The Impact of Gifted Schools on the Academic Self-Concept of Gifted Students in Saudi Arabia

Mohammad Alhanaya

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THE IMPACT OF GIFTED SCHOOLS ON THE ACADEMIC SELF-CONCEPT OF GIFTED STUDENTS IN SAUDI ARABIA

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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ABSTRACT


Academic self-concept and gifted education are of particular importance to the field of education. Positive academic self-concept is correlated with several favorable educational outcomes but can be impacted by various educational factors such as ability grouping. The purpose of this study was to investigate the academic self-concept of gifted students in mixed ability schools and gifted schools in Saudi Arabia and determine the predictors of academic self-concept including school type, grade point average (GPA), grade level, class ranking, and gender. The sample of this study was 147 male and female gifted students in grades seven, eight, and nine enrolled in gifted and mixed ability schools. The participants completed a self-description questionnaire to assess their academic self-concept. Results showed there were differences between gifted students in gifted school and mixed ability schools regarding academic self-concept. Another finding of this study was school type, GPA, and grade level were statistical predictors of academic self-concept, whereas class ranking and gender were not. Educators should consider the potential negative effects on academic self-concept that result from grouping identified gifted students. Students might benefit from an intervention designed to support their psychological well-being. Implications for practice and suggestions for future research were also discussed. Based on these findings,
educators should consider the potential negative effects on academic self-concept resulting from grouping identified gifted students and professional development on the big-fish-little-pond effect is urged. Educators might also provide students with an intervention designed to support their psychological well-being as well as encourage mastery-based achievement, which might be beneficial.
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of the gifted school in the Qassim region, Mr. Alomary, as well as Mr. Alharbi, an educator at one of the gifted middle schools.
DEDICATION

I dedicate this dissertation to my parents, brothers, and sisters. My father Abdulrahman encouraged me greatly to pursue higher education and was a source of inspiration to me. Although she received little education, my mother Zainab has always had great faith in education, which has guided me from a very early age to understand that education is very important to me as a person. Sisters and brothers, thank you. You were always here with me in spirit even though you were far away.
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CHAPTER I

INTRODUCTION

Self-concept is a term that refers to an individual’s perceptions of his/her abilities. Experiences with one’s environment and the interpretations of those experiences develop a person’s self-concept. Academic self-concept in particular refers to a person’s experiences in an academic setting and the perceptions of his/her academic ability that follow those experiences (Marsh & Shavelson, 1985).

Gifted students often demonstrate a higher academic self-concept than students who achieve at average levels (Litster & Roberts, 2011). Academic self-concept is believed to have implications for the success of gifted children as a positive academic self-concept relates to academic enjoyment and motivation (Marsh, Trautwein, Lüdtke, Köller, & Baumert, 2005), achievement (Marsh et al., 2008; Valentine, DuBois, & Cooper, 2004), academic goals (Rinn, 2007), and emotional adjustment (Goetz, Frenzel, Pekrun, & Hall, 2005).

Academic self-concept is a complex construct. A multitude of individual and environmental factors can influence its development over time including giftedness, gender, age, peers (Rinn, Jamieson, Gross, & McQueen, 2009), and educational settings (Parker, Marsh, Lüdtke, & Trautwein, 2013). Typically, academic self-concept is understood as multifaceted and hierarchical. Self-report measures are a common way to
take this multidimensionality into account (Bong & Skaalvik, 2003). Self-report measurements of academic self-concept assess a student’s perceptions of competence, academic ability, and ease of work completion both in different subjects and in overall school performance.

Additionally, as educators aim to challenge gifted students and foster their intelligence, these students are often placed in more rigorous educational programs that group them with like-ability peers. Researchers have found benefits to achievement (Hattie, 2002; Rogers, 2007; Shields, 2002), motivation, engagement, attitudes toward school (Goldring, 1990; Hattie, 2002; Rogers, 2007; Shields, 2002), and social development (Neihart, 2007) as a result of ability grouping. However, an unintended consequence of such grouping is their academic self-concept may be negatively affected (Craven, Marsh, & Print, 2000; Marsh, Chessor, Craven, & Roche, 1995; Marsh, Hau, & Craven, 2004; Preckel, Goetz, & Frenzel, 2010; Shields, 2002; Zeidner & Schleyer, 1999). This can occur through a process of social comparison between gifted students, which leads them to doubt their academic abilities. Achievement can be negatively impacted if a student’s academic self-concept is decreased (Marsh et al., 2005). This is commonly referred to as the big-fish-little-pond effect (BFLPE).

According to the BFLPE, grouping students with similar abilities can cause them to experience a decline in their academic self-concept (Marsh, Trautwein, Lüdtke, Baumert, & Köller, 2007; Parker et al., 2013). This would seem to be especially true of gifted students given gifted programs tend to be “an ideal test bed for the BFLPE theory” because such programs “get close to the essence of the metaphor of a big fish in a little pond suddenly turned median or small when thrown into a big pond with many big or
bigger fish” (Dai & Rinn, 2008, p. 11). In other words, gifted students might be less inclined to doubt their academic abilities when they are surrounded by peers whom they know they can outperform; however, when they are grouped with peers whose academic abilities are comparable or even greater, they might begin to doubt how “smart” they are.

The BFLPE has been extensively studied and given widespread support for its claims and implications with a general population of students (Marsh & Craven, 2002; Marsh & Hau, 2003; Marsh et al., 2008; Seaton, Marsh, & Craven, 2009). Marsh and Hau (2003) found reliable evidence of BFLPE across 26 countries, lending support for its cross-cultural generalizability. Seaton et al. (2009) also found consistency for BFLPE for students located in different schools across 41 countries. Marsh et al. (2007) documented BFLPE among students attending a selective school even after these students graduated. The BFLPE was also apparent regardless of gender, achievement, school subjects, or ability groups (Ireson & Hallam, 2009; Marsh et al., 2008; Seaton, 2007; Seaton, Parker, Marsh, Craven, & Yeung, 2014).

