The Relationship of Self-Concept and Academic Engagement to Each Other and to School Outcomes of Students with Disabilities

by

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Abstract

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The present study examined the relationship between self-concept, engagement, and school outcomes for students with educational disabilities in grades 10 to 12. Participants included 105 students in grades 10 to 12 in a large suburban high school who were classified as having an educational disability which qualified them for special education services. Self-concept was measured using the Self Description Questionnaire II (SDQ II, Marsh, 1992b). Engagement was measured using the Motivation and Engagement Scale (MES, Martin, 2004). School outcome measures for achievement consisted of PSAT verbal scores and PSAT math scores. Other school outcome variables were the number of student absences, number of student discipline referrals, and number of extracurricular activities in which a student participated. Other student and family information was gathered by means of a Demographic Questionnaire and a student data form that was used to gather information about student classification and class placement. Statistical analyses using Pearson Correlations and Canonical Correlation Analysis indicated that academic self-concept was more related to academic achievement and extracurricular participation than engagement measures. Variables of student discipline and attendance were not significant. Overall, academic self-concept was more important in the relationship with academic outcomes for special education students than academic engagement.

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Chapter I

Introduction

Every child is entitled to a free and appropriate education under the law (Jacob-Timm & Hartshorne, 1998). There is a long-standing research base dedicated to understanding the many variables involved in providing students a meaningful educational experience. One avenue towards achieving this outcome focuses on the perception children and adolescents have of their experience in education and the extent to which they actively participate in their educational process (Marsh, Byrne, & Shavelson, 1988; Newman & Davies, 2005). Students who have good self-concept, perceive themselves as capable students, and are actively engaged in school should be more successful then those who do not feel capable and are not involved in their education (Greenwood, Horton, & Utley, 2002; Marsh et al., 1988). If this is the case, then, understanding students' self-concept, identifying their level of engagement with school, and understanding how these concepts interact and relate to students' academic performance may provide information that helps us to improve students' educational experiences.

A child's or adolescent's perception of himself or herself is not developed spontaneously, but rather is formed over time as a result of his or her interactions with the environment (Shavelson, Hubner, & Stanton, 1976). This self-concept then is influenced and shaped by both positive and negative interactions in every setting and in every relationship throughout a child's life. As self-concept evolves, children interact with their world and respond to the demands of their environments based on their sense of self, both overall and in relation to specific arenas (Byrne, 1984). A child may have a negative experience in one area of his or her life but experience positive outcomes in another. The child who perceives himself or herself as a good student may believe he or she is a weak athlete, while the confident star athlete may see himself

or herself as socially awkward. This so-called self-concept has been linked with the academic outcomes that students experience such that a positive self-concept should result in positive educational outcomes (Byrne, 1984; Marsh et al., 1988). A positive self-concept has been shown to mediate how students will deal with the demands of their academic environment (Byrne, 1984).

Newman and Davies (2005) similarly connect student engagement with school to positive academic outcomes. They found that students who are engaged in their educational programs have more positive outcomes overall than their less engaged peers. Various authors have conceptualized engagement as the degree to which a student participates in, is invested in, and identifies with school (Finn, 1993; Fredricks, Blumenfeld, Friedel, & Paris, 2003; Sirin & Rogers-Sirin, 2005). Researchers have found that students who are engaged in school perform better and have more positive beliefs about their ability to perform academically (Skinner, Wellborn, & Connell, 1990). Weak engagement has been identified as a predictor of academic failure (Donahoe & Zigmond, 1990; Skinner et al., 1990) and has also been linked to school dropout in secondary students (Connell, Spencer, & Aber, 1994; Sirin & Rogers-Sirin, 2005; Suh & Suh, 2006).

Researchers of both self-concept and engagement have posited these constructs to be multifaceted. Shavelson et al. (1976) organized self-concept in a hierarchical fashion with a general self-concept atop the hierarchy. This model, known as the Shavelson Model, further divides downward into two components of academic self-concept and non-academic self-concept. Academic self-concept divides further into subject specific areas, while non-academic self-concept separates into social, emotional, and physical self-concepts. Social self-concept is divided between peers and significant others, while emotional self-concept addresses particular

emotional states. Physical self-concept is then divided into subcategories of physical ability and outward physical appearance. All of the separate areas of self-concept then divide further based on personal evaluation of situation specific behavior.

Similarly, researchers have broken engagement into components of behavioral, psychological/emotional, and cognitive engagement. Behavioral engagement is a student's involvement in educational, social, or extracurricular activities (Finn, 1989). Emotional engagement focuses on students' emotional reactions to teachers, classmates, academic work, and the school itself (Connell, Halpern-Felsher, Clifford, Crichlow, & Usinger, 1995; Finn, 1989). Finally, when a child is cognitively engaged in school, he or she is invested in the process necessary to master difficult academic tasks (Corono & Mandinach, 1983). Levels of engagement are not static and can be modified by interactions with teachers, parents, peers, and changes in school environment (Finn, 1993; Marks, 2000). Students who harbor positive feelings about school and maintain a positive disposition while in school are more likely to attend school and participate fully (Newman & Davies, 2005).

Self-concept and engagement have been important foci for educational research, given their relevance to achievement and performance in school (Fredricks et al., 2003; Shavelson et al., 1976). Researchers of self-concept and engagement have indicated that the development and maintenance of these conceptual states for students results from their interactions within their environment (Newman & Davies, 2005; Shavelson et al., 1976). Students do not enter school from a vacuum. They bring to school with them every day the cumulative outcomes of every interaction they have had at home and in social situations, both related and unrelated to school. Added to this is their perception of and experience of the entirety of their academic lives. All of these perceptions and experiences have an impact on their self-concept and their level of

engagement and, in turn, impact their performances in school (Fredericks et al., 2003; Marsh et al., 1988).

Independently, self-concept and engagement have been shown by researchers to have similar and important impacts on students' performances in school. However, in reviewing the literature on self-concept and engagement, I have found no studies that compared the multifaceted nature of these two constructs and only five studies that commented on the relationship between the two concepts (Buhs, 2005; Connell, Spencer, & Aber, 1994; "Individual and School Level," 2002; Jordan & Stanovich, 2001; Skinner, Wellborn, & Connell, 1990). Researchers for the Longitudinal Surveys for Australian Youth ("Individual and School Level," 2002) found that students with a strong self-concept related to their academic abilities were more likely to be engaged in school, but did not differentiate between the types of school engagement and made no distinction regarding students' general or special educational academic placement. Jordan and Stanovich (2001) found differences between exceptional students and normally achieving peers on a measure of self-concept and discussed the effects of teachers who nurture cognitive engagement in their students. The Skinner et al. (1990), Connell et al. (1994), and Buhs (2005) studies all looked at potential relationships between a particular student context, self-concept, engagement, and an outcome measure. Clearly, there needs to be more investigation of the relationships among students' self-concept, engagement, and achievement.

Both self-concept and engagement have been shown to vary by educational placement or disability classification. In research examining the engagement of children with and without disabilities, McWilliam and Bailey (1995) found that these groups differ in their levels of engagement. Similarly, Newman and Davies (2005) found differences in the engagement of students across disability category and class placement. Leondari (1993) found that students in

special education differed in their self-concept ratings from students placed in regular classrooms. However, there has been no research that examines how self-concept and engagement might relate to each other in a group of students receiving special education, or how differing disability classifications and classroom placements might affect these relationships. Given the emphasis placed on supporting the academic success of students in special education, self-concept and engagement are important variables to investigate using this population (Finn, 1993; Fredericks et al., 2003; Newman & Davies, 2005; Shavelson et al., 1976).

The purpose of this study was to determine the relationship among self-concept, engagement, and school outcomes for students with educational disabilities. Participants were students with disabilities who are involved in special education programs in grades 10 through 12 who completed the self-report form of the Self Description Questionnaire II (SDQII; Marsh, 1992) as a measure of self-concept and the Motivation and Engagement Scale (MES; Martin, 2004) as a measure of engagement. Students' scores on the Preliminary Scholastic Aptitude Test (PSAT) verbal and math sections were used as a measure of student achievement. In addition, information regarding students' disability classifications, classroom placements, daily attendance, number of disciplinary referrals, and number of extracurricular activities over the course of the first three quarters of the school year were taken from school records and related to their self-concepts and engagements.

The results of this study are mixed in regards to the literature on which this study is based. Self-concept was found to have a positive relationship with subject specific achievement. Although it was predicted that self-concept would be positively related to all school outcome measures, the most significant result was the positive relationship between positive self-concept and a student's involvement in extracurricular activities. Self-concept was also predicted to have

a positive relationship to adaptive engagement factors and a negative relationship to maladaptive engagement factors. Again, there was mixed support for this relationship with Verbal self-concept and School self-concept evidencing a positive relationship to adaptive engagement cognitions while Math self-concept was more related to adaptive engagement behaviors. The maladaptive engagement behaviors proved to have an overall more significant negative effect on self-concept than the maladaptive engagement cognitions. Finally the adaptive engagement cognitions showed little relationship to the school outcome variables while the maladaptive engagement cognitions and behavior showed a more significant negative relationship to the school outcome variables. I believe the results of this study will enhance the empirical basis that supports educators' efforts with this population.

Chapter II

Literature Review

This chapter will provide a review of the literature pertaining to the two constructs that are the main focus of this dissertation: self-concept and academic engagement. In the first large section of the chapter, I will discuss self-concept first in terms of its definition and theoretical model. I will then provide an examination of the multidimensional nature of self-concept and its hierarchical structure. Additionally, this section of the chapter will discuss methods of assessment of self-concept. Finally, at the end of the self-concept section of the chapter, I will address the relationship of self-concept to academic achievement and discuss research on the self-concepts of students with disabilities.

The next large section of the chapter will provide an examination of the definition of academic engagement as well as a discussion of the three categories of academic engagement and how engagement is measured. This section will examine the construct of engagement in terms of its relationship to academic achievement and provide a review of the research on the engagement of students with disabilities. In closing, I will examine the similarities between self-concept and academic engagement and how they may relate to each other and to academic achievement. The chapter will end with a presentation of the rationale for this study and the hypotheses which were tested.

Self-Concept

A positive self-concept has been identified as a valuable goal of the educational process and its achievement has been described as a key responsibility of schools (Byrne, 1984; Shavelson et al., 1976). The importance of self-concept to the development of young people extends beyond the classroom and permeates all aspects of their lives. A positive self-concept

contributes considerably to a child's social/emotional development and can be seen as an integral component in the positive functioning of an individual (Harter, 1990). Shavelson et al. (1976) point out that the value of self-concept enhancement through education may be desirable as an educational outcome in and of itself. School has also been identified as a critical arena for the development of young people's self-concept outside of their social and familial environs. Ray and Elliot (2006) assessed 77 fourth and eighth grade students using the Student Self-Concept Scale (Gresham, Elliott, & Evans-Fernandez, 1993). Results of this study indicated that those students who were better able to navigate the school environment (i.e., good social skills, good social support network, receive good grades) had better developed self-concepts than students with weaker behavioral competencies. Given the importance of self-concept and the impact of school experiences, it is essential to understand the interaction of students' self-concept and academic experience.

Definition of Self-Concept

In the most basic of terms, self-concept is a person's perception of himself or herself (Shavelson et al., 1976). While a person interacts with his or her environment or significant others in that environment, certain perceptions of self related to a personal history of reinforcement and attributions for behavior develops (Shavelson et al.). A person's perception of himself influences how he will behave and, in turn, his behavior influences his self-perceptions. As such, a person's self-concept is his own report of the self that he identifies with internally. Thus, historically, researchers have viewed self-concept as a unidimensional construct represented by an overall general self-concept. For example, early researchers believed that children do not make distinctions between their ability in different areas and if they do, these

distinctions are subsumed under an umbrella of a general understanding of ability (Coppersmith, 1967, as cited in Marsh & Shavelson, 1985; Marx & Winne, 1978).

Marx and Winne (1978) administered 488 sixth grade students three separate self-concept inventories; the Gordon *How I See Myself Scale* (Gordon, 1968), the Piers-Harris *Children's Self-concept Scale* (Piers & Harris, 1964), and the Sears *Self-concept Inventory* (Sears as cited in Marx & Winne, 1978). The results from all three scales clustered into facets of physical, social, and academic self-concept. However, Marx and Winne did not establish discriminate validity between the three facets on any of the three instruments. Although they were able to identify the three facets of self-concept previously posited by Shavelson et al. (1976), there was a lack of differentiation among the facets that led them to conclude that self-concept was a single unitary concept that resisted differentiation into separate facets. The unidimensional model of self-concept required researchers to utilize a single score that was derived from a number of items thought to represent a person's sense of himself or herself spanning his or her entire life. This global model of self-concept failed to recognize the potential for individuals to make important distinctions about their ability in different facets of their lives (Harter, 1990).

The Multidimensionality of Self-Concept

The inability of the unidimensional model of self-concept to address multiple facets of an individual's life led researches to propose a multidimensional model of self-concept. Several authors have theorized that self-concept is a multidimensional or multifaceted construct (Byrne, 1984; Marsh & Shavelson, 1985; Shavelson et al., 1976). A multidimensional model of self-concept recognizes the importance of separate facets of a person's self-concept, as well as a general self-concept. However, in a multidimensional model, general self-concept is not an

overall sum of self-concept items but a separate facet that describes how a person feels about himself or herself in general (Harter, 1990).

There have been a number of models that utilize a multidimensional conceptualization of self-concept. Among the different models, some researchers have suggested that many facets of self-concept are independent from each other or weakly correlated at best (Soares & Soares, 1980). Still others allow for the correlation between different aspects of self-concept and with a general facet of self-concept as well (Harter, 1985). In response to what they perceived as overall deficiencies in research related to self-concept, Shavelson et al. (1976) developed a multifaceted, hierarchical model of self-concept.

The Shavelson, Hubner, and Stanton (1976) Model of Self-Concept. Shavelson et al. (1976) reviewed research on self-concept and found that there were glaring problems with the definition of self-concept, its measurement, and the interpretation of results of research using ambiguous criteria. In response to what they saw as the imprecision and variability of the available research on self-concept, Shavelson et al. reviewed existing studies and developed a definition of self-concept based on existing definitions of self-concept. Shavelson and his colleagues also attempted to validate the construct interpretation of test scores by reviewing five self-concept inventories that were widely used at that time. The instruments that they reviewed were the *Michigan State Self-Concept of Ability Scale* (Brookover, LePere, Hamachek, Thomas, & Erikson, 1965), *the Self-Esteem Inventory* (Coppersmith, 1967*), the How I See Myself Scale* (Gordon, 1968), the Piers-Harris *Children's Self-concept Scale* (Piers & Harris, 1964), and *the Self-Concept Inventory* (Sears as cited in Shavelson et al., 1976). From this review, Shavelson et al. developed a definition of self-concept and a multifaceted, hierarchical model of self-concept that has several key defining features. Shavelson and his colleagues identified seven features that

they believed were critical to the construct definition of self-concept. Among these were that self-concept is organized, multifaceted, hierarchically arranged, stable, differentiated, evaluative, and differentiable from other constructs.

The first defining feature reflected in the Shavelson et al. (1976) model of self-concept is that self-concept is organized in such a way as to indicate the focal areas of one's experience, such as school, family, or social experiences. These experiences comprise the boxes at the bottom of the model. This categorization of experiences gives them meaning for the individual, dictating which area of self-concept the experience influenced.

The next feature is that self-concept is multifaceted. This refers to the different facets of self-concept that are a reflection of the organizational system imposed by the individual or by the group to which he or she belongs. In their review of self-concept instruments, Shavelson et al. (1976) identified facets of self-concept related to school, social, emotional, and physical perceptions of self. These academic and nonacademic facets of self-concept form the second order factors of their model of self-concept.

Shavelson et al. (1976) then theorized that self-concept is arranged in a hierarchical formation. This hierarchy moves from the bottom up, with an individual's experiences in different domains at the bottom, and progresses upward to a general self-concept at the top of the hierarchy. The Shavelson et al. model divided general self-concept into academic and nonacademic self-concepts. Academic self-concept is subject specific (i.e., English, History, Math, Science), while social, emotional, and physical categories make up the nonacademic facets of self-concept. However, as one moves down the hierarchy, individual experiences become more situation specific, so that at the bottom of the hierarchy, these experiences are the least stable elements.

Another feature of the Shavelson et al. (1976) construct definition of self-concept is that self-concept is developmental in nature. Specifically, young children begin with very global, undifferentiated self-concepts. As children mature and begin to develop the ability to categorize their experiences, they also begin to place value on different aspects of self and of their world (Gordon, 1968). A child's sense of self becomes increasingly more specific as experience and the ability to differentiate parts of one's life also increases.

Another feature of the Shavelson et al. (1976) formulation of self-concept is that it is evaluative in nature. A person doesn't only have perceptions of himself or herself in a particular situation. Rather, he or she also has an evaluation of himself or herself in that situation. These evaluations can be made against an absolute standard, or ideal, or against a relative standard, such as a peer, or from the perception of an evaluation by an important person (i.e., teacher, parent) in the individual's life. The importance that an individual places on various evaluations grows out of his or her past experiences. These evaluations take place in relation to individual experience and contribute to the perceptions of self along the various facets of self-concept.

The final feature of the Shavelson et al. (1976) definition of self-concept is that self-concept is differentiable from other related theoretical constructs. Given the direct influence that Shavelson and colleagues believe that experience has on self-concept, the closer the relationship between a person's self-concept in any situation, the closer the relationship will be between the particular self-concept and the behavior in that situation. An example of this would be the relationship between self-concept for academic ability and academic achievement, although I will discuss this more in depth later in this review. Shavelson et al. were able to find tentative support for their model given their review of the existing instruments used at that time to measure self-concept. None of the five instruments used, however, accurately differentiated the

more broad facets of self-concept such as academic, social, emotional, and physical self-concepts.

Subsequent research, however, found support for the Shavelson et al. (1976) model of self-concept. Marsh and Smith (1982) administered the Sears and Coopersmith self-concept inventories to 549 students in the fourth to sixth grades. Although results from the Coopersmith instrument were unsubstantiated by factor analysis, scores from the Sears instrument proved to fit the multidimensional model proposed by Shavelson and his colleagues. Shavelson and Bolus (1982) conducted another study that supported the Shavelson et al. model. In this research study, 130 seventh and eighth grade students completed a battery of self-concept instruments. The instruments used were the *Way I Feel About Myself* (Piers & Harris, 1964), the *Tennessee Self Concept Scale* (Fitts, 1965), and the *Michigan State Self-Concept of Ability Scale, Forms A and B* (Brookover et al., 1965). Results found that general self-concept is distinct from, but correlated with, academic self-concept and that the subject specific facets of self-concept were distinct from each other but correlated with academic and general self-concept. The results supported the assertion by Shavelson et al. that self-concept is a multifaceted construct. Additionally, the research supported the hierarchical nature of self-concept with a general self-concept at the top of the hierarchy with the more specific facets of self-concept beneath. Further support for the Shavelson et al. model of self-concept can be found in research studies conducted by Marsh, Relich, and Smith (1983a), Marsh and Parker (1984), Byrne (1984), and Byrne and Shavelson (1986).

In addition to its multidimensional nature, Shavelson et al. (1976) posited self-concept to be arranged in a hierarchical fashion. This hierarchical arrangement placed general self-concept at the apex of the model and the behaviors and experience that influence the development of

different dimensions of self-concept at the bottom. Research has attempted to demonstrate this hierarchical relationship with mixed results. In their research on the self-concepts of middle school students, Shavelson and Bolus (1982) found support for the hierarchical structure consistent with the Shavelson model, while other studies extended those findings to include high school and college students (Byrne, 1986; Byrne & Shavelson, 1986). However, several studies found that the hierarchical structuring of self-concept weakens with increasing age (Marsh, Parker, & Smith, 1983; Marsh, Relich, & Smith, 1983; Marsh, Smith, Barnes, & Butler, 1983). Marsh and his colleagues found that for preadolescents, the less distinct nature of their school subject matter produced a more distinguishable hierarchy; whereas for older adolescents, the more subject specific nature of their studies failed to support a clear hierarchical structure. More recent research conducted by Marsh and Yeung (1998) failed to identify either a top-down or a bottom-up flow from global to specific self-concepts in a longitudinal study on academic and physical self-concepts in high school students. However, when studies were limited to more domain specific areas, a general higher-order self-concept was able to represent the range of specific self-concepts to which it was associated. Thus, although the hierarchical nature of the self-concept model may not be applied in the same manner as students get older, it can be found in individual, highly specific self-concept dimensions.

The Marsh/Shavelson Revision (1985) Model of Self-Concept. Despite empirical support for the Shavelson et al. (1976) model of self-concept, continued inconsistencies in the theoretical formulation of the self-concept construct along with the use of disparate and inaccurate instruments used to measure self-concept led to research that was imprecise and difficult to replicate. In response, Marsh (1988) developed the Self Description Questionnaires (SDQ) to address the relative problems with the measurement of self-concept. Marsh developed three

versions of the SDQ for working with preadolescent primary school students (SDQ I), adolescent high school students (SDQ II), and late adolescents and college students (SDQ III). The SDQ II and III both grew out of the original instrument, the SDQ I. Appendix A presents brief descriptions of the factors assessed by the three SDQ instruments. The SDQ instruments were developed based on the initial Shavelson et al. model of self-concept. These instruments are theoretically grounded and have received substantial empirical support (Byrne, 1996), especially in support of the Shavelson et al. model. Marsh, Smith, and Barnes (1983b) administered the SDQ I to 654 fifth and sixth grade students. Factor analysis of the results demonstrated that the SDQ I measured the seven factors of self-concept that it was purported to measure (i.e., Physical Abilities, Appearance, Relationship with Peers, Relationship with Parents, Reading, Mathematics, and School Subjects). Marsh et al. (1983b) also found support for the hierarchical model on which the SDQ I is based. In similar research, Marsh et al. (1983a) administered the SDQ I to a sample of 655 public school students and 498 Catholic school students. These results also supported the Shavelson et al. multidimensional and hierarchical model of self-concept.

However, although the SDQ instrument provided more vigorous support for the Shavelson et al. (1976) model, results connected with the SDQ's use also pointed out some important conceptual problems with the Shavelson model. In the original Shavelson et al. model, correlations between subareas of academic self-concepts were described by a single overarching academic self-concept. In their review, Shavelson et al. had found, using the instruments that they evaluated, that mathematics and reading self-concepts were substantially correlated. However, subsequent research using the SDQ found there to be an almost zero correlation between reading and mathematics self-concept scores. For example, in their analysis of the responses from 305 sixth grade students to the SDQ I, Marsh and Parker (1984) found that

subject specific self-concepts correlated with performance measures in the same subject area and not with other subject specific self-concepts. These results also supported the multidimensional and hierarchical model of self-concept of Shavelson et al.

