seligman & Csikszentmihalyi, 2000; Terjesen et al., 2004). These benefits of hope are evident regardless of age, gender, race, or socioeconomic status, increasing interest in hope’s potential to improve academic outcomes (Snyder, 1995; Snyder, Cheavens, & Sympson, 1997; Snyder, Lopez, Shorey, Rand, & Feldman, 2003). Barring traumatic events, hope is a well-established trait by the age of three and remains stable throughout the lifespan (Snyder, 2005), although level of hope may gradually change over time as one is exposed to new and changing environments.

Empirical evidence suggests that hope represents an important predictor of a range of vital outcomes (Farran, Wilken, & Popovich, 1992; Needles & Abramson, 1990; Stassen & Staats, 1988; Stotland, 1969). Several researchers have studied the relationship between levels of hope and academic achievement among students, supporting the notion that hope and academic achievement are often interrelated (Chang, 1998; McDermott & Snyder, 1999; Snyder, Hoza et al., 1997). Children with high hope demonstrate
significantly more adaptive academic behaviors than their low-hope peers (Curry, Snyder, Cook, Ruby, & Rehm, 1997; Snyder, Hoza et al., 1997). The issues and challenges surrounding academic achievement have been well documented, but little attention has been paid to the ability of schools to encourage the development of beneficial dispositional qualities in students (e.g. self-efficacy, hope, problem-solving ability). These non-academic characteristics can positively impact academic achievement in school and can influence health, happiness and success later in life (Benard, 1991; Huebner et al., 2004; Strein, Hoagwood, & Cohn, 2003; Werner & Smith, 1992; Zimmerman, & Arunkumar, 1994). With this in mind, it seems reasonable that monitoring hope levels in children may be useful as a buffer against academic failure and as a means to reduce the impact of EdF on academic progress. Research on academic success based on a deficit perspective has focused on factors leading to school failure and resulted in prevention programs that aimed to decrease the risk factors of school dropout (Snyder & Shorey, 2002). However, from a positive psychological framework research focuses on the factors that contribute to academic success and how to improve, support, or sustain academic motivation in a school setting (Huebner et al.; Larson, 2000; Meyers & Natashi, 1999; Moore, 2005). Preventative steps to protect hope in children may be an effective means of increasing successfulness in school.

*Hope Theory*

Hope theory (see Snyder, 2000d; Snyder et al., 1991), in particular, has enjoyed considerable theoretical and empirical support in the literature and has been useful in providing a framework from which to research the topic of hope. Hope theory is a
cognitive model of hope which is based on the assumption that human-beings are goal-directed. Snyder and colleagues (1991) have conceptualized hope as having two essential cognitive components: pathways and agency thinking. Pathways thinking represents an individual’s perception of ability to formulate effective routes to desired goals while agency thinking represents the individual’s perception of ability to use the generated pathways to accomplish goals (Snyder, 1995). The individual’s appraisal of competence is based on past experiences of success and failure. With the feedback they receive from the environment, including their interactions with others, children evaluate what is presently working for them and what has and has not worked in the past. According to this feedback, people develop response patterns that are consistent with their present and past experiences and then make determinations about how to approach the future (Snyder, 2002). While thwarted goals may lead to discouragement and diminish positive self-perceptions, successfully achieving ones goals enhances hope and fuels self-perceptions of competency.

Goal-setting, use of problem-solving techniques and perseverance toward goals are highlighted as essential components of academic motivation (Masten et al., 1988; Pajares, 2001). Each of these also directly relate to hope in that goal-setting is an assumption of hope theory; perseverance toward one’s goals involves agentic thinking and problem-solving techniques aid in developing pathways to goal achievement (Snyder, 2000a). Therefore, to the degree that one is hopeful, academic success is more or less likely to be realized. The academic implications of low levels of hope may include lower high school and college graduation rates, higher dropout levels and overall
poorer academic achievement than their high hope peers (Turner, Husman, & Schallert, 2002.). For children who are at-risk for academic failure, enhancing protective factors will improve school achievement and optimal functioning (Halpin, 2001).

In a recent review, Cheavens, Michael and Snyder (2005) discuss the adaptive benefits of hope on academic performance. Hope has been found to stimulate people to set goals, develop a viable plan to achieve the goals, and provides the energy to negotiate the route toward the desired outcome until the goal is realized (Snyder et al., 2003). These activities are essential to promote learning (Snyder, Hoza et al., 1997). Scholastic competence and greater academic satisfaction are evident in children, adolescents, and college students with high hope scores (Chang, 1998; Curry, et al., 1997; Halpin, 2001; Snyder, 1999; Snyder et al., 2003). Additionally, students with high hope experience less anxiety related to academics, which may contribute to higher scores on achievement tests, and higher GPA’s.

Level of hopefulness, as measured by the Children’s Hope Scale (CHS; Snyder, Hoza et al., 1997) has been useful is making predications about academic achievement and that predictive power was stronger for hope than other traits such as self-esteem, optimism, and perceived competency (Snyder, Hoza et al., 1997). Notably, hope does not significantly correlate to intelligence; rather, hope is thought to tap a cognitive/motivational set related to goal pursuit (Snyder, 2000a). Therefore, level of hope is not limited by intellectual ability and may provide an adaptive function in academic achievement, in spite of IQ (Snyder, Hoza et al., 1997). When faced with challenging tasks, students with high hope are able to develop several pathways to goal
achievement, increasing likelihood of success in the academic domain (Curry et al.; Danoff-Burg, Prelow, & Swenson, 2004; Halpin, 2001; Turner et al., 2002). The adaptive benefits of hope, while only recently targeted for scientific research, have been highlighted throughout the centuries.

*Hope’s Significance to Humankind*

Hope, on one end of the spectrum, refers to the shallowest of human sentiments (e.g. I hope you have a nice day). On the other end of the spectrum, hope refers to a deep, metaphysical experience that evokes a sense that life holds unlimited promise for happiness, that success and achievement are possible and that evil and suffering are transient accidents (Elliot, 2005). Hope at this fundamental level is a matter of profound personal and moral significance. Perhaps the earliest references to hope are found in Ancient Greek theology (now referred to as mythology), in the legend of Prometheus and Pandora's Box (Alexander, 2002). There remains some mystery surrounding this legend concerning whether the Greeks considered hope to be a buffer against suffering (Begley & Blackwood, 2000) or a blight of misguided optimism (Alexander). In Christianity, hope is a cardinal virtue. "Hope is the theological virtue by which we desire the kingdom of heaven and eternal life as our happiness, placing our trust in Christ's promises and relying not on our own strength, but on the help of the grace of the Holy Spirit" (*Catechism of the Catholic Church*, para. 1817-18). A Biblical proverb declares “Hope deferred makes the heart sick; But when the desire cometh, it is a tree of life” (Holy Bible, Proverbs 13:12, American Standard Version). The proverb reveals both sides of the hope coin, with unrealized hope leading to despair and realized hope leading to a
fulfilled life. Additionally, Dante's *Divine Comedy* presents the inscription at the entrance to Hell, “Abandon all hope ye who enter here”, leaving the impression that life without hope is equivalent to living in torment (the typical conceptualization of hell).

Several clichés referencing hope are regularly used in the English language. We “hope against hope” when there is almost no chance of something happening. We continue to expect a positive outcome, as long as there is a “glimmer of hope”. From Alexander Pope's *An Essay on Man* emerges the cliché “hope springs eternal”, indicating ongoing yearning for some desirable event. After all, “hope is what dreams are made of!”

Throughout the history of the world, mankind has hoped for a brighter future. In a modern context, people hope to beat the odds, to maintain their health, to retain their youth, and to discover truth. Beyond these unlikely occurrences, however, there remains an element of hope that provides strength in the face of obstacles and the reinvigorates the human spirit following traumatic events (Averill Catlin, & Chon, 1990; Lazarus, 1991; Snyder, 2002).

*The Construct of Hope*

Research on hope prior to the 1960s was negligible, possibly due to the prevailing idea that hope was a matter for philosophers to explore, not lending itself to scientific research (Elliott, 2005). A few philosophers laid the groundwork for understanding hope’s components. In 1944, Gabriel Marcel published his writings on hope, in which he differentiated hope from optimism and expectation while suggesting doubt and despair as the antithesis of hope (Elliott). Hope was thrust into the arena of psychological research after a lecture by Karl Menninger (1959), in which Menninger related the value of hope
to the medical community. Following this lecture, the body of literature related to hope
ingcreased across several disciplines (Elliot).

Multiple fields of study spanning philosophy, religion, politics, psychology,
nursing, economics and medicine have developed differing, although not necessarily
opposing, definitions of hope. The suggestion that hope is essential for positive physical,
psychological, and/or spiritual well-being is frequently expressed by healthcare
professionals, social workers, psychologists, and religious leaders who serve people in
distressing situations (Hill, Gallager, Thompson, & Ishida, 1988; Idler, 1995; Moore,
2005; Nowotny, 1986; Staats, 1989). Research results suggest that hope can be regarded
as a strong protective factor in maintaining both psychological and physical health.
Health professionals generally recognize hope as a positive emotion that has a therapeutic
effect on health such as speeding recovery and easing pain (Herth, 1991). Hope’s
relevance to physical health was highlighted by Begley and Blackwood (2000) as they
made a case for withholding truth from patients to protect hope’s therapeutic effects.
They purported that withholding truth in order to avoid destroying hope in medically
fragile patients might be considered morally acceptable.

In his book, The Anatomy of Hope: How People Prevail In The Face Of Illness,
Dr. Groopman contends that, “Belief and expectation – the key elements of hope – can
block pain by releasing the brain’s endorphins and enkephalins, mimicking the effects of
morphine (Groopman, 2004, p 68).” While some health professionals look to
physiological explanations of the benefit of hope, many religious leaders hold to divine
explanations (Day, 1969). They understand hope as an essential virtue that aids in
maintaining faith while waiting for the manifestation of unseen, desirable outcomes (i.e. perhaps petitions to prayer). Some researchers have looked at hope as a learned social construct, with cognitions playing a reconstructive role or supporting the maintenance of hope (Averill et al., 1990), while still others promote cognitions as the primacy of hope (Snyder, Cheavens, & Michael, 2005; Staats, 1989). The lack of interdisciplinary continuity in conceptualizing hope leaves one to ponder its meaning and significance to humanity.

**Constitutive Definition of Hope**

To hope, the dictionaries say, is "the intent to accomplish something of value with a realistic possibility of fulfillment; to long for with an expectation of attainment" (Webster’s ninth new collegiate dictionary), "an active, perseverant, positive expectation, to look forward to with desire and reasonable confidence" (Random house dictionary). A careful analysis of constitutive definitions may help lay a foundation to further conceptualize hope. First, note that hope is (by definition) *active*, implying movement toward the desired object. Simply yearning for a positive outcome, without movement toward the goal would not entirely capture the meaning of hope, since it would ignore the important component of action. Secondly, the outcome is considered *favorable*. This is intuitively sensible, since it seems contrary to human nature to desire an unfavorable outcome for oneself. Next, since the desired outcome has not yet occurred, hope reflects an element of *uncertainty*. Longing for a desired outcome can not guarantee attainment. Desire also places hope in a futuristic temporal timeframe, since one would not continue to long for something that has already been realized. On the other hand, it is expected that
the outcome will occur in the not-too-distant future, since *perseverance* toward the goal must be maintained in order to sustain hope. Additionally, the outcome must contain some degree of *importance* to merit hopeful thinking. Simply put, one does not hope for outcomes or objects of no importance. Finally, occurrence of the desired outcome, although uncertain, is considered to be *possible*.

**Toward an Operational Definition of Hope**

Operational definitions of hope are offered by various theorists across disciplines (Averill, 1991; Herth, 1991; Snyder et al., 2005, Staats, 1989). Unique aspects of the myriad of operational definitions of hope are associated with the theoretical underpinnings of each theorist, generally dividing researchers between two camps – hope as an emotion and hope as cognition. Yet across the divide, several common themes are evident in these conceptualizations of hope. Throughout the empirical literature, hope is typically described as a desire for favorable goal outcomes, it involves some uncertainty of outcome, it typically concerns matters of importance, it requires movement toward the desired outcome that must be sustained over time, and is placed in a futuristic temporal timeframe. Due to agreement between researchers about these particular elements of hope, the next section will look at each of these foundational facets of hope to consider the contribution of each element to an operational definition of hope.

**Foundational Facets of Hope**

*Goal congruency.* First, hope is evoked in situations where outcomes are appraised as favorable (Averill, 1991; Herth, 1991; Snyder, 2000a; Snyder et al., 2005; Staats, 1989) and congruent with ones goals (Lazarus, 1991; Smith, Haynes, Lazarus, &
Goal congruence is the degree to which individuals’ goals are consistent with ones environment (Lazarus). For example, in a supportive environment, goal congruence might refer to the notion that a favorable outcome will occur, while in an antagonistic environment goal congruence might mean that an unwanted outcome will be averted. Thus, in situations where individuals hope they do not graduate from college but hope they don’t fail a class; both outcomes are congruent with ones goals. When goal congruent outcomes are expected, we experience a pleasant frame of mind and feel an overall satisfaction with life where there exists a confidence in one’s ability to achieve a desired outcome as plans are initiated (Herth). The idea that hope arises when circumstances are appraised as goal congruent is consistent with Shaver, Schwartz, Kirson, & O’Connor (1987) who assert that hope emerges as a subcategory of joy, the most basic positive emotion. It is also consistent with a dictionary definition of hope as a “joyful expectation” (Webster’s ninth new collegiate dictionary). Although hope relates to futuristic outcomes regarded as goal congruent, hope is differentiated from goals in that it concentrates on goal outcomes, rather than the goal itself (Snyder, 2002).

Desire. Secondly, researchers typically agree that desire is an essential element of hope (Day, 1969; Dufault & Martocchio, 1985; Lazarus, 1991; Staats, 1989). Lazarus discusses desire as an important element of hope stating that stronger desires or yearnings may stimulate greater hope. For example, a strong desire for financial stability may be a powerful force in stimulating hopes for gaining entrance to graduate school. Supporting the idea that strength of yearning influences level of hope, Averill et al.
discovered that college students discontinued hoping when desire for the goal outcome ceased.

Strong desire for a particular goal congruent outcome may also be evoked by an awareness of deficiency (Lazarus, 1991). Perceived deficiencies in economic conditions are associated with higher numbers of undergraduate and graduate college applications, as poorer economic stability stimulates hope for a higher-paying, more secure job situation (Clotfelter & Cook, 1989). Perceived deficiency also appears to motivate gambling behaviors, as gamblers hope to strike it rich. Research by Clotfelter and Cook supports the supposition that deficiency is a powerful motivator in desire and hope, finding that gambling behaviors are most common among people with economic insufficiencies. Deficiency awareness, then, may also be an important component in motivating desire and evoking hope.