Further, studies that have examined this effect with gifted programs have supported a decline in academic self-concept for gifted students. For example, Marsh et al. (2008) stated placement in homogenous groups can lower academic self-concept based on findings from a study of 157 elementary gifted students grouped by academic ability. Marsh et al. (1995) noted a significant decline in academic self-concept for the gifted students studied.

Another study found grouping high ability students resulted in negative effects on their academic self-concept in the areas of general education, math, and German (Preckel & Brüll, 2008). In this study, the BFLPE was most pronounced in the beginning of the
year, which was revealed by measuring math self-concept three times throughout the academic year. More specifically, the math self-concept of 93 high-ability ninth grade students was found to decline significantly when students participated in special classes (Preckel et al., 2010).

Additionally, other scholars found an effect on the academic self-concept of gifted students that seemed to only occur at the beginning of the school year when students were grouped homogenously by ability (e.g., Olszewski, Kulieke, & Willis, 1987). Gibbons, Benbow, and Gerrard (1994) similarly concluded lower academic self-concept was detected only in the beginning of an ability-grouped program and that length of time in the program caused the negative effects to vanish. Although other scholars contended the BFLPE could not be said to always occur in gifted settings (Cunningham & Rinn, 2007; Dai, Rinn, & Tan, 2013; Makel, Putallaz, & Wai, 2012), the majority of studies provided empirical support for the BFLPE in grouped gifted settings.

Academic Self-Concept in Middle Eastern Countries

Academic self-concept has been studied extensively in Western nations but has received lesser attention in Middle Eastern nations. A limited number of studies in the literature have investigated academic self-concept in the Middle East. Of these studies, only one study could be located that investigated academic self-concept of gifted students in particular (Sarouphim, 2011). This study took place in Lebanon and suggested differences in academic self-concept among young adolescent gifted and non-gifted students. The academic self-concept of 68 gifted students and 174 non-gifted students was examined with gifted students displaying higher academic self-concepts overall. The
researcher pointed to the gap that still exists in the research regarding general and academic self-concepts of gifted students in Middle Eastern countries.

Additional research investigated the BFLPE with a general population of students (both gifted and non-gifted) across 13 different countries all over the world including the Middle East (Marsh et al., 2015). In addition to countries in the West and Asia, Middle Eastern and Islamic countries represented in this research included Iran, Kuwait, and Tunisia. The total sample for these three countries was 12,152 students in fourth through eighth grades. The study found support for the generalizability of the BFLPE across different cultural settings. Further, individual achievement was found to positively affect academic self-concept and school-average achievement was found to negatively affect academic self-concept.

Although support was found for the generalizability of the BFLPE overall, some differences between the regions existed. The BFLPE was the strongest in Western nations, followed by Asian countries, and then the Middle East. Previous authors speculated that students in Arab and Middle Eastern countries do not receive as much evaluative feedback about achievement as other regions such as Asia and the West (Abu-Hilal & Bahri, 2000). A potential result of less feedback was students were not socialized to assess their skills and abilities in comparison with other students. Marsh et al. (2015) seemed to lend some support to these speculations as the impact of the BFLPE on academic self-concept was found to be smaller in the three Middle Eastern Islamic countries. These findings pointed to the need for increased research on the BFLPE and academic self-concept in Middle Eastern nations to determine the extent of effects of the BFLPE on the academic self-concept of gifted students in the Middle East overall.
It is important to note that the Marsh et al. (2015) study was the first BFLPE study to be conducted in the Middle East. This study, although a step in right direction in understanding how the BFLPE impacts Arab students’ academic self-concept, did not examine gifted students or gifted settings specifically. To date, no studies have been conducted that examined the BFLPE and its impact on the academic self-concept of gifted students in the Middle East. More specifically, this research was needed in Saudi Arabia in particular as its culture and social settings have unique characteristics. For one, the country is wealthier than many other Middle Eastern countries. Family life is prioritized and children are close in age. Saudi Arabian life is guided by Sharia law, an Islamic system of laws (Almutairi, 2008). Saudi Arabia is one of the most culturally conservative Islamic countries in the world. Gender-based values are important in everyday life; genders are segregated in schools and other educational settings such as colleges (Hamdan, 2005). All of these unique cultural factors might indirectly or directly influence the development of gifted students’ academic self-concept and how they evaluate their academic ability in different educational settings (e.g., gifted and non-gifted programs).

Significance of the Study

In many cases, the BFLPE results in a negative effect on academic outcomes like student achievement and motivation. Further, although some argue that evidence of the BFLPE is inconsistent for students in gifted programs (Dai & Rinn, 2008) and different components (i.e., highly trained teachers, differentiated curricula, and a variety of enrichment resources and experiences) might possibly buffer the BFLPE, Marsh et al. (2008) acknowledged this still might hold true but stated there is still a sufficient body of
research evidence that demonstrates gifted students still experience a decline in academic self-concept despite these protective factors. However, due to this lack of consistency in whether or not gifted programs do actually foster the BFLPE, more research on this area is needed.