Similarly, Marsh and Hocevar (1985) analyzed responses from students in grade 2 to grade 5 on the SDQ I using confirmatory factor analyses. Their results indicated that, in all year groups, a model of self-concept that posited three second order factors of nonacademic, verbal/academic, and math/academic and a third order factor of general self-concept posed the best model statistically. In a separate study, Marsh, Parker, and Barnes (1985) administered the SDQ II to 901 seventh through twelfth grade students at a coeducational public high school in Australia. Achievement scores for participants were the results of standardized achievement tests that all students in Australia must take. Results indicated that verbal achievement was more highly correlated with verbal self-concept than it was with math self-concept, and math achievement was similarly more highly correlated with math self-concept than it was with verbal self-concept. Marsh and O'Niell (1984) replicated these results using the SDQ III with late adolescents. They found a clear separation between the verbal/academic and the math/academic self-concepts. The lack of any significant correlation between reading and math self-concepts undermined the inclusion of both types of self-concept under one general academic self-concept (Marsh & Shavelson, 1985; Marsh, Byrne, & Shavelson, 1988).

Marsh and Shavelson (1985) postulated a new model of self-concept to address this evident flaw in the original model as it was constructed by Shavelson and his colleagues. The Marsh/Shavelson revision maintains the multidimensional and hierarchical nature of the Shavelson et al. model of self-concept. The basic difference in the two models of self-concept is the differentiation between the formulations of academic self-concept. The Shavelson et al.

review found that math and reading self-concepts were correlated and could thus be included under a measure of general academic self-concept. However, the Marsh and Shavelson revision was based on the findings of no significant correlation between reading and math self-concepts in research utilizing the SDQ I, SDQ II, and SDQ III; so the Marsh/Shavelson revision views reading and math as separate factors of academic self-concept that are not be subsumed under a higher-order academic self-concept. The Marsh/Shavelson model also predicts higher correlations among non-academic self-concepts (physical ability, physical appearance, peer relationships, and parent relationships) as measured by the SDQ instruments than correlations between the SDQ's nonacademic self-concepts and the academic self-concept scales (math, reading, and general-school).

Research conducted with seventh- and eighth-grade students (Shavelson & Bolus, 1982) and students in seventh through twelfth grades (Marsh, Parker, & Barnes, 1985) provided early support for the multidimensionality of self-concept. Numerous research studies have been conducted utilizing the SDQ to support the multidimensionality of self-concept (Byrne, 1994; Hattie, 1992; Marsh, 1992b). The importance of the multidimensionality of self-concept is underscored by Marsh et al. (1985) in their assertion that the "relationship (of self-concept) to other constructs cannot be adequately understood if this multidimensionality is ignored" (p. 422).

In an attempt to further explain the differences between the earlier Shavelson et al. (1976) Model and the Marsh/Shavelson Revision, Marsh (1986) developed the Internal/External (I/E) Frame of Reference Model. The I/E Model was an attempt to explain the comparison process that a student goes through in the development of academic subject specific self-concepts and to further distinguish the academic math and academic verbal self-concepts. Marsh et al. (1988) found that verbal and math achievement scores correlated between 0.5 and 0.8, while the

correlations between math self-concept and verbal self-concept were near zero. Marsh (1986, 1988) developed the I/E Model to further explain the lack of a significant correlation between the verbal and math academic self-concepts.

In school, students frequently make comparisons with peers to determine their ability in an academic subject area. A student may compare his or her perceived ability and performance in a subject to his or her own perceived ability in a different subject area or to the perceived ability or performance of peers in the same subject area. In the I/E model, the first comparison a student makes is between his or her ability in one academic area to his or her ability in a different academic area, termed an internal frame of reference comparison. This comparison results in an internal perception that one is more capable in one subject area as opposed to a different subject area. Even if a student has similar levels of achievement in reading and math, there is generally an internal perception that he or she is stronger in one subject versus the other (Marsh, 1986).

The second comparison that a student makes under the I/E model, termed an external frame of reference comparison, consists of a comparison between the student's own perceptions of his or her ability in a particular subject to the perceived abilities of other students in the same academic area and other indications of achievement such as grades. Students frequently make external comparisons between self and peers as a way of gauging their own ability (Marsh & Parker, 1984). In this model, a high self-concept in math or reading should result from a student's external comparisons that show that he or she is capable as compared to other students' ability or performance. In the internal comparison process, it is the difference between an individual's perception of math and verbal ability that contributes to high self-concept in one academic area or the other. According to Marsh et al. (1988), a high self-concept in math is more likely when achievement in math is high (an external comparison) and when perceived math

achievement is better than verbal achievement (an internal comparison). Marsh et al. provided the following example:

> Consider a student who accurately perceives himself or herself to be below average in both math and verbal skills, but who is better at math than at verbal and other academic subjects. This student's math skills are *below* average relative to other students (an external comparison) but *above* average relative to his or her skills in other academic areas (an internal comparison). Depending on how these two components are weighted, this student may have an average or even an above-average self-concept in mathematics despite his or her poor math skills (p. 133).

Marsh and Yueng (2001) studied 383 eleventh and twelfth grade students from public high schools. Participants responded to four questions using a 7-point scale (1 = very poor, not true at all; 7 = very good, very true). Two of the questions posed internal comparisons between ability to learn overall versus ability to learn in specific subjects and between grades in general versus grades in specific subjects. The two external comparison questions compared ability to learn a specific subject to friends' and classmates' ability to learn that subject and compared grades in a specific subject to those of friends and classmates. Participants answered these questions regarding the school subjects of English, Spanish, history, algebra, geometry, and chemistry. Participants' achievement was based on their grades in these subject areas. Results supported Marsh et al.'s (1988) original formulation of the I/E Model. Marsh and Yeung's findings supported the distinctness of academic verbal and academic math self-concepts. Thus, higher order verbal or higher order math achievement and the corresponding verbal or math self-concepts, but not both, provided the comparison that explained self-concepts in the various school subjects. Both internal and external comparison processes have an affect on self-concept

scores and help to explain the lack of a correlation between verbal and math self-concepts that led to the Marsh/Shavelson Revision of the Shavelson et al. (1976) model (Marsh & Yeung, 2001).

Self-Concept and Academic Achievement

Understanding the nature of self-concept can be instructive and interesting but it does not, in and of itself, provide insight into the potential outcomes that may be related to positive or negative self-perceptions. Self-concept research has endeavored to examine the nature of any relationship that might exist between self-concept and other constructs such as achievement. In particular, self-concept researchers have looked for a relationship between self-concept and academic achievement. Early research into this area, before 1980, was confounded by widely disparate use of construct definitions, self terminology, sampling inconsistencies, and weak self-concept instrumentation (Byrne, 1996). These inconsistencies were influential in leading Shavelson et al. (1976) and subsequently Marsh and Shavelson (1985) to develop and revise their theoretical models of self-concept. The development of the Shavelson and the Marsh/Shavelson models and the development of self-concept measurement instruments, such as the SDQ, has allowed for research that has supported the various dimensions of the self-concept model and the distinctiveness of the academic and nonacademic self-concepts as well as the more specific math and verbal self-concepts (Byrne, 1996).

Advances in theoretical models and instrumentation allowed researchers to conduct more reliable studies of the relationship of self-concept to academic achievement. In this vein, Marsh and his colleagues have conducted a number of studies that examine the nature of the relationship between self-concept and achievement and support the multidimensionality of academic self-concept. In a study examining self-concept differences in sixth grade students of

low/high ability and low/high SES status, Marsh and Parker (1984) found that academic achievement measures correlated more highly with academic self-concept than with a general measure of self-concept. More recently, Marsh et al. (1988) conducted a study aimed at distinguishing the dimensions of academic self-concept in eleventh and twelfth grade students found verbal self-concept to be highly correlated with verbal achievement scores, less highly correlated with general academic self-concept, and negligibly correlated with math self-concept. They found a similar pattern of correlations for math self-concept and math achievement. In addition, nonacademic self-concepts were unrelated in any significant way to achievement scores in any subject area.

In subsequent research using 507 seventh to tenth grade students, Marsh (1992a) found support for the content specificity of the correlations between academic self-concepts and corresponding achievement scores. This means that significant correlations were only found between self-concept and achievement in the same subject areas (i.e., math self-concept to math achievement and reading self-concept to reading achievement). In addition, while there were significant correlations between reading and math achievement, the researchers found no corresponding correlations between the verbal and math facets of academic self-concept. The differences between subject areas of academic self-concept become more distinctive in later adolescence as school subjects become more specific (Marsh, 1994; Marsh & Yeung, 1998).

Since establishing the relationship between self-concept and academic achievement, researcher's next question became whether positive self-concept begets higher achievement, or does enhanced achievement foster more positive self-concept in a particular area? The self-enhancement model poses self-concept as the essential force in influencing academic achievement. Byrne (1984) added that self-concept impacts on a person's motivation that in turn

leads to changes in his or her achievement in academic areas. The contrasting skill development model posits the emergence of self-concept as a result of academic achievement (Calsyn and Kenny, 1977). Calsyn and Kenny (1977) investigated the self-enhancement and skill development models of the relationship between self-concept and academic achievement. They conducted a secondary analysis of a longitudinal study with 556 adolescents in the eighth through the twelfth grades. The results failed to show any support for the self-enhancement model but did find support for the skill development model. Guay, Marsh, and Boivin (2003) studied 385 children in grades 2 to 4 and found that self-concept and achievement had a reciprocal effect on each other. In research on the causal ordering of academic self-concept and academic achievement, Marsh (1990) tested four waves of data based on academic grades, standardized test scores, and academic self-concept. His results supported a reciprocal effects model where the strongest paths were from previous academic self-concept to subsequent school grades. Marsh and Yeung (1998) also found that students with higher academic self-concepts were more likely to take advanced course work in those subjects in which they had a corresponding high academic self-concept that resulted in increased achievement.

Nonacademic Self-Concept

Although most research into the self-concept construct focuses on academic self-concept and its relationship to academic outcomes, the multidimensional models of self-concept posed by Shavelson et al. (1976) and Marsh and Shavelson (1985) include three areas of nonacademic self-concept that can be important in the study of students' academic experience. Although Marsh et al. (1983a) found very small to no correlations between the nonacademic facets of self-concept and measures of academic achievement, there are other studies that point out the importance of the nonacademic facets of self-concept to the academic experience of students

who have learning difficulties. An example of this is contained in the results of research by Byrne (1988). In her analysis of students in either a high-ability (n = 582) or low-ability track (n = 248), she found significant between-group differences for all three academic self-concepts (general academic, English, and math) with the low-ability track students scoring lower than the high-ability students on all measures. However, there was no significant difference between high- and low-ability track students' scores on the general self-concept scale. Byrne concluded that, despite the low-ability students' lower academic self-concepts, their general perception of self was on par with the high-ability students. One explanation for this outcome may be that low ability students place more importance on the nonacademic facets of self-concept, such as social or physical self-concepts, than on the academic facets (Renick & Harter, 1989). If this is the case then, the nonacademic self-concepts of the low-ability students must be at least equal to if not better than the nonacademic self-concept of the high-ability track students. This possibility puts considerable emphasis on the importance of nonacademic self-concepts for students who are not high achievers (Winne, Woodlands, & Wong, 1982). Given the complexity of the school experience, social, physical, or emotional self-concepts may play an important, though not direct, role in the academic performance of children who have academic difficulties in school (Berndt & Burgy, 1996; Prout & Prout, 1996; Stein, 1996).

Self-Concept of Students with Disabilities

At the beginning of this literature review, I stated that studying self-concept as an outcome variable in and of itself was important but that it was also a very important focus of research in terms of the impact that self-concept has in education. In reviewing the research on self-concept, I have found many studies that explore the relationship between self-concepts and achievements in below average, average, and above average students in general education

placements (Byrne, 1984, 1988; Marsh, 1986, 1990, 1992a; Marsh et al., 1985). In addition, there is also a considerable amount of research on the self-concepts of students with learning disabilities as evidenced by the meta-analyses of Chapman (1988), Elbaum (2002), and Bear, Minke, and Manning (2002).

In his meta-analysis of studies that focused on the self-concepts of learning disabled students as compared to nondisabled peers, Chapman (1988) reported that, while students with learning disabilities seemed to have overall lower self-concepts than their non-disabled peers, the difference was more meaningful for academic self-concept than for general self-concept. Winne et al. (1982) studied self-concepts of learning disabled, normal, and gifted students using the Sears (as cited in Winne et al., 1982) and Coopersmith (1967) instruments. Participants were from five schools from grades 4 through 7. They had been identified as either gifted, having a learning disability, or performing at an average academic level. The results supported the claims of Chapman's meta-analysis. Both gifted and typical students evidenced academic self-concepts that were greater than those of the students with learning disabilities. Winne et al. also found slight increases on the social and physical facets of the Sears inventory for students with learning disabilities over gifted students. In a similar study, Leondari (1993) assessed the self-concepts of 424 students in grades 3 through 6. Leondari separated students into groups of low achieving, normal achieving, and those in special education classes. Leondari found that children in special classes had lower academic self-concept than low and typical achieving peers and also scored lower than typical achieving peers but not low achieving peers on a global measure of self-concept.

Many of the studies that were used in the meta-analyses by Chapman (1988) and Bear et al. (2002) not only compared the self-concepts of students with learning disabilities to

nondisabled peers but also included the influence of a student's placement on his or her self-concept. A study by Beck, Roblee, and Hanson (1982) used the *Piers-Harris Children's Self-Concept Scale* (Piers & Harris, 1969) to compare the self-concepts of students in special education and students in regular education. They found no evidence of any significant differences between the two groups of students. Renick and Harter (1989) studied 86 students in grades 3 through 8 who were placed in a combination of general education and resource room classes. They found that when students with learning disabilities compared themselves to nondisabled peers in the general education classroom, they perceived themselves as less academically competent. However, when students with learning disabilities compared themselves to other students with learning disabilities in the resource room, they perceived themselves as more academically competent then their peers with learning disabilities.

The focus of the studies analyzed in the meta-analysis by Elbaum (2002) was the effect of class placement of students with learning disabilities on their self-concept. Elbaum compared five academic placements for students with learning disabilities: regular class *vs.* resource room, regular class *vs.* self-contained class, resource room *vs.* self-contained class, regular class *vs.* special school, and self-contained class *vs.* special school. There were no effects found for any of the placement comparisons except the self-contained class *vs.* special school comparison. Students with learning disabilities in the self-contained class at their home school exhibited lower self-concept than peers with learning disabilities who were educated at a separate special school. While Chapman (1988) found there to be no effect for placement in special education classes, he did find that students with learning disabilities who were not given special placements evidenced lower self-concepts than those students with learning disabilities who received

academic support. Bear et al. (2002), however, found no evidence of any placement effects on students' with learning disabilities self-concepts.

Several research studies have also addressed the potential impact that a student's placement may have on his or her self-concept. Cambra and Silvestre (2003) studied the self-concepts of 97 students in inclusive classroom placements in grades 4 through 8. In the sample of 97 students, 29 had various special educational needs. The results indicated that although the students with special needs demonstrated a positive self-concept, it was significantly lower than the students without special needs in the inclusive class. Additionally, the differences between the students with special needs and their typically developing peers were significant for facets of social and academic self-concepts but not a dimension of personal self-concept. Wiener and Tardif (2004) compared 117 students with learning disabilities in grades 4 through 8 who were placed in either in-class support, resource room, inclusion, or self-contained classrooms. Overall their results showed that students in the more inclusive placements had more positive outcomes than those students in the more restrictive placements. Allodi (2000) conducted a similar study that compared a sample of children age 9 to 13 years old of which 77 students received special support and 106 students did not receive special support. The results did not show a difference on an average self-concept score, but the students who received special support did score higher on a measure of social self-concept. Allodi believed that students with special academic needs compensated for their lower academic self-concepts by placing more emphasis on peer relations and other contributors to social self-concept.

Most of the previously mentioned studies looked at the self-concepts of students with learning disabilities or students with educational special needs. However, in special education, students can be classified as having a variety of educationally disabling conditions. In the review

of the literature on self-concept, although there were considerably fewer studies that focused on disability categories other than learning disabilities, there were some that examined differences in self-concept for students classified as having an emotional disturbance, cognitive impairment, physical handicap, or other health related impairments. Strohmer, Prout, and Gorsky (1994) found that, on a measure of general self-concept, college age students with mild mental retardation and borderline intelligence scored lower than their nondisabled peers. Given the limitations of students with cognitive impairments, differences in self-concept will be more associated with global measures than with domain specific self-concepts. This is in contrast to the findings associated with students with learning disabilities whose differences in self-concept were more domain specific than global (Prout & Prout, 1996).

For children with physical disabilities the obvious assumption would be that they would evidence lower self-concept on the physical facets of self-concept. Sethi and Sen (as cited in Prout & Prout, 1996) compared the self-concept scores of children with orthopedic disabilities ages 8 to 12 years to a matched control group of nondisabled peers. The results showed that the children with orthopedic disabilities had slightly, but not significantly, higher self-concept scores than their nondisabled peers. However, a similar study compared children with physical disabilities from a special school and students with disabilities from a general education setting to a matched group of nonhandicapped students. Students from both settings evidenced lower self-concept scores than their nonhandicapped peers (Harvey & Greenway, cited in Prout & Prout, 1996). Similar inconsistencies were found with other groups of children with physical disabilities (i.e., hearing impaired, visually impaired). Again, differences in self-concept may be more specifically related to physical self-concept than to global measure of self-concept.

Similar studies examined the self-concepts of students diagnosed as having Attention Deficit Hyperactivity Disorder or an emotional disturbance. Lahey, Schaughency, Strauss, and Frame (1984) studied groups of students diagnosed with ADHD who were predominantly hyperactive or predominately inattentive. They found that both groups of children with the ADHD diagnosis demonstrated poor global self-concepts. Politino and Smith (1989) compared the self-concepts of youth with emotional disturbances and typical adolescents. Their findings indicated that the group with emotional disturbances had significantly lower self-concepts than the typical control group. The various studies of adolescents with emotional disturbance found an overall moderate trend that indicated somewhat lower self-concepts for those participants with emotional disorders (Prout & Prout, 1996).

Summary. Although the results of studies examining the self-concepts of students with learning disabilities and students with other special educational needs seem to indicate that, overall, students with disabilities have lower academic self-concepts; their self-concepts in other areas may be no different, or in fact higher, than nondisabled peers. Influences on self-concept have also been shown to occur based on the class placement of a student. Additionally, differences in self-concept seemed to differ with the peer group to which children with special needs compared themselves. The expectation that students with learning disabilities and histories of academic struggle would have less positive perceptions of their academic abilities is not unwarranted. Additionally, it seems that there is some variability in the results of studies with students who were identified with cognitive, physical, or emotional disabilities. Evidently, in studying the self-concepts of students with special needs it is important to assess all areas of self-concept. As stated by Renick and Harter (1989), the self-concepts of students with learning disabilities can only be understood by looking at multiple dimensions of self-concept where

students with learning disabilities may perceive themselves as more competent, such as the social, athletic, and global self-concepts.

Engagement

With the increased focus on maximizing student education and minimizing educational gaps between different groups of students, the concept of engagement has become more important in educational research as a means of addressing various educational issues. Students' engagement in school and the learning process has become an important focus and goal of education (Marks, 2000). Teachers, researchers, and educational policy makers have all begun to understand the important influence that a student's level of participation in, enjoyment of, and commitment to his or her academic experience has on achieving academic success (Herman & Tucker, 2000; Finn, 1993; Fredricks, Blumenfeld, & Paris, 2004; Newmann, 1992). Engagement in school is an interesting concept for educators because of its connections to various outcomes that relate to student success in school. Researchers have found that engagement is positively correlated with students' academic achievement and their remaining in school, while disengagement has been related to academic failure and school drop out (Connell, Halpern-Felsher, Clifford, Crichlow, & Usinger 1995; Finn, 1987, 1993; Finn & Rock, 1997; Fredricks et al., 2004; Marks, 2000). Lack of school engagement has also been linked with increased risk for substance abuse, criminal activity, and teen pregnancy (Caraway, Tucker, Reinke, & Hall, 2003). Engagement has also been described as malleable though the positive influences of teachers, peers, and the school climate. This is important for educators in that engagement is an ideal target for intervention. As a multidimensional construct composed of behavioral, emotional, and cognitive facets, engagement can provide a detailed and substantive picture of students that can only aid professionals in the service of education (Fredricks et al., 2004).

Definition of Engagement

Student engagement describes a process that involves an array of behaviors, cognitions, and emotions. Engaged students exhibit enhanced attention, a high level of interest, increased effort, and a commitment to their education (Marks, 2000). Engaged students participate in an active process that includes persistent goal-directed behaviors. Student engagement also implies a focused and active interaction with the social and physical aspect of the academic milieu. Similarly, students who participate in the daily activities involved in attending school such as going to classes, completing assignments in class, participating in class discussions, and obeying teacher directives are said to be actively engaged in school. In many ways, school engagement implies student compliance with the expectations and rules, both implied and stated, that are part of the academic context (Chapman, 2003). Another definition put forth by Skinner and Belmont (1993) states:

> Engagement…in school refers to the intensity and emotional quality of children's involvement in initiating and carrying out learning activities. Engagement includes both behavioral and emotional components. Children who are engaged show sustained behavioral involvement in learning activities accompanied by a positive emotional tone. They select tasks at the border of their competencies, initiate action when given the opportunity, and exert intense effort and concentration in the implementation of learning tasks; they show generally positive emotions during ongoing action, including enthusiasm, optimism, curiosity, and interest. (p. 572)

Consistently in all of these related definitions runs the common theme that engagement has three facets that encompass behavioral, psychological/emotional, and cognitive dimensions (Fredricks et al., 2004).

Throughout the literature on engagement it seems clear that, although most authors discuss engagement as a multidimensional construct, few have pursued this aspect of engagement as a research focus. Many studies have only focused on one or two facets of engagement and do not include all three. By far the most studied relationship is that of behavioral engagement and achievement (Finn et al., 1995; Finn & Rock, 1997). There is a need in the literature base for studies to examine the relationship of multiple educational and school factors to all three facets of engagement (Fredricks et al., 2004). As a multifaceted construct, engagement operates through behavioral, emotional, and/or cognitive pathways that reflect a commitment to learning and affects educational outcomes (Caraway et al., 2003; Finn, 1993; Marks, 2000; Fredricks et al., 2004; Sirin & Jackson, 2001).

Behavioral engagement. When students participate actively and physically in their education, they can be described as being behaviorally engaged. The definition of behavioral engagement can be divided into three areas (Fredricks et al., 2004). The first of these relates to a student's conduct in school. In an investigation that used data from the National Educational Longitudinal Study of 1988 (NELS: 88) that followed a large number of students from eighth grade to well beyond graduation, Finn (1993) studied the responses of over 18,000 eighth grade students on measures of school participation, identification with school, extracurricular participation, and parental involvement. Behaviorally engaged students follow the rules of the school and the classroom. They do not disrupt the classroom or general school environment. They also evidence positive behavioral engagement by attending school on a regular basis and not skipping classes (Finn, 1993; Finn & Rock, 1997). In a related study, Finn and Rock (1997) found that, in a sample of 1800 minority, low-income students, those with higher engagement

scores also remained in school longer, were more likely to finish high school, and had better academic performance than their peers with poorer engagement.