Uncertain possibility. Next, hope is composed of a desire where the occurrence of the goal is considered to be possible, but the outcome is uncertain (Dufault & Martocchio, 1985; Lazarus, 1991). Uncertainty is a foundational facet of hope (Augustine, 1963; Averill, 1991; Herth, 1991), as hope is unlikely to occur when one is absolutely certain that the goal congruent outcome will arise, or when one is convinced that it will not occur (Pieper, 1994, Staats, 1989). Staats purports that likelihood of occurrence must be greater than 0% and less than 100% for hope to be present, a notion that is supported by the research of Averill et al. (1990). Averill and colleagues verified that students ceased hoping once the goal was certain (100% likely) or when the goal was perceived to be out of reach (0% likely). However, hope might be present even when the
probability of the occurrence of the goal is quite low or rather high (Snyder, 2002). For example, one might hope to win a drawing for a new Harley-Davidson motorcycle, being fully aware that the likelihood of winning is slim. Similarly, an honor student can hope to do well on a final exam, even when the level of understanding of the topic suggests that the probability of receiving an A is relatively high. Thus, hope may be present when likelihood of occurrence is only slightly higher than 0% or lower than 100%.

*Perceived ability.* According to hope theory, hope is dependent upon the individual perceiving him/herself as capable of achieving a particular goal (Onwuegbuzie & Daley, 1999). In other words, there is a self-confidence that one has the ability to produce the desired outcome (Dufault & Martocchio, 1985). Without the self-perception of competency, it is unlikely that a goal will be pursued. Bandura (1977) discusses this phenomenon as outcome expectancy—a person’s expectation that a given behavior will lead to a certain outcome. If one does not expect to be able to produce the necessary behavior, the desired outcome may be abandoned. Outcome expectancy is related to Snyder’s perceived ability to think of several pathways to a particular goal (pathways thinking). A person who is able to conceive of several means of achieving a goal are likely to have greater expectation that he or she can execute the behavior required to produce the desired outcomes (Snyder, 2002). Perceived ability (expectancy beliefs) is impacted by past experiences and feedback from others (Pajares, 2001). That is, several successful attempts to achieve a particular outcome will likely improve ones perceived ability to accomplish future desired outcomes. On the contrary, unsuccessful attempts may decrease perceived ability and discourage future attempts.
Importance. Hope is associated with the perceived importance of the goal. The notion that hope is associated with importance is given a primary role in Stotland’s (1969) theory. According to Stotland, importance is a fundamental component of hope. Dufault and Martocchio’s model of hope (1985) also included a component of personal significance. As verification of the link between importance and hope, Averill et al. (1990) found that hoped-for goals were considered highly important to college students. However, when the goal was inconsequential, hope was not considered to be an appropriate sentiment. Thus, students might experience greater desire and therefore more concentrated hope for outcomes appraised as important (e.g., I hope that studying will lead to an A on the exam) than less important (e.g., I hope this chapter is interesting).

Future orientation. Researchers across disciplines agree that hope is oriented in the future as it focuses on goals that have yet to be realized (Augustine, 1963; Dufault & Martocchio, 1985; Lazarus, 1991; Snyder, 2000b; Staats, 1989). Augustine of Hippo declared that hope deals with things that are positive, of relevance to the hoper, and future-oriented yet uncertain (Augustine, p. 16-17). Desire also places hope in a futuristic temporal timeframe, since one would not remain desirous for something that has already been attained. Consistent with conceptualizing hope in a futuristic time frame Averill et al. (1990) found that college students ceased hoping for an outcome when the anticipated deadline for the goal’s occurrence had passed.

Motivation: Action tendency of approach. Motivation can be defined as the driving force behind all the actions of an individual. It is an internal process that causes movement either toward a goal or away from an unpleasant situation (Beghetto, 2004).
The influence of an individual's needs and desires both have a strong impact on the direction of their behavior. Without movement toward the goal, hope cannot be realized. The desire to succeed and to excel is called achievement needs (Beghetto). Achievement motivation is basic to a satisfying life. Achievers, as a whole, enjoy life and feel in control. Being motivated keeps one productive and contributes to self-respect. Motivation theorists have purported that persons with high achievement needs can be identified by the stories they tell, which frequently reference concepts such as striving for excellence, overcoming obstacles, or accomplishing some difficult goal (Atkinson, 1974). Motivation takes many forms, but all involve inferred mental processes that select and direct our behavior. Behavioral regulation is essential to goal accomplishment. Inhibiting behavioral responses that thwart goal attainment (i.e. impulsiveness as opposed to thoughtful planning) is crucial to achieving desired outcomes. Goals improve motivation when the goal is specific, the goal is challenging but achievable, and when the goal is framed in terms of getting what is wanted rather than avoiding what is not wanted (Beghetto). Influenced by an expectation to achieve a goal, actions are initiated to facilitate goal achievement. This action tendency of approach (as opposed to avoidance) is supported by perceived ability and outcome expectancy.

_Perseverance._ Perseverance is essential to goal attainment. A foundational element in models of hope includes movement toward a desired outcome that can be maintained until the goal is realized or changed (Jennings, 2004; Snyder, 2002). This requires an ability to alter planned routes to goal attainment when obstacles are encountered. Fiske and Taylor (1991, p. 198) found that perceived self-efficacy increases
effort and persistence to task completion. When belief in one’s capabilities are perceived as very strong, a person will approach difficult tasks as challenges to be mastered rather than as obstacles to get beyond or threats to be avoided, and one will invest a great level of perseverance in accomplishing them (Bandura, 1982).

Based on these contributors to the construct of hope (goal congruency, desire, uncertain possibility, perceived ability, importance, future orientation, and action tendency of approach and perseverance the author operationally defines hope as a desire for an uncertain, yet possible, positive goal outcome (not yet realized) with an action tendency of approach and a perseverant determination, initiated by one’s perceived ability to accomplish the goal. Since the idea of future-orientation and a desire for something positive is embedded in hope, a more parsimonious definition of hope is a desire for an uncertain, yet (perceived to be) possible outcome with an action tendency of approach and perseverance.

*The Hope Controversy: Emotion or Cognition?*

As previously stated, researchers have offered differing operational definitions of hope according to the theoretical underpinnings upon which they build their theory of hope. The greatest division between hope theorists is accounted for by whether hope is viewed as predominantly deriving from cognition or predominantly originating as an emotion (see Table 1). Therefore, our attention will now shift to this unresolved controversy in the hope literature.

*The primacy of emotion.* Several researchers view hope as an emotion (Averill et al., 1990, Lazarus, 1999). From this theoretical perspective, hope is an emotion that
results from the formulation and pursuit of goals, adding an affective element to goal research (Bagozzi, Baumgartner, Pieters, & Zeelenberg, 2000). From an evolutionary perspective, hope is an emotion encoded in mankind to promote survival of the species and adaptation to the environment (Davidson, Jackson, & Kalin, 2000). Survival goals are aimed at propagating and maintaining the species; the emotion of hope activates movement toward the goals (Davidson et al., 2000; Dawson, 1994). Erikson viewed hope as a developmental process beginning in infancy (Stage 1: Basic Trust vs. Mistrust) and concluding in adulthood, supported by cognitive development and social interaction (Dawson).

<table>
<thead>
<tr>
<th>Theoretical Framework</th>
<th>Theorists</th>
<th>Origin of Hope</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Philosophical</strong></td>
<td>Marcel, Frankl, Bloch, Erikson</td>
<td>Hope as a theological virtue, intrinsically linked to God; more similar to reason than emotion.</td>
</tr>
<tr>
<td>Biological/Evolutionary/Developmental</td>
<td></td>
<td>Hope as an emotion that is encoded in mankind to promote survival of the species and adaptation to the environment. Hope is seen as a developmental process beginning in infancy (Stage 1: Basic Trust v Mistrust) and concluding in adulthood, supported by cognitive development and social interaction.</td>
</tr>
<tr>
<td><strong>Social Constructivist</strong></td>
<td>Averill</td>
<td>Hope understood in the social/cultural context emphasizing societal rules and norms in defining hope. Hope is seen as an emotion, with a cognitive contribution.</td>
</tr>
<tr>
<td>Cognitive/Behavioral</td>
<td>Stotland</td>
<td>Hope as cognitive to the exclusion of philosophical and social explanations. Contributed the idea of an expectation of achieving goals.</td>
</tr>
<tr>
<td>Cognitive</td>
<td>Gottschalk, Staats, Snyder</td>
<td>Hope as cognition with an affective contribution</td>
</tr>
</tbody>
</table>

Table 1: Origin of hope by theory and theorists
Averill, a social constructivist, contends that hope fits an affective model (Averill et al., 1990). However, contrary to those who view emotions as primarily a function of biologically evolved adaptations, social constructivists view emotions as culturally-based expressions that find meaning and consistency in learned societal norms (Averill, 1991). Averill and colleagues (1990) based their conclusion of hope as an emotion on findings that compared hope to the two constructs of love and anger. They found that subjects rated anger, love, and hope as all having the same features. Anger, love, and hope were each perceived as difficult to control, they each affect the way one thinks or perceive events, and each impacts the way you behave. Additionally, love, anger and hope were all reported to motivate behavior, increase persistence, enable one to go on even in the face of adversity, and they are each considered common universal experiences. Averill (1991) acknowledges that hope is not considered a prototypical emotion, but he faults the measurement scales for the lack of consideration of hope as an emotion. He claims that emotion scales are constructed with sensitivity to biological and physiological factors, while hope falls in a category of a higher-order or “intellectual” emotion. That is to say that the emotion of hope requires the development of higher-order thinking before it can be activated. His contention is that hope is not evident in evolutionary theories of prototypical emotions due to the higher order cognitive elements necessary for its evocation such as goal congruence, assessment of importance, and future orientation.

The advent of appraisal theory, a theoretical approach to emotions (e.g., Frijda, 2000; Lazarus, 1991; Roseman, 1991; Shaver et al., 1987; Smith & Ellsworth, 1985; Smith et al., 1993), may add credibility to Averill’s view of hope as an emotion. First
presented by Arnold (1960) and then amplified by Lazarus (1991) and others (e.g., Frijda), appraisal theory has become an empirically-supported view of emotions. The aim of appraisal theory in the psychology of emotion is to identify the features of the emotion-eliciting situations that lead to the production of one emotion rather than another (Frijda; Shaver, et al.). According to appraisal theory, emotions are caused by appraisals or perceptions of a given situation (Smith & Ellsworth). A view of hope within appraisal theory would regard assessments of certainty, future orientation, and goal congruity as cognitive antecedents of the emotion of hope. Therefore, Averill’s suggestion that hope is an emotion that is activated by higher-order thinking processes is consistent with appraisal theories of emotion.

Lazarus (1999) contends that hope is an emotional response to desired outcomes. Lazarus’s (1991) theory of goal congruency also lends support to the view of hope as an emotion in which he asserts that goal congruent emotions are those that facilitate and sustain the attainment of personal goals. Lazarus (1999) purports that emotions arise from the perceived outcome of goals. Although Lazarus (1991) does not specifically define hope, he regards hope as an emotion because it fits the pattern of appraisal for emotion.

The primacy of cognition. Although philosopher Ernst Bloch (1986) suggested that hope is an emotion that can be learned, earlier philosophers such as Thomas Aquinas considered hope to be more analogous of reason (cognition) than emotion (Solomon, 2000). Additionally, Philosopher J. P. Day (1969) viewed hope as a “habit of the mind” that resides in the will. In his view, hope is a kind of disposition, rather than an emotion. Currently, one of the most comprehensive and well-researched models of hope has been
provided by Snyder and his colleagues (Snyder, 1994, 2000a, 2000b, 2000c, 2002; Snyder, Cheavens, & Michael, 1999; Snyder, 2000a; Snyder, Harris et al., 1991), in which the desired goal is viewed as a cognitive anchor in hopeful thinking. This model, known as hope theory, emphasizes the cognitive function of goal-related outcomes (Snyder, 1995) and views emotions as resulting from goal-related appraisals (Snyder, Harris et al., 1991). Snyder and colleagues purport that hope reflects a cognitive set composed of two relatively distinct ways of thinking about a goal – agentic and pathways thinking. Pathways thinking involves perceived capability to produce appropriate routes to goal attainment (e.g., “I can think of many ways to get out of a jam”), whereas agentic thinking involves perceived motivation to use those routes (e.g., “I meet the goals that I set for myself”). Thus, for hope to be realized both the motivation to attain goals and the ability to conceive of various paths to goal attainment must be present.

Combined models of hope. Many researchers now acknowledge the interconnectedness of emotions and cognition, supplying models that account for both the affective component of hope as well as cognitive contributions. Staats (1987, 1989) contends that hope has a cognitive, as well as an affective aspect. As such, Staats and colleagues have developed two measures of hope. The Expected Balance Scale (EBS: Staats, 1987) views hope as the difference between expected positive and expected negative affect, highlighting the element of emotion in hope. While Staats acknowledges the affective component of hope in the theoretical underpinnings of the EBS, the Hope Index (Staats & Stassen, 1985) focuses on cognitive aspects of hope. The Hope Index adds the developmental concept of hope for self and hope for others.
Also offering an inclusive model of hope, Herth (1991) identified three factors of hope using the Herth Hope Index. The cognitive-temporal component included the perception that desired outcomes were realistically probable in the future, the affective-behavioral component included positive expectancy that one’s plans will lead to the desired outcomes, and an affiliative-contextual component related to the interconnectedness between self/others and included the influence of spiritual beliefs on hopeful thinking. Today, many researchers have acknowledged the contribution of both an individual's innate qualities and personal experiences in determining or causing individual differences in behavioral traits, such as hope.

*Hope Theory, Executive Function, and School Functioning*

Several authors have provided evidence that students with high hope experience significantly less school distress and better personal adjustment in school than students with low hope (Gilman et al., 2006; Onwuegbuzie & Daley, 1999; Shorey et al., 2003). People with high hope tend to set challenging goals perceived to culminate in positive outcomes (Snyder, Hoza et al., 1997) and they are able to clearly articulate their goals (Snyder & Shorey, 2004). If coursework is viewed as somewhat challenging, then students may engage in a higher use of cognitive strategies which result in better academic outcomes (Naumann, 1998). With respect to hope theory, both components of hope have implications for school success as they are related to EF.