Additionally, most studies of academic self-concept in gifted programs have been conducted in the West. There has been little to no research on this topic in areas outside of the West such as the Middle East. No research has yet been conducted in Saudi Arabia specifically. This was an essential and significant aspect of the present study as culture can play a central role in forming and guiding academic both self-concept and gifted programs. Another significant point of this study was programming for gifted education services is a new practice in Saudi Arabia. Evaluating such a practice with respect to both cognitive and affective aspects of student learning, including academic self-concept, is needed to provide an effective education for these students. Findings from this study might help Saudi educators become aware of the potential for a decline in academic self-concept. With this kind of awareness, appropriate strategies could be put in place that protect gifted students’ academic self-concept and eliminate factors that threaten it. More specifically, interventions could be created for high-ability students who have been the “big fish” but because of placement in an advanced academic programs or matriculation to middle school, high school, or college where social comparison is often more prominent, they now realize they are the “little fish.” With appropriate preparation through specific interventions, the problem of experiencing BFLPE could be ameliorated.
Statement of the Problem

Social comparisons can leave a student’s academic self-concept vulnerable. Schools with gifted education programs especially are believed to increase students’ vulnerability when they no longer perceive themselves as the “big fish” but feel more like a “little fish” among other very capable learners. As the BFLPE indicates, because of social comparisons, academic self-concept can decrease in these types of settings, leading to decreased student academic progress and lower motivation. Teachers and administrators of schools that serve students with gifts and talents need to be aware of this phenomenon so, if needed, they can develop and make a variety of interventions available to address the way students think about their academic self-concept.

Purpose of the Study

The purpose of this study was to investigate the impact of schools with gifted education programs on the academic self-concept of gifted middle school students in Saudi Arabia. This study attempted to uncover differences in academic self-concept of identified gifted students at schools that only admitted gifted students who qualified by meeting a certain intelligent quotient (IQ) score threshold and identified gifted students at mixed ability schools who received education with non-identified students. The following research questions guided this study:

Q1 Is there a difference between academic self-concept of identified gifted students at schools specializing in gifted education and identified gifted students at mixed ability schools in Saudi Arabia?

Q2 When controlling for individual student achievement, which of the following factors best predict academic self-concept for gifted middle school students in Saudi Arabia: grade, gender, class rank, school type (gifted and mixed ability schools), and/or class average achievement?
Delimitations

This study investigated the effect of schools designed to serve gifted students on their academic self-concept. However, the scope of this study was limited to certain students. While one criterion should never be used to identify giftedness because it is believed it results in too many false negatives (Carpenter, 2001; McBeeg, Peters, & Waterman, 2014), only high IQ was used by the Ministry of Education in Saudi Arabia to qualify students for gifted programming. It was possible that in only selecting identified gifted students for this study, the experiences of other equally capable students who did not meet the IQ cut-off-score were lost. However, given the newness of this line of inquiry, the researcher chose to only sample identified gifted students for this initial exploratory study.

Further, this study was limited by the inclusion of only identified gifted middle school students (seventh, eighth, and ninth grades). Although the inclusion of elementary and high school students would have been useful in fully understanding the impact of the BPLPE, only identified gifted middle school students were selected as the target population for this study because the Saudi Ministry of Education only recently established gifted schools for these students.

Another delimitation was only gifted schools in the Qassim region were chosen for this study. Although it would have been advantageous to include schools from other regions in Saudi Arabia, it was beyond the current scope of this study. Since schools in the Qassim region were the most accessible for the researcher, only students from these schools were sampled. This choice might have limited the generalizability of this study’s findings.
This study was also limited to a quantitative methodology using a survey. Although a mixed methods approach combining quantitative and qualitative methodologies could provide a richer examination of the BFLPE in Saudi Arabia, access to students to conduct qualitative interviews would be challenging in this country; therefore, only a quantitative methodology was employed.

**Definitions of Key Terms**

**Ability grouping**—“It is any arrangement that attempts to place students with similar levels of ability in instructional groups” (Neihart, 2007, p. 333).

**Academic self-concept**—Academic self-concept refers to one’s experiences in an academic environment and subsequent perceptions of one’s academic ability (Marsh & Shavelson, 1985). Academic self-concept is a type of self-appraisal that develops through school-related activities. It is the subjective interpretation of one's academic functioning based on activities such as preparing to go to school, attending school, completing out of school assignments, discussing the school day, feedback from teachers, and planning for future school events (Bracken, 1992). In the academic domain, children evaluate their actual achievement and functioning, which influences their academic self-concept. Academic self-concept represents a cognitive and affective construction in which collections of academic behaviors (performance in various school subjects) are included under a single higher-order generalization (academic functioning).

**Gifted schools**—On the basis of IQ tests (students must score at least a 130), gifted students are placed together in one school. Gifted schools have the same curriculum as other regular schools as the educational system in Saudi Arabia puts
standardized curriculum in place. Additionally, teachers in gifted schools have the same training as those in mixed ability schools.

**Gifted students**--Gifted students are those who have been identified as gifted by the Ministry of Education in Saudi Arabia. To be identified as gifted and have access to gifted programs, students need to be nominated by their teachers to take an IQ test. When a student scores 130 or higher on this test, he or she is identified as gifted. The Ministry of Education of Saudi Arabia defines gifted students as follows: students who possess unique skills, abilities, or distinguished performance from their peers in one or more of the areas as evaluated by specialists (especially in the areas of mental superiority, innovative thinking, educational attainment, and special ability and skills) and are in need of special educational care unavailable in the ordinary school curriculum (King Abdul Aziz City for Science and Technology, 1997).

**Individual student achievement**--Individual achievement consists of self-reported grade point average. Grades are based on the conventional numeric grading scale in Saudi Arabia, which ranges from 0 to 100.

**Non-academic self-concept**--Non-academic self-concept refers to one’s perceptions regarding his or her non-academic ability and skills including physical, social, and emotional realms (Suntonrapot, Auyporn & Thaweewat, 2009).