The second aspect important to the understanding of behavioral engagement related to a student's active involvement in learning and academic tasks. Skinner and Belmont (1993) studied the effects of teacher behavior on the behavioral engagement of 144 third to fifth grade students across the course of a school year. They found that teachers who were more involved, structured, and supportive of their class had students who were more behaviorally engaged in terms of effort, attention, and persistence. Students who are behaviorally engaged in school exhibit behaviors like effort, attention, concentration, persistence, participation in class discussion, and asking or answering questions (Birch & Ladd, 1997; Skinner & Belmont, 1993).

The third and final component of the definition of behavioral engagement deals with actual participation in school related activities. In the Finn (1993) study utilizing the NELS: 88 data set, students who were more behaviorally engaged did more homework and reading outside of class and participated in more extracurricular activities. Brown and Evans (2002) found in a sample of 1,755 ethnically diverse seventh to twelfth grade students that students who were more connected to their school tended to participate in more extracurricular activities than those students who felt disconnected from school. Students who are behaviorally engaged tend to be involved in extracurricular activities, clubs, student government, or participate on school sports teams (Brown & Evans, 2002; Finn, 1993).

Students who are behaviorally engaged in school participate fully in the classroom, social, extracurricular, and physical opportunities present in most academic environments. Behavioral engagement has been described as critical for students to realize positive academic outcomes (Fredrick et al., 2004). Finn (1989) makes a four-level distinction within the definition

of behavioral engagement. His position is that behavioral engagement becomes qualitatively different between level one and level four. In his view, level one engagement consists of a young student's acceptance of the need to be prepared for class, attend to the teacher, and respond to directions or questions. Level two behavioral engagement finds students initiating participation in the class and becoming more committed to the educational process by spending more time outside of the classroom involved in preparations beyond what might be required. As students mature, they might begin to experience level three engagement that is characterized by increased participation in academic work and active participation in the social, athletic, and extracurricular options in the school. Finally, Finn (1989) characterizes the fourth level of engagement as students getting actively involved in setting their own academic goals and making decisions regarding their education. These students may also involve themselves in student government or getting involved in some way with the schools disciplinary system. As students move through Finn's four levels of behavioral engagement, they are exhibiting an incrementally greater commitment to their school.

Various overt student behaviors reflect behavioral engagement in school. Finn (1993) points out that a student's attendance at school is the most basic indicator of student engagement. Students who do not attend school miss work in all classes, fall behind their peers academically, and lose access to teachers and other students who might foster changes in attitudes regarding school (Newman & Davies, 2005). Finn (1993) used the data gathered by the National Educational Longitudinal Study of 1988 (NELS: 88) to examine the effects of certain indicators on student achievement. Using the results from a national sample of 18,000 eighth grade students, he found that as student attendance decreased, so did student achievement. In a study of student relatedness and engagement, Furrer and Skinner (2003) found that students' sense of

relatedness contributed positively to their behavioral engagement in school across the course of a school year. In their sample of 641 mostly white third to sixth grade students, involvement in school or relatedness predicted more positive engagement.

Emotional engagement. The construct of emotional (psychological) engagement refers to a student's emotional reaction in the classroom to learning tasks and identification with school (Fredricks et. al., 2004). According to Skinner and Belmont (1993), emotional engagement may include interest, happiness, or confidence. Connell et al. (1994) add that emotions such as fear, anxiety, boredom, or enthusiasm can also be viewed as indicators of a student's emotional engagement in school. In their study, Connell et al. (1994) collected data from three independent samples of African American 10-16 year olds. Results indicated that students who were not bored in class and were happy with their school experience were more emotionally engaged in school and had better attendance, grades, and achievement test scores than did students who were less emotionally engaged. Finn (1989) conceptualized emotional engagement to include the degree to which a student identifies with the school. Identification with the school includes a feeling of being important to the school, being embraced by the school, and placing value on success in school activities. This sense of relatedness to school has been found to have a substantial impact on students' emotional engagement (Furrer & Skinner, 2003). In a sample of 641 mostly white third to sixth graders, students who felt special or important to key figures at school scored higher on measures of emotional engagement and better academic performance than did students who felt unconnected to the school.

Emotional engagement has been described as being similar to constructs found in the literature related to motivation research and some authors view engagement and motivation as synonymous (National Research Council & Institute of Medicine, 2004). However, the definition

of emotional engagement tends to be less differentiated than those used in motivational research. For some authors, engagement consists of more than motivation or a student's desire to learn (Connell et al., 1995). Newman and Davies (2005) state that "students' motivations, or their overall attitudes toward coming to school each day and their dispositions while there, are other psychological indicators of their engagement in school" (p. 2). Newman et al. (2003) pointed out that students who feel good about school are going to attend school more often and be involved at a more significant level then their peers who are unhappy with their school experience.

Cognitive Engagement. Connell et al. (1995) characterize cognitive engagement as "the desire to go beyond the requirements (of school), and a preference for challenge" (p. 63). The investment a student has in learning isn't the only view of cognitive engagement. Newman et al. (1992) look at a student's level of involvement in learning as being reflected by their preference for difficult work. Additionally, students who are engaged cognitively demonstrate flexibility in problem solving and can deal with challenge and failure in a positive way. They aren't just involved in learning they want to "master the knowledge, skills, or crafts that the academic work is intended to promote" (p. 64).

As with the literature on emotional engagement, the definition of cognitive engagement shares many similarities to constructs in the motivation literature. Students who are cognitively engaged can be identified by their use of learning strategies and their tendency to be self-regulating (Fredricks et al., 2004). In their study, Blumenfeld and Meece (1988) defined cognitive engagement in terms of the number of self-regulating strategies that students reported using in science class. Successful students who are cognitively engaged are able to "manage and control their effort on tasks…by persisting or by surpassing distractions, to sustain their cognitive engagement" (Fredricks et al., 2004, p. 64). Students who are cognitively engaged are

more apt to use deep strategies and expend more effort on making connections among ideas so that they learn concepts on a deeper level (Corno, 1993). Miller, Greene, Montalvo, Ravindran, and Nichols (1996) studied a group of 297 high school students (grades 10-12) and found that learning goals were accounted for by the variance in an engagement measure and achievement. Caraway et al. (2003) found that for a sample of 123 high school students (grades 9-12), higher scores on measures of goal orientation and generalized self-efficacy predicted a higher level of school engagement. For a sample of 194 students in fourth to sixth grade science classes, Blumenfeld and Meece (1988) found that teachers who had high expectations for achievement and encouraged students to gain deeper understanding of concepts had students with higher cognitive engagement scores.

Engagement and Achievement

There are many studies that have found high correlations between student engagement and improved academic achievement. Among these studies, some conceptualize engagement as a single unitary concept (Miller et al., 1996; Newmann, 1992), while some have looked at only one of the three facets of engagement (Conchas, 2001; Finn & Rock, 1997), or a combination of two facets (Connell et al., 1995; Finn, 1989, 1993; Furrer & Skinner, 2003). Less frequently, these studies examine the relationship of all three facets of student engagement to achievement. Regardless of the methodology used, however, the results point to the positive relationship between levels of student engagement in school and positive academic outcomes and achievement (Fredricks et al., 2004).

Connell et al. (1994) found positive relationships between a combined measure of behavioral and emotional engagement and school attendance, grades, and achievement scores for a sample of 728 African American adolescents. Finn (1993) sound similar results in his analysis

of the NELS: 88 data set. On his measure of school engagement (attendance, classroom behavior, & extracurricular participation), a low score resulted in related low levels of achievement. In addition, he found that students who displayed high levels on one of the three forms of participation represented in his conceptualization of engagement did not score as highly on achievement measures as students who had high scores on two or all three of the facets of engagement. He also failed to find any interaction of race or gender with his measure of engagement.

Skinner et al. (1990), studied a sample of 200 9 to 12 year old children using a combined measure of behavioral and emotional engagement, and found that students' beliefs about their competency were related to increased levels of engagement and that engagement was positively associated with academic achievement. In a study of 259 college students, DeBacker and Crowson (2006) found a positive relationship between students' achievement goals and cognitive engagement. They also found that cognitive engagement had a positive relationship to academic achievement. Sirin and Jackson (2001) examined data from the National Longitudinal Study of Adolescent Health (ADD Health) for 688 students who self-identified as African American. They found that, for African American students, behavioral engagement in school was a better predictor of student achievement than was emotional engagement. They also found that the girls in their analysis were more engaged in school than the boys. In a related study that also used the ADD Health data, Johnson, Crosnoe, and Elder, Jr. (2001) found that African American high school students were more engaged than both Hispanic and white students.

Engagement also relates to different academic outcomes that influence a student's success in school. Finn (1989) proposed a theoretical model for school engagement that emphasized participation and identification. His model proposed that students who participated

in school would experience success that would positively influence school identification that would in turn influence further participation. Teacher influences can also be seen in engagement. Skinner and Belmont (1993) found that positive interactions between students and teachers led to improved engagement. Increased engagement on the part of students then prompted high levels of teacher involvement that related to improved levels of achievement. Using a measure of behavioral engagement, Finn, Pannozzo, and Voelkl (1995) found that students in the fourth grade, who were rated by their teacher as disruptive or inattentive in class, had lower achievement scores than compliant peers. Also, the students rated as inattentive alone had the lowest achievement scores of all participants. Other research has shown that students who are more involved in school and demonstrate a higher degree of engagement, are more likely to complete school and also are more likely to pursue their high school degree if they do dropout of school (Connell et al., 1995; Suh & Suh, 2006).

Several studies have also found there to be demographic effects on engagement. Results from the Longitudinal Surveys of Australian Youth (2002) found a strong gender effect for engagement scores with females scoring much higher on the engagement scale than males. Finn (1993) is his study of 15,737 eighth grade students found support for the idea that females were engaged in school at a much high rate than males. He also found that for groups labeled as low for attendance, participation, and behavior, females were still more engaged than their low scoring male counterparts. Furrer and Skinner (2003) reported that girls had a higher sense of relatedness to school than boys in their sample of 641 third to sixth graders. Socioeconomic status (SES) also had a significant affect on engagement. Students from high SES families had higher levels of engagement than low SES students. The number of students with low engagement scores increased with lower SES (Fredricks et al., 2003).

Engagement of Disabled Students

As I've stated several times in this discussion, engagement is very important to student academic development and success. This is no different for students with special needs. Newman et al. (2003) make the argument that given the characteristics and experiences of children with disabilities, they may experience a high degree of risk for low engagement in or disengagement form school. Given the nature of students' disabilities, they may be absent from school more often, teachers may have lower expectations of their ability, or it may be difficult for them to maintain focus in the classroom. The way a child with disabilities is engaged and the quality of the engagement can be affected by cognitive deficits or physical disabilities (McWilliam & Bailey, 1995). Given that engagement has been described as malleable through positive influences from teachers, peers, and school climate, it is even more important that students with disabilities be understood in terms of their engagement to school (Fredricks et al., 2004; Newman et al., 2005).

A study by McWilliam and Bailey (1995) of 48 children at a day-care center found differences in engagement between groups of children with disabilities and children without disabilities. The children with disabilities tended to be engaged for less time and at a lower level than their nondisabled peers. As stated earlier, attendance at school may be the most basic indicator of engagement. From their analysis of data from the National Longitudinal Transition Study of Special Education Students (NLTS) conducted by SRI International, Blackorby and Wagner (1996) chose a sub-sample of 1,990 students, who had been in special education and recently left or finished high school, and found that students who were frequently absent from school lost valuable academic opportunity and risked academic failure and possible school dropout (Blackorby & Wagner, 1996). They also found that long term (post-graduation)

outcomes for the special education group were not as positive as those of the nondisabled group. In their analysis of the NLTS2 data for special education students, Newman et al. (2003) found that students with disabilities miss, on average, more days of school than their nondisabled peers. However, the average is skewed by large numbers of absences for smaller groups of students with disabilities, while almost 1/3 of students in the Newman et al. (2003) sample missed no school at all.

To investigate how students with disabilities perform when they are in school, Newman et al. (2003) studied the responses of teachers asked to rate their students on a 4-point scale from Rarely (1) to Almost Always (4) on four factors of engagement: takes part in group discussions; completes homework on time; stays focused on classwork; withdraws from social contact or class activities. Students with disabilities were more likely to stay focused in general education classes than in special education classes. Students in special education classes were also less likely to complete homework on time. However, students with disabilities did take part in class discussion more often in special education classes than in general education classes. Finally, students with disabilities had higher overall engagement scores in special education classes than in general education classes. Newman et al. also examined potential differences between students with different disability classifications on school engagement scores. Students classified as having an emotional disturbance (ED) were less engaged than their peers with other disabilities. Not coincidentally, students with an ED classification also had the highest number of absences among classified students. Students with cognitive impairments or classified as other health impaired, also tended to score lower on the engagement measure than their peers with different classifications. In contrast, Richardson, Long, and Foster (2004) in a study of 269 university students with a hearing impairment matched with nondisabled peers, found students with a

hearing impairment to be as engaged in class as their nondisabled peers. Newman et al. (2003) also reported that students with hearing impairments or visual impairments were the most engaged of all the students with disabilities in their sample.

There are also other school level factors at work for students with disabilities. In a study of 1,755 adolescents from diverse backgrounds, Brown and Evans (2002) found that for students with disabilities, greater levels of participation in extracurricular activities were associated with increased school engagement. Fredricks et al. (2003) suggest that for students at-risk, a smaller alternative high school may provide an environment that is more conducive to student engagement. Smaller, specialized schools may allow students with disabilities to gain greater access to school membership and activities outside of the classroom. Finn and Voelkl (1993) in an analysis of data from a national sample of eighth grade students also found that schools that promote a communal structure showed higher levels of student engagement and more increases in engagement over time for students with disabilities.

Relationship of Self-Concept and Engagement

The performance of students in their academic programs is a concern for all professionals involved in the education of young people. Researchers have studied the constructs of self-concept and engagement in an effort to add to the understanding of how these constructs influence student achievement and educational outcomes. As such, a variety of research studies have demonstrated that, independently, a student's self-concept and level of engagement have affects on achievement. Marsh and his colleagues conducted several studies that supported the relationship between high levels of academic and general self-concept with increased achievement (Marsh, 1992a; Marsh et al., 1988; Marsh & Parker, 1984). Additionally, the nonacademic facets of the self-concept have been shown to have an influence on students'

academic performance. Although nonacademic self-concepts (social, emotional, physical) have been shown to have very small to no correlation with measures of achievement (Marsh et al., 1983a), students with learning disabilities were found to place a higher emphasis on the nonacademic facets of self-concept as a compensatory mechanism which allowed them to have general self-concepts equal to their nondisabled peers (Byrne, 1988; Renick & Harter, 1989; Winne et al., 1982). Similarly, research into the relationship between students' engagement in school and their academic achievement has found positive correlations for a general measure of engagement and within various combinations of the three facets of engagement (behavioral, emotional, and cognitive) and student achievement (Connell et al., 1994; Finn, 1993; Skinner et al., 1990).

A variety of studies have also examined the differences in self-concept or engagement between populations of nondisabled and disabled youth. Researchers have found that students in special education have weaker academic and general self-concepts than their nondisabled peers (Chapman, 1988; Leondari, 1993; Winne et al., 1982). Differing levels of school engagement were also found when comparisons were made between disabled students in special education and nondisabled students (Newman et al., 2003; McWilliam & Bailey, 1995).

Given the amount of research that has been dedicated to studying these two important constructs and the proven interaction that they both have with students' education and academic outcomes, one might expect there to be a research base that looks at the potential relationship between self-concept and engagement in affecting student outcomes. However, in this literature review I have only found five articles that examine in some way the relationship of academic self-concept and engagement in relation to academic achievement. In an examination of a report of the results of the Longitudinal Survey of Australian Youth ("Individual and School Level,"

2002), self-concept of ability was found to be a moderately strong predictor of student engagement in school.

Jordan and Stanovich (2001) studied the relationship between teacher-student interactions, cognitive engagement, and students' scores on the Piers Harris Self-Concept Scale in a sample of 48 third grade students. This study had several interesting results. Students who were identified as exceptional or at-risk had lower total self-concept scores than average peers. Teachers, who viewed their role as interventionists, interacted with all students equally and tried to support high levels of cognitive engagement in both exceptional and average students. Self-concept scores were higher for those exceptional and at-risk students who were in classrooms taught by teachers with the interventionist viewpoint and by teachers who encouraged higher levels of cognitive engagement than teachers who believed that disabilities were permanent student characteristics that could not be modified. Although the study did not find a direct connection between higher levels of cognitive engagement and increased self-concept, one might infer from the results that some relationship was at work between cognitive engagement and self-concept.

Studies by Skinner et al. (1990) and Connell et al. (1994) used a process model to explore relationships between a context, the self, an action, and an outcome. In the Skinner et al. study of 200 children ages 9 to 12 years old, the level of social support that a child experienced in school influenced his or her self-concept that in turn influenced his or her engagement in the school context. According to Skinner et al., the more social support and involvement a student experiences the greater the student's perceptions of competency, engagement and adaptive adjustment. Conversely, lower levels of social support negatively influenced self-concept and in turn result in disengagement and poor adjustment. In this way engagement mediates the

relationship between self-concept and adjustment. In the Connell et al. (1994) study, student's self-concept was similarly linked to engagement and achievement in a sample of 728 African American youth.

The final study looked at the impact of peer relationships on academic self-concept and classroom engagement and the resulting change in achievement. Buhs (2005) used two models to study the potential links between these constructs. The first model was a parallel processes mediation model where the context linked to both self-concept and engagement that then had direct links to change in achievement. In this model, both self-concept and engagement were thought to independently predict changes in achievement. The second of the two models was the linear mediation model that was used in research by Skinner et al. (1990) and Connell et al. (1994). This model hypothesizes mediating process links from context to self-concept to engagement to changes in achievement in linear form. In this model, Buhs (2005) believed that "less adaptive engagement…was hypothesized to predict a decrease in academic achievement and fully medicate the link between self (self-concept) and action (engagement)" (p. 412). Participants for this study were 358 fifth grade students from 32 Midwestern schools, the majority of which were Caucasian (78.6%). Buhs gathered data on peer acceptance, exclusion and victimization (Context), academic self-concept (Self), engagement (Action), and achievement (Outcome).

The data supported the parallel processes model but did not fit the liner mediation model. Overall, Buhs found that students with higher levels of peer victimization and exclusion had lower self-concepts. Also, higher levels of exclusion significantly predicted lower levels of engagement and lower scores on the achievement measure. Students with lower academic self-conception scores showed lowered engagement and lowered achievement. Buhs found that peer

victimization in the form of rejection and negative treatment, through the parallel processes model, was linked to poorer self-concept, lowered engagement, and lower scores on the achievement measure.

Although these studies seem to only be the beginning of an examination of the potential for a variety of relationships between self-concept and engagement, they do support the idea that these constructs do have effects in education that should be studied further.

Rationale and Hypothesis

There is a considerable amount of research on the construct of self-concept. Beginning well before the Shavelson et al. (1976) model and continuing through today, many studies have looked for connections between self-concept and education, differences in the self-concept of different groups of students, and correlations between self-concept and a variety of academic outcome measures. Researchers have addressed the difficulties with problems of construct definition and poor instrumentation to enable studies that can provide results that can be applied to improving the understanding of self-concept in academic environments. In a similar way, engagement has become a focal point for researchers interested in helping to improve students' achievement. It has been established that self-concept has a positive relationship to academic achievement (Marsh, 1992a; Marsh et al., 1988; Marsh & Parker, 1984) and research has also been conducted to support the idea that positive engagement is related to increases in academic achievement (Connell et al., 1994; Finn, 1993; Skinner et al., 1990). There has also been considerable research that supports the differences between the self-concepts of students with disabilities and typically developing students (Chapman, 1988; Leondari, 1993; Winne et al., 1982) and how students who are disabled and receive special education services in school are differentially engaged than their nondisabled peers (Newman et al., 2003; McWilliam & Bailey,

1995). Also, there are a small number of studies that have begun to examine the potential relationship between self-concept and engagement in academic contexts (Buhs, 2005; Connell et al., 1994; Skinner et al., 1990), but none of these studies included students with disabilities. If educational research is intended to inform educational practice, then it seems that there should be more research into the ways self-concept and engagement are related. In addition, with the increased attention on the education of students with disabilities and factors that impact their ability to learn, focusing more research on this group of students can only help to improve the special educational process.

Purpose. The purpose of this study was to further the examination of the potential relationships of self-concept and engagement and to examine their impact on school outcomes for students with disabilities. Building on the work of Skinner et al. (1990), Connell et al. (1994), and most importantly, Buhs (2005), I assessed students in special educational classes using measures of self-concept, engagement, discipline, attendance, extracurricular participation, and achievement. The study examined the interrelationship of self-concept, academic engagement, and achievement for students with disabilities. I used the Self Description Questionnaire II (SDQ II; Marsh, 1992b) to assess factors of self-concept, the Motivation and Engagement Scale – High School (MES; Martin, 2004) to assess facets of engagement, and students' verbal and math scores on the Preliminary Scholastic Aptitude Test (PSAT, College Board, 2009) to assess their verbal and math achievement.

In addition, the research literature reviewed above shows that students' specific disabilities, classroom placements, gender, socioeconomic status, and ethnicities often relate to both their academic self-concepts and school engagements. I collected information on each of these student characteristics and relate it to the measures used in the study to determine the

relationship between student characteristics and academic placements and their self-concepts and school engagements and achievements.

Hypotheses. Contained within the literature for self-concept and for engagement there is very little research that looks at the potential relationship between the two constructs of academic self-concept and engagement, and none of this research employed students with disabilities. Research has shown that students with a high self-concept of their ability have higher levels of behavioral engagement as measured by their extracurricular participation ("Individual and School Level," 2002). It has also been shown that students with a higher level of cognitive engagement in the classroom scored higher on measures of self-concept than students who scored lower on a cognitive engagement measure (Jordan and Stanovich, 2001). Additionally, research has found that student's control beliefs or resilience are related to their level of engagement (behavioral, cognitive, and emotional) and their subsequent achievement in school (Connell et al., 1994; Skinner, et al., 1990). Finally, the effects of students' context on engagement were mediated by links to academic self-concept (Buhs, 2005). (see Appendix G for matrices of hypothesized relationships) Therefore, I hypothesized:

HO1: There will be significant positive relationships between students' scores on the Academic Verbal self-concept scale of the SDQ II and the MES factors of Engagement Cognitions and Engagement Behaviors.