There is much overlap between skills associated with executive function and skills necessary to support hopeful thinking (see Table 2) which in turn impact school functioning. For example, identifying realistic paths to goal achievement, formulating
incremental goals, flexibility, and making appropriate use of social support are important components of hope (Sears, 2006). Such propensity for planning may help compensate for underdeveloped EF skills. Other overlapping skills associated with both hope and EF include task persistence, positive self-talk, behavior regulation, and well-developed time management skills (Sears, 2006). Agency competencies include task persistence, positive self-talk, internal source of behavior control and well-developed time management skills (Sears, 2005). These skills may provide support to EF deficits in behavior regulation, persistence (even in the face of obstacles) and time awareness (Feifer & De Fina, 2002).

<table>
<thead>
<tr>
<th>Characteristics of Hopeful Individuals</th>
<th>Related EF Skill</th>
<th>Dysfunctional Impact on School Functioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identify realistic paths to goal achievement</td>
<td>1. Foresee</td>
<td>1. Depend on external control to meet minimal demands of assignments and projects</td>
</tr>
<tr>
<td>2. Demonstrate effective goal-setting strategies (i.e. develop, clarify, and conceptualize goals)</td>
<td>2. Plan</td>
<td>2. Disorganized, ineffective problem-solving, may require excessive monitoring and definite, clear (step-by-step) guidelines</td>
</tr>
<tr>
<td>3. Seek, discover, and find multiple ways to reach goals</td>
<td>3. Flexibility</td>
<td>3. Rigid in actions, find it difficult to complete tasks in new or unusual ways, hindering creativity</td>
</tr>
<tr>
<td>4. Identify the demands of the task</td>
<td>4. Gauge</td>
<td>4. Misunderstand task demands, indecisive</td>
</tr>
</tbody>
</table>

Continued

Table 2: Comparison of characteristics of high hope and executive functioning skills and their impact on school functioning
Table 2 continued

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>5.</td>
<td>Task persistent in spite of criticism, discouragement, obstacles, set-backs</td>
<td>5.</td>
</tr>
<tr>
<td>6.</td>
<td>Formulate incremental goals to track progress</td>
<td>6.</td>
</tr>
<tr>
<td>7.</td>
<td>Use feedback to alter and improve future efforts</td>
<td>7.</td>
</tr>
<tr>
<td>8.</td>
<td>View obstacles as challenges, rather than threats</td>
<td>8.</td>
</tr>
<tr>
<td>9.</td>
<td>Willingness to evaluate plans and alter or abandon impossible goals</td>
<td>9.</td>
</tr>
<tr>
<td>10.</td>
<td>Competent social interactions</td>
<td>10.</td>
</tr>
<tr>
<td>11.</td>
<td>Make appropriate use of social support</td>
<td>11.</td>
</tr>
<tr>
<td>12.</td>
<td>Well-developed study habits</td>
<td>12.</td>
</tr>
</tbody>
</table>

Behavioral/Emotional Strengths

A growing knowledgebase relevant to positive outcomes for children reveals the importance of focusing on preventative measures that facilitate resiliency and augment strengths, as a means to academic success (Benard, 1991; Johnson, Malone, & Hightower, 1997; Werner & Smith, 1992; Zimmerman, & Arunkumar, 1994). The terms
“protective factors” and “risk factors” are used to describe aspects of a child and the child’s environment that make the development of a problem more likely (risk factor) or less likely (protective factor). For children who are at-risk for academic failure, both protective factors and risk factors will impact academic successfulness (Benard, 1991). Behavioral/Emotional strengths have emerged in the literature as protective factors of keen interest when considering academic successfulness (Akin-Little et al., 2004; Benard, 1993; Dulmus & Rapp-Paglicci, 2004). Conversely, the lack of behavioral/emotional strengths contributes to risk factors in the child’s life.

Risk factors such as poverty, abuse, violence, neglect, a lack of supportive relationships, and unclear or low expectations, leave children more vulnerable than the general population to negative outcomes such as school dropout, alcohol or substance abuse, academic failure, law-breaking behaviors or mental health problems (Garmezy, 1991; Masten, et al., 1988; Werner, 1993; Zimmerman & Arunkumar, 1994). However, if resiliency characteristics are in place, the majority of children will overcome life’s stresses and traumas to experience an adequate level of achievement and life satisfaction. Resiliency, the ability to bounce back from harsh conditions and successfully adapt to adverse situations (Benard, 1993), has emerged as a leading protective factor that serves to offset the effects of vulnerability and risk factors (Werner & Smith, 1992). Thus, intervention programs that focus on adaptive functioning and increasing strengths are likely to result in better outcomes for children.

Behavioral and/or emotional strengths such as healthy relationships with family, friends, and community members contribute to both hopeful thinking and positive
academic outcomes. Research consistently supports the importance of family involvement in academic achievement, including higher GPAs (Herth, 1992; Snyder & Shorey, 2004; Stevenson & Baker, 1987). Social competence and positive interpersonal relationships are crucial as a child negotiates the academic setting (Benard, 1991). While these skills are strongly associated with components of executive function, social competence and positive interpersonal relationships are characteristic of people with high hope. Indeed, hope may be considered a resiliency factor that supports positive outcomes for children, regardless of nonacademic barriers to learning (i.e. poverty, neglect, lack of supportive relationships).

Behavioral and emotional strengths are of great importance when faced with obstacles such as academic disabilities that threaten goal attainment. External resources, both human and material and a caring environment, including a sense of interconnectedness with others, have consistently been acknowledged in the literature as important determinants of hope (Farran, Herth & Popovich, 1995; Herth, 1991; Snyder & Shorey, 2004). Snyder and his colleagues revealed the important contribution of nurturing caregivers in the development of hope (Shorey, et al., 2003). Herth (1992) found that people who were married had higher levels of hope than those in divorced, separated, or co-habiting living situations. Thus, the sense of contribution from committed others (or the lack of support from others) impacts the adaptive benefits of hope. Having at least one caring adult has consistently been cited as an essential component of healthy development in children (Shorey et al.; Snyder & Shorey). A sense of interconnectedness with others was revealed as an important aspect of engendering
hope, as homeless pre-adolescents talked about significant others in their lives that had facilitated their hope (Herth, 1998). Furthermore, researchers in the field of nursing have identified family support as having a primary influence on reported levels of hope, especially during times of crisis when the maintenance of hope is critical to positive outcomes (Herth, 1992; Hinds, 1984). In terms of education, level of hopefulness in students may tip the scale between academic success and school failure.

This literature review has found significant evidence that executive function, hope, and behavioral/emotional strengths each has a considerable impact on school functioning. However, to the author’s knowledge no research has looked at the relationship of these variables and how they may interact to improve academic outcomes. This study will endeavor to provide some initial insight into these factors using an exploratory approach.
CHAPTER 3

METHODOLOGY

Research Design

A non-experimental, exploratory survey design was used to determine the relationships between hope, executive functioning, behavioral/emotional strengths, and school functioning in a convenience sample. This nonprobability method was an appropriate design considering the descriptive research focus, the absence of variable manipulation, and the lack of a random sample (Thompson, Diamond, McWilliam, Snyder, & Snyder, 2005).

Sample

The sample was drawn from a large school district in Central Ohio. Two of five intermediate school buildings (5th and 6th grade classrooms) in a large Central Ohio school district were selected for participation in the study. The 5th and 6th grade classrooms were based on an age grouping (10-12 years) that reflect comparable maturational growth and development of neurological factors (Biederman et al., 2004). Building 1 had a student enrollment of 768, while Building 2 had 782 students enrolled. The buildings were chosen based on demographic features which are similar to district, state, and national demographics such as economic status, race, special education status, and population of English Language Learners (ELL). Also, since race is a variable of interest in this study, targeting buildings with a high population of marginalized students
was a priority.

Population Demographics

The district consists of 39 buildings and 20,960 students. The student body in this district has a majority of White students (White: 78.6%, Black: 12.1%, Hispanic: 5.8%, Asian: 1.8%, American Indian, 0.3%, Multi-racial, 1.4%). Students are nearly equally distributed by gender (male: 51.20%; female: 48.80%). About 6.8% of the population receives English-as-a-Second-Language (ESL) services, with Spanish being the most prominent foreign language (50% of the ESL population). Nearly 40% (39.3%) of the students are eligible for free and reduced price meals, compared to the state average of 36%. Student attendance rates in the district are about 94%. The demographics in the two schools included in the sample are similar to the district and the state of Ohio (see Table 3).

<table>
<thead>
<tr>
<th></th>
<th>State of Ohio</th>
<th>School District</th>
<th>Building 1</th>
<th>Building 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>African- American</td>
<td>18.00</td>
<td>11.80</td>
<td>11.10</td>
<td>15.90</td>
</tr>
<tr>
<td>American/Native Indian</td>
<td>&lt;1.00</td>
<td>.03</td>
<td>0.78</td>
<td>NC</td>
</tr>
<tr>
<td>Asian/Alaskan Pacific Islander</td>
<td>2.00</td>
<td>1.70</td>
<td>1.44</td>
<td>1.30</td>
</tr>
<tr>
<td>Hispanic</td>
<td>3.00</td>
<td>6.60</td>
<td>14.40</td>
<td>9.90</td>
</tr>
<tr>
<td>Multi-Racial</td>
<td>3.00</td>
<td>2.00</td>
<td>2.60</td>
<td>1.70</td>
</tr>
<tr>
<td>White</td>
<td>78.00</td>
<td>77.60</td>
<td>70.50</td>
<td>70.80</td>
</tr>
<tr>
<td>Economically Disadvantaged</td>
<td>35.00</td>
<td>41.90</td>
<td>55.00</td>
<td>44.90</td>
</tr>
<tr>
<td>Limited English Proficiency</td>
<td>6.00</td>
<td>6.60</td>
<td>12.60</td>
<td>8.40</td>
</tr>
<tr>
<td>Students with Disabilities</td>
<td>13.40</td>
<td>12.50</td>
<td>14.30</td>
<td>11.60</td>
</tr>
</tbody>
</table>

Table 3: Comparison of the demographic percentages of the State of Ohio, a Central Ohio school district and two intermediate school buildings

46
Sampling Procedures

Authorization procedures began with seeking approval from the Institutional Review Board at The Ohio State University, the school district, and the teacher’s association. Upon receiving proper approval from all governing authorities, access to the target population was solicited from building principals and teachers. The research was introduced to the building principals during a monthly supervision meeting with all intermediate school principals in the district in attendance. Two intermediate school buildings were selected for participation based on principal support, building demographics, and availability of funds (i.e. timeline and budget for the study). Principals in the selected buildings approached their teachers to encourage participation. Teachers then received a mass email from the researcher that described the study procedures and requested access to students. Teachers who were willing to participate responded to either the principal’s request or the mass email.

After receiving support from 25 classroom teachers, arrangements were made to introduce the research to their students in a 15 minute presentation in each participating classroom. Following the classroom introduction to the research, students were given an opportunity to ask questions about the study. Students who were willing to participate in the study received additional information to take home to their parent/s (or legal guardian). Parents received a letter describing the research project and a permission form to grant permission for their child’s participation in the study. The permission slips were returned to the classroom teacher; students who did not return parent permission forms were excluded from the study.
Data Collection Procedures

On the day of data collection, students were released from their homeroom classrooms to congregate in the school cafeteria. Two sessions were held in building 1—one for the fifth grade students and one for the sixth grade students. Only one session was held in building 2, with all students participating simultaneously. Upon arriving to the cafeteria, students were seated according to their preference to either read the surveys silently or have the surveys read aloud to them in a reading group. Although social desirability bias likely influenced the students’ decisions for seating preference, teachers helped direct students to the reading group based on their reading levels (i.e. students with low reading levels were encouraged to join the reading group).

Participants proceeded by filling out basic demographic information (e.g., age, grade-level, race, gender) and three surveys—the Children’s Hope Scale (CHS), the Behavioral and Emotional Rating Scale-2nd Edition (BERS2-YRS), and the Behavior Rating Inventory of Executive Function-Self-Report Version (BRIEF-SR), in a 45-minute group session. Although all participants had at least a basic understanding of English, a Spanish interpreter was available for Spanish-speaking English Language Learners who had questions about particular vocabulary words. Only two English Language Learners spoke a language other than Spanish; two Somali students chose to read the surveys to themselves without assistance. Of the 236 participants, 16% were in the reading group for oral presentation of the surveys, while the remaining 84% completed the surveys by reading silently. Upon completion of the surveys, students chose from a variety of paper/pencil puzzles to work on quietly until all students completed the surveys. When
the data collection process was completed, students were invited to keep their pencils as a thank-you gift and then returned to their classrooms together.

*Instruments*

*The Children’s Hope Scale* (CHS; Snyder, Hoza et al., 1997). The CHS is a self-report measure of dispositional hope in children, ages 7-16. The CHS is a six-item survey which uses a 6-point response scale ranging from “none of the time” to “all of the time”. The CHS, which is titled, “Children’s Goals Scale” when administered, can either be read aloud to the child, with the administrator recording the responses, or it can be completed by the child with no adult supervision. It is expected to require less than 10 minutes for completion. Based in hope theory, the CHS assumes that children are goal-directed and that their goals can be described in terms of agency and pathway thoughts (Snyder, 1994). The CHS produces two subscales – pathways and agency. The pathways subscale reflects the child’s perception of his/her capacity to reach goals when impeded or unimpeded (e.g., “When I have a problem I can come up with lots of ways to solve it”). The agency subscale taps the child’s motivation toward goal achievement both in the present and in the future (e.g., “I am doing just as well as other kids my age”). Total scores on the CHS range from 6 to 36 and subscale scores range from 3 to 18.

Snyder, Harris et al. (1991) developed the Hope Scale (HS), which was found to be a reliable and valid measure of hope in adults (Babyak, Snyder, & Yoshinobu, 1993). In an effort to measure hope in children, The Children’s Hope Scale (CHS) was created, based on the adult version (HS: Snyder, Hoza et al., 1997). An original 12-item version of the CHS was administered to a sample of 197 boys and 175 girls (ages 9-14). One
month later the same students completed the survey again in order to cross-validate the instrument, with similar results from both administrations. Factor loadings were used to extract three items that most heavily loaded on each of the two factors—pathways and agency. Test-retest reliability revealed a Cronbach Alpha of .73 ($p < .001$). Parent ratings of their child’s level of hope correlated positively with their child’s self-reported scores at both the initial assessment and the one-month follow-up ($r = .38, p < .01$; and $r = .37, p < .01$, respectively). Results of studies to assess the correlations between high hope children and the related concepts utilized in the validation of the original Hope Scale demonstrated a positive correlation between high-hope children and perceptions that they are more in control of their lives than are their lower-hope classmates (Snyder, Hoza et al). Valle, Huebner and Suldo. (2004) extended support for the reliability and validity of the CHS with adolescents, providing evidence for factorial validity of the two-factor model for the CHS, adding support for validity and duplicating Snyder and colleagues’ earlier finding of nonsignificant associations between CHS scores and the demographic variables of age, gender, and SES. Gilman, Dooley & Florell (2006) added convergent and discriminant validity of the subscales for school-aged children using a number of well-being and psychopathological indicators. Most importantly for the current study, Valle and colleagues provided support for the use of the CHS as a research tool with early adolescents, ages 10-14 years.