**Class average achievement**--Class average achievement is based on a student’s end of year overall achievement in all subjects. Grades are based on the conventional numeric grading scale in Saudi Arabia, which ranges from 0 to 100. The Ministry of Education in Saudi Arabia provides class average achievement of each school.
**Self-concept**—Self-concept (sometimes termed global self-concept) is defined as one’s perceptions of themselves as shaped by experiences with their environment and the interpretation of those experiences (Shavelson, Hubner, & Stanton, 1976).

**Summary**

Ability grouping is related to many positive educational outcomes and can be an effective means of educating gifted students. However, some studies have suggested harm to students’ academic self-concept due to this practice, raising a crucial point to consider when implementing this practice. Low academic self-concept is of particular concern since it has significant power to influence many educational factors. Thus, academic self-concept needs to be adequately addressed in programs designed for gifted students to help them maximize their potential. Moreover, more research is needed to investigate the academic self-concept of gifted students in particular cultural and societal settings. Cultural and societal circumstances constitute part of the environment and can influence academic self-concept development. Therefore, academic self-concept should be examined in a way that takes culture and society into account. This line of research is important and will only further our understanding of this complex construct.
CHAPTER II

LITERATURE REVIEW

Academic self-concept and gifted education are of particular importance to the field of education. Positive academic self-concept is correlated with several favorable educational outcomes. It is a complex phenomenon that interacts with giftedness and other factors. The purpose of this chapter is to review both the development of academic self-concept and giftedness in the literature as well as the measurement of academic self-concept and various factors that might influence it including specific gifted education practices like ability grouping. This chapter also reviews the literature on the big-fish-little-pond effect (BFLPE) and academic self-concept as it relates to gifted students.

Introduction

Academic self-concept can impact the educational goals and future successes of high-ability children. A healthy academic self-concept is linked to long-term academic interest and motivation (Marsh et al., 2005), achievement (Marsh et al., 2008; Valentine et al., 2004), academic aspiration (Rinn, 2007), and emotional adjustment (Goetz et al., 2005). Academic self-concept is a complex construct as various individual and environmental factors such as giftedness, gender, age, peer group (Rinn et al., 2009), and educational practices can influence its development (Parker et al., 2013). Gifted students in particular often exhibit more positive self-concept overall, specifically for academic self-concept (Litster & Roberts, 2011). However, it is believed that when these students
enter a more rigorous educational program that groups them with their like-ability peers, their high academic self-concept might be altered negatively (Craven et al., 2000; Marsh et al., 1995, 2004; Preckel et al., 2010; Shields, 2002; Zeidner & Schleyer, 1999). In other words, they might begin to doubt their abilities.

Gifted students often experience higher levels of psychological distress, self-criticism, and academic anxiety than their non-identified peers (Bakar & Ishak, 2014). These psychological factors can negatively impact their academic self-concept and in turn lead to underachievement (Diaz, 1998). Although educators tend to focus their attention primarily on the academic realm, a deeper understanding of affective factors that influence achievement like academic self-concept might lead to more desirable academic outcomes for gifted students (Marsh, Plucker, & Stocking, 2001).

**Giftedness**

Defining giftedness is a critical first step because the chosen definition can greatly impact the “analyses of the relation between giftedness and self-concept” (Hoge & Renzulli, 1993, p. 1). Giftedness is often inconsistently defined in the research; therefore, the definition used to identify giftedness will influence findings related to self-concept. Further, research demonstrated gifted students’ level of self-concept often varies depending on the measure(s) used to identify giftedness. For example, students identified by measures of IQ are believed to have a different level of self-concept than students identified by measures of creative abilities (Coleman & Fults, 1985). It is hard to argue that gifted students, in general, have a higher level of self-concept than their non-identified peers because this depends on the criteria used to identify giftedness. Given the complexity of establishing generalizable relationships between ambiguous constructs
like self-concept and giftedness, it is necessary to take a step back and examine how these terms have been defined over time.

For more than a century, the concept of the gifted child has been the subject of much discussion and debate by educators. While the ideas surrounding giftedness have a long history, experts in the field have yet to agree on a universal definition of giftedness. Because of conflicting views on giftedness, an agreement on what makes a student gifted and what such a student needs to be successful becomes difficult to achieve.

The recognition of giftedness is extensive and dates back centuries. Van Tassel-Baska (1998) stated, “The issue of taking an interest in gifted people is an old one, as for centuries philosophers tried to present various explanations, most of which relate to supernormal and outstanding capabilities, magic or inspiration” (p. 11). However, perceptions of giftedness have not always been positive. Beginning in the late 1800s and more specifically in 1896, the phrase “Signs of degeneration in men of genius” was used to explain how some famous and gifted people were characterized as possessing short stature and other negative traits (Davis, Rimm, & Siegle, 2011, p. 32). Unfortunately, this sort of stereotyping was considered acceptable by the majority of society at the time. In fact, because of these unfair images, many gifted individuals would have rather been considered average than identified as highly capable (Davis et al., 2011).

While misconceptions about the gifted were common in the 1890s, some of the first empirical studies on giftedness were underway during this time (Davis et al., 2011). Francis Galton performed extensive work in developing an understanding of intelligence beginning in the 1850s. Galton’s perspective was that varying intelligence among people was a result of heredity factors (Davis et al., 2011). Because of his work in describing
the origins of genius, Galton is considered one of the greatest contributors to the field of giftedness. Galton actually holds the title of “the father of the gifted child movement” (Davis et al., 2011, p. 5).