HO2: There will be significant positive relationships between students' scores on the Academic Math self-concept scale of the SDQ II and the MES factors of Engagement Cognitions and Engagement Behaviors.

HO3: There will be significant positive relationships between students' scores on the School self-concept scale of the SDQ II and the MES factors of Engagement Cognitions and Engagement Behaviors.

HO4: There will be significant negative relationships between students' scores on the Academic Verbal self-concept scale of the SDQ II and the MES factors of Maladaptive Engagement Cognitions/Affect and Maladaptive Engagement Behaviors.

HO5: There will be significant negative relationships between students' scores on the Academic Math self-concept scale of the SDQ II and the MES factors of Maladaptive Engagement Cognitions/Affect and Maladaptive Engagement Behaviors.

HO6: There will be significant negative relationships between students' scores on the School self-concept scale of the SDQ II and the MES factors of the Maladaptive Engagement Cognitions/Affect and Maladaptive Engagement Behaviors.

Numerous studies have examined the relationship of self-concept to various academic outcomes. Independent studies found that verbal self-concept was positively correlated with verbal achievement, math self-concept was positively correlated with math achievement, and school self-concept was also positively correlated with both verbal and math achievement (Guay et al., 2003; Marsh, 1986, 1988; 1990; 1992a; Marsh et al., 1985, 1988, 2005; Shavelson & Bolus, 1982). Positive self-concept also relates to positive school related outcomes (Byrne, 1984; 1988; Harter, 1990). These results have been replicated for students with educational disabilities (Allodi, 2000; Leondari, 1993; Ray and Elliot, 2006, Winne et al., 1982). Therefore I hypothesized:

HO7: There will be significant positive relationships between students' scores on the Academic Verbal self-concept scale of the SDQ II and the Verbal subtest scores of the PSAT.

HO8: There will be significant positive relationships between students' scores on the Academic Math self-concept scale of the SDQ II and the Math subtest scores of the PSAT.

HO9: There will be significant positive relationships between students' scores on the School self-concept scale of the SDQ II and the Verbal and Math subtests scores of the PSAT.

HO10: There will be significant positive relationships between students' scores on the Academic Verbal, Math, and School self-concept scales of the SDQ II and students' attendance.

HO11: There will be significant positive relationships between students' scores on the Academic Verbal, Math, and School self-concept scales of the SDQ II and students' extracurricular participation.

HO12: There will be significant negative relationships between students' scores on the Academic Verbal, Math, and School self-concept scales of the SDQ II and number of student disciplinary infractions.

Studies of engagement have found that positive levels of behavioral, emotional, and cognitive engagement are related to achievement, attendance, behavior, and extracurricular participation (Herman & Tucker, 2000; Finn, 1993; Fredricks et al., 2004; Newmann, 1992). Research has also found that students who scored more highly on a measure of behavioral engagement had higher scores on an achievement measure and do not disrupt class or break

school rules. They also attend class on a regular basis and participate more in activities beyond the classroom (Finn, 1993; Finn and Rock, 1997; Fredricks et al., 2004). The results of several studies have shown that engaged students exhibited behaviors like effort, attention, concentration, persistence, participation in class, and asking questions, had better grades and achievement than students who were less engaged, placed a higher value on success in school activities, and showed flexibility in problem solving, used learning strategies, dealt well with failure, and had learning goals (Birch and Ladd, 1997; Caraway et al., 2003; Connell et al., 1994; Corno & Mandinach, 1983; Finn, 1989; Fredricks et al., 2004). Therefore I hypothesized:

HO13: There will be significant positive relationships between students' scores on the Engagement Cognitions factors scale of the MES and the Verbal and Math subtests scores of the PSAT.

HO14: There will be a significant positive relationship between students' scores on the Engagement Cognitions factors scale of the MES and students' attendance.

HO15: There will be a significant positive relationship between students' scores on the Engagement Cognitions factors scale of the MES and students' extracurricular participation.

HO16: There will be a significant negative relationship between students' scores on the Engagement Cognitions factors scale of the MES and number of student disciplinary infractions.

HO17: There will be significant positive relationships between students' scores on the Engagement Behaviors factors scale of the MES and the Verbal and Math subtests scores of the PSAT.

HO18: There will be a significant positive relationship between students' scores on the Engagement Behaviors factors scale of the MES and students' attendance.

HO19: There will be a significant positive relationship between students' scores on the Engagement Behaviors factors scale of the MES and student extracurricular participation.

HO20: There will be a significant negative relationship between students' scores on the Engagement Behaviors factors scale of the MES and number of student disciplinary.

HO21: There will be significant negative relationships between students' scores on the Maladaptive Engagement Behaviors factors scales of the MES and the Verbal and Math subtests scores of the PSAT.

HO22: There will be a significant negative relationship between students' scores on the Maladaptive Engagement Behaviors factors scale of the MES and students' attendance.

HO23: There will be a significant negative relationship between students' scores on the Maladaptive Engagement Behaviors factors scale of the MES and students' extracurricular participation.

HO24: There will be a significant positive relationship between students' scores on the Maladaptive Engagement Behaviors factors scale of the MES and number of student disciplinary infractions.

HO25: There will be significant negative relationships between students' scores on the Maladaptive Engagement Cognitions/Affect factors scale of the MES and the Verbal and Math subtests scores of the PSAT.

HO26: There will be a significant negative relationship between students' scores on the Maladaptive Engagement Cognitions/Affect factors scale of the MES and students' attendance.

HO27: There will be a significant negative relationship between students' scores on the Maladaptive Engagement Cognitions/Affect factors scale of the MES and students' extracurricular participation.

Chapter III

Method

This chapter presents the methodology of the study that examined the relationship between factors of academic self-concept, school engagement, and academic achievement in high school (grades 10-12) students who were classified as having special educational needs. The chapter begins with a description of the research sample. This is followed by a description of the assessment measures used and the study procedures. The chapter concludes with a section on the data analysis used in this study.

Description of Sample

Participants for this study were 105 students in grades 10 to 12 in the special education program at a large New Jersey high school with a total population of 1,950 students of which 18% are classified in special education. Students in the ninth grade were not included in this study since they do not participate in the PSAT testing until their tenth grade year. This sample size exceeded the number needed to detect a medium effect size at the $p < .01$ level of significance (Cohen, 1992). Slightly less than half (41%) of the 259 students in grades 10 to 12 who were classified agreed to participate in this study. Students in the Life Skills class who were moderately cognitively impaired and below or Autistic and students in Out-of-District schools were not included in this study.

The high school itself has a student demographic composition of 46.6% White, 44.1% African American, 5.2 % Hispanic, 3.7% Asian/Pacific Islander, and .4% American Indian/Other. In the total school population, 19% (n = 375) of the students receive free or reduced lunch. Of that number, 33% (n = 124) are students who are classified in special education. The demographic composition of the school differs substantially from the

demographics for the population of special education students in grades 10 to 12. Among those students, 26% are White, 65% African American, 7 % Hispanic, and 2% Asian/Pacific Islander. Within the special education population, 59% of the students are male (n = 152) while 41% are female (n = 107). The research sample approximated the demographic characteristics of the population of special education students in grades 10 to 12. In the research sample, 20% were White, 66.7% African American, 9.5 % Hispanic, and 4% Asian/Pacific Islander. Within the research sample, 66% of the students were male (n = 69) while 34% were female (n = 36). The participants ranged in age from 16 years to 18 years old (M = 16.95, SD = .79).

Among females who participated in this study, 9 (25%) identified themselves as White, 22 (61%) as African American, 3 (8%) as Hispanic, and 2 (6%) as Asian/Pacific Islander. Among the males who participated in the study, 12 (17%) were White, 48 (70%) African American, 7 (10%) Hispanic, and 2 (3%) Asian/Pacific Islander.

The group of students with disabilities can be classified as having specific learning disabilities, emotional disturbances, mild cognitive impairments, multiple disabilities, other health impairments, communication impairment, or as Autistic. Within the special education population, students with a specific learning disability comprise the largest sub-group of these students (45%) followed by students with classifications of other health impairment (20%), multiple disabilities (12%), emotional disturbance (8%), communication impairment (8%), mild cognitive impairment (4%), and finally Autistic (3%). Most are included in either general education classes with in-class support or small resource classes, with the smallest sub-group placed in self-contained classes.

In the research sample, 44 (41.9%) were classified as having a specific learning disability, 16 (15.2%) other health impairment, 14 (13.3%) multiple disabilities, 20 (19%)

emotional disturbance, 5 (4.8%) communication impairment, 6 (5.7%) mild cognitive impairment, and no students were classified as Autistic. Within this group, among those student classified as having a specific learning disability were 19 (53%) females and 25 (37%) males. In addition 2 (6%) females and 14 (20%) males were classified as other health impaired, 4 (11%) females and 10 (14%) males as multiply disabled, 6 (17%) females and 14 (20%) males as emotionally disturbed, 1 (3%) female and 4 (6%) males as communication impaired, and 4 (11%) females and 2 (3%) males as having a mild cognitive impairment.

Unlike the majority of the special education population at the school, the students who participated in the study were mostly placed in self-contained (n = 36, 34.3%) and resource (n = 33, 31.4%) classes. Of the remaining students in the study, 30 (28.6%) received instruction in a general education classroom with in-class resource support while only 6 (5.7%) were placed in general education classes with special education support. Table 1 presents more detailed information about students' demographic characteristics.

Table 1

Demographic Descriptions of Participants (N = 105)

Demographic Characteristic	Percentages and Frequencies
Gender	34% female (*n* = 36)
	66% male (*n* = 69)
Ethnicity	66.7% African American (*n* = 70)
	20% White (*n* = 21)
	9.5% Hispanic (*n* = 10)
	4% Asian/Pacific Islander (*n* = 4)

Table 1 (continued)

Demographic Descriptions of Participants (N = 105)

Demographic Characteristic	Percentages and Frequencies
Grade	38.1% 10th Grade (*n* = 40)
	30.5% 11th Grade (*n* = 32)
	31.4% 12th Grade (*n* = 33)
Classification	41.9% Specific Learning Disability (*n* = 44)
	15.2% Other Health Impaired (*n* = 16)
	13.3% Multiply Disabled (*n* = 14)
	19% Emotional Disturbance (*n* = 20)
	4.8% Communication Impaired (*n* = 5)
	5.7% Mild Cognitive Impairment (*n* = 6)
Year First Classified	25.7% Kindergarten (*n* = 27)
	43.8% 1st to 5th Grades (*n* = 46)
	21.9% 6th to 8th Grades (*n* = 23)
	1.9% 9th Grade (*n* = 2)
	5.7% 10th Grade (*n* = 6)
	1.0% 11th Grade (*n* =1)

Table 1 (continued)

Demographic Descriptions of Participants (N = 105)

Demographic Characteristic	Percentages and Frequencies
Current Class Placement	34.4% Self-Contained (*n* =36)
	31.4% Resource (*n* = 33)
	28.6% In-Class Support (*n* = 30)
	5.7% General Education (*n* = 6)

Socioeconomic status (SES) was estimated for all participants in this study based on the Hollingshead (1975) Four Factor Index of Social Status and qualification for free/reduced (F/R) school lunch. SES scores on the Hollingshead (1975) Four Factor Index of Social Status ranged from 11 to 66 (*M* = 40.94, *SD* = 13.74). The average participants' parents had attended some college and were employed as technicians or in semi-professional positions. Within the research sample 52% (*n* = 55) of students received free/reduced lunch. This represents 44% of the total number (*n* = 124) of special education students who receive free/reduced lunch in the entire school. Differences in SES were identified based on ethic group membership. Hispanic students (*M* = 28.10, *SD* = 12.76) reported lower scores on the Hollingshead (1975) Four Factor Index of Social Status and had a higher percentage of members receiving free/reduced lunch (80%) than other ethnic groups. The average Hispanic students' parent reported having graduated from high school and worked in a semi-skilled job or as a machine operator. African American students' (*M* = 39.17, *SD* = 12.82) responses to the demographic questionnaire indicated that the average

parent had some college and worked as a manual or skilled craftsman or in clerical and sales work. In addition, 60% of African American subjects received free/reduced lunch. The average White students' (M = 50.95, SD = 8.97) parents had graduated form a college or university and worked in a technical or semi-professional field, was a small business owner, or minor professional. White students had the smallest percentage of members receiving free/lunch at 14%. Finally, the average student who identified themselves as Asian/Pacific Islander (M = 56.50, SD = 20.74) came from a family where the parents had attended some college and worked in technical or semi-professional field, was a small business owner, or minor professional. Half (50%) of the four students in this group received free/reduced lunch.

Instruments

Self Description Questionnaire II (SDQ II; Marsh, 1992b). The SDQ II is a 102-item self-report instrument that measures self-concept in adolescents age 12 to 18. It was designed to measure 11 self-concept factors that were derived form the original Shavelson et al. (1976; Marsh et al., 1988; Marsh & Shavelson, 1985) model of self-concept. See Appendix A for a brief description of the SDQ II factors. Marsh (1988) developed the original SDQ I as a response to problems he saw in the self-concept research of the time. He was concerned with the lack of a consistent definition of self-concept or a strong instrument used to measure self-concept. Byrne (1996) has stated that she feels the "SDQ II is one of the most validated self-concept measures available for use with adolescents…researchers…can feel confident in the validity of interpretations based on responses to its multidimensionally sensitive items " (p. 117). This instrument was chosen because it is based on the model of self-concept that serves as one of the theoretical bases of this research.

Students respond to each of the 102 items on a six-point Likert type scale with responses ranging from "1" (False. Not like me at all; it isn't like me at all) to "6" (True. This statement describes me well; it is very much like me). Items on the scale ask students to respond to questions such as "I often need help in Mathematics","My parents understand me", or "Most things I do I do well" (Marsh, 1992b). Responses to the various items are totaled and scores are rendered for the 11 self-concept factors of the SDQ II (Math, Appearance, General, Honesty, Physical Abilities, Verbal, Peer, Parents, School, Same Sex Relations, and Opposite Sex Relations; see Appendix A for a brief description of each factor). Raw scores for the self-concept factors can range from a low score of 8 to a high score of 66, with higher numbers indicating a higher self-concept, depending on the number of items that support that factor. There are separate scoring criteria for the Same Sex Relations and the Opposite Sex Relations for males and for females. Negatively worded items require the score for that item to be subtracted from 7 and the resulting sum recorded as the raw score for that item. Once raw scores are obtained, *T*-score conversions are performed for each scale and total score.

For the purpose of this study, only the subscales that measure Math self-concept, Verbal self-concept, and School self-concept were used. Studies have shown that achievement in specific math and verbal subject areas correlates positively with academic self-concept in those same areas as well as with school and general self-concept scores (Byrne, 1988; Leondari, 1993; Marsh, 1986, 1988, 1990. 1992a; Marsh et al., 1985, 1988). These studies used, however, typically developing participants while this study attempted to extend those findings using students with disabilities.

Researchers have administered the SDQ instruments overall to thousands of young people, mostly from Australia. The SDQ II normative sample consisted of 2,658 males and 2,836

females ages 12 to 18 years old from Australia. The sample was representative of the population of Australia. In an effort to broaden the normative basis of the SDQ II, there have been several studies using samples of American adolescents. Marsh (1994) analyzed the results of 25 of the 102 items on the SDQ II that represented five of the scales that were included in the National Educational Longitudinal Study of 1988 (NELS: 88). Marsh (1994) matched responses of participants from this large national US sample (N = 17,544) with responses from Australian students (N = 1,147) based on gender and age. He found similar factor structures, reliability estimates, mean responses, and gender differences between the matched samples. In an effort to validate the SDQ II with an American sample, Gilman, Laughlin, and Huebner (1999) administered the SDQ II to a sample of 291 students in grade 6 to 8. This sample was made up of almost equal numbers of Caucasian and African American students with a mean age of 12.9 years old. Gilman et al. tested the internal consistency of the SDQ II and found coefficient alphas of .95 at Time 1 and .96 at Time 2 for the total score. For the subtests, the alphas ranged from .74 to .90. These coefficients were comparable to the coefficients reported by Marsh (1990) for his Australian sample. Gilman and his colleagues also calculated a test-retest coefficient for total score at .83 and coefficient for individual scales ranging from .83 for Math to .68 for Honesty with a median test-retest reliability score of .78. They also performed a confirmatory factor analysis on scores of the items of the SDQ II and found that the data provided a good fit for the model (χ^2 = 2003.5, p < .0001). Finally, to demonstrate convergent validity, Gilman and his colleagues compared their factor loadings to those in the SDQ II manual. Their factor loadings ranged from .51 to .86 (median = .74) and were comparable to those given by Marsh in the manual.

In the manual, Marsh (1990) provided a wealth of empirical support for the SDQ II from over 80 articles. He also provides an accounting of the reliability and validity information for the SDQ II. Marsh assessed the internal consistency for both the total score and the subscale scores and the test-retest reliability for the eleven subscales, but not for the total self-concept score. Alpha coefficients were .94 for the total scale, with a mean alpha of .86 for the subscales that ranged from .83 for the Honesty subscale to a .91 for the Appearance subscale. In a separate study, Leach, Henson, Odom, and Cagle (2006) reviewed the reliability reported in 112 articles using the SDQ measures. For articles that reported using the SDQ II, Leach et al. found that the alpha coefficients were generally greater than .80 from subscales and total score that suggested strong reliability. Marsh (1990) reported test-retest reliability based on a sample of 137 high school girls in a study that dealt with the effects of a physical fitness intervention. The results from a 7-week interval resulted in stability coefficients for the subscales that ranged from .72 for the Emotional Stability subscale and a .88 on the Mathematics Subscale. A score for the total self-concept score was not reported.

Marsh also provided evidence of the validity of the SDQ II. The manual points to the content validity of the SDQ II through a very through description of the theoretical underpinnings of the SDQ II and its item development. Articles by Shavelson and Marsh provide detailed descriptions of the basis for the model of self-concept on which the SDQ II is based (Byrne & Shavelson, 1986; Marsh, 1988, 1992a, 1992b, 1994; Marsh et al., 1985, 1988 Shavelson, et al., 1976). Marsh also reported a factor analysis of the SDQ II that reveals a median target loading of .68 with a range from .48 to .80 and a median nontarget loading of .03 with a range of -.12 to .27. Marsh also provided further evidence of the construct validity of the SDQ II by demonstrating theoretically sound relationships between the SDQ II and related

constructs such as academic achievement, age, gender, reading ability, study skills, test anxiety, locus of control, physical fitness, self-concept enhancement interventions, and matching areas of self-concept inferred by significant others (Keith & Bracken, 1996; Marsh, 1990; Marsh, Ellis, Parada, Richards, & Heubeck, 2005). For example, math ability is correlated more highly with the academic self-concept scales than with the nonacademic scales. The correlation between a measure of math ability and academic math self-concept was .48, with academic verbal .39, and with the General school self-concept .55, while the correlations with the nonacademic scales ranged from -.08 to .23.

The Motivation and Engagement Scale – High School (MES; Martin, 2004). The Motivation and Engagement Scale is a 44-item instrument that is used to assess 4 dimensions that are comprised of 11 factors of student motivation and academic engagement for adolescents in grades 7 to 12. The 11 factors of the MES are Self-Belief, Valuing School, Learning Focus, Planning, Task Management, Persistence, Anxiety, Failure Avoidance, Uncertain Control, Self Sabotage, and Disengagement. The 11 factors are then grouped into 4 higher order dimensions of Engagement Thoughts/Cognitions (Self-efficacy, Valuing School, Mastery Orientation), Engagement Behaviors (Persistence, Planning, Study Management), Maladaptive Engagement Cognitions and Affect (Anxiety, Failure Avoidance, Uncertain Control), Maladaptive Engagement Behavior (Self-handicapping, Disengagement). For a brief description of the 11 factors of the MES and the 4 dimensions that they comprise see Appendix E.

Each of the items on the MES is phrased as a statement that requires adolescents completing the form to rate themselves on a 7-point Likert type scale ranging from “1” (Strongly Disagree) to “7” (Strongly Agree). Items on the scale ask students to respond to questions such as “Each week I’m trying less and less”, ”Learning at school is important”, or “When I do tests

or exams I don't feel very well" (Martin, 2004). Each of the 11 factors is assessed by responses to four statements. For each factor, the responses to the four items is totaled then multiplied by 3.575. The resulting sum is then converted to a T-score. Scores for each factor can range from 4 to 28, with higher scores indicating greater engagement. For the four higher order factors, scores range from 8 to 56 for Maladaptive Engagement Behavior and from 12 to 84 for the other three dimensions (i.e., Maladaptive Engagement Cognitions and Affect, Engagement Behaviors, and Engagement Thoughts/Cognitions), with higher scores indicating greater engagement.

The author also reported normative information for the MES. Martin (2004) collected data from a sample of 12,237 high school students from 38 schools in four Australian states: New South Wales, Victoria, Queensland, and the Australian Capital Territory. He administered the MES to students in Government schools, Independent schools, and Systemic Catholic schools. Students in the norming sample were distributed between grades 7-8 (31%), 9-10 (30%), and 11-12 (30%) and were comprised of 51% males and 49% females. The mean age of respondent in the normative sample was 14.97 years old. The sample is considered representative of students in these areas of Australia.

The manual provides evidence of validity and reliability. Reliability statistics are provided in the manual as Cronbach's alphas for each of the eleven factors. Alphas for all eleven factors range from .76 to .82. The author also reports the results of confirmatory factor analysis (CFA) to test the psychometric properties of the MES. The results of the CFA revealed an excellent fit to the data (χ^2 = 15,737.36, df = 847, CFI = .98, RMSEA = .038). The factor loadings for the 44 items ranged from .53 to a .84 and factor loadings for each of the 11 factors ranged form .66 to .72. Descriptive statistics were also provided that show scores from each of the four higher order factors were normally distributed. Interscale correlations showed that all

Adaptive Cognitions and Behaviors were highly correlated with each other (.51 to .79), Maladaptive Cognitions were correlated with each other (.43 to .54), and the Maladaptive Behaviors were also well correlated (.58). The Maladaptive Behaviors were negatively correlated with the Adaptive Cognitions and Behaviors (-.65 to -.21) while the Maladaptive Cognitions tended to correlate with the Adaptive Cognitions and Behaviors around zero (-.30 to .23). A higher order CFA was also performed on the four groups. The CFA provided an excellent fit to the data (χ^2 = 20,280.91, df = 886, CFI = .98, RMSEA = .042). Factor loadings for the four higher order factors ranged from .70 to .87.