Behavioral and Emotional Rating Scale- Second Edition (BERS-2; Epstein, Ryser, & Pearson, 2002). The BERS (original version) was developed as a formal assessment tool to measure school-ages childrens’ behavioral and affective strengths. The
BERS was a teacher rating scale that could be filled out by anyone who knew the child well. Concerned that the majority of the instruments for measuring emotional and behavioral disorders in children focused on documenting the problems, pathologies, and deficits of the individual, the test developers believed that information about the child’s strengths, assets, or competencies should be viewed as equally important. By focusing on strengths instead of weaknesses, the focus shifts from fixing the child’s deficits to enhancing the child’s assets, as assessments that measure deficits may overly emphasize the negative aspects of a child’s behavior or functioning at the expense of the positive aspects (Epstein, Brosvic, Costner, Dihoff, & Lazarus, 2003). The BERS was normed on national samples of 681 children with disabilities and 2,176 children without disabilities. Based on a principal component factor analysis, some items were removed on the basis of redundancy, overlap with other items, or failure to contribute to a factor. The result was the final 52 items and five strength dimensions that were included in the BERS. The norms are included for children ages 5 to 18 years. (Epstein, Cullinan, Harniss, & Ryser, 1999).

The BERS-2 includes three scales: Teacher Rating Scale (TRS: the original 52-item BERS), Parent Rating Scale, and Youth Rating Scale. The Parent (PRS) and Youth Rating scales (YRS) underwent similar standardization processes to the TRS. The items are rated on a 4-point summative scale of 0 to 3, where 0=not at all like (me) the child, 1=not much like (me) the child, 2=like (me) the child, and 3=very much like (me) the child. The time required for filling out the youth rating scale is estimated at 10-15 minutes. The original five subscales (Interpersonal Strengths, Family Involvement,
Intrapersonal Strengths, School Functioning, Affective Strengths) plus an additional subscale (Career and Vocational Strengths) and an overall strength quotient derived from the data are available in the BERS-2 PRS and YRS versions of the measure.

Interpersonal Strengths measures a child’s ability to control his/her emotions or behaviors in social situations (e.g., “accepts criticism”). Family Involvement measures a child’s participation and relationship with his/her family (e.g., “interacts positively with parents”). Intrapersonal Strengths assesses a child’s outlook on his/her competence and accomplishments (e.g., “is self-confident”). School Functioning focuses on a child’s competence on school and classroom tasks (e.g., “completes school tasks on time”). Affective Strengths assesses a child’s ability to accept affect from others and express feelings toward others (e.g., “acknowledges painful feelings”). The Career and Vocational Strengths measures work and other community connecting experiences. The overall strength quotient is determined by summing the standard scores of the subscales and converting the sum into the quotient (Epstein et al, 2003).

In order to determine internal consistency, Cronbach coefficient alphas for the entire normative sample were computed. The coefficient alphas for the subscales and the overall quotient were highly acceptable, ranging from 0.79 to 0.88 providing evidence that the BERS-2 and its subscales are highly stable and reliable (Epstein, Ryser, & Pearson, 2002; Hoza et al., 2004). In order to determine the construct validity of the instrument, children with emotional and behavioral disorders were compared to children without a disorder. The data confirmed that the groups were significantly different on each of the subscales and on the overall score, meaning that the instrument is sufficiently
able to discriminate between groups of children (Uhing, Mooney, & Ryser, 2005).

Another study was conducted to determine the test-retest reliability of the instrument. To establish test-retest data, children completed the BERS-2 YRS one-week apart. Pearson correlations for the BERS-2 subscales and the overall strength quotient were computed. Reliability coefficients ranged between .84-.91, indicating that the BERS-2 Youth Rating Scale appears to be a stable measure (Epstein, Mooney, Ryser, & Pierce, 2004).

Synhorst, Buckley, Reid, Epstein, and Ryser (2005) considered the cross-informant agreement between the parent and youth rating scales. Agreement coefficients ranged from .50-.63, with youth and parents providing fairly consistent reports of youth strengths and competencies. Another study was completed which examined the convergent validity of the BERS with the SSRS. Correlations with the SSRS were moderate to high, with over 85% of the correlations considered large (Epstein et al.). Thus, overall validity and reliability of the BERS-2 is strong.

The Behavior Rating Inventory of Executive Function (BRIEF: Gioia, Isquith, Guy, & Kenworthy, 2000). The BRIEF is a rating scale developed to assess executive functioning. It includes three versions—parent, teacher, and self-report. The original two versions (parent, teacher) consisted of 86 items in 8 non-overlapping clinical scales and 2 validity scales. The theoretically and statistically derived scales included Inhibit, Shift, Emotional Control, Initiate, Working Memory, Plan/Organize, Organization of Materials, and Monitor. The Cronbach’s alpha coefficients range from .80 to .98 in clinical and normative samples (Mangeot, Armstrong, Colvin, Yeates, & Taylor, 2002). Internal consistency of the two indexes--Metacognition Index (MI) and the Behavioral Regulation
Index (BRI) and the Global Executive Composite (GEC) are also high, ranging from .94-.98. Test-retest stability ranges from .72 to .84 over an average three-week period (Gioia et al., 2000). The BRIEF items, which were based on theory, clinical interviews and consistency with the literature, served as the basis for the BRIEF-SR.

The process of developing the BRIEF-SR began by adjusting BRIEF items to reflect first person statements (i.e. from “Is impulsive” to “I am impulsive”) and age-appropriateness (i.e. from “Leaves playroom a mess” to “My desk/workspace is a mess”). Clinical notes were reviewed for consistent concerns or complaints of adolescents who experienced executive functioning deficits. These concerns or complaints were written up as items and added to the BRIEF scale domains. Additionally, standardized behavior rating scales were reviewed to ensure completeness of the behavioral components associated with executive function. After several pilot studies aimed at validating the scale, 150 items were reduced to 80 items. Internal consistency was moderate to high, with alpha ranging from .72 to .96 for the full 80-item scale. The test-retest stability for the scales and subscales ranged from .59 to .85 over approximately 5-week intervals with the two indexes, the BRI and the MI, resulting in stability correlations of .84 and .87, respectively. The normative data samples included a full range of racial and ethnical backgrounds, economic classes, and geographical settings (i.e. urban, suburban, rural). The sample approximated racial and gender ratios in the U.S. population. Convergent and divergent validity was established through moderate correlations with self-report measures such as the Children Behavior Checklist/Youth Self-Report, the Behavior Assessment System for Children-Self-Report of Personality, and the Child Health
Questionnaire and diagnostic groups with disorders associated with executive function (i.e. ADHD, Autism Spectrum Disorders).

The BRIEF-SR, appropriate for middle school or older students (11-18 years) with at least a 5th grade reading level, differs from the other two versions in that it replaces the Initiate subscale with the Task Completion subscale. Students respond to each of the 80 items with “never”, “sometimes”, or “often”. The measure requires about 15 minutes for completion. The BRIEF-SR includes a Global Executive Composite (GEC) score. The GEC is a summary score that incorporates all eight clinical scales. The clinical scales form two Indexes: Behavioral Regulation (Inhibit, Shift, Emotional Control and Monitor scales) and Metacognition (Working Memory, Plan/Organize, Organization of Materials and Task Completion scales). The Behavioral Regulation Index (BRI) represents the child’s ability to shift cognitive set and modulate emotions and behavior using appropriate inhibitory control. The Metacognition Index (MI) represents the child’s ability to initiate plan, organize, and sustain future-oriented problem solving using working memory. It represents the child’s ability to monitor his/her performance. It directly relates to the child’s ability to solve problems in a variety of contexts. Appropriate behavioral regulation is considered a prerequisite to metacognitive problem-solving (Guy et al., 2004).

The Inhibit scale is comprised of items measuring control of impulses and ability to appropriately stop behavior at the proper time (e.g., I blurt things out). The Shift scale measures the ability to move freely from one situation, activity, or aspect of a problem to another (e.g., I have trouble thinking of a different way to solve a problem when I get
stuck). The Emotional Control scale taps the capacity to modulate emotional responses appropriately (e.g., I am easily overwhelmed). The Task Completion scale assesses the ability to appropriately complete tasks in a suitable time frame (e.g., I have trouble finishing tasks). The Working Memory scale taps the ability to hold information in mind for the purpose of completing a task or generating a response (e.g., I forget to hand in homework even when it is completed). The Plan/Organize scale targets the ability to anticipate future events, to set goals, and to develop the appropriate steps ahead of time to carry out a task or action (e.g., I have trouble prioritizing my activities). The Organization of Materials scale measure the capacity to keep workspace, play areas and materials in an orderly manner (e.g., My backpack/schoolbag is disorganized). The Monitor scale taps the ability to check one’s own work and to assess performance during or after finishing a task to ensure attainment of a goal (e.g., I don’t notice when my behavior causes negative reactions until it is too late; Gioia et al., 2000; Gioia, Isquith, Retzlaff & Espy, 2002; Guy et al., 2004).

A Priori Statistical Considerations

Interpretation of correlations. Various statisticians have presented guidelines for the interpretation of a correlation coefficient. For purposes of this study, Cohen’s (1988) suggested interpretations for correlations in psychological research were adopted and used for a guideline in writing research suppositions. Cohen however cautioned against adhering too strictly to such arbitrary interpretations, since the purposes and context of the study influence the interpretation of relationships. That is to say that a correlation exceeding .90 may be considered very strong when considering the relationship between
hope and school functioning in the social sciences, but a similar correlation using precise instruments in physics may not be considered a strong relationship. Based on Cohen’s recommendations for interpreting the Pearson product-moment correlation (Cohen, 1988), correlations between 0.10 and 0.19 are considered negligible relationships, 0.20-0.29 are weak relationships, 0.30-0.39 are moderate relationships, 0.40-0.69 are strong, and 0.70-1.00 are very strong relationships. Additionally, concerning effect sizes, Cohen suggests that $r$ of .10 is small, .30 is medium, and .50 is large, or a Cohen’s $d$ of .20 is small, .50 is medium, and .80 is large (Cohen, 1992).

Sample size, power, and effect size. To compute sufficient sample size needed to evaluate multiple correlation coefficients, choices about the values for alpha, power, and effect size were established. Based on theory and empirical evidence, a medium effect size was chosen. Alpha was set at .05, the traditional level of significance (Green, 1991). Power was set at .80, a value proposed by Cohen (1992) as appropriate for a wide range of behavioral research areas. Cohen argues that typically across the behavioral sciences, a 4 to 1 ratio reflect the relative seriousness of a Type I error to a Type II error. Consequently when alpha is set equal to .05, the probability of a Type II error should be $4 \times .05 = .20$ and power would be $1 - .20 = .80$. Additionally, Green suggests $N > 50 + 8m$ (where $N$ equals the number of participants and $m$ is the number of IVs) for testing the multiple correlation, and $N > 104 + m$ for testing individual predictors (assuming a medium-sized relationship). Pedhazur (1997, p. 207) suggests subject to variable ratios of 15:1 (or 30:1 when generalization is critical). The most rigorous statistical analysis used in this study is Research Question Three, regressing school functioning on 15
predictor variables. Therefore, based on the recommendations of Cohen (1988, 1992), Green (1991), and Pedhazur (1997), a sample size of about 225 participants (15:1; 15*15=225; \( N > 50 + 8m \); 225 > 50 + \( [8*15] \)) was needed for multiple regression analysis based on an effect size of \( f^2 = .15 \), an \( \alpha \) of .05, and a power of .80 (\( \beta = .20 \); Cohen, 1988).

**Study Variables**

Study variables were created by using the subscales and/or total scores of the three instruments used in the study. Three variables were computed to establish levels of functioning—school functioning, executive function, and hope. Based on cutoff scores provided by the authors of the study instruments, new variables were created to provide three levels (high, moderate, low) of functioning. According to Snyder (the senior author of the Children’s Hope Scale), scores of 29 or higher are in the top 15% while scores of 21 or lower typically represent the lower 15% of the population (Snyder, 2000a). These scores were used to define high hope (scores of 29 or higher), moderate hope (scores between 22-28) and low hope (scores of 21 or less). There was a difference, however, in the percentage of students that fell in these categories for these data. Rather than 15% in the top and bottom of the scale, with 70% falling in the middle, these data were more evenly split between the categories (31.1% in high hope, 36.6% in moderate hope, and 32.3% in low hope).

The GEC of the BRIEF was used to develop three levels of executive function. Students falling in the highest 15\(^{th}\) percentile are considered at-risk or clinically significant for executive dysfunction (Tscore of 60 or higher = low EF), the lowest 15\(^{th}\)
percentile report low executive dysfunction (GEC) scores (Tscore of 39 or lower = high EF), with the remaining scores falling in the moderate range of executive function (Tscores between 38-59 = moderate EF). On this executive function variable, 25.3% of the sample fell in low EF, 60.4% fell in moderate EF and 14.2% fell in high EF categories.

For school functioning, tables were used in the examiner’s manual (Epstein, 2004) to find cutoff scores for the three levels of functioning. Scores in the 85th percentile or higher were considered high school functioning (scaled scores of 13-20), scores in the lowest 15th percentile were categorized as low school functioning (scaled score of 1-7), while scores between the 85th percentile and the 15th percentile were considered moderate school functioning (scaled scores of 8-12). On this variable, 19% of the sample fell in low school functioning, 54.1% fell in moderate school functioning, and 26.8% fell in high school functioning.

After establishing that the methodology was sufficiently designed to answer the research questions, the study proceeded with the task of interpreting the results. Results are described in the following chapter. The procedures are intended to be detailed sufficiently for future researchers to replicate the study. Such a verification of findings is welcomed and encouraged.
CHAPTER 4

RESULTS

Data Set Overview

After entry into SPSS, the data were checked for minimum and maximum scores outside of the boundaries, outliers, missing data and other inconsistencies. The study sample data were compared to the demographics of the sample data on which the instruments were empirically tested (see Table 4).