During the early 1900s, Alfred Binet and Theodore Simon worked to develop assessments for the purpose of measuring students’ abilities (Davis et al., 2011). Binet and Simon consequently created the Binet-Simon test in 1905. This test evaluated students’ different mental characteristics including memory (Davis et al., 2011). The test was a result of experimentation with different ways of measuring and grouping children based on their differing abilities. In 1921, Stanford University psychologist Lewis Terman (as cited in Sternberg, 2012) conducted research regarding human ability and intelligence and eventually brought the Binet-Simon test to the United States to assist him in his studies. He modified the test by adapting it to American culture and also changed the name to the Stanford-Binet Intelligence Scale (Sternberg, 2012). Terman is also credited with coining the term “IQ,” which stands for intelligence quotient (Sternberg, 2012). Terman suggested it be calculated with the following equation: mental age/chronological age x 100 = IQ. This equation was later modified to compare an individual’s test score to the mean scores of other people of the same age. High intelligence is determined in relation to average intelligence of others. Sternberg (2012) explained that Terman believed giftedness was found in the top 1% of individuals as measured by the Stanford-Binet Intelligence Scale or other sufficient instruments.

Terman’s (as cited in Sternberg, 2012) definition of giftedness has received much criticism since its inception. Today, it is widely argued that intelligence is dynamic, flexible, and a form of “developing expertise” rather than a fixed and stable concept
(Sternberg & Grigorenko, 2002, p. 1). This is reflected in more current definitions of giftedness. In the United States, the movement away from a one-dimensional, IQ-based definition of giftedness began several decades ago. Marland (1972) stated,

Gifted and talented children are those identified by professionally qualified persons who by virtue of outstanding abilities are capable of high performance. There are children who require differentiated educational programs and services beyond those normally provided by the regular school program in order to realize their contributions to self and society...Children capable of high performance include those with demonstrated achievement and/or potential in any of the following areas, singly or in combination:
1. General intellectual ability.
2. Specific academic aptitude.
3. Creative or productive thinking.
4. Leadership ability.
5. Visual and performing arts.
6. Psychomotor ability. (p. 2)

The Marland report further refined the definition of giftedness by making it a multi-dimensional construct. Specific abilities were selected as evidence of giftedness; however, the last area, psychomotor ability, was deleted soon after.

Renzulli (1978) later proposed his definition of giftedness as an interaction among three clusters of human traits: above-average general abilities, task commitment, and creativity. Renzulli also divided above average abilities into two categories. The first category was general abilities, e.g., information processing and abstract thinking. The second category contained specific abilities, e.g., the performance of activities (Renzulli, 1978).

Another definition appeared soon after that expanded the view of intelligence. Howard Gardner (1983) proposed his theory of multiple intelligences (MI). This refers to the presence of eight intelligences: (a) verbal-linguistic, (b) logical-mathematical, (c) visual-spatial, (d) musical-rhythmic, (e) bodily-kinesthetic, (f) interpersonal, (g)
intrapersonal, and (h) environmental-naturalistic. A student might demonstrate high ability in one or more of Gardner’s intelligences.

Sternberg’s (1997, 2003) triarchic theory could be used to better understand different types of giftedness beyond a singular IQ. Sternberg (2003) identified three main categories of intelligence: analytic, synthetic, and practical. Analytic giftedness involves reasoning and comprehension skills typically measured with quantified intelligence tests. For synthetic giftedness, individuals might not receive high IQ scores as in analytic giftedness but are highly capable of producing creative and innovative ideas. Practical giftedness refers to the ability to effectively applying analytic and/or synthetic skills to everyday encounters and situations. Hedlund and Sternberg (2000) later added wisdom as a kind of practical intelligence as practicality does not necessarily result in empathy and morality. A practically intelligent individual is capable of applying his/her abilities in positive or negative ways depending on his/her wisdom and ethics.

The most recent definitions of giftedness are provided by the National Association of Gifted Students (n.d.):

Gifted individuals are those who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or achievement in top 10% or rarer) in one or more domains. Domains include any structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensorimotor skills (e.g., painting, dance, sports). (p. 1)

Giftedness has evolved over the decades. Originally, giftedness was seen as one-dimensional. Giftedness is now understood as a plurality of characteristics. Although giftedness is often discussed multi-dimensionally, this dissertation focused on only one dimension of giftedness--cognitive competence and ability. This definition of giftedness can be measured by IQ and other cognitive assessments.
Academic Self-Concept

Just as the definition of giftedness has appeared to be a moving target over the past, the definition of self-concept has also evolved over time. There are several distinct perspectives on the operational definition of self-concept. Generally, self-concept is defined as a person’s perception about his or her abilities. In other words, it is “the image we hold of ourselves” (Hoge & Renzulli, 1993, p. 1). Offering a more specific definition, Byrne (1984) states that self-concept is “our attitudes, feelings, and knowledge about our abilities, skills, appearance, and social acceptability” (p. 429). It is often further subdivided into two areas—non-academic and academic.

Non-Academic Self-Concept

Non-academic self-concept is comprised of a person’s perceptions of his/her ability in social, emotional, and physical domains. Social self-concept refers to one’s perceptions regarding social interaction skills with others, which develops through an evaluation of one’s own social performances within social settings (Berndt & Burgy, 1996; Byrne & Shavelson, 1996). Emotional self-concept refers to one’s perceptions regarding his or her cognitive or emotional states. Finally, physical self-concept refers to one’s perceptions regarding physical domains including sport competence, physical conditioning (fitness), body attractiveness, and physical strength (Fox & Corbin, 1989). Non-academic self-concept comprises a portion of a person’s entire self-concept with academic self-concept acting as the other realm of his/her self-concept.