Martin (2001, 2003, 2004) also provided further evidence of the construct validity of the MES by demonstrating correlations between the MES factors and related constructs such as academic achievement, literacy, numeracy, class participation, enjoyment of school, and educational aspirations. Using a series of Pearson product moment correlations, he found that the factors that make up the Engagement Thoughts/Cognitions and the Engagement Behaviors scales were all positively correlated with measures of academic achievement in Math, English, and Science (range .12 to .32). In addition, these factors correlated positively with measures of educational aspiration, class participation, and enjoyment of school (range .41 to .73). The factors that make up the Maladaptive Engagement Cognitions and Affect scale were all negatively correlated with the academic achievement measures in Math, English, and Science (range -.10 to -.27). In addition, Failure Avoidance and Uncertain Control were significantly negatively correlated to educational aspirations, class participation, and enjoyment of school (range -.12 to -.27). In terms of Maladaptive Engagement Behaviors, Self-sabotage was negatively correlated to all achievement measures (range -.24 to -.30) and both Self-sabotage and

Disengagement were negatively correlated with educational aspirations, class participation, and school enjoyment (range -.28 to -.73).

Demographic Questionnaire. The Demographic Questionnaire was developed for use in this study (see Appendix C). There are two self-report forms of the questionnaire. One 20-item form and one 16-item form each designed to reflect a parent's marital status. This instrument was used to gather specific information about the student and other background characteristics. Parent's were asked to identify information about their student such as age, gender, current grade, current classification in special education, and the year the student was first classified. The remainder of the questionnaire was based on the Hollingshead (1975) Four Factor Index of Social Status and was used in the estimation of a student's socioeconomic status. Questions focused on the parent's gender, employment status, job title, level of education, and marital status. The information gathered from these questions allowed for the computation of a score which provided an estimate of the student's socioeconomic status where higher scores were indicative of higher SES.

Records Review. In order to obtain students' Verbal and Math PSAT scores, record of attendance, record of discipline, special education class placement, and record of participation in extracurricular activities, a research assistant conducted a record review for each participant. The assistant recorded information from the records review on the *Student Data Form* (see Appendix F). Student data included each student's most recent Verbal and Math PSAT scores, current disability classification, the current class placement, total number of school days missed from the start of the school year until the day of data collection, total number of discipline referrals from the start of the school year until the day of data collection, and total number of extracurricular activities that the student had participated in during the school year prior to data collection. Data

collection was conducted at the start of the fourth quarter of the school year so that the information gathered for attendance, discipline, and extracurricular activity participation spanned the first three quarters of the school year.

Procedure

The principal investigator for this study, sought approval from the Institutional Review Board (IRB) of the City University of New York Graduate School and University Center and the Montclair Board of Education (Montclair, New Jersey), and the principal of the school where the study was to be conducted. Approval was obtained form the IRB of the Graduate Center, the Superintendent of the Montclair School District, and the school principal.

After obtaining the necessary approvals, packets were sent out that contained a letter of introduction and explanation of the study, two copies of the consent form (one for parent's records), and a demographic questionnaire along with a stamped and addressed return envelope. See Appendix B for a copy of the introductory letter to parents and a copy of the parental consent form and Appendix C for a copy of the demographic questionnaire. The initial response of 62 students was not adequate for the purposes of the study, so a second mailing was made to ensure that all potential participants had been contacted. The letter of introduction and explanation of the study contained the principal investigators home and work phone numbers. Phone contact was initiated by several parents to discuss the particulars of the study. Parents were asked to return the consent form with either an agreement to allow their child to participate or to decline participation.

Once the final group of 105 participants was assembled, a research assistant coded each participant replacing his name with a number creating a master list. This number was used on all data collection instruments to ensure confidentiality of student responses to self-reports and

student information. Once the master list of participants was finalized, a research assistant accessed the school records of each participant to record the student's Verbal and Math subtest PSAT scores, special education class placement, the number of absences that student had to date, the number of discipline referrals that student had accumulated at that time, and that student's record of participation in extracurricular activities. This information was recorded on the *Student Data Form* (see Appendix F).

Participants were contacted two weeks prior to data collection and provided with the day, time, and location of data collection. On the day of data collection, students arrived after school at a small lecture hall in the school which can accommodate 150 people. Each seat had a fold out desk on which the students could write. As each student entered, he or she was provided with a numbered packet that corresponded to the number that was assigned to him or her on the master coding list. The packet contained a copy of the Student Assent for Participation Form (see Appendix D), the Self Description Questionnaire II (SDQ II) and the Motivation and Engagement Scale (MES). Students were welcomed by a research assistant who was a certified school psychologist. They were thanked for agreeing to come to the session and were given a brief overview of the research and the two self-report instruments that they would complete if they agreed to participate. All students were informed that participation was not required and they could decide not to participate at any time without any repercussions.

An opportunity was presented for students to ask any questions. The students were then asked to sign the Student Assent for Participation Form. They were again offered an opportunity to ask questions. Students were then asked to turn to the two self-report instruments. Directions were read and another opportunity to ask questions was provided. Students were then asked to begin filling out the self-reports and told to raise their hands if they had any questions. When

students had completed all the SDQ II and the MES instruments and turned them in to a research assistant, they were given a movie pass and dismissed. Since students in this district are not provided with transportation, no special arrangements were necessary. Once data collection was complete the master coding list that contained both participant names and their coded number was destroyed. All further work with data was identified only by a participant number.

Data Analysis

Sample demographic frequency information for student's gender, ethnicity, classification, class placement, and year first classified in special education was calculated. Descriptive statistics (means, standard deviations, ranges) were calculated and reported for the variables used in this study. Next correlations were conducted to examine the relationship between the study variables and the participant descriptor variables. For example, results of research by Allodi (2000), Cambra and Silvestre (2003) and Wiener and Tardif (2004) suggests that students with disabilities who are in more inclusive classrooms have higher self-concept scores than did students with disabilities who have more exclusive classroom placements. Each hypothesis was then tested using Pearson Product Moment correlations. Finally, in order to examine the overall structure of the relationships between the predictor and criterion variables a canonical correlation analysis was conducted.

Chapter IV

Results

This chapter presents the results for this study. It begins by providing descriptive statistics for the two predictor variables and the five criterion variables. The chapter also presents a summary of the results of correlational hypotheses testing. Next, the results of a canonical correlation analysis are presented. Finally, the results of supplementary correlational analyses are presented.

Descriptive Statistics

Table 2 presents descriptive statistics (means, standard deviations, ranges) for the two predictor variables. Table 3 presents descriptive statistics (means, standard deviations, ranges) for the five criterion variables.

Table 2

Participants' T-Scores for the Self-Concept and Engagement Predictor Measures

Predictor Measure			
Self Concept: Self Description Questionnaire II (SDQ II, Marsh, 1992b) Scales	Mean	Standard Deviation	Range
Mathematics	49.28	9.81	33 to 66
Verbal	50.81	10.16	27 to 67
General School	52.16	8.05	35 to 66
Physical Appearance	54.86	6.72	40 to 65
Physical Abilities	47.57	8.89	33 to 62
Emotional Stability	46.22	8.13	29 to 63
Honesty/Trustworthiness	47.47	8.71	21 to 66
General Self	46.56	8.93	30 to 60
Parent Relationship	42.87	7.83	19 to 57
Males Same Sex Relationships	47.34	7.80	34 to 64
Males Opposite Sex Relationships	49.65	7.87	38 to 64
Females Same Sex Relationships	45.41	10.83	31 to 63
Females Opposite Sex Relationships	53.41	7.24	43 to 61
Total Self Concept	48.10	7.99	34 to 67

Table 2 (*continued*)

Participants' T-Scores on for Self-Concept and Engagement Predictor Measures

Predictor Measure			
Engagement: Motivation and Engagement Scale (MES, Martin, 2004)	Mean	Standard Deviation	Range
Learning Focus	48.94	9.69	23 to 64
Valuing School	49.81	10.53	4 to 65
Self-Belief	47.84	11.31	19 to 65
Persistence	47.17	11.65	7 to 70
Study/Task Management	48.40	11.30	24 to 68
Planning	49.74	11.46	22 to 73
Uncertain Control	52.38	12.30	6 to 78
Anxiety	45.21	10.26	24 to 69
Failure Avoidance	54.05	10.03	33 to 73
Self-Handicapping/Sabotage	55.85	10.31	36 to 80
Disengagement	51.47	9.95	36 to 80

Note. $N = 105$

Table 2 shows the means, standard deviations, and ranges of *T*-Scores of the 14 scales of the Self Description Questionnaire II (SDQ II, Marsh, 1992b) and the 11 factors of the Motivation and Engagement Scale (MES, Martin, 2004) that function as the predictor measures of this study. On both instruments, raw scores are converted to *T*-Scores based on the scale's normative sample to aid in interpretation and statistical comparison. By definition, *T*-Scores have a mean value of 50 and a standard deviation of 10. The author of the SDQ II (Marsh, 1992b) also provided some insight into the percentile equivalents that correspond with the provided *T*-Scores. For this group of participants, their mean responses to the items on the three academic scales of the SDQ II that were mainly utilized in this research, were at or near the 50^{th} percentile for the total normative sample of high school students. This did not hold true for the remaining scales of

the SDQ II. With the exceptions of the scores on the Physical Appearance scale (61st percentile) and the Females Opposite Sex Relationship scale (57th percentile) the scores of the remaining scales ranged from a low at the 19th percentile (Parent Relationship) to a high at the 41st percentile (Males Females Opposite Sex Relationship). Thus, while participants in this study tended to have lower self-concepts on most of the non-academic scales than the normative sample, they were very similar to the average member of the normative sample in terms of self-concept for Math, Verbal, and General School. The sample of scores on which the norms were based included students with special needs, but Marsh (1992b) did not specifically identify those students or provide alternate norms for special education students. In comparisons of students with and without educational disabilities, students with disabilities have consistently demonstrated lower scores than non-disabled peers on academic self-concept scales (Chapman, 1988; Leonardi, 1993; Renick & Harter, 1989). These findings contrast with present participants' scores on the academic self-concept scales.

The remainder of Table 2 describes the means of the factor scores for the Motivation and Engagement Scale (MES, Martin, 2004) that is the instrument used to assess students' engagement in school. Again, the participants in this dissertation study scored close to the mean scores of the normative sample. The mean scores for four of the five maladaptive engagement factors were actually slightly higher than the mean score for of the sample norms. Interestingly, the lowest mean score came on the maladaptive factor of Anxiety that is about a half of a standard deviation below the norm score. This group of participants scored below the mean norm score on all off the adaptive engagement scales but above the mean norm score on all of the maladaptive scales, except for anxiety. This may be a reflection of the nature of the students in this study and their educational difficulties. Newman et al. (2003) found that students with

educational disabilities may be more at risk of experiencing low levels of engagement. Similarly, students with disabilities have been found to be less engaged during the school day than their non-disabled peers (McWilliam & Bailey, 1995).

Table 3

Participants' Scores on Achievement, Attendance, Disciplinary, and Participation Criterion Measures

Criterion Measure	Mean	Standard Deviation	Range
PSAT Verbal	33.08	9.72	20 to 70
PSAT Math	33.31	9.27	20 to 67
Days Absent*	14.51	9.55	0 to 41
Disciplinary Referrals*	4.89	5.87	0 to 30
Extracurricular Activities*	.95	1.34	0 to 7

Note. $N = 105$; * as measured for first three quarters of the school year.

Table 3 represents the descriptive statistics for the five dependent variables in this study. PSAT scores can range from a low of 20 to a high of 80 for any student. The mean score for any given administration of the PSAT is variable based on the participants for that year. For example, in 2009 the mean verbal score was a 47, the mean math score was a 48, and the median score for any administration is generally 50 (The College Board, 2010). In comparison, the mean scores of the participants in this study would be considered low. The ranges show that their scores had a large spread. In this sample, 94% of the participants scored a 46 verbal or below while only 4% scored a 51 or above. On the math scale, there were similar results with 94% of the participants'

scores at or below 49, while only 6% scored a 50 or higher. These comparisons underscore the lower achievement level of the participants in this study.

For this group of participants, the mean number of days of school missed was 14.5. The attendance policy of the school is that if a student misses more than 20 days in a given class, he can be dropped from that class and receive no credit. The range of scores indicates that there were some students in the sample who lost credit for classes due to poor attendance just three quarters of the way through the school year. In this sample, 59% of the participants had 15 or fewer absences over three quarters of the year. Also, 75% of the participants were absent from school 20 or less times, while 25% had 21 or more absences. In this sample, these students, generally missed the maximum number of classes (20 days) allowed and in some cases, exceeded this number. Research has shown that special education students miss, on average, more days of school than their non-disabled peers (Newman et al., 2003).

In terms of discipline referrals, Table 3 shows that the mean number of referrals for this sample was 4.89 over the course of three quarters of the school year. Interestingly, in this sample 38% of the participants had 1 discipline referral or less, while 20% had 10 or more referrals, and 44% had between 2 and 9 referrals. There were no data available on school wide discipline but it seems that there was a large number of students school wide with 9 or less referrals. Given the attendance data for the current sample, it is possible that a large number of these referrals were attendance related.

There were no school wide data concerning students' extracurricular participation. However, what is interesting about this sample is that the mean number of activities was less than 1 at $M = .95$. In the sample, 49.5% of the participants ($n = 52$) have not participated in a single extracurricular activity during the first three quarters of the school year, while an

additional 25.7% (n = 27) had only been a part of one activity. In the author's experience, this low level of activity is not the norm at the school where these students attend. This school has over 75 clubs and organizations open to all students and every high school sport at least at the varsity level if not both the junior varsity and varsity levels. This group of participants seems to consist of many students who were not inclined to venture out of their comfort zone in search of association nor did they seek to meet that need within the school.

Correlational Hypothesis Testing

Multiple Pearson Correlations were conducted to test research hypotheses. Table 4 presents all of the original research hypotheses and whether each hypothesis received full support, partial support, or no support from the results. The full results of these analyses can be found in Appendix H.

Table 4

Results of Correlational Hypothesis Testing

Hypotheses	Results
HO1: There will be significant positive relationships between students' scores on the Academic Verbal self-concept scale of the SDQ II and the MES factors of Engagement Cognitions and Engagement Behaviors.	Partial Support
HO2: There will be significant positive relationships between students' scores on the Academic Math self-concept scale of the SDQ II and the MES factors of Engagement Cognitions and Engagement Behaviors.	No Support
HO3: There will be significant positive relationships between students' scores on the School self-concept scale of the SDQ II and the MES factors of Engagement Cognitions and Engagement Behaviors.	Partial Support
HO4: There will be significant negative relationships between students' scores on the Academic Verbal self-concept scale of the SDQ II and the MES factors of Maladaptive Engagement Cognitions/Affect and Maladaptive Engagement Behaviors.	No Support
HO5: There will be significant negative relationships between students' scores on the Academic Math self-concept scale of the SDQ II and the MES factors of Maladaptive Engagement Cognitions/Affect and Maladaptive Engagement Behaviors.	Partial Support

Table 4 (*continued*)

Results of Correlational Hypothesis Testing

Hypotheses	Results
HO6: There will be significant negative relationships between students' scores on the School self-concept scale of the SDQ II and the MES factors of the Maladaptive Engagement Cognitions/Affect and Maladaptive Engagement Behaviors.	Partial Support
HO7: There will be significant positive relationships between students' scores on the Academic Verbal self-concept scale of the SDQ II and the Verbal and Math subtests scores of the PSAT.	Full Support
HO8: There will be significant positive relationships between students' scores on the Academic Math self-concept scale of the SDQ II and the Math subtest score of the PSAT.	Full Support
HO9: There will be significant positive relationships between students' scores on the School self-concept scale of the SDQ II and the Verbal and Math subtests scores of the PSAT.	Full Support
HO10: There will be significant positive relationships between students' scores on the Academic Verbal, Math, and School self-concept scales of the SDQ II and students' attendance.	No Support
HO11: There will be significant positive relationships between students' scores on the Academic Verbal, Math, and School self-concept scales of the SDQ II and students' extracurricular participation.	Full Support
HO12: There will be significant negative relationships between students' scores on the Academic Verbal, Math, and School self-concept scales of the SDQ II and number of student disciplinary infractions.	No Support
HO13: There will be significant positive relationships between students' scores on the Engagement Cognitions factors scale of the MES and the Verbal and Math subtests scores of the PSAT.	No Support
HO14: There will be a significant positive relationship between students' scores on the Engagement Cognitions factors scale of the MES and students' attendance.	No Support
HO15: There will be a significant positive relationship between students' scores on the Engagement Cognitions factors scale of the MES and students' extracurricular participation.	Partial Support
HO16: There will be a significant negative relationship between students' scores on the Engagement Cognitions factors scale of the MES and number of student disciplinary infractions.	No Support
HO17: There will be significant positive relationships between students' scores on the Engagement Behaviors factors scale of the MES and the Verbal and Math subtests scores of the PSAT.	No Support

Table 4 (*Continued*)

Results of Correlational Hypothesis Testing

Hypotheses	Results
HO18: There will be a significant positive relationship between students' scores on the Engagement Behaviors factors scale of the MES and students' attendance.	No Support
HO19: There will be a significant positive relationship between students' scores on the Engagement Behaviors factors scale of the MES and student extracurricular participation.	No Support
HO20: There will be a significant negative relationship between students' scores on the Engagement Behaviors factors scale of the MES and number of student disciplinary.	No Support
HO21: There will be significant negative relationships between students' scores on the Maladaptive Engagement Behaviors factors scales of the MES and the Verbal and Math subtests scores of the PSAT.	Full Support
HO22: There will be a significant negative relationship between students' scores on the Maladaptive Engagement Behaviors factors scale of the MES and students' attendance.	No Support
HO23: There will be a significant negative relationship between students' scores on the Maladaptive Engagement Behaviors factors scale of the MES and students' extracurricular participation.	Full Support
HO24: There will be a significant positive relationship between students' scores on the Maladaptive Engagement Behaviors factors scale of the MES and number of student disciplinary infractions.	Partial Support
HO25: There will be significant negative relationships between students' scores on the Maladaptive Engagement Cognitions/Affect factors scale of the MES and the Verbal and Math subtests scores of the PSAT.	Partial Support
HO26: There will be a significant negative relationship between students' scores on the Maladaptive Engagement Cognitions/Affect factors scale of the MES and students' attendance.	Partial Support
HO27: There will be a significant negative relationship between students' scores on the Maladaptive Engagement Cognitions/Affect factors scale of the MES and students' extracurricular participation.	Full Support

As can be seen in Table 4, the results of the correlational hypothesis testing were very mixed. Overall, the academic self-concept factors (verbal, math, school) were positively related to all of the outcome variables, except for student attendance and student discipline referrals.

Academic self-concept scales had small relationships with adaptive and maladaptive factors of engagement. Adaptive cognition and behavior factors demonstrated no relationship to school outcome variables. However, the maladaptive engagement cognitions and behaviors did demonstrate a relationship to the school outcome variables though the strength of the relationship was not consistent across all of the outcome variables. Maladaptive engagement did have some influence on student achievement and extracurricular participation. However, at this level of analysis, the three self-concept scales seemed to be more related to positive school outcomes for students with educational disabilities than did the engagement factors.

Canonical Correlation Analysis

The correlational analysis results showed that there were relationships between individual variables in this study. However, human beings are complex and there are many facets to their personalities that contribute to their behavior. In order to more fully understand the relationships among the criterion variables (PSAT Verbal, PSAT Math, Attendance, Discipline, and Extracurricular Participation) and the predictor variables (Self-Concept and Engagement) a canonical correlation analysis was conducted. The analysis used the five criterion variables to examine their relationship with the 22 levels of the independent variables to investigate which variables were most important in the relationship and how the variables contributed to the relationship when studied as a group. The model was assessed across all Functions using the Wilk's Lambda (λ). Results indicated that the full model including all Functions was statistically significant using the Wilk's $\lambda = .093$ criterion, $F(110, 386.91) = 2.190$, $p < .001$. Since the Wilk's λ represents the variance unexplained by the model, $1 - \lambda$ will result in the full model effect size. This resulted in an effect size for the five canonical functions of .907. This means that the full model explained the major portion (91%) of the variance shared between the sets of

variables. The analysis produced five canonical correlations with squared canonical correlations (R^2_c) of .647, .440, .306, .222, and .121 for each function 1 to 5 respectively.

As just noted, the first canonical correlation was statistically significant. In addition, Function 2 to 5 (second canonical correlation) was also statistically significant, $F(84, 314.49) = 1.495$, $p < .008$. The remaining three Functions (3 to 5, 4 to 5, 5 to 5) did not explain a statistically significant amount of the variance shared between the variable sets. Given the squared canonical correlations for each Function, only the first two were used in this study. The first two Functions explained 64.7% and 44% of the shared variance respectively. The remaining three Functions explained only 30%, 22%, and 12% of the remaining variance in the variable sets after extraction of the first two Functions.

Table 5

Canonical Solution for Criterion Variables for Functions 1 and 2

	Function 1			Function 2			
Variable	Coeff.	r_s	r_s^2 *(%)*	Coeff.	r_s	r_s^2 *(%)*	h^2(%)
PSAT Verbal	.619	.878	77.09	.734	.107	1.14	78.23
PSAT Math	.391	.815	66.42	− 1.11	−.489	23.91	90.33
Days Absent	−.099	−.041	.17	.142	−.081	.66	.82
Discipline	−.071	−.234	5.48	.245	.110	1.21	6.69
Extracurricular	.266	.442	19.54	.733	.482	23.23	42.77
R_c^2			64.70			44.00	

Note: Coeff. = standardized canonical function coefficient; r_s = structure coefficient; r_s^2 = squared structure coefficient; h^2 = communality coefficient; R_c^2 = squared canonical correlation.

Table 6

Canonical Solution for Predictor Variables for Functions 1 and 2

	Function 1	Function 2
Variables	Coefficient	Coefficient
Self Concept: Self Description Questionnaire II (SDQ II, Marsh, 1992b)		
Mathematics	.038	−.012
Phys. Appearance	−.007	−.019
General Self	.003	.013
Honesty/Trust	.018	.028
Phys. Abilities	−.015	.012
Verbal	.062	.031
Emotional Stability	.027	.036
Parent Relationship	.001	.021
General School	.030	−.052
Same Sex Rel.	.007	−.054
Opposite Sex Rel.	−.030	.012
Engagement: Motivation and Engagement Scale (MES, Martin, 2004)		
Learning Focus	−.040	.009
Valuing School	.002	.017
Self-Belief	.007	−.033
Persistence	−.007	−.011
Task Management	−.021	.015
Planning	−.005	.022
Uncertain Control	−.015	−.040
Anxiety	.032	.012
Failure Avoidance	.012	.022
Self-Handicapping	−.016	.024
Disengagement	−.023	−.015

Note. Coefficient = standardized canonical function coefficient.

Table 5 represents for Functions 1 and 2 the standardized canonical function coefficients and structure coefficients for the criterion variables. Also offered in the table are the squared

structure coefficients and the communalities (h^2) for each criterion variable across both Functions as well as the squared canonical correlation for each function. Linear equations were constructed for each variable across both Function 1 and 2 using the using the standardized canonical correlation coefficients. For the predictor variables, the first canonical Function was most strongly influenced by PSAT verbal (.62), PSAT math (.39), and extracurricular activities (.26). The remaining two criterion variables make minimal contribution to the synthetic criterion variable created in Function 1. Table 6 presents canonical coefficients for the covariate canonical variables in Function 1, verbal (.06) and math (.04) self-concepts were the primary contributors with secondary contributions from self-concept for school (.03), emotional stability (.03), and opposite sex relationships (-.03) and from the engagement factors of learning focus (-.04), anxiety (.03).