<table>
<thead>
<tr>
<th></th>
<th>Study</th>
<th>CHS*</th>
<th>BRIEF</th>
<th>BERS-S</th>
<th>U.S.A.</th>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>49%</td>
<td>45%</td>
<td>48%</td>
<td>49%</td>
</tr>
<tr>
<td>Girls</td>
<td>55%</td>
<td>51%</td>
<td>55%</td>
<td>52%</td>
<td>51%</td>
</tr>
<tr>
<td>Disabilities</td>
<td>22%</td>
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<td>-</td>
<td>16%</td>
<td>11%</td>
</tr>
<tr>
<td>Age</td>
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<td>9-13</td>
<td>11-18</td>
<td>11-18</td>
<td>-</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>68%</td>
<td>48%</td>
<td>67%</td>
<td>76%</td>
<td>75%</td>
</tr>
<tr>
<td>Black</td>
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<td>8%</td>
<td>15%</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>8%</td>
<td>40%</td>
<td>13%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
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<td>3%</td>
<td>6%</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>ESL</td>
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<td>-</td>
<td>-</td>
<td>15%</td>
<td>13%</td>
</tr>
</tbody>
</table>

*Texas sample

Table 4. Comparison of sample populations
Reliability and Validity Issues

*Missing data.* Based on OSU IRB requirements, students were given the option to skip any items that they felt uncomfortable answering. Although most of the instrument items were worded from a positive perspective (i.e. “I enjoy time with my family” rather than “I don’t like to spend time with my family”), the BRIEF contained items with the potential to cause psychological or emotional discomfort in students (i.e. I do not turn in homework on time). Therefore, any directions that requested students to answer ALL the questions were removed from the instruments, as required by the OSU IRB. As such, missing values were an important consideration. On the Hope scale, only one student did not fill in all six items, invalidating that protocol. On the BERS2, protocols were considered invalid with 3 or more missing values on each of the five core subscales. Core subscales were invalidated if more than two values were missing or multiply marked on the subscale or if there were more than 1 value missing or multiply marked on the Career Strength subscale. If less than 3 scores were missing on the subscale (or 1 on the Career subscale), missing values were replaced with the mean (rounded to the nearest integer) of the subscale raw score (Guy et al., 2004, p.13). Invalidated subscales did not impact the remaining subscales. No BERS-2 protocols were invalidated due to missing values, although a few cases had invalidated subscales. The BRIEF-SR protocols were checked for missing data based on information provided in the professional manual (Guy et al.). A maximum of 16 missing items were permitted per protocol. Additionally, protocols with more than one missing value on the Monitor or Organization of Materials subscales or more than two missing values on any one of the
remaining subscales could not be scored (although remaining subscales could be scored).

Missing values on valid subscales were given the value of 1 for purposes of calculating the scale raw score (Guy et al., p. 18).

<table>
<thead>
<tr>
<th>ID#</th>
<th>Gender</th>
<th>Age</th>
<th>Race</th>
<th>ESL</th>
<th>SpEd*</th>
<th>Basis</th>
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<td>043</td>
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<td>No</td>
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<tr>
<td>079</td>
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<td>Yes</td>
<td>Negativity Scale</td>
</tr>
<tr>
<td>088</td>
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<td>White</td>
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<td>No</td>
<td>Inconsistency Scale</td>
</tr>
<tr>
<td>100</td>
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<td>White</td>
<td>No</td>
<td>No</td>
<td>Negativity Scale</td>
</tr>
<tr>
<td>105</td>
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<td>11</td>
<td>Hispanic</td>
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<td>No</td>
<td>Overall Missing Values</td>
</tr>
<tr>
<td>140</td>
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<td>11</td>
<td>African American</td>
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<td>No</td>
<td>Inconsistency Scale</td>
</tr>
<tr>
<td>147</td>
<td>Male</td>
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<td>White</td>
<td>No</td>
<td>No</td>
<td>Inconsistency Scale</td>
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<tr>
<td>177</td>
<td>Female</td>
<td>12</td>
<td>White</td>
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<td>Yes</td>
<td>Inconsistency Scale</td>
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<tr>
<td>183</td>
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<td>White</td>
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<td>No</td>
<td>Negativity Scale</td>
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<tr>
<td>199</td>
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<td>11</td>
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<td>No</td>
<td>Inconsistency Scale</td>
</tr>
<tr>
<td>211</td>
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<td>11</td>
<td>African American</td>
<td>No</td>
<td>Yes</td>
<td>Inconsistency Scale</td>
</tr>
</tbody>
</table>

*Special Education Status

Table 5: Student demographics on invalidated BRIEF protocols

Inconsistency and negativity issues. Of the three instruments used in the study, only the BRIEF-SR provided guidelines for invalidating protocols based on inconsistency of answers and overly negative answers. To check for inconsistent answers, 10 item pairs were compared, differences were computed; and absolute values were summed. Scores of 9 or higher were considered inconsistent, invalidating the protocol. Concerning the negativity scale, 10 items were marked as negativity items. Negativity items with a score
of 3 were summed, and protocols with 6 or more negativity items scored as a “3” were considered overly negative and were invalidated. Based on these guidelines (missing values, inconsistency, and negativity), eleven BRIEF protocols were invalidated. Table 5 provides demographic information for participants of invalidated protocols.

Standardization of scores. The scale and subscale raw scores on both the BRIEF and the BERS-2 were converted to Tscores, using normative conversion tables that were provided in the appendices of the manuals. The conversion tables for the BRIEF were grouped by gender and age (i.e. Boys, Ages 11 to 14 years; Girls, Ages 11 to 14 years). The conversion tables for the BERS-2 were grouped by gender, with no differentiations by age. Although no normative tables were provided for the 10 year old students in the study sample, these students would have been represented in the same tables that were used to convert the raw scores of the 11 and 12 year old students (had they been represented in the normative sample) and therefore the normative tables were considered appropriate for all of the participants.

For further comparison of the data, Table 6 provides the means and standard deviations for scales and subscales in the study compared to the means and standard deviations provided by the authors of the instruments (Epstein, 2004, Guy, Isquith, & Gioia, 2004; Snyder et al., 1997). Additionally, Cronbach Alphas were generated for each instrument utilized in the study and compared to reliability indexes provided by the author(s) of each instrument.
### Table 6: Comparison of means and standard deviations between the study sample and the normative sample on study variables

<table>
<thead>
<tr>
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<th>Study Sample</th>
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<th>Normative Sample</th>
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<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Alpha</td>
<td>Mean</td>
</tr>
<tr>
<td>Hope</td>
<td>25</td>
<td>6</td>
<td>.84</td>
<td>26</td>
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<tr>
<td>Interpersonal</td>
<td>10</td>
<td>3</td>
<td>.89</td>
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<tr>
<td>Family Involvement</td>
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<td>.75</td>
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<td>Intrapersonal</td>
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<td>3</td>
<td>.79</td>
<td>10</td>
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<td>Affective</td>
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<td>School Functioning</td>
<td>10</td>
<td>3</td>
<td>.79</td>
<td>10</td>
</tr>
<tr>
<td>Career Strength</td>
<td>10</td>
<td>3</td>
<td>.79</td>
<td>10</td>
</tr>
<tr>
<td>BERS2 Strength Index</td>
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<td>17</td>
<td>.95</td>
<td>100</td>
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<tr>
<td>Inhibit</td>
<td>51</td>
<td>11</td>
<td>.88</td>
<td>50</td>
</tr>
<tr>
<td>Shift</td>
<td>53</td>
<td>11</td>
<td>.80</td>
<td>50</td>
</tr>
<tr>
<td>Emotional Control</td>
<td>51</td>
<td>11</td>
<td>.86</td>
<td>50</td>
</tr>
<tr>
<td>Monitor</td>
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<td>.69</td>
<td>50</td>
</tr>
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<td>Working Memory</td>
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<td>11</td>
<td>.83</td>
<td>50</td>
</tr>
<tr>
<td>Plan/Organize</td>
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<td>11</td>
<td>.79</td>
<td>50</td>
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<td>Organization of Materials</td>
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<td>.87</td>
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<tr>
<td>GEC*</td>
<td>52</td>
<td>11</td>
<td>.96</td>
<td>50</td>
</tr>
</tbody>
</table>

*Global Executive Composite

**Assumptions.** An exploration of the primary variables of the study—hope, EF, behavioral/emotional strengths (strengths), and school functioning resulted in nonsignificant Shapiro-Wilks tests of normality ($p = .088, .196, .650$, respectively). We thereby failed to reject the null hypothesis that the data came from a normally distributed population. To further verify normality, ratios of skew and kurtosis with standard error were checked for all measures. The hope variable deviated slightly from the
recommended kurtosis/standard error ratio of < 2, resulting in a kurtosis of 2.34 \((-0.738/0.316 = -2.34\). Additionally, executive dysfunction was negatively skewed, slightly exceeding the recommended ratio \((0.386/0.63 = 2.382\). All other skewness and kurtosis statistics fell within the -2 to 2 range. Histogram and stem-leaf plots were also viewed for nonnormal data. After thoroughly checking the data set for errors and inconsistencies, adjusting for missing data, and consideration of assumptions, the data are considered to be eligible for parametric statistical analysis.

**Sample Demographics**

The two targeted buildings had a total enrollment of 1386 students (Building 1 = 687; Building 2 = 699). In Building 1, 46% of the teachers agreed to give access to their classrooms (14 classrooms with a total enrollment of 306 students); in Building 2, 28% of the teachers agreed to grant access to their students (8 classrooms with a total enrollment of 194 students). As such, access was granted to 500 potential participants. Of the 500 students who were accessible for participation in the study, 237 students returned parent permission slips (return rate of 47%). One student in Building 2 was absent on the day of data collection, providing a total of 236 participants. Building 1 accounted for 53% of the participants \((n = 125\), while Building 2 accounted for the remaining 47% \((n = 111\).

Table 7 presents the frequency data on relevant variables. Of the 236 participants, 45% were boys; 55% were girls. Their ages ranged from 10 to 12 \((M = 11.12, SD = .731\), with 45% attending the 5th grade and 55% attending the 6th grade. The majority of the participants were White (68%), whereas 12% were Black (including African American and Somali), 8% were Hispanic and 12% were Other (including Asian, Russian, Multi-
racial). A small percentage of participants (14%) reported speaking a language other than English at home, making English their second language. The majority of participants (78%) had no special education status.

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Building</strong></td>
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<td></td>
</tr>
<tr>
<td>Building 1</td>
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</tr>
<tr>
<td>Building 2</td>
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<td>47</td>
</tr>
<tr>
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<td>Sixth</td>
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</tr>
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<td>50</td>
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<td>Black</td>
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<td>12</td>
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<td>Other</td>
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<td><strong>English Language Learner</strong></td>
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<td>Yes</td>
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<td>14</td>
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<td>86</td>
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<td><strong>Method of Survey Completion</strong></td>
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<td>32</td>
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<tr>
<td>Moderate Hope</td>
<td>86</td>
<td>37</td>
</tr>
<tr>
<td>Low Hope</td>
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<td>31</td>
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<td><strong>School Functioning</strong></td>
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<td>High SF</td>
<td>62</td>
<td>27</td>
</tr>
<tr>
<td>Moderate SF</td>
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<td>54</td>
</tr>
<tr>
<td>Low SF</td>
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<td>19</td>
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<tr>
<td>High EF</td>
<td>32</td>
<td>14</td>
</tr>
<tr>
<td>Moderate EF</td>
<td>136</td>
<td>61</td>
</tr>
<tr>
<td>Low EF</td>
<td>57</td>
<td>25</td>
</tr>
</tbody>
</table>

Table 7: Frequency data for study sample
**Hope and Demographic Variables**

ANOVA analyses were run to consider the relationship between hope and several demographic variables (Research Question 1), which resulted in a main effect only for special education status, $F(26, 208) = 2.096, p = .002$. To further consider the main effect, post hoc analyses were run using the Bonferroni method. This analysis revealed a significant interaction (see Table 8) for special education X gender X ELL, $F(1, 234) = 4.742, p = .031$ (two-tailed) such that males who speak a language other than English at home and have special education status reported significantly lower levels of hope ($M = 21.5, SD = 4.11$) than males who speak a language other than English at home who are not in special education ($M = 25.8, SD = 1.85$).

<table>
<thead>
<tr>
<th>Sex</th>
<th>ELL</th>
<th>Special Ed Status</th>
<th>n</th>
<th>Mean</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>yes</td>
<td>no</td>
<td>10</td>
<td>26.153</td>
<td>1.85</td>
</tr>
<tr>
<td></td>
<td>yes</td>
<td></td>
<td>7</td>
<td>21.500</td>
<td>4.11</td>
</tr>
</tbody>
</table>

Table 8: Interaction effect of sex * ELL * special education status with hope

**Hope and Executive Dysfunction**

A two-tailed test of significance, the Pearson product–moment correlation coefficient, tested the hypothesized, bivariate relationships. To consider Research Question 2, correlational statistics testing the relationship between executive dysfunction and hope are presented in Table 9.
Table 9: Correlations between hope and executive function variables

All of the relationships were significant at the .001 level or below. Moderate, negative relationships exist between hope and two components of the Behavior Regulation Index (BRI)—Inhibit ($r = -.34$) and Shift ($r = -.36$). Additionally, there were strong, negative relationships between hope and hypothesized components of the Metacognitive Index (MI), including Working Memory ($r = -.41$), Plan/Organize ($r = -.47$), and Task Completion ($r = -.48$). Organization of Materials had a moderate, negative relationship with hope ($r = -.35$). Two of the components of the BRI, Emotional Control and Monitor, had a weak, negative relationships with hope ($r = .22; -.25$, respectively).
Finally, there was a moderate, negative relationship between hope and the Behavior Regulation Index \( (r = -.36) \), while the Metacognitive Index had a strong, negative relationship with hope \( (r = -.50) \) with shared variance of 25 percent. For further consideration of these relationships, a one-way analysis of variance revealed significant
differences between levels of executive function and hope, $F(2,222) = 17.85, p < .001$, with hope means decreasing as level of executive function declined ($M = 29.69, 24.88, 22.23$, $SDs = 4.90, 5.62, 6.10$, respectively).

Independent $t$ tests were used to compare differences between high hope and low hope students on executive function variables –Inhibit, Shift, Emotional Control, Monitor, Working Memory, Plan/Organize, Organization of Materials, Task Completion. A significant difference existed on each of the 8 executive function variables, with low hope students reporting significantly higher levels of executive dysfunction than students with high hope (see Table 10).