Academic Self-Concept

Academic self-concept refers to students’ experiences in an academic environment that subsequently influences their perceptions of their academic ability
Academic self-concept might be general or domain specific (e.g., math self-concept). An example of general academic self-concept is a student who believes he is good at all school subjects. For domain specific academic self-concept, that same student might only believe work in mathematics is easy for him. A student’s overall schooling experience is greatly impacted by his/her academic self-concept, which could also impact academic achievement (Marsh et al., 2008; Valentine et al., 2004); coursework selection (Marsh, 1991), motivation (Marsh et al., 2005), educational and occupational aspirations (Marsh, 1991), and emotion management (Goetz, Preckel, Zeidner, & Schleyer, 2008). Several other terms are used interchangeably with academic self-concept; therefore, it is necessary to clarify not only what academic self-concept is but also what it is not.

**Academic Self-Concept and Self-Esteem**

Many use the terms academic self-concept and academic self-esteem interchangeably. Although others believe differences between academic self-concept and academic self-esteem exist (Baumeister, Campbell, Krueger, & Vohs, 2003; Rudasill, Capper, Foust, Callahan, & Albaugh, 2009), a closer examination of these constructs reveals they are quite similar in nature.

Academic self-esteem is often viewed as synonymous with academic self-concept; however, a debate exists as to whether the terms differ or not (Klein & Zehms, 1996). Some who distinguish between the two claim academic self-esteem denotes academic-based feelings about oneself (Baumeister et al., 2003). For example, a student might feel math is too hard for him. On the other hand, academic self-concept would also involve an evaluation about oneself and one’s academic abilities (Marsh & Shavelson,
1985). That same student who felt math was too hard for him might use this emotional response to self-evaluate and determine he is bad at math.

Nevertheless, in defining overall self-esteem and self-concept, the two constructs seem interchangeable. For example, Baumeister et al. (2003) defined self-esteem as “the overall value that one places on oneself as a person” (p. 3); likewise, Harter, Whitesell, and Junkin (1998) considered self-concept as a “perception of one’s overall worth as a person” (p. 656). Both definitions are similar in that self-esteem and self-concept both refer to the evaluative and affective aspects of the self (Blascovich & Tomaka 1991; Marsh & Shavelson, 1985; Santrock, 1997). Some researchers used self-esteem to denote self-concept (Hoge & Renzulli, 1993) and stated that using self-esteem measures to assess self-concept were applicable (Baumeister, Smart, & Boden, 1996). This leads one to assume the two constructs and their characteristics are highly similar.

**Academic Self-Concept and Self-Efficacy**

Self-efficacy is also a term frequently associated with self-concept. Similar to the definition of self-concept, Rudasill et al. (2009) defined self-efficacy as “a judgment of confidence in personal abilities” (p. 341). More specifically, self-efficacy theory (Bandura, 1977) defined self-efficacy as one’s belief in his or her ability to succeed in accomplishing a certain task, meaning a student with a high self-concept in a particular area could still exhibit low self-efficacy when it came to successfully completing a certain task or activity. For example, two students might have a high self-concept in math--they both believe themselves to be very competent in math. The first student, however, believes he can be successful on the upcoming high-stakes math exam (i.e., high self-efficacy), while the other student, conversely, doubts his ability to be successful
on the same exam (i.e., low self-efficacy). Myriad factors might mediate the relationship between self-concept and self-efficacy. For example, a surplus or deficit in environmental support from teachers and parents could enhance one’s perception that he/she will or will not perform well on a certain task despite his/her level of self-concept (Bong & Skaalvik, 2003). However, because self-efficacy and self-concept both are understood as perceptions and beliefs about ability, many researchers view them as related concepts and sometimes use self-concept measurements to assess self-efficacy (Rubenstein, Siegle, Reis, McCoach, & Burton, 2012).

The Development of Academic Self-Concept

Understanding how self-concept forms is especially important for teachers and policymakers as it is a fundamental predictor of educational outcomes like academic success (Marsh, 2007). Many earlier researchers have provided insight into self-concept development and its significant role in people’s lives. In 1892, William James theorized people shape their self-image and self-evaluation through cognitive processes. People tend to analyze the variances between their expectations, competencies, and accomplishments. If they perform a certain task at or above adequacy, their self-concept remains stable or becomes stronger; however, when expectations do not match their actual performance, their self-concept might be negatively impacted. An example of this was found in James’s (1890/1963) classic work where he stated, “We have the paradox of a man shamed to death because he is only the second pugilist or the second oarsman in the world” (p. 310). Accordingly, even if two individuals successfully complete one task in the exact similar manner, self-concept can vary between them because they hold different expectations of themselves (James, 1892).
Cooley (1902) also postulated “the looking-glass self” as a way to look into the development of the self-concept (p. 152). According to Cooley, the significant people in one’s life are an essential factor in self-concept development, meaning self-concept cannot develop without meaningful interactions with others. Three processes of self-concept development are discussed. The first process is the way an individual perceives others’ images they might hold of him or her. The second is the individual’s beliefs about how others evaluate them. In the final process, the individual develops his/her self-concept based on interpretations of those interactions. Put simply, self-concept evolves through the way a person thinks other people think about him/her (Cooley, 1902).

More recently, this phenomenon has evolved into what many scholars refer to as social comparison theory (Festinger, 1954). Social comparison theory assumes an individual assesses his or her ability by comparing it to select individuals’ abilities, especially if there is a lack of objective assessments. This choice of a one-on-one comparison tends to take place with a person who shares similar characteristics (Festinger, 1954). Accordingly, elementary students do not compare themselves to high school students. Most likely, individuals evaluate their ability against others when they experience a new setting (e.g., a new group of students) and have second thoughts about their competencies (Marsh et al., 2008). The theory implies such comparison can affect self-concept (Mumford, 1983). Around the age of seven, students begin to compare their ability with that of others (Cole, 1991). Social comparison greatly influences students’ self-concept and is considered “robust and consistent across diverse individual student’s characteristics” including level of learning behavior, attitudes towards school subjects, and personality (Seaton, Marsh, & Craven, 2010, p. 424). A student’s self-concept can
be greatly impacted by his/her social environment as a result of the social comparison process. For example, if a bright student is surrounded by mostly average peers and compares his or her ability with them, there is a greater chance of a high self-concept. Conversely, if that student is surrounded by many other bright students, her academic self-concept could decrease. This is bound to occur when students are grouped by ability.