The positive relationship between self-concept and achievement was supported by these results. The first Function maximized the canonical correlation between the two newly created variables. In the first Function, 64.7% of the variance within that Function was explained by the newly created synthetic variables. Verbal, math, and school self-concepts all contributed significantly to the new criterion variable. In addition, self-concept for emotional stability contributed to the new variable as did self-concept for opposite sex relationships though that maintained a negative relationship with the new variable. The maladaptive engagement cognition factor of anxiety also made a contribution to the variable as did the adaptive engagement cognition of learning focus though in a negative direction. On the predictor side, PSAT verbal scores, PSAT math scores, and extracurricular participation contributed the most to the new predictor variable.

The results seem to indicate that school outcomes were positively related to academic self-concepts more so than to factors of engagement (Self-Belief, Learning Focus, Valuing School, Persistence, Planning, Study Management, Anxiety, Failure Avoidance, Uncertain Control, Self-Handicapping, and Disengagement). Engagement factors did not contribute as significantly as self-concepts to the new variable created in Function one.

As for the second canonical correlation, the results in Table 5 indicate that the most relevant criterion variables were PSAT math (-1.11), PSAT verbal (.73), and extracurricular (.73). Again for Function 2, the predictor variables of Days Absent and Discipline Referrals had little to offer of significance to this model. Table 6 presents the covariate canonical variables in Function 2. In terms of contributing to the new covariate, the most relevant variables making up the second synthetic predictor variable were self-concepts for school (-.05), same sex relationships (-.05), emotional stability (.04), verbal (.03), honesty/trustworthiness (.03), and the engagement factors of uncertain control (-.04) and self-belief (-.03).

In Function 2, 44% of the variance remaining after the first Function is explained by the newly created variables. Here again self-concept continued to contribute more significantly to the new variable created in Function 2. Only two engagement factors, self-belief and uncertain control, were meaningful in the second Function. For this group of special education students, engagement may not have had as much to offer in explaining academic outcomes as previously expected. On the predictor side, PSAT math scores, PSAT verbal scores and extracurricular participation were again the most significant contributors to the new variable. However in Function 2, PSAT math has a negative but strong contribution to the variable.

The finding of two significant canonical relationships indicates that in this sample there was not a single dimension that linked self-concept and engagement to school outcomes. Also,

the lack of a strong contribution from the engagement factor variables seems to indicate that self-concept may be more meaningful to positive academic outcomes for students with educational disabilities than engagement. In the first Function, students with high self-concept for verbal skills, math skills, and for school subjects in general had higher academic achievement and participated in more extracurricular activities. These students may have also viewed themselves as emotionally stable overall, but they worried about schoolwork and doing well academically. The second Function provided a different way to look at the relationship between self-concept, engagement, and school outcomes. Students who had higher school self-concepts, stronger same sex relationships, and were unsure how to avoid failure but believed in themselves showed higher math achievement. Self-concept for verbal skills and emotional stability were negatively related to math achievement. This second Function presented a different view of the variable relationship that may distinguish students who do well on verbal tasks versus those who do well in math.

Supplementary Analyses

The first supplementary analysis was conducted to examine the relationships among demographic variables and the predictor variables in the study. Several significant relationships emerged from this analysis. There were significant positive relationships between students' current class placement and scores on the SDQ II Verbal self-concept ($r(103) = .363$, $p = .001$) and School self-concept ($r(103) = .371$, $p = .001$) scales. Students placed in less restrictive classes had higher scores on the verbal and school self-concept scales. Similarly, there were significant negative relationships between students' current class placement and the maladaptive engagement cognition factor of Uncertain Control ($r(103) = -.351$, $p = .001$) and maladaptive engagement behavior factors of Self-Handicapping ($r(103) = -.432$, $p = .001$) and

Disengagement ($r(103) = -.312$, $p = .001$). Higher levels of uncertainty, self-sabotage, and disengagement were related to more restrictive class placements. Finally, there was a significant negative relationship between students socioeconomic status as calculated by the Hollingshead (1975) Four Factor Index of Social Status and the maladaptive engagement cognition factor of Uncertain Control ($r(103) = -.305$, $p = .002$). This indicated that students' level of uncertainty about how to do well academically increased with a corresponding decrease in socioeconomic status.

Although this study mainly utilized the SDQ II self-concept scales for Verbal, Math, and School, there were seven additional nonacademic scales and a total self-concept scale on the SDQ II. Supplementary analyses were also conducted to investigate any relationships among demographic variables and these scales of the Self Description Questionnaire II. The General Self self-concept scale of the SDQ II had significant positive relationships with students' Current Class Placement ($r(103) = .342$, $p = .001$) and not receiving Free/Reduced Lunch ($r(103) = .350$, $p = .001$). Similarly, the Total Self-Concept score on the SDQ II had significant positive relationships with Current Class Placement ($r(103) = .338$, $p = .001$) and not receiving Free/Reduced Lunch ($r(103) = .290$, $p = .003$).

The remaining scales of the Self Description Questionnaire II were also examined in relation to the five criterion variables. It was found that the General Self self-concept scale had significant positive relationships with Extracurricular Participation ($r(103) = .264$, $p = .006$), PSAT Verbal subtest scores ($r(103) = .283$, $p = .003$), and PSAT Math ($r(103) = .345$, $p = .002$) subtest scores. Similarly, the Total Self-Concept score on the SDQ II had significant positive relationships with Extracurricular Participation, PSAT Verbal subtest ($r(103) = .354$, $p = .001$), and PSAT Math ($r(103) = .387$, $p = .001$) subtest scores. Among the other nonacademic factors

of the SDQ II, self-concept for Honesty/Trustworthiness had significant positive relationships with both the PSAT Verbal subtest ($r(103) = .359$, $p = .000$), and PSAT Math ($r(103) = .279$, $p = .004$) subtest scores.

Another supplementary analysis was conducted to examine the relationship of demographic variables and the five criterion variables. One interesting result found that Extracurricular Participation had a significant positive relationship with Current Class Placement ($r(103) = .358$, $p = .001$), such that more participation was related to less restrictive class placement. Another result found that there was a significant positive relationship between Extracurricular Participation and socioeconomic status ($r(103) = .366$, $p = .001$). Those students who participated in more extracurricular activities also had families that had higher SES estimates.

Summary

It was originally predicted that the three academic self-concept scales and all eleven of the engagement factors would share a significant relationship with each other and with the school outcome variables. Verbal, math, and school self-concept were found to be most related to school outcome variables and, to a much less meaningful degree, to the factors of engagement. Adaptive engagement did not share a significant relationship to the school outcome variables but the maladaptive engagement factors did demonstrate significant relationships with the school outcome variables for the most part. However, when the self-concept and engagement variables were analyzed as a single unit neither engagement factor contributed significantly to the model. Overall, verbal, math, and school self-concepts demonstrated the most significant relationship to academic achievement (PSAT scores) and student participation in extracurricular activities.

Chapter V

Discussion

The goal of this dissertation was to examine the relationship between academic self-concept, engagement, and five criterion variables (PSAT Verbal, PSAT Math, Student Attendance, Student Extracurricular Participation, and Student Discipline) within a sample of tenth to twelfth grade students classified as needing special education services. The results are discussed below as well as the implications for school psychologists, the limitations of this study, and suggestions for potential future research with this population.

Overview and Interpretation of Findings

There were several significant relationships among the three measures of academic self-concept and the outcome measures (PSAT Verbal score, PSAT Math score, School Attendance, number of Discipline Referrals, and Extracurricular Participation) in this sample of students receiving special education services. The results of this study supported earlier research by Marsh (1992a) that found that higher self-concept for a subject area was positively related to higher achievement in that same area. Previous research has laid a foundation that points to a student's academic self-concept as having an important influence on his or her performance in school (Byrne, 1984; Elliot, 2006; Shavelson et al., 1976). Additionally, having a higher self-concept for school subjects in general resulted in higher achievement across participants. In all cases, higher self-concept was associated with higher levels of extracurricular involvement. Blomfield and Barber (2009) found that adolescents who participated in any type of extracurricular activity had higher academic, social, and general self-concepts than those students who did not participate in any activities.

A student's level of engagement in his or her academic setting has also been shown to have a positive relationship with achievement, identification with school, and more appropriate behavior in school (Finn, 1989; Finn et al., 1995; Skinner et al., 1990). Research has supported the idea that students with higher levels of academic self-concept would evidence more positive school related outcomes such as better attendance (Byrne, 1988; Harter, 1990). In this study, attendance and number of discipline referrals were not affected by self-concept or engagement. This result may be due to the high number of mean absences among participants indicating that, in this school, special education students with both high and low self-concepts took advantage of the very liberal attendance policy.

Results of the study revealed very little relationship between the factors of engagement and the school outcome variables. In contrast, Martin (2007) had found that adaptive engagement was positively related to school outcomes. The maladaptive cognitions were demonstrated to have a stronger negative relationship to achievement but a weaker relationship to extracurricular participation and attendance. The maladaptive engagement behaviors were the most robust engagement variables demonstrating a significant relationship to all the outcome variables, except attendance. This result may be related to the higher numbers of minority students in the research sample. Research with minority youth has shown that maladaptive engagement is related to poor performance in school and potentially to eventual dropping out of school (Archambault, Janosz, Fallu, & Pagani, 2009).

The maladaptive engagement cognitions and behaviors seemed to have more relationships with academic outcomes than their adaptive counterparts. However, when all the variables were analyzed together, engagement actually contributed very little to the analysis. Engagement may be less meaningful as a factor in student school outcomes than previously predicted for students

in special education. In other studies, engagement has been shown to be a significant factor in positive school outcomes for students (Yonezawa, Jones, & Joselowsky, 2009).

Students who had a higher rating of their skills and abilities in verbal areas also seemed to have a higher level of understanding about what it takes to be successful and to meet the challenges they may face. Students who performed well on the verbal measure knew how to avoid failure and to maximize their performance. It has been shown in research that self-concept of ability is a good predictor of students' engagement in school (Longitudinal Survey of Australian Youth, 2002). Overall, a sense of capability to do well in school subjects in general seemed to have a more positive influence on the quality of how special education students engaged in academics or demonstrated their level of engagement in school.

Implications for School Psychologists

The basis for this study was the substantial amount of research literature that has established the connection between higher levels of positive self-concept and engagement and positive school outcomes like higher levels of achievement, more involvement in school, less absence from school, and less discipline referrals while in school (Finn, 1993; Greenwood et al., 2002; Marsh et al., 1988; Newman & Davies, 2005; Skinner et al., 1990). All school psychologists are tasked with trying to help students reach their potential within the framework of their particular social, emotional, and behavioral needs. This is particularly true for students with special academic needs. Thus, understanding the influence of a student's self-rating of his or her own ability and how involved the student is with school has significant practical implications.

In this study, students' self-assessed skills and abilities (self-concept) in specific subjects or across all school subjects in general had significant positive relationships to their achievement

and in their involvement in activities beyond the classroom. This suggests that for school psychologists, helping students to recognize higher levels of ability or to work towards an increased level of capability can translate into increased performance. Hock, Pulvers, Deshler, and Schumaker (2001) have found that after-school tutoring programs have benefited students with special needs. One key aspect of their results was the inclusion of instruction in learning strategies as part of the tutoring. School psychologists can be instrumental in connecting special education students with tutors who are capable of both content level and strategy level instruction. They can also help students to learn more appropriate goal setting strategies. Students can also learn more effective study strategies and how to maximize their use of study time for the best outcome. This instruction can also be infused into classrooms to help further support the special education student. Hock et al. (2001) found that students were able to generalize strategy leaning across subjects. Increased performance in academic classes can translate into increases in academic self-concept.

Another way school psychologists can help special education students to improve academically and socially is by instituting peer tutoring programs. Osguthorpe and Scruggs (1986) found that special education students who were able to tutor younger students experienced academic, personal, and social benefits. School psychologists can organize opportunities for students to have positive experiences which increase their sense of personal and academic capability.

Marsh, Richards, and Barnes (1986b) examined utilizing outdoor, challenge based experiences to enhance self-concept. Outward Bound is a program of physically and mentally demanding activities which are designed to help participants gain insight into their strengths and weaknesses and ultimately master novel and demanding tasks. Some tasks are individual and

some are team based. Using a pre/post test design, Marsh et al. (1986b) found that participation in the activities of the Outward Bound program produced positive changes in self-concept that were found to be stable over an 18 month follow-up period. School psychologists can encourage schools to create more outdoor activity space or even a Ropes course. Ropes courses are used to create team building or individual challenge experiences. Psychologists can also encourage parents of children who demonstrate low self-concept to enroll their children in Outward Bound or other outdoor challenge based experiences.

Helping students to step outside of their comfort zone and take risks in terms of joining new groups or trying new activities may also help foster better school performance. In several studies, engagement was operationalized using extracurricular involvement as an indication of students' level of participation in school (Finn, 1993; Finn & Rock, 1997). Participation in structured extracurricular activities has been found to have positive effects on student self-concept and also preventative effects for students considered at-risk for negative outcomes (Gilman, Meyers, & Perez, 2004). Students who participate in extracurricular activities experience a wealth of personal and social benefits (Eccles & Barber, 1999). It is also important for school psychologists to remember that federal education law requires schools to provide for the participation of classified students in nonacademic and extracurricular activities (Sullivan, Lantz, & Zirkel, 2000).

Shapka and Keating (2005) suggested that creating opportunities for extra participation in high school activities should be undertaken as early as possible to ensure the maximum benefit to students' social self-concept which can be generalized to other future activities. School psychologists can assist special education students who may be resistant in joining new groups or activities by acting as an ambassador for that student. Many students with special needs may be

unaware of what opportunities there are for involvement outside the classroom. The school psychologist can help students with special needs to explore what opportunities exist that may be of interest. Involving students in all aspects of identifying activities, gathering information, and setting goals can make participation in an extracurricular activity more meaningful for a student with special needs (Carter, Swedeen, & Moss, 2009).

Many students with educational disabilities may not benefit from or participate in extracurricular activities unless a foundation and appropriate supports are in place (Carter et al., 2009). The psychologist can inform the adult advisor of a student's interest in a particular activity and set the stage for their entrance in to a group, club, or team. The school psychologist can also accompany a student to the first meeting or find another student who is already a member of that organization to buddy with that student to ease the transition into a new and potentially uncomfortable environment. School psychologists can also help to develop clubs expressly for special education students. A self-advocacy club would help students to learn a practical and much needed skill as well as provide an opportunity for socializing and potential leadership experiences. Another option could be a service club for students with special needs. Students could work together to identify ways to give back to the school or community and learn valuable lessons about organization. These positive experiences will help students to improve their self-concepts, learn new skills, and prepare for the future (Carter et al., 2009).

School psychologists also need to keep in mind that many staff members involved in extracurricular activities are not trained in special education and may need some collaboration on strategies and techniques to use with special needs students (Eccles & Barber, 1999). Difficult behavior can ruin a student's experience in a club or organization. Advance preparation may be needed in some situations to ensure that needed behavioral supports are in place and that the

sponsor of the club or team knows how to work with a particular student (Carter et al., 2009). In my experience, planning and follow-up can ensure that any student can become an independent member of a group, club, or team.

Results also showed that for this group of special education students, placement in a less restrictive class was related to more extracurricular involvement. Cambra and Silvestre (2003) supported the need for schools to incorporate more inclusive practices outside the classroom. Activities need to be developed that support the social and emotional development of special needs students. School psychologists can look to help students get more involved outside of the classroom, especially if those students are placed in more restrictive class environments during the school day. Students who participated in higher numbers of extracurricular activities were also placed in less restrictive classrooms. When special education students are included in settings with nondisabled peers, research has shown that peer acceptance for special education students is lower than that for students who are not classified (Stanovich, Jordan, & Perot, 1998). Participation in extracurricular activities is voluntary and requires a student to potentially step outside of his or her comfort zone and to take risks socially. Students who have higher academic self-concepts and take their classes in less restrictive settings may possess certain qualities that allow them to feel more confident and comfortable in different settings or groups.

School psychologists need to remain mindful of the potential differences that classified students have in terms of their self-concept. Cambra and Silvestre (2003) highlighted the interaction of a classified student's peer group perception and the impact that has on the development of his or her personal self-concept. Several studies have found support for the idea that students from more inclusive classroom settings evidence more positive self-concepts than those students in more restrictive settings (Allodi, 2000; Cambra & Silvestre, 2003; Wiener &

Tardif, 2004). Schools need to continue to adhere to the guiding principal of "least restrictive environment" in continuing to provide opportunities for the inclusion of special education students into general education classrooms (Prasse, 2002).

A cognitive behavioral approach to counseling can allow the school psychologist to help the student to change negative perceptions about self and ability and replace those with more functional and success oriented skills and cognitions (Martin, 2007). Research has shown that students with language based learning disabilities have higher levels of anxiety than nondisabled peers (Carroll & Lles, 2006). This anxiety is connected to both academic and social situations. Cognitive-behavioral Therapy (CBT) has been found to be one of the best treatments for anxiety disorders in adolescents (Foa & Andrews, 2006). School psychologists can use CBT to work with students in school and help alleviate or learn to manage anxiety related to school and performance or difficulty in more social situations. A hallmark of CBT is the teaching of anxiety management skills to adolescents (Foa & Andrews, 2006). Rational Emotive interventions have also been found to help improve students' self-concepts. Helping students to correct faulty thinking can improve their general self-concept which in turn should help students achieve more positive school outcomes (Donegan & Rust, 1998).

Research into the relationship between self-concept and engagement has been limited. Three studies found relationships between student self-concept, engagement, and academic achievement, though not in a direct linear relationship (Buhs, 2005; Connell et al., 1994; Skinner et al., 1990). The effect of engagement was to mediate the effect of self-concept on academic achievement. It would be premature to suggest that there is a causal dimension to the potential relationship between engagement and self-concept but there may be a relationship. School psychologists need to remain aware of the potential for some level of mediating relationship

between self-concept and engagement. Attempts to enhance self-concept and engagement in high school students would be improved with more accurate knowledge of how these constructs relate (Green, Nelson, Martin, & Marsh, 2006).

Both constructs are pliable and can be increased in a positive direction. Students who have not found success in academics seem to also have difficulty connecting what they are doing in school with any possible positive future outcome (Finn, 1993; Finn & Rock, 1997; Fredericks et al., 2004). There is a growing number of students who are becoming disengaged from school and do not see the relevance of an education to their lives (Balfanz, Herzog, & Mac Iver, 2007). School psychologists need to work with this group of students to help them to learn the skills they need for success and to help to change their attitudes and beliefs to incorporate more goal directed thinking and behavior.

Limitations of Study

There were several limitations to this study that may have impacted the outcome. Although all students who were classified received an invitation to participate in this study, the group of respondents who agreed to participate differed from the total population of students classified in need of special education services. This study's participant group contained more students with substantial emotional problems who were placed in more restrictive classes and came from families that qualified for Free/Reduced lunch. All three of these variables have been associated with lower levels of achievement and poorer school outcomes (Elbaum, 2002; Leonardi, 1993; Newman et al., 2003).

Another limitation of this study comes from the instruments used to gather data on the independent variables of self-concept and engagement. Although both scales were chosen for their easy reading level and the ability to be administered in groups, there may have been too

many items on the scales for the participants in this study. The measure of self-concept had 102 items while the engagement scale had an additional 44 items. Students may have lost interest or focus while completing the large number of items between both instruments. In an effort to maximize the amount of data collected, there may have been a collateral loss of precision on the part of participants. Also, given that many of the participants in this study may have had language based disabilities or deficits, the structure of the instruments may have caused students difficulty. Students were presented with the original protocols from the authors. The small type and the number of items may have been problematic for some students. One solution would have been to reproduce the instruments with larger type and less items per page. Additionally, multiple administrations using altered instruments might have allowed participants to respond more authentically.

Another limitation of the instruments used in this study may have been the reading level of scale items. Although the authors of both scales tout the easy reading level of their instruments for high school students, they were not developed specifically for use with students who have educational disabilities. Small group administration of the instruments with a reader reading the entire instrument may have produced different results. Students who did have difficulty with reading the instrument may have been too intimidated to ask for help in the large group setting.

Potentially, shorter, more unified measures of self-concept and engagement may have returned more significant results. It is possible that the potential relationship between self-concept and engagement is along a more general line and involves a more unitary construct of both engagement and self-concept than were used in this study. Alternative methods for assessing self-concept and engagement may be more productive when doing research with

special education students. Self-concept is mostly assessed using paper and pencil self- reports. However, engagement can often be studied using more authentic techniques. Finn and Rock (1997) looked at high school students' attendance, participation, and behavior as rated by multiple teachers in several venues for each participant. In another study, Sirin and Rogers-Sirin (2005) used a short, 9-item scale that examined school identification, school participation, and school expectations for African American high school students and found engagement to be a very important factor in students academic success.

The use of the PAST Math and Verbal scores as a measure of achievement may also been a limitation of this study. The PSAT provides students the opportunity to take a test very similar to the SAT, to experience participating in a large testing situation, and to identify areas of strength and weakness. This test may be most important to students who are focused on attending college following high school. Participants in this study may not have given the test their best effort if they could not connect their performance on this test with any future goals. Students with educational disabilities may have been frustrated by the standardized administration of this test and the lack of the type of support they are used to in testing situations. The PSAT also may not be an accurate accounting of students' actual academic achievement. Alternatives used in other studies have focused on classroom grades but these can be too subjective. Tests of general cognitive ability may not provide the data that researchers are looking for since cognitive ability is relatively stable. The relationship between self-concept and achievement is such that higher self-concept is related to higher levels of achievement. There is no such result that has been found in this study to suggest that self-concept has any relationship to cognitive ability. Potentially, direct assessment of each student using both standard measures and work sample

analysis may be the best way to accurately assess achievement levels in students with educational disabilities.

Given the nature of the school where data were collected and that school's history of difficulty with attendance issues, it may have been better to separate out attendance referrals from discipline referrals making two categories of referral. Also, given the high number of absences that students had, it might have been more instructive to examine attendance by individual classes rather than by days absent. Attendance for the day is taken during 2nd period so that a student who misses only that period is marked as absent for the day but may otherwise be in attendance. Also, looking at student extracurricular participation as a single concept may have had an influence on the results. Extracurricular participation can be in the form of a club, student organization, artistic group, or sport. It may have led to more complete results if more information had been gathered in this area.