*Hope and Strengths*

To consider Research Question 3, correlation statistics between hope and the six measures of strengths (subscales of the BERS-2) were computed (see Table 11). All of the relationships were significant at the .001 level. Strong, positive relationships were found between hope and Interpersonal Strength ($r = .46$), Affective Strength ($r = .40$), and School Functioning ($r = .49$). Moderate, positive relationships with hope included Family Involvement ($r = .37$), Intrapersonal Strength ($r = .38$) and Career Strength ($r = .32$). Hope and overall strengths shared 25% of the variance ($r = .50$). To further consider these relationships, the mean differences between levels of hope and strengths were computed using an ANOVA. A significant difference resulted, $F (2,225) = 36.94, p < .001$, such that students with low hope reported the fewest strengths ($M = 108.81, 101.25, 87.23$, $SDs = 15.58, 13.78, 16.49$, respectively).
<table>
<thead>
<tr>
<th></th>
<th>Range</th>
<th>Min/Max</th>
<th>M</th>
<th>SD</th>
<th>r</th>
<th>$r^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpersonal Strength</td>
<td>17</td>
<td>1-18</td>
<td>9.89</td>
<td>3.40</td>
<td>.46</td>
<td>.21</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Family Involvement</td>
<td>15</td>
<td>2-17</td>
<td>9.83</td>
<td>2.86</td>
<td>.37</td>
<td>.14</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Intrapersonal Strength</td>
<td>13</td>
<td>2-15</td>
<td>9.91</td>
<td>2.92</td>
<td>.38</td>
<td>.14</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Affective Strength</td>
<td>14</td>
<td>2-16</td>
<td>10.08</td>
<td>3.08</td>
<td>.40</td>
<td>.16</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>School Functioning</td>
<td>14</td>
<td>2-16</td>
<td>10.09</td>
<td>2.95</td>
<td>.49</td>
<td>.24</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Career Strength</td>
<td>12</td>
<td>1-13</td>
<td>10.11</td>
<td>2.61</td>
<td>.32</td>
<td>.10</td>
<td>&lt;.001</td>
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<tr>
<td>BERS2 Strength Index</td>
<td>53-141</td>
<td>99.50</td>
<td>17.48</td>
<td>.50</td>
<td>.25</td>
<td>&lt;.001</td>
<td></td>
</tr>
</tbody>
</table>

Table 11: Correlations between hope and emotional/behavioral variable

Independent $t$ tests were used to compare differences between high hope and low hope students on strengths variables resulting in significant differences on each of the six BERS-2 variables, with low hope students reporting significantly lower levels of strengths than students with high hope (see Table 12).

**School Functioning**

Turning to Research Question 4, results from the exploration of the relationship between school functioning and measures of executive function, hope, and strengths resulted in strong relationships. Each of the correlations between school functioning and the tested variables including hope, EF, and strengths were significant at the .001 level.
<table>
<thead>
<tr>
<th>Hope Levels</th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Std. Error</th>
<th>t</th>
<th>df</th>
<th>Sig.*</th>
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<tr>
<td>Interpersonal</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Low Hope</td>
<td>69</td>
<td>7.84</td>
<td>3.424</td>
<td>0.412</td>
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<tr>
<td>High Hope</td>
<td>75</td>
<td>11.36</td>
<td>3.156</td>
<td>0.364</td>
<td>-6.418</td>
<td>142</td>
<td>0.001</td>
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<tr>
<td>Family</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low Hope</td>
<td>72</td>
<td>8.60</td>
<td>2.958</td>
<td>0.349</td>
<td></td>
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<td></td>
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<td>High Hope</td>
<td>76</td>
<td>11.26</td>
<td>2.625</td>
<td>0.301</td>
<td>-5.806</td>
<td>146</td>
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<tr>
<td>Intrapersonal</td>
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<td></td>
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<tr>
<td>Low Hope</td>
<td>70</td>
<td>8.20</td>
<td>3.029</td>
<td>0.362</td>
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<td>10.91</td>
<td>2.600</td>
<td>0.300</td>
<td>-5.785</td>
<td>143</td>
<td>0.001</td>
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</tr>
<tr>
<td>Low Hope</td>
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<td>8.26</td>
<td>3.167</td>
<td>0.371</td>
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<td>11.17</td>
<td>2.918</td>
<td>0.335</td>
<td>-5.838</td>
<td>147</td>
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<tr>
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<td>2.377</td>
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<td>High Hope</td>
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<td>11.85</td>
<td>2.603</td>
<td>0.301</td>
<td>-8.874</td>
<td>143</td>
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<td></td>
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<tr>
<td>Low Hope</td>
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<td>2.828</td>
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<td></td>
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<tr>
<td>High Hope</td>
<td>75</td>
<td>11.01</td>
<td>2.063</td>
<td>0.238</td>
<td>-4.501</td>
<td>143</td>
<td>0.000</td>
</tr>
</tbody>
</table>

* two-tailed

Table 12: Independent t Tests Comparing High Hope and Low Hope Students on the Strengths Variables

A strong, positive relationship between hope and school functioning exists \((r = .49)\). On strengths that were measured on the same instrument as school functioning, Affective, Interpersonal, Family Involvement, Intrapersonal, and Career \((r = .50, .64, .53, .63,.42, \text{respectively})\), strong, positive relationships with school functioning were noted. An exploratory multiple regression procedure looked at the predictive value of strengths variables on school functioning. Using the forward multiple regression method, each
variable was added based on the strength of the correlation and if the variable did not add
to the success of the model, it was excluded. School functioning was regressed on
Interpersonal Strengths, Family Involvement, Intrapersonal Strengths, Affective
Strengths, and Career Strengths. The analysis resulted in a significant model, \( F(2, 225) = 102.48, p < .001 \), in which interpersonal and intrapersonal strengths were strong
predictors of school functioning, accounting for 48% of the variance, while Family
Involvement, Affective Strengths, and Career Strengths were excluded from the model.
An additional forward multiple regression was run regressing school functioning on hope
as well as the five BERS-2 strengths variables, which resulted in a significant model, \( F(3, 224) = 78.450, p < .001 \). In this model, Hope added to the success of the model, with
Interpersonal Strengths, Intrapersonal Strengths, and Hope accounting for 51% of the
variance. All other strengths variables were excluded from this model as well.
School functioning had strong, negative correlations with measures of executive
function, (Inhibit, -.41; Shift, -.46; Monitor, -.41; Working Memory, -.52; Plan/Organize,
-.45; Organization of Material, -.45; Task Completion, -.62) except for a moderate,
negative relationship with emotional control \((r = -.33)\). An exploratory multiple
regression procedure looked at the predictive value of executive function variables on
school functioning. Again using the forward multiple regression method, school
functioning was regressed on each of the BRIEF subscales (Inhibit, Shift, Emotional
Control, Monitor, Organization of Materials, Working Memory, Plan/Organize, and Task
Completion). The analysis resulted in a significant model, \( F(2, 217) = 72.40, p < .001 \), in
which Task Completion and Working Memory accounted for 40% of the variance in
school functioning. All other executive function components were excluded, failing to add to the success of the model. When hope was included in the model, Task Completion, Hope, and Working Memory accounted for 43% of the variance in school functioning, $F(3, 216) = 54.05, p < .001$. When school functioning was regressed on all strengths variables, executive function variables and hope in a forward multiple regression analysis, Interpersonal Strengths, Task Completion, Intrapersonal Strengths, and Plan/Organize were retained in the significant model, $F(4, 213) = 80.00, p < .001$, which accounted for 60% of the variance in school functioning. This final model resulted in the best fit for the data.

A Meditational Model

The mediation hypothesis of Research Question 5 was tested using multiple regression analyses as specified by Baron and Kenny (1986). The mediated effects of hope on executive function and school functioning are presented in Table 13 and illustrated in Figure 2.

In the mediation model, the first multiple regression equation regressed hope (the mediator variable) on executive dysfunction (the independent variable) resulting in path a. In this equation, executive dysfunction influenced hope, $F(1, 216) = 98.21, p < .001$, explaining 31% of the variance in hope. The second equation regressed school functioning (the dependent variable) on executive dysfunction, resulting in path c. Executive dysfunction influenced school functioning, $F(1, 218) = 87.06, p < .001$, explaining 29% of the variance in school functioning. The third equation regressed school functioning on both hope and executive function, resulting in path b and c'. In this
equation, hope predicted school functioning while controlling for executive dysfunction, 
\( F(2, 215) = 61.49, p < .001 \) (path b), explaining 46% of the variance in school 
functioning beyond the contribution of executive dysfunction. With hope present, the 
proportion of variance in school functioning accounted for by executive dysfunction was 
reduced and the standardized regression coefficient was decreased from -.534 to -.145 as 
derived from the second to the third equation.

<table>
<thead>
<tr>
<th>Mediation Step</th>
<th>B</th>
<th>SEB</th>
<th>( \beta )</th>
<th>( F )</th>
<th>( t )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
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<td>Step 1 (Path c)</td>
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<tr>
<td>Outcome: School Functioning</td>
<td>-</td>
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<td></td>
</tr>
<tr>
<td>Predictor: Executive Function</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-.142</td>
<td>.015</td>
<td>-.534</td>
<td>87.06</td>
<td>-</td>
<td>&lt;.001</td>
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<td>Outcome: Hope</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predictor: Executive Function</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>-.876</td>
<td>.088</td>
<td>-.559</td>
<td>98.21</td>
<td>-</td>
<td>&lt;.001</td>
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</tr>
<tr>
<td>Step 3 (Path b and c')</td>
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</tr>
<tr>
<td>Outcome: School Functioning</td>
<td>-</td>
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<td></td>
</tr>
<tr>
<td>Moderator: Hope</td>
<td>-</td>
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<tr>
<td>Predictor: Executive Function</td>
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<td></td>
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</tr>
<tr>
<td>.119</td>
<td>.009</td>
<td>.697</td>
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<td>&lt;.001</td>
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</tr>
<tr>
<td>-.039</td>
<td>.014</td>
<td>-.145</td>
<td>-2.86</td>
<td>.005</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 13: Mediated Effect of Hope on Executive Function and School Functioning

The statistical significance of executive dysfunction’s influence on school 
functioning remained in the third equation, \( t = -2.855, p = .005 \). The Sobel test (1982) 
provides a statistically rigorous method that compares the strength of indirect affect (in 
this case, the indirect effect of executive function on school functioning while controlling 
for hope) to the null hypothesis that it equals zero. The Sobel test was run to address 
whether or not the total effect of executive function on school functioning is significantly
reduced when hope is added to the model. It was calculated using a macro in SPSS that was written by Dudley & Benuzillo of the University of Utah College of Nursing, and downloaded from their website (http://www.ats.ucla.edu/STAT/spss/faq/mediation.htm) on April 12, 2007. The computed Sobel test suggests (partial) mediation ($z = -7.94, p < .001$). The ratio of the indirect to the direct effect is 2.79, with about 74% of the total effect of executive dysfunction on school functioning being mediated by hope.

![Diagram](image)

Figure 2: Mediation effect of hope between executive dysfunction and school functioning

The results of the study were mixed in terms of supporting the research suppositions. A discussion of the findings is found in the following chapter, including speculation about why the divergent suppositions were not supported by the data. Additionally, implications for the field of school psychology, limitations of the study and recommendations for future research will be discussed.
CHAPTER 5

DISCUSSION

This study investigated the relationships between hope, executive function, behavioral/emotional strengths, and school functioning. The study found evidence that hope is strongly related to academic outcomes such that school functioning is improved in students with high hope, even in the presence of barriers to learning. The findings provide support for proposed application of principals of positive psychology to enhance academic achievement (Ryan & Deci, 2000; Pajares, 2001). Hope’s power to buffer against poor outcomes is evident regardless of race, age, and gender, meriting consideration as an intervention technique. Behavioral/emotional strengths also yielded positive school functioning results. That is, a higher score on strengths was related to a lower level of academic dysfunction. Finally, executive function was related to school functioning such that higher executive dysfunction led to lower perceptions of school functioning in children. There was, however, a significant difference in hope levels between students with and without special education status. Overall, hope buffered against the negative effects of poorly developed executive function and thereby resulted in significantly higher levels of school functioning.
Hope and Demographic Variables

Findings

Growing numbers of studies are confirming Snyder’s research findings that hope does not significantly relate to the sexes, races, and ages (Snyder 1995, 2005; Snyder et al., 2003; Valle et al., 2004). This study adds support beyond earlier findings that have mostly been conducted by Snyder and his graduate students. That is, the current research found no main effects for hope and the demographic variables of gender, race, or age. It should be noted, however, that this finding may be a function of the measure used (Children’s Hope Scale) and specific to hope as defined by hope theory. That is to say, hope theorists who use varying conceptualizations of hope and/or other scales of hope measurements have found some differences in hope levels by age and gender (e.g. Staats; Herth).

As expected, there was a main effect for special education status and hope, thereby supporting supposition one –that special education status would be related to hope level. Specifically, students with special education status reported lower levels of hope than students without special education status. Goal congruency theory may lend insight concerning this significant finding. According to goal congruency theory, hope is evoked in situations where outcomes are appraised as favorable (Averill, 1991; Lazarus, 1991). Students receiving special education services may feel powerless to avert the unwanted outcome of school failure (Burns, 2000). For students who value academic success, lack of goal congruency between the environment and their desired outcome is likely to reduce hope (Snyder, 2000a; Snyder et al., 2005).
Additionally, hope is dependent upon a desire to achieve a particular goal such that strong desire stimulates greater hope (Lazarus, 1991). However, students who have had consistent academic struggles may minimize the desire to achieve in an effort to protect their self-image (Burns, 2000). Thus, the lack of desire diminishes hopeful thinking. Perseverance toward the goal that can be maintained until the goal is realized is also foundational to hope (Jennings, 2004; Snyder, 2002). However, students in special education may have inadequate skills to meet grade-level academic standards. As such, they may cease their efforts long before the goal is accomplished. Also, hope is evoked only when the outcome is an uncertain possibility (Dufault & Martocchio, 1985). Students in special education may feel that failure is certain, and that academic achievement is not possible, thereby failing to evoke hope.