Decades later, Purkey (1984) contended various personality theories address the self-concept phenomenon and its role in childhood development. According to Purkey, self-concept can be viewed as a critical element in a person’s behaviors and personality—one that should be heavily considered in any evaluation of an individual. Suggesting its malleable nature, this construct is considered a learned rather than innate attribute. This learning process begins at an early age when an infant starts to connect with important people surrounding his/her. These relationships are principal for an individual’s awareness of self as an autonomous person. In the child’s first years, a comparatively stable self-concept is cultivated, using “I” or “me” as a sign for displaying personal existence.

Purkey (1984) posited s child faces innumerable “inviting” or “disinviting” messages that give an indication about his or her ability, autonomy, and values. Each experience, along with how the child interprets these experiences, can have a positive or negative influence on his or her development. The child’s self-concept is developed and functioning upon reaching school age. At that point, the child starts filtering any experience via the self-concept. Self-concept is not stagnant, however, as it continues to change over time. This is particularly apparent for the self-concept as a learner, which Purkey defines as “that part of a person which includes the attitudes, opinions, and beliefs
that a person holds true of his or her personal existence, which relates directly to school achievement” (p. 3). Children’s behaviors in school are guided by the perceptions they hold about themselves, essentially showing the importance of those perceptions (Purkey, 1984).

**Theoretical Models of Self-Concept**

Theoretical models of self-concept vary widely in their conceptualization of general and academic self-concept. Much of the difference between models exists in how they describe the relationship between general and specific domains of self-concept. These models are described in the following sections along with their merits and faults in explaining self-concept.

**The Coopersmith Model**

The Coopersmith (1967) model provides one way to operationally define and measure self-concept. Coopersmith established a one-dimensional model that provides a singular score for assessing self-concept. While this model recognizes different elements of the self-concept, e.g., academic achievement and athletic ability, general self-worth is the significant method in conceptualizing the self-concept. To examine the student’s self-esteem in one area is to examine the entire self-concept. Thus, if a student demonstrates high self-esteem in an academic area, Coopersmith’s model contends the whole self-concept is high.

Despite its attempt to advance our understanding of self-concept, this kind of model has not been supported with adequate empirical evidence and was not heavily considered in the literature (Hoge & Renzulli, 1993). For those researchers who define self-concept as one-dimensional, the construct and its relationship with other variables
have not been successfully and fully examined (Marsh, 1990). “Historically, self-concept measurement, theory, research and application have emphasized a largely atheoretical, global component of self-concept, and reviewers have noted the lack of theoretical models for defining and interpreting the construct” (Marsh & Yeung, 1997, p. 706). This lack of supported theoretical models pointed out the gaps in the research at the time. Noticing the need to address these gaps, researchers endeavored to take a closer look into self-concept and develop viable models for its various factors.

**Shavelson, Hubner, and Stanton Model**

Shavelson et al. (1976) made substantial efforts that furthered our comprehension of self-concept. Their model included seven features of self-concept. First, self-concept is organized according to the diverse experiences people encounter. A child typically goes through life in various settings--from home to school to time with friends. They then organize conceptions of themselves according to those distinct categories of experiences. Second, self-concept is multifaceted, indicating every aspect of an individual (e.g., academic competence or physical competence) has a specific and independent self-concept category (Shavelson et al., 1976).

Third, self-concept is hierarchical. It is referred to as “situation specific” as it is composed of a general self-concept at the apex, further specified by academic and non-academic self-concept, and then broken down by specific domains at the base. Academic self-concept is further differentiated by specific areas of discipline (e.g., math, science, etc.) while non-academic self-concept is further differentiated by social and physical self-concepts. Fourth, general self-concept is stable. An effect in a specific domain is unlikely to impact the general self-concept. However, specific self-concepts, such as
athletic self-concept, have greater instability and can be challenged by new situations and experiences. Fifth, self-concept is developmental. Children develop more awareness about certain concepts of themselves as they age. Thus, differentiation of self-concept also increases with age. This is learned and expressed through words like “I” and “me,” which demonstrate the child’s identity as an independent entity (Shavelson et al., 1976).

Sixth, self-concept is evaluative. Differentiation of self-concept starts as a child begins to evaluate personal ability in various areas. To assess success and failure, children find means of determining performance capabilities in certain arenas through various means including comparison with other children, evaluations by family members, comparison with an “ideal” standard, etc. Lastly, self-concept is differentiable. Greater understanding of self-concept differentiation allows the child to distinguish between self-concept domains and the relationships between them with other constructs. Therefore, a student will be able to differentiate between academic and non-academic self-concept domains, connecting achievement in math to a math self-concept and thus to academic self-concept (Shavelson et al., 1976).

Numerous studies have provided evidence supporting this model (Fleming & Watts, 1980; Marsh, Parker, & Smith, 1983; Marsh, Relich, & Smith, 1983; Shavelson & Bolus, 1982). Examining the hierarchical and multidimensional components, for instance, Marsh, Byrne, and Shavelson (1988) conceptualized general self-concept at the apex above mathematic and verbal self-concept. In their study of 991 students, the Self-Description Questionnaire III (SDQ III), the Self-Esteem Scales (SES), and the Affective Perception Inventory (API) were used to assess self-concept. The results supported the hierarchical and multidimensional structure of self-concept, yielding further evidence for
this type of construction. Another study (Marsh, Hau, Artelt, Baumert, & Peschar, 2006) that tested the same hypothesis but across 25 countries and with a much larger sample found positive evidence of hierarchical and multifaceted self-concepts and demonstrated relatively consistent results across studied countries.