Directions for Future Research

Studies have been conducted that underscore the importance of self-concept and engagement to student success in school and in the classroom (Byrne, 1996; Fredericks et al., 2004; Finn & Rock, 1997; Marsh et al., 1995; Martin, 2007; Newman, 1992). Most research seems to support the influence that each construct has individually on academic achievement and school outcomes; however, there has been little research examining the connection that may exist between self-concept and engagement (Connell et al., 1994; Green et al., 2006; Jordan & Stanovich, 2001; Skinner, et al., 1990). Future research that examines the relationship between self-concept and engagement should include an attempt to model the way in which self-concept and engagement affect each other on their way to influencing achievement and other school outcomes for students. There has been speculation that there is a circular relationship between

self-concept and engagement and how they relate to improving academic outcomes for students (Green et al., 2006). This question should be answered in order to be able to fully intervene and maximize positive student outcomes.

Another direction that future research should examine is investigation of the relationships that may exist within the very diverse group of classified students. Most research has compared groups of students with and without disabilities on dimensions related to self-concept and engagement. In order to more fully understand how these constructs work with special education populations, more research needs to be done utilizing participants with special educational needs. Roach, Wixson, Devadrita, and LaSalle (2009) have said that in addition to more research utilizing students with special needs, research needs to focus on hearing the voices of those students and not just focusing on their disability. Since all of the data on self-concept and engagement were gathered using prepared instruments, future research may benefit from examining how students with educational disabilities feel on a personal level about their education and their schools. More authentic assessment schemes that utilize both appropriate, short paper and pencil inventories and teacher input or portfolio assessments might provide better measures of engagement and achievement.

Given the very different needs and skills within the population of students classified in need of special education services, use of mainstream assessment tools may not provide an accurate accounting of the construct of interest. The development of assessment instruments that are sensitive to a wide variety of individual differences within the special education population would aid in future research.

Along those same lines, since the PSAT proved to not be the best option for assessing student achievement, future researchers may wish to examine the relationship between self-

concept and/or engagement and special education students' executive functioning. Deficits in executive functioning would negatively impact a student's academic progress in a way that mitigates the potential positive effects of higher levels of self-concept.

More research is also needed with the special education population to determine how they access extracurricular activities and to promote their participation in nonacademic activities. Given the importance of extracurricular involvement to fostering positive school outcomes, finding ways to include students with special needs in more activities outside of the classroom and removing any barriers that exit to keep students from being more involved can result in development of activities that support the needs and growth of classified students.

Appendix A

Brief Summary of the Factors of the Self Description Questionnaires (SDQ I, II, III)

Test	Factor	Description
SDQ I[a]		
	Physical Abilities	Student ratings of their skills and interest in sports, games, and physical activities.
	Physical Appearance	Student ratings of their physical attractiveness, how their appearance compares with others, and how others think they look.
	Reading	Student ratings of their skills, ability, enjoyment, and interest in reading.
	Mathematics	Student ratings of their skills, ability, enjoyment, and interest in mathematics.
	Peer Relations	Student ratings of their popularity with peers, how easily they make friends, and whether others want them as a friend.
	Parent Relations	Student ratings of how well they get along with their parents, whether they like their parents, and the quality of their interactions with their parents.
	General-Self	Student ratings of themselves as effective, capable individuals, who are proud and satisfied with the way they are.
	General-School	Student ratings of their skills, ability, enjoyment,

Appendix A (*continued)*

Test	Factor	Description
	General-School	Student ratings of their skills, ability, enjoyment, and interest in school subjects in general.
SDQ II[b]		
	Physical Abilities	Student ratings of their skills and interest in sports, games, and physical activities.
	Physical Appearance	Student ratings of their physical attractiveness, how their appearance compares with others, and how others think they look.
	Verbal	Student ratings of their skills and ability in English and reading.
	Math	Student ratings of their skills and ability in math.
	General	Student ratings of themselves as effective, capable individuals, who are proud and satisfied with the way they are.
	Honesty/Trustworthiness	Student ratings of their honesty and trustworthiness.
	Emotional Stability	Student ratings of themselves as being calm and relaxed, emotional stability, and how much they worry.
	Parent Relationships	Student ratings of how well they get along with their parents, whether they like their parents, and the quality of their interactions with their parents.

Appendix A (*continued)*

Test	Factor	Description
	School	Student ratings of their skills and ability in school subjects in general.
	Same-sex Relationships	Student ratings of their popularity with members of the same sex and how easily they make friends with members of the same sex.
	Opposite-Sex Relationships	Student ratings of their popularity with members of the opposite sex and how easily they make friends with members of the opposite sex.
SDQ III[c]		
	Physical Abilities	Ratings of skills and interest in sports, games, and physical activities.
	Physical Appearance	Ratings of physical attractiveness, how appearance compares with others, and how others think they look.
	Verbal	Ratings of skills and ability in English and reading.
	Math	Ratings of skills and ability in math.
	General Esteem	Ratings of effectiveness, capability with individuals, who are proud and satisfied with the way they are.
	Honesty/Trustworthiness	Ratings of honesty and trustworthiness.

Appendix A (*continued)*

Test	Factor	Description
	Emotional Stability	Ratings of themselves as being calm and relaxed, emotional stability, and how much they worry.
	Parent Relationships	Ratings of relationship with parents, whether they like their parents, and the quality of their interactions with their parents.
	Academic (General)	Ratings of general academic skills and ability.
	Same-sex Relationships	Ratings of popularity with members of the same sex and how easily they make friends with members of the same sex.
	Opposite-Sex Relationships	Ratings of popularity with members of the opposite sex and how easily they make friends with members of the opposite sex.
	Spiritual Values/Religion	Perceptions of own spiritual values and beliefs.
	Problem-Solving	Ratings of own capability to engage in problem-solving.

Note. From [a]Marsh, H. W. (1988). *Self-Description Questionnaire I: A theoretical and empirical basis for the measurement of multiple dimensions of preadolescent self-concept: A test manual and a research monograph.* San Antonio: Psychological Corporation.

[b]Marsh, H. W. (1992b). *Self Description Questionnaire (SDQ) II: A theoretical and empirical basis for the measurement of multiple dimensions of adolescent self-concept. A test manual and research monograph.* Macarthur, New South Wales, Australia: University of Sydney, Faculty of Education.

[c]Marsh, H. W. & O'Neill, R. (1984). Self Description Questionnaire III: The construct validity of multidimensional self-concept ratings by late adolescents. *Journal of Educational Measurement, 21*, 153-174.

Appendix B

Introductory Letter for Parents

Parental Consent for Participation Form

THE GRADUATE CENTER
THE CITY UNIVERSITY OF NEW YORK

Ph.D. Program in Educational Psychology

The Graduate School and University Center
The City University of New York
365 Fifth Avenue
New York, NY 10016-4309
TEL 212.817.8285 FAX 212.817.1516

Dear Parent(s)/Guardian(s), September 20, 2008

My name is David P. Steinke and I am a doctoral student in the Educational Psychology Ph.D. Program at the Graduate Center of the City University of New York. I am conducting a research project entitled "The relationship of academic self-concept and academic engagement to each other and to school outcomes of students with disabilities." This is a research study designed to examine the relationship of a student with disabilities' self-concept and academic engagement to academic outcomes such as attendance, behavior, and achievement.

Dr. Alvarez, the Superintendent of Montclair Schools, has agreed to allow me to seek the participation of students in the special education department at Montclair High School. You are receiving this letter because your child currently has a classification which qualifies him or her to receive special education services. I am hoping to enlist the participation of as many of the classified students in grades 10 to 12 at Montclair High School as possible. Data collection is scheduled to take place on Tuesday, October 28, 2008 from 2:40pm – 3:40pm at Montclair high school.

The study itself is designed to look at the relationship of academic self-concept and academic engagement as they relate to each other and to school outcomes such as achievement, attendance, behavior, and extracurricular participation. I have chosen the population of classified students because research has shown that their levels of self-concept and engagement vary with their disability category and their placement. This study was proposed as an effort to gain deeper understanding of the ways in which classified students learn and interact with their school. Hopefully this research can help to improve the academic experience of classified children and inform those professionals who work with them how to better serve this group of students.

Please take a minute to read the enclosed material. If you agree to allow your child to participate in this study, complete the parental consent form and the demographic questionnaire and return it in the enclosed envelope. Thank you for your time and consideration.

Sincerely,

David P. Steinke, M.Ed., NCSP
School Psychologist

Ph.D. Program in Educational Psychology

The Graduate School and University Center
The City University of New York
365 Fifth Avenue
New York, NY 10016-4309
TEL 212.817.8285 FAX 212.817.1516

PARENT/GUARDIAN CONSENT FORM

My name is David P. Steinke and I am a doctoral student in the Ph.D. Program in Educational Psychology at the Graduate School and University Center of the City University of New York. I am conducting my dissertation designed to examine the relationship of students with disabilities' feelings about themselves and their involvement in school to their achievement. I would like permission for your child to participate in this study. If you give permission, your child's participation would consist of staying after school for two afternoons. One afternoon your child would attend a 15-20 minute informational session about the study during which they would be asked to provide their assent to participate in the study. On the second afternoon, they would complete two self-report instruments. If you agree to let your child participate, I would also ask you to complete one of the enclosed Demographic Questionnaires. The Demographic Questionnaire should take you about 10 minutes to complete and asks you to provide some background questions pertaining to you and your child.

The two questionnaires that your child will complete should take approximately 40 minutes. The first student self-report questionnaire asks questions about how your child feels about his/her ability in various areas including academic, social, emotional, and physical. The second questionnaire asks about how your child feels about his or her school, how he/she participates in school, how he or she behaves in school, and how he or she feels about education. Additionally, a research assistant will conduct a brief review of your child's records to get specific information regarding attendance, behavior, and achievement in the form of PSAT Math and Verbal scores. Even though this is my dissertation, research assistants will administer all questionnaires and gather all other data so that I will have no access to any information with a student's name on it. Your child's name will not appear on any of the information gathered and all results will be kept strictly confidential. You and your child can refuse to answer any questions, stop participation at any time, or choose not to participate at all in the study without any penalties of any kind. As compensation for participation, I will provide your child with one movie pass to a local movie theater for his/her participation in this project

The risk involved in participating in this study is minimal, no more than might be encountered in everyday life. The benefits of your child's participation in this study will be in the contribution made to the understanding of how students with disabilities feel about and participate in their education and the effects that their feelings have on their educational achievements. This knowledge may possibly help school personnel and have a positive impact on how educators work with students with disabilities.

I may publish the results of this study in the future. The names of all participants and any identifying characteristics will not be used in any of the publications. If you would like a copy of the study, please provide me with your address and I will send you a copy in the future.

Thank you for your time and consideration. If you agree to allow your child to participate in this study, please sign and date below. If you have any questions about this research you can contact me at (973) 744-3172 or email me at dsteinke@gc.cuny.edu or you can contact my advisor Professor Georgiana Shick Tryon at (212) 817-8293 or gtryon@gc.cuny.edu. If you have questions about your rights as a participant in this study, you can contact Kay Powell, IRB Administrator, The Graduate Center/City University of New York, (212) 817-7525 or kpowell@gc.cuny.edu.

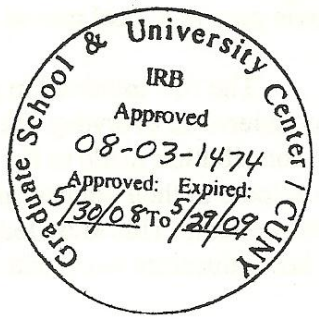
CONSENT

This project has been explained to me and I have had an opportunity to ask any questions that I may have and those questions have been answered to my satisfaction. I understand that my child's participation in this study is totally voluntary and that we may withdraw from this study at any time with no repercussions. I have read this form and I understand this project. I give consent for my child to participate in this study.

_____ I agree to participate and to allow my child _____ to participate.
Yes / No (Child's Name)

_____ _____
(Signature of Parent or Guardian) (Date)

_____ _____
(Signature of Principal Investigator) (Date)



Appendix C

Demographic Questionnaire including the Hollingshead Four Factor Index of Social Status Worksheet.

Directions

If you are:

- **married and living with your spouse.**
- **separated or divorced and receiving support payments from your present/former spouse.**
- **widowed and living on the income of your spouse's estate.**

Then please complete page 1 (front) of the Demographic Questionnaire only.

If you are:

- **single.**
- **separated or divorced and employed.**
- **widowed and not living on the income of your spouse's estate.**

Then please complete page 2 (back) of the Demographic Questionnaire only.

Your Name: First: _____ Last: _____ **Phone #** _____

Student's Name: First: _____ Last: _____ **Gender: __**Male __Female

Relationship to Student: ____Parent; ____Grandparent; ____Step-parent; ____Legal Guardian; ____Other

If you checked Other, please explain: _____ **Student's Date of Birth:** _____

Current grade: _____ Year first classified: _____grade. Student's current classification _____

Please mark an X next to the response that is most correct for you. Please mark only one response for each question.

1. My gender is ____male ____female

2. My student's ethnicity is: ____White, (non-Hispanic); ____Black, (non-Hispanic); ____Hispanic;

____ Native American; ____ Asian or Pacific Islander; ____ Other (please explain: _____)

3. I am currently employed _____ yes _____ no

4. My (current/former) spouse is currently employed. _____ yes _____ no

5. My current job title is:
_____

6. My (current/former) spouse's job title is/was:
_____

7. Currently, I am retired. _____ yes _____ no

8. Currently, my spouse is retired. _____ yes _____ no

9. The highest level of schooling I have completed is:
   - _____ less than 7th grade.
   - _____ junior high school (9th grade).
   - _____ some high school (10th or 11th grade).
   - _____ high school graduate.
   - _____ some college or specialized training.
   - _____ college or university graduate.
   - _____ graduate degree.

10. The highest level of schooling my spouse has completed is:
   - _____ less than 7th grade.
   - _____ junior high school (9th grade).

_____ some high school (10th or 11th grade).
_____ high school graduate.
_____ some college or specialized training.
_____ college or university graduate.
_____ graduate degree.

11. My marital situation is:
_____ married and living with spouse.
_____ separated or divorced and receiving support payments from my present/former spouse.
_____ widowed and living on the income of my spouse's estate.

Your Name: First: _____ Last: _____ **Phone #** _____

Student's Name: First: _____ Last: _____ **Gender:** __Male __Female

Relationship to Student: ____Parent; ____Grandparent; ____Step-parent; ____Legal Guardian; ____Other

If you checked Other, please explain: _____**Student's Date of Birth:** _____

Current grade: _____ Year first classified: ____grade. Student's current classification_____

Please mark an X next to the response that is most correct for you. Please mark only one response for each question.

1. My gender is ____male ____female

2. My student's ethnicity is: ____White, (non-Hispanic); ____Black, (non-Hispanic); ____Hispanic;

____ Native American; ____ Asian or Pacific Islander; ____ Other (please explain: _____)

3. I am currently employed _____ yes _____ no

4. My current job title is:
_____

5. Currently, I am retired. _____ yes _____ no

6. The highest level of schooling I have completed is:
_____ less than 7th grade.

_____ junior high school (9th grade).
_____ some high school (10th or 11th grade).
_____ high school graduate.
_____ some college or specialized training.
_____ college or university graduate.
_____ graduate degree.

7. My marital situation is:
_____ not married.
_____separated or divorced and receiving support payments from my present/former spouse.
_____ widowed and living on the income of my spouse's estate.

Appendix D

Student Assent for Participation Form

Ph.D. Program in Educational Psychology

The Graduate School and University Center
The City University of New York
365 Fifth Avenue
New York, NY 10016-4309
TEL 212.817.8285 FAX 212.817.1516

STUDENT ASSENT FORM

My name is David P. Steinke and I am a doctoral student in the Ph.D. Program in Educational Psychology at the Graduate School and University Center of the City University of New York. I am conducting a dissertation research project that is designed to look at the relationship of students with disabilities' feelings about themselves and their involvement in school to their achievement. I hope that the results of this study will benefit students with disabilities by helping us to better know your needs.

Your parent(s) have given permission for you to participate in the study, but you do not have to take part in the study unless you want to. If you do want to be a part of this study, you will be asked to stay after school one day for about 40 minutes. On the day you stay after school, you will complete two questionnaires. These questionnaires will ask questions about how you feel about your ability in various areas including academic, social, emotional, and physical, about how you feel about your school and how you participate, and finally, about how you behave in school, how you feel about learning, and the way you learn.

Your name will not appear on any of the information gathered and all results will be kept strictly confidential. Even though this is my dissertation, research assistants will administer all the questionnaires and gather all other data so that I will no have access to any information with your name on it. No one will see the answers you give other than the research assistants. You can refuse to answer any questions or stop participation at any time without any penalties of any kind. Whether you participate or not will have no affect on your school grades. If you agree to participate, I will give you one movie pass to a local theater after you complete the two questionnaires.

There is a possibility that you may be uncomfortable at times thinking about and answering questions about your education. Some of the questions may be personal and if you feel uncomfortable, you may skip any of those questions. Also, if you feel uncomfortable, you can let one of the research assistants know as soon as possible so they can talk to you about it.

You can contact me if you have any questions about this research at (973) 744-3172 or email me at dsteinke@gc.cuny.edu or you can contact my advisor Professor Georgiana Shick Tryon at (212) 817-8293 or gtryon@gc.cuny.edu. Or you can contact Kay Powell, IRB Administrator, The Graduate Center/City University of New York, (212) 817-7525 or kpowell@gc.cuny.edu.

Thank you for considering being a part of this study. Please sign and return one copy of this form and keep a copy for yourself.

ASSENT

This project has been explained to me and I have had an opportunity to ask any questions that I may have and those questions have been answered to my satisfaction. I understand that my participation in this study is totally voluntary and that I may withdraw from this study at any time with no repercussions. I have read this form and I understand this project. I give my assent (agree) to participate in this study.

_____ I, _____, agree to participate in this study.
Yes / No (Student's Name)

_____ _____
(Signature of Student) (Date)

_____ _____
(Signature of Principal Investigator) (Date)

Appendix E

Brief Summary of the Factors of the Motivation and Engagement Scale

Factor	Dimension	Description
Engagement Thoughts / Cognitions		
	Self-Belief	Self-belief is students' belief and confidence in their ability to understand or to do well in their school work, to meet challenges they face and to perform to the best of their ability.
	Learning Focus	Entails being focused on learning, solving problems and developing skills.
	Valuing School	How much students believe what they learn at school is useful, important, and relevant to them or to the world in general.
Engagement Behaviors		
	Persistence	How much students keep trying to work out an answer or to understand a problem even when that problem is difficult or challenging.
	Planning	How much students plan their schoolwork, assignments, and study and how much they keep track of their progress while working.
	Study Management	Refers to the way students use their study time, organize their study timetable, and choose and arrange where they study.

Appendix E (*continued)*

Factor	Dimension	Description
Maladaptive Engagement Cognitions and Affect		
	Anxiety	Feeling nervous and worrying. Feeling nervous is the uneasy or sick feeling students get when they think about their schoolwork, assignments, or exams. worrying is their fear of not doing very well in their schoolwork, assignments, or exams.
	Failure Avoidance	Students have an avoidance focus when the main reason they do their schoolwork is to avoid doing poorly or to avoid being seen to do poorly.
	Uncertain Control	Assess students' uncertainty about how to do well or how to avoid doing poorly.
Maladaptive Engagement Behaviors		
	Self-Handicapping	Students do things that reduce their chances of success at school. Examples are wasting time or procrastinating.
	Disengagement	Students are disengaged or at risk of disengagement when they feel like giving up in particular school subjects or in school generally. Students high in disengagement tend to accept failure and behave in ways that reflect helplessness.

Appendix E (*continued)*

Note. From Martin, A. J. (2007). Examining a multidimensional model of student motivation and engagement using a construct validation approach. *British Journal of Educational Psychology, 77*, 413-440.

Appendix F

Student Data Form

STUDENT DATA FORM

Participant Number: _____

Current Class Placement: _____

Total Number of Full Days Absent: _____

Total Number of Disciplinary Referrals:_____

Total Number of Extracurricular Activities: _____

PSAT Verbal:_____ Math: _____

Appendix G

Hypothesized Correlation Matrices

Appendix G

Hypothesized relationships between the SDQ II and the MES

MES Factors	Self-Belief	Learning Focus	Valuing School	Persistence	Planning	Study Managt	Anxiety	Failure	Uncertain Control	Self-Handicapping	Disengagement
SDQ II Factors											
Verbal	PC	PC	PC	PC	PC	PC	NC	NC	NC	NC	NC
Math	PC	PC	PC	PC	PC	PC	NC	NC	NC	NC	NC
School	PC	PC	PC	PC	PC	PC	NC	NC	NC	NC	NC
General											
Physical Abilities											
Physical Appearance											
Honesty/ Trustworthiness											
Emotional Stability											
Parent Relationships											
Same-Sex Relationships											
Opposite-Sex Relationships											

Note. PC = positive correlation; NC = negative correlation.

Appendix G

Hypothesized relationships between the SDQ II and academic outcomes

Outcomes	PSAT Verbal	PSAT Math	Attendance	Discipline	Extracurricular
SDQ II Factors					
Verbal	PC		PC	NC	PC
Math		PC	PC	NC	PC
School	PC	PC	PC	NC	PC
General					
Physical Abilities					
Physical Appearance					
Honesty/Trustworthiness					
Emotional Stability					
Parent Relationships					
Same-Sex Relationships					
Opposite-Sex Relationships					

Note. PC = positive correlation; NC = negative correlation.

Appendix G

Hypothesized relationships between the MES and academic outcomes

Outcome	PSAT Verbal	PSAT Math	Attendance	Discipline	Extracurricular
MES Factors					
Self-Belief	PC	PC	PC	NC	PC
Learning Focus	PC	PC	PC	NC	PC
Valuing School	PC	PC	PC	NC	PC
Persistence	PC	PC	PC	NC	PC
Planning	PC	PC	PC	NC	PC
Study Management	PC	PC	PC	NC	PC
Anxiety	NC	NC	NC		NC
Failure Avoidance	NC	NC	NC		NC
Uncertain Control	NC	NC	NC		NC
Self-Handicapping	NC	NC	NC	PC	NC
Disengagement	NC	NC	NC	PC	NC

Note. PC = positive correlation; NC = negative correlation.

Appendix H

Correlational Hypothesis Testing

Hypothesis 1: *There will be significant positive relationships between students' scores on the Academic Verbal self-concept scale of the SDQ II and the MES factors of Engagement Cognitions and Engagement Behaviors.*

Appendix Table 1 (see page 139) gives Pearson Correlation computations for the SDQ II Verbal, Math, and School Factors and the MES Adaptive Cognitions and Behavior factors. For hypothesis 1, Table 1 shows that there is a significant positive relationship between the engagement cognition factors Learning Focus and Self-Belief and between the engagement behaviors factor Task Management with Verbal self-concept at the $p < .01$ level of significance. Although it was predicted that verbal self-concept would positively correlate with all of the positive engagement cognitions and behaviors, there was only a significant positive relationship for verbal self-concept and the cognitive engagement factors of Self-Belief ($r = .383$, $p = .001$) and Learning Focus ($r = .289$, $p < .003$) as well as the engagement behavior factor Study/Task Management ($r = .296$, $p = .003$). These correlations are moderate at best, with the strongest result (i.e., the highest correlation) indicating that students who have a higher verbal self-concept also believe in their ability to perform well in school. Despite the evidence that there is indeed some level of a positive relationship between a student's strong verbal self-concept and certain aspects of engagement, only three of the Hypothesized six correlations were significant lending only partial support for hypothesis 1.