Hope theory also highlights the impact of the feedback loop on level of hope (Snyder, 1995). That is, as one has successful experiences, positive feedback helps increase the likelihood of future successes (perceived ability). Also, students with low hope may not use feedback from experiences of academic failure in an adaptive manner that leads to improved performance in the future, as do students with high hope (Snyder, et al., 2003). Students who struggle with academic disabilities have likely received significant negative feedback over the years concerning their capacity to be successful in school. Unless the student uses the negative feedback as a means of future improvement, this negative feedback may serve to reduce self-perceptions of competence in the academic setting, resulting in lower hope levels. Without the self-perception of competency in the school environment, academic goals are not likely to be pursued. The
lack of initiating academic-related goals results in low agency, thereby sustaining only a low level of hope (Snyder, 2002). Additionally, motivation to accomplish academic goals is likely depressed by the “disability label” placed on children served through special education programming (Burns, 2000). Labeling children as “disabled” is an ongoing debate that may have significant negative impact (Green, Davis, Karshmer, Marsh, & Straight, 2005). Hopeful thinking may be another casualty of disability labels.

An additional finding related to hope’s relationship with demographic variables revealed a significant interaction between hope, gender, English language learners, and special education status. This finding is particularly interesting in that it gives a narrower view of what is happening with hope and students in special education. Specifically, male English-language learners in special education reported lower levels of hope than male, English language learners without special education status. A closer look at the data revealed that of the male students who fell in the category of both English language learner and special education status, 71% of these students listed their race as Hispanic. In this sample of Hispanic males in special education who speak English as a second language, hope levels were low.

Implications

Hope is consistent across race, sex, and age, making it a variable of interest when considering interventions that can generalize to large populations of students. It does not appear that gender, race, or age play a role in the development of hope. That is, both males and females, regardless of age and race, benefit from the adaptive function of hope.
However, there is a concern for male Hispanic students (ELLs) that receive special education services. This group of students reported significantly lower levels of hopefulness, which can greatly reduce their potential to perform well in academic endeavors.

The Hispanic population has surpassed every other minority group to become the largest minority group in the United States (Stoops, 2004). As such, Hispanic students are the fastest-growing population in the education system, accounting for about one-fifth of public school enrollment across the United States (Kent, Pollard, Haaga, & Mather, 2001; Stoops, 2004). Research focused on this growing population reveals that Hispanic youth are struggling academically and that the educational system is struggling to serve them (Kao & Tienda, 1995; Kent, et al., 2001; Tienda & Mitchell, 2006). Given that 21% of Hispanic students between the ages of 16-19 drop out of high school (Tienda & Mitchell), low hope among this population is of particular concern. Additionally, children of immigrants, many of whom speak English as a second language, are significantly more likely to drop out of high school than even the Hispanic students who speak English as their first language (Tienda & Mitchell). These data support the notion that children who speak English as a second language (ELL) are at greater academic risk, given the reduction in hope level in male, ELL students with special education status. Clearly, the American educational system must place a higher priority on effectively serving Hispanic children (Stanton-Salazar, 2001; Valenzuela, 1999).

Prereferral intervention, frequently referred to as Response to Intervention (RTI) in the current literature, includes modification of instruction before referral in an effort to
accommodate underachieving students. RTI techniques may increase learning opportunities for struggling students prior to referral, testing, and labeling in the special education system. A recent influx of research increasingly supports the notion that an RTI model may reduce the number of special education placements and improve academic outcomes in Hispanic students (Moore-Brown, Montgomery, Bielinski, & Shubin, 2005). However, it is likely that in spite of prereferral interventions, some Hispanic students will need academic support through the special education system. As such, male Hispanic students may need support to improve self-perception issues related to receiving special education services. This may be accomplished through interventions aimed at improving attitudes about capacity to succeed academically, which are likely to result in higher levels of hope in students, in spite of disability labels and race.

Executive Function and Hope

Findings

Overall, scores of executive dysfunction (GEC variable) declined as hope scores increased, supporting the supposition (1a) that there is a strong relationship between hope and executive function. The large effect size adds practical significance beyond the statistical significance. Hope means declined as the level of executive function declined. Thus, students with higher executive dysfunction reported lower levels of hope. The supposition (1b) that moderate, negative relationships exist between hope and subscales of the BRIEF was mostly supported.

All of the executive function variables were significantly related to hope, although the relationship between hope and two of the variables—emotional control and monitor—
were weak. The emotional control variable measured the capacity to modulate emotional responses appropriately, while the monitor variable assessed self-monitoring skills. A weak relationship between hope and monitor is somewhat surprising given that monitoring progress toward goals is an important indicator of hope (Snyder et al., 2003). It is interesting to note, however, that on this executive function variable (monitor), the mean scores of students with high hope were significantly different than the scores reported by students who fell in the low hope group. Students with high hope had lower executive dysfunction on the monitor component of EF than low hope students. This finding supports Snyder’s claim that ability to monitor progress toward the goal helps to ensure goal attainment; well-developed monitoring skills are associated with high hope individuals.

As previously mentioned, a positive feedback loop is energized by goal attainment and leads to increased hope. It is a reasonable assumption, then, that monitor would be at least moderately related to hope. However, the supposition was not supported by these data. The weak relationship between hope and monitor may indicate that assessing performance and progress toward goal achievement is less important to hopeful thinking in pre-adolescent children than previously found in older students and the adult population. Monitoring progress may be a skill that is less developed in the sample’s age group, and therefore less salient to the child when considering one’s competency and accomplishments. It may be that 5th and 6th grade students rely on others (e.g., parents, teachers) to monitor their progress toward goal accomplishment. As children move on to middle school and into adolescence, the development of learning
skills related to increasing independence and autonomy (i.e. self-monitoring skills), become more essential to goal accomplishment. As such, this finding may indicate that unlike hope in adults, monitoring progress is not a strong contributor to hope in pre-adolescent children.

Also contrary to the supposition that components of executive dysfunction would have a moderate, negative relationship with hope, emotional control was only weakly related to hope. Previous research indicates that people with high hope are characterized by the capacity to modulate emotional responses appropriately (Gilman & Dooley, 2006; Shorey et al., 2003), indicating a moderate relationship between the two variables. One plausible explanation for the weak relationship in the overall sample may be related to developmental differences in preadolescent children. As children move on toward adolescence, the development of social skills become more prominent, as does the ability to manage more complicated relationships outside of family and school settings. As such, the relationship between emotional control and hope may become more salient as children develop.

While only a weak relationship between total hope and emotional control was supported by these data, when emotional control was considered based on level of hope, a significant finding emerged. That is, high hope students reported significantly less dysfunction in emotional control than low hope students. This supports the literature that indicated emotional control was better developed in individuals with high hope, as opposed to low hope (Shorey et al., 2003). Impaired social interaction is characteristic of individuals with low hope and is also one qualifying criteria associated with a diagnosis
of PDD. Inhibit, the ability to control impulses and stop inappropriate behavior, has a moderate relationship with hope such that hope declines as inhibition dysfunction increases. This pattern is somewhat typical in students with ADHD and PDD diagnoses, as well as students with behavioral disorders (Barkley et al., 1992). Each of these disorder have been associated with dysfunction in the EF skills of inhibition.

Additionally, the EF variable of shift, which measures the ability to move freely from one situation, activity, or aspect of a problem to another (also referred to in the literature as mental flexibility), had a moderate correlation with hope. This important EF requires the ability to alter planned routes to goal attainment even when faced with obstacles. Again, significant differences were found between students with high and low hope. Consistent with the literature, students with high hope demonstrate well-developed skills in mental flexibility. That is, when students with high hope encounter an obstacle or perceive that their chosen path to goal achievement in not working, they are able and willing to adjust their plans or even abandon the goal completely, if the situation merits such a decision. This appears to be the case in children, as well as adults, as supported by these data.

Strong relationships emerged between hope and three executive function variables—working memory, plan/organize, and task completion. The significance of each EF variable on hope has been supported in previous literature and is further supported by these data. Working memory, the ability to hold information in the mind to complete a task, is an essential component of goal achievement (Colvin, Dunbar, & Grafman, 2001), and academic successfulness (St. Clair-Thompson & Gathercole, 2006), thereby
impacting hope. Working memory impacts the capacity to plan and carry out school
assignments, organize school work, and manage present and future goals. One
characteristic of people with high hope includes the ability to hold the goal in mind while
working toward it; this task may be hindered by poor working memory skills. Students
who have poor working memory struggle with academic tasks, which can result in school
failure and low hope.

The relationship between plan/organize and hope is less than surprising. The
notion that people are goal-oriented is foundational to hope theory. Additionally,
planning and organizing are skills that are essential to goal achievement. In fact,
planning ways to achieve ones goals helps define hope theory’s pathways thinking.
Thus, the EF skill of setting goals and developing appropriate steps in advance to carry
out the task is strongly correlated with hope.

Hope is also strongly related to task completion, which measures the ability to
begin a task and independently generate ideas. This strong relationship was anticipated
based on the agency component of hope, which is defined as the individual’s perception
of ability to use generated pathways to accomplish goals (Snyder, 1995). Initiate implies
the ability to begin a task or activity and helps define the EF variable of task completion.
That is to say, task completion assumes initiation (viz., how can you complete a task that
you have never initiated). There was a strong, negative correlation between hope and
task completion. Furthermore, there was a significant difference between students with
high hope and students with low hope on the task completion variable. It appears, then,
that task completion may differentiate between students with high hope and students with
low hope. Since the action tendency of approach helps define hope (see definition under the previous section titled *Foundational Facets of Hope*), it is sensible that students with high performance on the EF variable of task completion would also display the action tendency of approach as opposed to avoidance.

Based on the fact that the Metacognitive Index (MI) is composed of several underlying factors known to be characteristic of people with high hope (i.e. task completion, plan/organize, working memory, organization of materials), the next supposition (1c) held that the Metacognitive Index would have the strongest relationship with hope when compared to the other EF variables. The data supported this finding. The large effect size further indicates the likelihood that hope and variables that combine to form the MI are highly related to one another.

Implications

Executive function is important in the development of academic hopefulness, in that certain EF skills such as task completion, working memory, and plan/organize contribute to school functioning. However, there is evidence that hope may provide a buffer against the impact of executive dysfunction on school functioning. This finding has implications for interventions when students exhibit deficits in executive function. Such students are likely found in the special education system, having been referred for deficits in areas that are malleable and subject to change with appropriate intervention. Given the evidence that strong plan/organize, task completion, emotional control and working memory skills are characteristic of people with high hope, an improved model of
prereferral interventions may combine hope-facilitating interventions with interventions aimed at the development of EF skills.

Additionally, students being served in the special education system under the category of Autism should be monitored for low levels of hope. If low hope is revealed, interventions which focus on emotional control may be of particular benefit to increasing hope and ultimately leading to improved academic performance. Students with diagnoses of ADHD, PDD, or a behavioral disorder who are served in the special education system may benefit from interventions aimed at improving hope levels while teaching skill sets associated with impulse control and social competencies. Early interventions in these areas may serve to reduce referrals for special education services.

Finally, students who fail to complete assignments and/or projects in a timely fashion may benefit from interventions aimed at improving persistence toward the goal. Breaking down long-term goals into short-range objectives may increase the likelihood that students with low levels of hope with “approach” the goal, rather than avoid the task and ultimately fail to complete it.

Hope and Behavioral/Emotional Strengths

Findings

Moderate, positive relationships were hypothesized between measures of behavioral/emotional strengths and hope. This supposition (3a) was supported in that all of the strengths variables have at least a moderate relationship with hope. Surprisingly, family involvement and intrapersonal strengths did not result in the strongest
relationships with hope, as expected. Although the hope correlations with family involvement and intrapersonal strengths resulted in moderately strong relationships with medium effect sizes, three other strength variables (viz., interpersonal, affective, school functioning) resulted in stronger correlations.

There was a strong positive relationship between hope and the affective strength variable. The tendency to accept affection from others and express feelings toward others is a skill that is challenged in children with PDD (American Psychiatric Association, 1994) and/or behavioral disorders (Shaw et al., 2003), exhibited as impaired social interaction.

The relationship between hope and family involvement, although moderately strong, had only the fifth strongest relationship with hope of the six strength variables. Given the plethora of research supporting the importance and influence of family on quality of life, coupled with the hope literature that maintains the importance of family support in the development of hopeful thinking (Shorey et al., 2003; Snyder & Shorey, 2004) it was anticipated that family involvement would emerge as a variable of strong association with hope. Cultural changes that distribute parenting responsibilities to a wider group of people (i.e. teachers, ministers, daycare personnel) may minimize the impact of family involvement on level of hope and may help explain the weaker relationship than expected. That is, the involvement of other caregivers may provide a source of inspiration and motivation that more highly influences the formation of hope than the family unit.
Research supports the importance of social support in the healthy psychological development of children. However, the evidence is that the “caring adult” does not necessarily have to be the primary caregiver. This research may help explain the seeming low impact that family involvement has on level of hopefulness. Specifically, social support likely remains a significant contributor to hope, although the family unit may not be the primary provider of that support. Certainly, research evidence reveals the positive impact that even one caring adult can have on a child. According to Snyder and colleagues (2003), hope in one person has the power to transfer to another person, such that the latter person may see the world in a new light and be more enthusiastic and hopeful in pursuing goals.

Another surprising finding was that hope’s relationship was not as strongly related to intrapersonal strengths as expected. Intrapersonal strengths relate to the child’s perceived level of competence and outlook on accomplishments. Since perceived competence is central to hope theory, it was hypothesized that intrapersonal strengths would have a strong relationship with hope. One explanation might be that students isolated their responses on the BERS-2 to school setting situations due to filling out the surveys in the cafeteria at school, rather than thinking on a broader spectrum. This may have narrowed their perception of “competence” to include only “school competence” rather than taking a broader view of competence which may have included more positive responses. For example, while a student may not have felt competent at school, other activities in their lives such as sports, artistic expression, and musical abilities may have led to higher rated competence levels. Questions on the BERS-2 such as “I know what I
do well” may have been answered based on school competence, while questions on the hope scale cause the child to think more generally (e.g. Even when others want to quit, I know that I can find ways to solve the problem). Unlike the intrapersonal variable, the interpersonal strength, affective strength, and school functioning variables surpassed post-study expectations, resulting in strong relationships with hope.

The strength of the interpersonal variable (strong, positive) was surprising given the similarity between this variable and the emotional control (executive function) variable. That is to say that the brain-based executive function of modulating emotional responses had a weak relationship with hope, while interpersonal strengths which is related to controlling oneself in social situations was strongly related to hope. While the emotional control variable measured the capacity to modulate emotional responses appropriately, the interpersonal strengths variable measured the student’s efforts to control emotions or behaviors in social situations. It appears, then, that the EF skill of modulating emotional control was less important to hope than the way in which emotional control is exhibited by the student in social situations. This again, may relate to the feedback loop, such that students with difficult social relationships likely receive both verbal and nonverbal negative feedback that serves to lower hope early on in the child’s social experiences.

Students diagnosed with behavioral disorders are likely to exhibit poor social skills. Inhibiting impulsive behavioral responses that thwart goal attainment is crucial to successful academic achievement, in that impulsiveness will hinder the ability to remain focused and stay on task. Impulsiveness also leads to inappropriate behavioral responses,
as students react prior to thinking. In such situations, emotions may be activated prior to cognitive processing, leading to poor classroom behavior (Bowen).

Implications

Much focus has been placed on the behavioral manifestations of poorly developed emotional regulation skills which are a function of EF. While poorly developed EF skills may be seen as the culprit of poor social competence, these brain-based activities only impact hope as external social situations demand their effective use. When students with EF skill deficits in emotional regulation struggle with their interpersonal relationships, they may be identified as a student with an emotional disturbance and thereby served through the special education system. This system, however, has had less than adequate results with the ED population (Wagner, 1995). This may include students with ADHD, since poor interpersonal relationships help define the disorder. Typical interventions include isolation, suspension, and detention. However, these interventions are ineffective and perhaps even detrimental to academic outcomes (Wagner). Additionally, such punitive responses to emotional control difficulties are likely to suppress hope levels, serving to amplify interpersonal struggles (Snyder et al., 2003).

Devoid of early interventions, delayed development of hope may be evident as early as toddlerhood and remain stable throughout life (Jennings, 2004; Snyder, 1995). However, low levels of hope have been responsive to intervention techniques that help students reach goals by breaking down large-range goals into short-term objectives (Snyder et al., 2003). This technique has been shown to raise hope levels such that
students benefit from the adaptive function of hope (Snyder et al.; Snyder, Feldman, Taylor, Schroeder, & Adams, 2000.). Unfortunately, little has been done to apply this research to students with difficulties regulating emotional responses. The educational system in the United States has not been effective in meeting the academic needs of students with behavioral difficulties (Muscott, 1997). The current study suggests that interventions may be more effective if focus is placed on the development of EF skills from a hope-enhancing perspective.

Hope, EF, Strengths and School Functioning

Findings

A positive, moderately strong correlation was expected (4a) between hope and school functioning. This finding surpassed the hypothesized strength, resulting in a strong, positive correlation. The finding that hope is strongly related to school functioning supports previous empirical findings that have established a relationship between hope and indicators of academic success such as higher GPAs, increased graduation from both high school and college, and higher achievement scores (Gilman et al., 2006; Onwuegbuzie & Daley, 1999; Shorey et al., 2003; Snyder & Shorey, 2004; Snyder et al., 1997).

The next supposition posited that behavioral/emotional strengths have a positive, moderate relationship with school functioning (4b). The data support this supposition, as each of the strengths variables were significantly associated with school functioning. Additionally, when variables are added based on the strength of the correlation, interpersonal and intrapersonal strength were the strongest predictors of school

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functioning, while the other variables did not significantly add to the strength of the model. As such, it appears that interpersonal strength and intrapersonal strength have a significant impact on school functioning, when considering the resiliency factors represented by the strength variables. This finding is supported by the research of Rak and Patterson (1996) when they looked at resiliency factors in at risk children.

The two predictor variables that emerged from the strengths model measured the students outlook on competence and accomplishments (intrapersonal strength) as well as the ability to control emotions or behaviors in social situations (interpersonal strength). Both of these variables are characteristic of high hope individuals (Sears, 2006). When hope was added to the model, the same two variables emerged, but hope added to the strength of model such that it was included in the model, with hope, intrapersonal strengths, and interpersonal strength accounted for 51% of the variance. Thus, hope, intrapersonal strength, and interpersonal strength emerged as significant predictors of school functioning.

Also adding support to previous neuropsychological studies, these data supported a strong, negative relationship between executive dysfunction and school functioning as hypothesized (4c). A consideration of the predictive value of EF variables on school functioning resulted in a model that included only two of the eight imputed variables. Task completion and working memory accounted for 40% of the variance in school functioning, while the remaining six EF variables were excluded from the model. This study adds empirical evidence that task completion and working memory emerge as important neurological variables in academic outcomes. The skills involved in initiating
and completing a task, as well as the ability to hold information in working memory over time, are important predictors of school functioning.

Finally, an exploration of the predictive power of all relevant study variables resulted in an unexpected finding. When school functioning was regressed on the eight executive function variables, the six behavioral/emotional strength variables and hope, four predictor variables emerged from the model. The four predictor variables included two of the six behavioral/emotional strengths variables (interpersonal and intrapersonal) and two of the eight executive function variables (task completion and plan/organize). Since it did not add to the success of the model, hope was excluded. The predictive power of the four variables included in the model (i.e. interpersonal strengths, intrapersonal strengths, task completion, and plan/organize) was strong, accounting for 60% of the variance in school functioning. Surprisingly, working memory was no longer a significant predictor of school functioning as it was in the executive function model. Rather, plan/organize, a variable that measured the ability to anticipate future events, to set goals, and to develop appropriate steps in advance to carry out a task, helped predict school functioning in a model that included all relevant study variables.

Implications

In terms of their relationship with academic motivation, the EF skills of initiation and task completion are essential to academic success. Skills such as goal setting, use of problem-solving techniques and perseverance toward goals also directly relate to hope. Thus, teaching a student the process of initiating action and setting small, attainable
objectives toward reaching the larger goal may serve to alleviate academic difficulties while also enhancing hope. The academic implications of low hope include lower high school and college graduation rates, higher drop out rates and overall reduced academic performance.

School psychologists should work collaboratively with other school professionals to develop hope-enhancing interventions that can be delivered to students across intervention tiers. That is to say, based on a 3-teired model in which intervention is universal (classroom wide in both general education and special education settings), targeted (small groups based on risk factors), or intensive (one-on-one with students already identified with significant dysfunction), students with varying levels of risk should benefit from hope-enhancing interventions. Lopez and colleagues found success with their program titled Making Hope Happen, a five-week classroom intervention which helped students develop goal setting skills (Pedrotti, Lopez, Edwards, Bouwkamp, & Krieshok, 2001) and enhanced hope, regardless of the beginning level of hope. Thus, all students, regardless of hope level benefited from the goal-setting intervention.

These findings also have implications for prereferral teams that provide support to students who are at risk for academic failure, to determine appropriate interventions aimed at reducing or eliminating academic dysfunction. Specifically, prereferral teams in the schools may benefit from a deeper understanding of EF skills as they relate to either academic dysfunction or academic enhancement. School psychologists may be instrumental in providing seminars to prereferral teams concerning the impact of EF on academic progress, as well as the adaptive benefits of hopeful thinking.
Hope’s Power to Mediate between EdF and School Functioning

Findings

The relationship between executive dysfunction and school functioning is evident in each disability category of special education throughout the United States. The strong, positive relationship between hope and academic performance has also been empirically supported. Additionally, much theoretical and empirical evidence has established the predictive nature of executive function on academic performance. However, a mediational model was investigated to provide a deeper understanding of these relationships. An unanswered question prior to this study was whether hope provides a means by which school functioning may be improved, in spite of executive dysfunction. Statistically speaking, the question is one of mediation. The hypothesized model was one in which hope mediates the relationship between executive dysfunction and school functioning. The work of Baron and Kenny (1986) guides the field in appropriate procedures to use for mediational models.

The 5th supposition, that hope mediates the relationship between executive function and school functioning, was tested using multiple regression analyses as specified by Baron and Kenny (1986). The premise of this model is that if hope is a mediator, then the relationship between executive function and school functioning will be diminished (and no longer significant for perfect mediation). The process begins by establishing a hypothesized path in which the predictor variable causes the moderator, which has a unique impact on the outcome variable above and beyond the variance due to the predictor variable.
Relationships between each of these variables (hope-school functioning, hope-executive function, executive function-school functioning) have already been established in the literature, and the current study has added to that body of knowledge. However, causation has not been established in previous research. The goal of mediation analysis is to break down a total effect (path c) into the component parts of direct (path c) and indirect (path c’) effect. Mediation is seen as causal in that the predictor variable must precede the moderator and the moderator must precede the outcome variable. In a well-designed model, the hypothesize causal path is supported by theory (Baron & Kenny, 1986).

A theoretical case is easily made for hope’s reliance on the development of certain EF skills. For example, the pathways component of hope requires planning and organizational skills for successful achievement of goals which evokes hope. The planning and organizational skills are subcomponents of EF. Furthermore, the second component of hope, agency, requires movement toward the goal (initiation), which is cued through the executive function area of the frontal lobe. Thus, a strong case is made for the hypothesized direction of the mediational model in which EF causes hope. Specifically, since many executive skills are necessary contributors of hope, it was theoretically posited that executive function precedes and predicts hope and that hope precedes school functioning, and that hope will predict school functioning and will moderate executive functions ability to predict school functioning.

Statistical analysis of the mediational model supported the hypothesis that hope mediates between executive function and school functioning. Results indicated that hope
contributes to school functioning above and beyond the contribution of executive function and that the relationship between executive dysfunction and school functioning was weakened in the presence of hope. The Sobel test (1982) confirmed that the difference in executive dysfunction’s predictive power was significantly reduced when hope was present. Although the model did not support complete mediation, hope’s power to reduce the impact of executive dysfunction on school functioning was evident in the partial mediation model.

Implications

Hope, as a mediating variable, provides a buffer against school failure, even when executive dysfunction is present. As such, hope may be an important protective factor for students who have been identified as a student with an academic disability. School psychologists should work with both general education and special education teachers to develop hope-enhancing teaching strategies which can be incorporated into the classroom setting on a daily basis (Lopez & Snyder, 2003). Training teachers in the importance of facilitating hope in children may serve to improve academic outcomes, even in students most at-risk for academic failure.

Conclusion

The data from this study suggest that moderate to strong relationships exist between hope, executive function, behavioral/emotional strengths and school functioning. Hope provided predictive power regarding school functioning above that accounted for by executive function. Consistent with current literature on resiliency and protective
factors, students with behavioral/emotional strengths reported higher levels of perceived school competence (and hope) than those with lower levels of behavioral/emotional strengths. Components of executive function and behavioral/emotional strengths combined to predict school functioning in a model that accounted for 60% of the variance in the sample’s perceived level of academic success. Consistent with hope theory, students with high hope perceive themselves as being more successful in the school setting than their low hope peers, in spite of obstacles such as executive dysfunction. Special education status also played a role in the levels of hope and school functioning, such that students receiving special education services reported significantly lower levels of hope and school functioning than students without special education status.

Study Limitations

There were several limitations in this study. First, the sample size was limited for variables such as race, English-language learners, and special education status. The limited sample size was due to lack of response from teachers to grant access to their classrooms, not obtaining parent consent, or not obtaining student consent. Secondly, since the study was not a randomized sample, generalizability may be limited to the sample population. Thirdly, the data were collected at only one point in time, which may not be an accurate account of what occurs with these students overtime. A fourth limitation is that the data were based on self-reports by the students. The literature suggests that students tend to be less than forthcoming in rating their weaknesses, such as executive dysfunction. A multi-method, multi-source model is recommended for future
studies of children with executive dysfunction. Interviews with students, teachers, and families may aid in gathering more comprehensive information concerning the student’s level of functioning.

Additionally, grades and achievement scores were not obtained for the students participating in this study; thus, it is difficult to determine the accuracy of the level of school functioning. Also, no conversion tables were available on the BERS-2 and BRIEF measures for the 10 year-old students. As such, $t$ scores from the 11-year old sample were used. If the 10 year old students had been included in the measure’s norm group, their $t$ scores may have veered from the conversion tables that were used.

Finally the Baron & Kenny (1986) method of testing a mediational model has been criticized over the years for low power, Type I error, and not addressing the central question of whether the indirect effect is significantly different from zero and in the expected direction (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Preacher & Hayes, 2004; Shrout & Bolger, 2002).

Recommendations

School psychologists should be well educated on the impact of neurological factors on student learning, using instruments to help differentiate between executive function deficits and other learning difficulties. Measures such as the BRIEF may be useful in guiding interventions specific to the child’s needs. A Response to Intervention model may also be helpful in monitoring progress of at risk students who are hindered by poorly developed executive function skills.
Sensitivity to racial differences is also essential for appropriately serving the academic needs of children. For example, some countries only provide special education services to children who have cognitive disabilities. As such, parents may resist services for their children, believing that special education services are only for “mentally retarded” children. Helping children from various cultures to understand the benefits and purpose of special education programs may protect their sense of hope concerning academic success, in spite of nonacademic barriers to learning.

Finally, interventions aimed facilitating hope in children may provide a buffer against academic failure and boost the student’s performance such that school functioning is significantly enhanced. Several researchers have made recommendations for interventions aimed at facilitating hope (see Dulmus & Rapp-Paglici, 2004; Farran, Wilken & Popovich, 1992; Herth, 2001; Larson, 2000; Lopez & Snyder, 2003; McDermott & Snyder, 1999; Snyder, 1995, 2002; Snyder et al., 2000, 2002 for an overview of some of these techniques).

Future Research

The current study suggests that interventions may be more effective if focus is placed on the development of EF skills from a hope-enhancing perspective. Further research is needed to determine how hope-enhancing interventions may serve to improve academic outcomes in students labeled by the special education system. Thus far, Snyder’s (2002) call for school psychologists to develop and implement hope-enhancing interventions has been largely ignored. It is the current author’s hope that this study will
energize the current trend away from the medical model of interventions (which are focused on ameliorating deficits) to focus on the development of interventions that will enhance hope. Although hope is considered a stable trait, research evidence supports the notion that even low levels of hope can be increased such that positive outcomes result in spite of nonacademic barriers to learning (Snyder, 2001).

New research projects might consider the usefulness of an RTI model that includes universal, targeted and intensive intervention techniques aimed at raising hope levels. An additional area of research may look at demographic variables as moderating variables in the mediating model provide here. Also, a mediational model that includes hope as the predictor variable and special education status as the mediator in the path between hope and school functioning may provide deeper insight into the role of hope as it relates to age, gender, and race. Mediational models that look at strengths as mediators between EdF and school functioning may also add to the body of knowledge concerning resiliency factors and how they may indirectly support academic achievement in children. Additionally, research might be conducted to look at the contributing variables to low hope in Hispanic males who receive special education services. Finally, future research may consider the effectiveness of interventions that combine hope-facilitating techniques with strategies aimed at the development of EF skills specific to known EdF related to particular categories of special education services.
LIST OF REFERENCES


Herth, K. (2001). Development and implementation of a hope intervention program. Oncology Nursing Forum, 28(6), 1009-1017


San Francisco.