Hypothesis 2: There will be significant positive relationships between students' scores on the Academic Math self-concept scale of the SDQ II and the MES factors of Engagement Cognitions and Engagement Behaviors.

Appendix Table 1 (see page 139) presents the Pearson Correlation computations for hypothesis 2. The results show that there is a significant positive relationship between the engagement behavior factor of Persistence (r = .317, p = .001) with Mathematics self-concept at the p < .01 level of significance. There is also a positive relationship between verbal self-concept and the engagement behavior factor of Planning (r = .234, p= .016) at the p < .05 level of significance. It was predicted that Mathematics self-concept would positively correlate with the six adaptive engagement cognitions and behaviors. However, there was only a significant positive relationship for Math self-concept and the cognitive engagement behavior factors of persistence and planning. In this latter instance students' ability to persevere on academic tasks is moderately related to their self-concept in math and, to a lesser degree, to their academic planning. Because only two of the Hypothesized six correlations were significant, hypothesis 2 was not supported.

Hypothesis 3: There will be significant positive relationships between students' scores on the School self-concept scale of the SDQ II and the MES factors of Engagement Cognitions and Engagement Behaviors.

In testing Hypothesis 3, the results show that there were significant positive relationships between the engagement cognition factors of Learning Focus, Valuing School, and Self-Belief and School self-concept (see Appendix Table 1, page 139). There was also a positive relationship between School self-concept and the engagement behavior factor of Task Management at the p < .01 level of significance. Initially, it was predicted that School self-concept would positively correlate with all of the positive engagement cognitions and behaviors. However, there were only significant positive relationships for School self-concept and the cognitive engagement factors of Learning Focus (r = .400, p = .001), Valuing School (r = .274, p = .005), and Self-Belief (r =

.490, p = .001) as well as the engagement behavior factor Study/Task Management (r = .341, p = .001). In this case there were moderate positive relationships between the general school self-concept and students' focus on their academics and belief in their ability to do well. Students' belief in the usefulness of their education was also positively related to their general school self concept. How students manage their time and organize their study was also positively related to their school self-concept. Although hypothesis 3 predicted a positive relationship between school self-concept and all six adaptive engagement cognitions and behaviors, only the three engagement cognitions were all related significantly and positively to school self-concept. The only adaptive engagement behavior to demonstrate any positive relationship with school self-concept was task management. Therefore, because only four of the Hypothesized six correlations were significant, hypothesis 3 was not fully supported.

Appendix Table 1

Pearson Correlation Coefficient Values Among MES Adaptive Cognitions and Behaviors Factors and SDQ II Verbal, Math, and School Scales

	MES Factors					
	Adaptive Cognitions			Adaptive Behaviors		
SDQ II Scales	Learning Focus	Valuing School	Self Belief	Persistence	Task Management	Planning
Verbal	.289**	.080	.383**	.020	.286**	.063
Math	.130	.077	.137	.317**	.120	.234*
School	.400**	.274**	.490**	.142	.341**	.096

Note. N = 105. * p < .05, two-tailed, ** p < .01, two-tailed.

Hypothesis 4: There will be significant negative relationships between students' scores on the Academic Verbal self-concept scale of the SDQ II and the MES factors of Maladaptive Engagement Cognitions/Affect and Maladaptive Engagement Behaviors.

Appendix Table 2 (see page 142) presents the Pearson Correlation computations for the SDQ II Verbal, Math, and School scales and the MES factors of Maladaptive Cognitions and Behaviors. For hypothesis 4, the results show significant negative relationships between the maladaptive engagement cognition factor of Uncertain Control, the maladaptive engagement behavior factor of Self-Handicapping and Verbal self-concept at the $p < .01$ level of significance. Although it was predicted that Verbal self-concept would positively correlate with all of the maladaptive engagement cognitions and behaviors there was only a significant negative relationship for Verbal self-concept and the maladaptive cognitive engagement factor of Uncertain Control ($r = -.344$, $p = .001$) and for the maladaptive engagement behavior factor Self-Handicapping ($r = -.378$, $p = .001$). This result indicates that students having stronger verbal self-concept are more certain about how to do well in school and are less apt to waste time and procrastinate. Because only two of the Hypothesized five correlations were significant, hypothesis 4 was not supported.

Hypothesis 5: There will be significant negative relationships between students' scores on the Academic Math self-concept scale of the SDQ II and the MES factors of Maladaptive Engagement Cognitions/Affect and Maladaptive Engagement Behaviors.

The results for the Pearson Correlation computations for hypothesis 5 are presented in Appendix Table 2 (see page 142). The results show that there was a significant negative

relationship between the engagement behavior factor of Disengagement (r = -.267, p = .006) and Mathematics self-concept at the $p < .01$ level of significance. There were significant negative relationships between Math self-concept and the maladaptive engagement cognition factor of Uncertain Control (r = -.236, p= .016) and Math self-concept and the maladaptive engagement behavior factor Self-Handicapping (r = -.200, p = .041) at the $p < .05$ level of significance. Although it was predicted that Mathematics self-concept would negatively correlate with the five maladaptive engagement cognitions and behaviors there was only a significant negative relationship for Math self-concept and the level of disengagement students may experience. This was also true for students who are unsure how to avoid poor academic performance and for those who actively engage in behaviors to reduce their chances of academic success. Although Math self-concept did have a significant negative relationship with maladaptive engagement behaviors there were limited significant results for the maladaptive engagement cognitions. Because only three of the Hypothesized five correlations were significant, hypothesis 5 was only partially supported.

Hypothesis 6: There will be significant negative relationships between students' scores on the School self-concept scale of the SDQ II and the MES factors of the Maladaptive Engagement Cognitions/Affect and Maladaptive Engagement Behaviors.

It can be inferred from the results of correlations presented in Table 2 (see page 142) that there were significant negative relationships between maladaptive engagement cognition factor Uncertain Control, the maladaptive engagement behavior factors Self-Handicapping, and Disengagement with the School self-concept scale on the SDQ II at the $p < 0.01$ level of significance. The results did not provide full support for the hypothesis. Although it was predicted that School self-concept would negatively correlate with the five maladaptive

engagement cognitions and behaviors there were only significant negative relationships for School self-concept and the maladaptive cognitive engagement factor of Uncertain Control (r = -.385, p = .001) as well as the maladaptive engagement behavior factors Self-Handicapping (r = -.366, p = .001), and Disengagement (r = -.491, p = .001). Students who felt good about their ability to do well in their school subjects in general were less likely to be uncertain about how to do well in school, accept failure, and will engage in less self-defeating behaviors. Again, while the results indicated that the two maladaptive engagement behaviors were significantly negatively correlated with school self-concept, only the maladaptive engagement cognition factor of uncertain control showed any significant relationship with school self-concept. Because only three of the Hypothesized five correlations were significant, hypothesis 6 was partially supported by these results.

Appendix Table 2

Pearson Correlation Coefficient Values for MES Maladaptive Cognitions and Behavior Factors and the SDQ II Verbal, Math, and School Self-Concept Scales

	MES Factors				
	Maladaptive Cognitions			Maladaptive Behaviors	
SDQ II factors	Anxiety	Failure Avoidance	Uncertain Control	Self Handicapping	Disengagement
Verbal	-.131	-.004	-.344**	-.378**	-.180
Math	-.160	-.177	-.236*	-.200*	-.267**
School	-.024	-.054	-.385**	-.366**	-.491**

Note. N = 105. * p < .05, two-tailed, ** p < .01, two-tailed.

Hypothesis 7: There will be significant positive relationships between students' scores on the Academic Verbal self-concept scale of the SDQ II and the Verbal and Math subtests scores of the PSAT.

Appendix Table 3 (see page 144) presents correlations of the SDQ II Verbal, Math, and School self-concept scales with students' PSAT Verbal and Math scores. The results of the Pearson correlation performed on the data for hypothesis 7 can be found in Table 6. There was a significant positive correlation between students' academic verbal self-concept and their score on the Verbal subtest of the PSAT. Results showed a moderately strong relationship between Verbal self-concept scores and Verbal subtest scores on the PSAT ($r = .508$, $p = .001$). This provides full support for hypothesis 7.

Hypothesis 8: There will be significant positive relationships between students' scores on the Academic Math self-concept scale of the SDQ II and the Math subtest score of the PSAT.

Appendix Table 3 shows a significant positive relationship between scores on the Mathematics subtest of the PSAT and scores for Mathematics self-concept on the SDQ II at the $p < 0.01$ level of significance. Thus, the strength of students' beliefs in their ability and skills in mathematics was positively related to their performance on an assessment of their mathematics achievement. This is a moderately strong relationship in the predicted direction indicating that hypothesis 8 was supported by the data.

Hypothesis 9: There will be significant positive relationships between students' scores on the School self-concept scale of the SDQ II and the Verbal and Math subtests scores of the PSAT.

Appendix Table 3 also shows a significant positive relationship between the scores on the School self-concept scale of the SDQ II and PSAT scores on both the Verbal (r = .478, p = .001) and Mathematics (r = .506, p = .001) subtests. It was predicated that School self-concept would be positively related to a students scores on tests of verbal and math ability. Results in this case demonstrate a moderately strong relationship in the predicted direction. Therefore, hypothesis 9 was supported by the data.

Appendix Table 3

Pearson Correlation Coefficient Values among SDQ II Verbal, Math, and School Scales and Students' PSAT Verbal and Math Scores

SDQ II Scales	PSAT Verbal	PSAT Math
Verbal	.508**	.415**
Math	.290**	.372**
School	.478**	.506**

Note. N = 105. * p < .05, two-tailed, ** p < .01, two-tailed.

Hypothesis 10: There will be significant positive relationships between students' scores on the Academic Verbal, Math, and School self-concept scales of the SDQ II and students' attendance.

Appendix Table 4 (see page 146) presents correlations among SDQ II factors and students' attendance, extracurricular participation, and disciplinary infractions. There were no significant positive relationships between the Verbal, Mathematics, and School self-concept scales of the SDQ II with Student Attendance. Pearson correlation statistics were very small in all cases. The number of school days students missed was not related to their ratings of their ability to be successful in their academics. Therefore, hypothesis 10 was not supported.

Hypothesis 11: There will be significant positive relationships between students' scores on the Academic Verbal, Math, and School self-concept scales of the SDQ II and students' extracurricular participation.

Appendix Table 4 shows significant positive relationships between scores on the Verbal and School self-concept scales of the SDQ II and students' level of Extracurricular Participation. There was also a significant positive relationship between scores on the Math self-concept scale and students' level of Extracurricular Participation. Students' scores on the Verbal self-concept scale (r = .321, p = .001) and the School self-concept scale (r = .292, p =.002) and to a lesser degree the Math self-concept scale (r = .215, p = .027) showed positive relationships with the number of extracurricular activities that they participate in during the school year. Therefore, hypothesis 11 was supported by the results.

Hypothesis 12: There will be significant negative relationships between students' scores on the Academic Verbal, Math, and School self-concept scales of the SDQ II and number of student disciplinary infractions.

Appendix Table 4 shows no significant negative relationships of the Verbal, Mathematics, and School self-concept scales of the SDQ II and students' Disciplinary Infractions. Pearson correlation statistics were very small in all cases. Thus, the number of disciplinary infractions students had during the course of a school year was not related to their ratings of their ability to be successful in their academics. Therefore, hypothesis 11 was not supported.

Appendix Table 4

Pearson Correlation Coefficient Values among SDQ II Verbal, Math, and School Scales and Students' Attendance, Extracurricular Participation, and Discipline

SDQ II Factors	Student Attendance	Extracurricular Participation	Disciplinary Infractions
Verbal	.010	.321**	-.163
Math	-.028	.215*	.011
School	-.014	.292**	-.163

Note. * p < .05, two-tailed, ** p < .01, two-tailed.

Hypothesis 13: There will be significant positive relationships between students' scores on the Engagement Cognitions factors scale of the MES and the Verbal and Math subtests scores of the PSAT.

Appendix Table 5 (see page 148) presents correlations among students' scores on the MES Factors of Self-Belief, Learning Factors, and Valuing School and their PSAT scores, extracurricular activities, disciplinary infractions, and attendance. There was a significant positive relationship between the adaptive engagement cognition factor Self-Belief (r = .201, p = .041) and scores on the Mathematics subtest of the PSAT. Although it was predicted that the adaptive engagement cognitions would all relate positively to students scores on the Verbal and Mathematics subtest of the PSAT, there was only a weak relationship between students' beliefs in their ability to do well academically and their scores on the PSAT Math subtest. In this case, hypothesis 13 was not supported by the results.

Hypothesis 14: There will be a significant positive relationship between students' scores on the Engagement Cognitions factors scale of the MES and students' attendance.

Appendix Table 5 (see page 148) shows no significant relationships of Student Attendance with adaptive engagement cognition factors of the MES of Learning Focus, Valuing School, and Self-Belief. Thus, hypothesis 14 was not supported.

Hypothesis 15: There will be a significant positive relationship between students' scores on the Engagement Cognitions factors scale of the MES and students' extracurricular participation.

Appendix Table 5 (see page 148) presents significant positive relationships of Extracurricular Participation and the adaptive engagement cognitions factors of the MES for Learning Focus and Self-Belief. The relationship between learning focus ($r = .219$, $p = .025$) and self-belief ($r = .211$, $p = .031$) with a students' participation in extracurricular activities is weak at best. Although there are small positive relationships present, the results did not fully support hypothesis 15.

Hypothesis 16: There will be a significant negative relationship between students' scores on the Engagement Cognitions factors scale of the MES and number of student disciplinary infractions.

Appendix Table 5 gives no significant negative relationships between the adaptive engagement cognition factors of the MES for Learning Focus, Valuing School, and Self-Belief and students' record of Disciplinary Infractions. Therefore, hypothesis 16 was not supported by the results.

Appendix Table 5

Pearson Correlation Coefficient Values among MES Engagement Cognition Factors Self-Belief, Learning Focus, and Valuing School and students' Achievement, Attendance, Extracurricular Participation and Discipline

	MES Factors				
Engagement Cognitions	PSAT Verbal	PSAT Math	Student Attendance	Extracurricular Participation	Disciplinary Infractions
Self-Belief	.170	.201*	-.069	.211*	.040
Learning Focus	-.013	-.034	.000	.219*	-.012
Valuing School	-.086	-.108	-.053	.086	-.012

Note. $N = 105$. * $p < .05$, two-tailed.

Hypothesis 17: There will be significant positive relationships between students' scores on the Engagement Behaviors factors scale of the MES and the Verbal and Math subtests scores of the PSAT.

Appendix Table 6 (see page 150) presents correlations among students' scores on the MES factors of Persistence, Planning, and Task Management and their scores on the PSAT, attendance, extracurricular participation, and disciplinary infractions. There was a significant negative relationship between scores on the PSAT Mathematics subtest with the adaptive engagement behavior factor Planning ($r = -.228$, $p = .019$). This result was in the opposite direction of what was predicted. Therefore, hypothesis 17 was not supported.

Hypothesis 18: There will be a significant positive relationship between students' scores on the Engagement Behaviors factors scale of the MES and students' attendance.

Appendix Table 6 gives no significant positive relationships between the adaptive engagement behavior factors of the MES for Planning, and Task Management and students' attendance. Therefore, hypothesis 16 was not supported by the results.

Hypothesis 19: There will be a significant positive relationship between students' scores on the Engagement Behaviors factors scale of the MES and student extracurricular participation.

Appendix Table 6 shows no significant relationships of students' number of Extracurricular Activities and the MES adaptive engagement behaviors of Persistence, Task Management, and Planning. Therefore, hypothesis 19 was not supported by the results.

Hypothesis 20: There will be a significant negative relationship between students' scores on the Engagement Behaviors factors scale of the MES and number of student disciplinary.

Appendix Table 6 presents no significant negative relationships between the number of student Disciplinary Infractions and the adaptive engagement behavior factors of the MES of Persistence, Task Management, and Planning. Hypothesis 20 was not supported.

Appendix Table 6

Pearson Correlation Coefficient Values among MES Engagement Behavior Factors Persistence, Planning, and Task Management and students' Achievement, Attendance, Extracurricular Participation, and Discipline

MES Factors Engagement Behaviors	PSAT Verbal	PSAT Math	Student Attendance	Extracurricular Participation	Disciplinary Infractions
Persistence	.102	-.032	-.106	.027	-.054
Planning	.012	-.228*	-.171	-.045	.139
Task Management	.139	-.095	-.097	.185	.044

Note. $N = 105$. * $p < .05$, two-tailed.

Hypothesis 21: There will be significant negative relationships between students' scores on the Maladaptive Engagement Behaviors factors scales of the MES and the Verbal and Math subtests scores of the PSAT.

Appendix Table 7 (see page 152) presents correlations among scores on MES Maladaptive Behavior factors and students' PSAT scores, disciplinary infractions, extracurricular activities, and attendance. There were significant negative relationships between the maladaptive engagement behavior factors of the MES for Self-Handicapping and Disengagement and the PSAT Verbal ($r = -.438$, $p = .001$) and Mathematics ($r = -.409$, $p = .001$) subtests scores at the 0.01 level of significance. There was also a less robust relationship, but in the predicated direction, for the maladaptive engagement behavior factor of disengagement with students' Verbal PSAT scores ($r = -.272$, $p = .005$) and, at the .05 level of significance, with Math PSAT scores ($r = -.250$, $p = .011$) subtest scores. These results provide support for the original prediction so that hypothesis 21 was supported by the results.

Hypothesis 22: There will be a significant negative relationship between students' scores on the Maladaptive Engagement Behaviors factors scale of the MES and students' attendance.

Appendix Table 7 shows no significant relationships between Student Attendance and the MES maladaptive engagement behavior factors of Self-Handicapping and Disengagement at the 0.01 level of significance. Although it was predicted that students who sabotaged their academic success and accepted failure would be absent from school more frequently, the results did not demonstrate this relationship and hypothesis 22 was not supported.

Hypothesis 23: There will be a significant negative relationship between students' scores on the Maladaptive Engagement Behaviors factors scale of the MES and students' extracurricular participation.

Appendix Table 7 indicates significant negative relationships between students' Extracurricular Participation and the maladaptive engagement behaviors on the MES of Self-Handicapping (r = -.266, p = .006) and Disengagement (r = -.331, p = .001) at the 0.01 level of significance. Thus, the number of extracurricular activities that students were involved in related negatively to self-sabotaging behavior and disengagement from school. Therefore, hypothesis 23 was fully supported by the results.

Hypothesis 24: There will be a significant positive relationship between students' scores on the Maladaptive Engagement Behaviors factors scale of the MES and number of student disciplinary infractions.

Appendix Table 7 shows a significant positive relationship between students' number of Disciplinary Referrals and the maladaptive engagement behavior factor for Self-Handicapping (r = .296, p = .002) at the 0.01 level of significance. However, there was no significant relationship

for the maladaptive engagement behavior factor for Disengagement and disciplinary referrals. Therefore, hypothesis 25 was not fully supported by the results.

Appendix Table 7

Pearson Correlation Coefficient Values among MES Maladaptive Engagement Factors Self-Handicapping and Disengagement and students' Achievement, Attendance, Extracurricular Participation and Discipline

	MES Factors				
Maladaptive Engagement Behaviors	PSAT Verbal	PSAT Math	Student Attendance	Extracurricular Participation	Disciplinary Infractions
Self-Handicapping	-.438**	-.409**	-.034	-.266**	.296**
Disengagement	-.272**	-.250**	-.028	-.331**	.036

Note. * p < .05, two-tailed, ** p < .01, two-tailed.

Hypothesis 25: There will be significant negative relationships between students' scores on the Maladaptive Engagement Cognitions/Affect factors scale of the MES and the Verbal and Math subtests scores of the PSAT.

Appendix Table 8 (see page 154) presents correlations of students' scores on the MES factors of Uncertain Control, Failure Avoidance, and Anxiety and students' PSAT scores, extracurricular activities, attendance, and disciplinary infractions. There were significant negative relationships between the maladaptive engagement cognition factor of the MES for Uncertain Control and the PSAT Verbal (r = -.308, p = .001) and Mathematics subtests scores (r = -.301, p = .002) at the 0.01 level of significance. There were no relationships found in the predicated direction for the maladaptive engagement cognition factors of Anxiety and Failure

Avoidance and students' PSAT scores. These results do not provide support for the original prediction, so that hypothesis 25 was not fully supported.

Hypothesis 26: There will be a significant negative relationship between students' scores on the Maladaptive Engagement Cognitions/Affect factors scale of the MES and students' attendance.

Appendix Table 8 presents significant negative relationships between Student Attendance and the MES maladaptive engagement cognition factors of Anxiety (r = -.239, p = .014) and Failure Avoidance (r = -.192, p = .050) at the 0.05 level of significance. Although it was predicted that students who were unsure about how to be academically successful would also have negative attendance, this result was not found and hypothesis 26 was not fully supported by the results.

Hypothesis 27: There will be a significant negative relationship between students' scores on the Maladaptive Engagement Cognitions/Affect factors scale of the MES and students' extracurricular participation.

Appendix Table 8 presents a significant negative relationship between Extracurricular Participation and the maladaptive engagement cognition factor on the MES of Uncertain Control (r = -.328, p = .001) at the 0.01 level of significance. There was also a significant positive relationship for the maladaptive engagement cognition factor on the MES of Failure Avoidance and Extracurricular Participation (r = .218, p = .025) at the 0.05 level of significance. The number of extracurricular activities that students were involved in had a negative relationship to their understanding of how to succeed academically but a positive relationship to being motivated to achieve by avoiding failure. Therefore, hypothesis 27 was fully supported by the results.

Appendix Table 8

Pearson Correlation Coefficient Values among MES Maladaptive Engagement Cognition Factors Anxiety, Failure Avoidance, and Uncertain Control and students' Achievement, Attendance, Participation, and Discipline

	MES Factors				
Maladaptive Engagement Cognitions	PSAT Verbal	PSAT Math	Student Attendance	Extracurricular Participation	Disciplinary Infractions
Anxiety	.040	-.047	-.239*	-.010	-.121
Failure Avoidance	.132	-.003	-.192*	.218*	-.091
Uncertain Control	-.308**	-.301**	-.134	-.328**	.191

Note. * p < .05, two-tailed, ** p < .01, two-tailed.

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