In summary, Shavelson et al.’s (1976) work shifted the self-concept paradigm toward a hierarchical and multidimensional conceptualization. As a result, researchers use this new perception not only to define the self-concept but also to create comprehensive tools that measure various aspects of it.

**Marsh and Shavelson Model**

A subsequent model was created by Marsh and Shavelson (1985). This model relies theoretically on the Shavelson et al. (1976) model but has more focus on specific academic self-concept domains (math self-concept and verbal self-concept). Instead of one general academic self-concept, this model posits math and verbal as two higher order academic factors that can influence specific subject domains (e.g., history, physical science, etc.). This model also places general academic self-concept at a lower level than general math and verbal self-concepts, implying it holds less significance. It is worth noting that this model differs from the Shavelson et al. model by asserting math and verbal self-concepts are not significantly correlated (see Marsh, 1990; Marsh & Shavelson, 1985; Marsh et al., 1988). This assertion motivated others to offer a rationalization for the lack of correlation between them (Marsh, 2007). Likewise, it was found math achievement correlated only with math self-concept and English achievement correlated only with verbal self-concept (Möller, Pohlmann, Köller, & Marsh, 2009).
This model encouraged researchers to further explain the complexities of self-concept, resulting in the internal/external frame of reference model.

**Internal/External Frame of Reference Model**

An extension of the Marsh and Shavelson model is the internal/external frame of reference model (I/E model), which aims to elucidate the presence and role of self-concept domains. Marsh (1986, 2007) proposed this model in an attempt to explain underlying processes of self-concept. The I/E model postulates that students use two different frames of reference--external and internal--to appraise their ability. Utilizing the external frame of reference, students rely upon social comparison by comparing their achievement in one subject to other students’ in that same area. In a math subject, for example, a student compares his grades with his classmates’ grades. This process is then applied across all other subjects to perceive personal ability levels.

As such, high achievement in a subject can lead to high self-concept in that subject (e.g., superior math skills can lead to a superior math self-concept) and vice versa (Marsh et al., 2015). This ultimately helps construct self-concept in that particular domain. Of note, parents and teachers rely on this process when they need to infer a student’s academic self-concept, i.e., if a student has a high academic self-concept in one area, teachers and parents assume his academic self-concept will be high in all subjects (Marsh et al., 2015).

Within the internal frame of reference, students evaluate their performance in one subject in relation to their performance in another subject. In essence, a high achieving student might have a high self-concept in mathematics as he performs well in this subject. Conversely, his self-concept in English might be average as his performance in English is
not as advanced as in math. Although the student might actually be an above average achiever in English, comparing himself in different subjects can cause him to develop a lower verbal/English self-concept. Research showed having stronger math skills can lead to a lower verbal self-concept; conversely, the opposite can occur (Marsh et al., 2015).

This particular process has helped investigators explain the independence of every aspect of self-concept as well as reasons for low correlations among them—a high self-concept in one domain does not necessarily lead to high self-concept in another area (Möller et al., 2009). This model was the first to assume academic self-concept is developed by both self-evaluation and social comparison (Byrne, 2002). The model shaped future conceptualizations of academic self-concept by dividing it into internal and external processes, which are used to perceive abilities and skills within academic context.

**Big-Fish-Little-Pond Effect**

As a result of several theories suggesting group membership can have an influence on an individual’s self-evaluation (Chapman & Volkman, 1939; Festinger, 1954; Goethals, 1986; Kelley, 1952; Rosenberg, 1965; Sherif & Sherif, 1969; Thibaut & Kelley, 1959), the BFLPE was developed by Marsh and Parker (1984). To illuminate this theory, they offered the social comparison model. This model explains a student’s educational self-perceptions are mainly developed through the comparison of self with others as students often evaluate their ability by comparing it to that of other high ability students. In an academic context, average ability in a school serves as a frame of reference for students to gain perceptions of themselves (Marsh, 1987; Parker et al.,
Conversely, teachers typically rely on reference groups to assess students and provide feedback.

Because of the comparison taking place in the social comparison model, the BFLPE occurs when a student is grouped with comparable students and then placed in a more challenging environment, thereby decreasing academic self-concept (Marsh et al., 2008). This negative effect is expected to occur regardless of whether the placement is a self-made decision or one directed by an outside entity such as the school, teacher, or parent(s). In contrast, academic self-concept will not suffer if students are placed in a heterogeneous ability group as it creates the chance to be recognized as the “big fish.” Accordingly, being a big fish in a little pond has been found to have the potential to increase academic self-concept while being a small fish in a big pond can potentially decrease academic self-concept. While individual achievement seems to associate positively with academic self-concept, achievement of others has been found to negatively correlate with an individual’s academic self-concept; in other words, as average ability of others in a school increases, academic self-concept of an individual decreases (Marsh et al., 2008).

Importantly, the BFLPE predicts a net effect of possibly off-setting positive and negative effects (Marsh & Craven, 2002). It predicts academic self-concept can be positively affected by individuals’ high achievement and/or ability, termed assimilation effects (weaker effect), as well as negatively impacted by the higher ability of others, termed contrast effects (stronger effect). Being grouped with high ability students is recognized to have positive effects on academic self-concept. It is described as the baskin-in-reflected-glory effect (Cialdini et al., 1976). This effect implies students
assigned to an advanced, academically valued group will have positive feelings about themselves, thereby improving their academic self-concept (e.g., “If I am a member of this class, I must be really smart”; Marsh, Kong, & Hau, 2000).

Marsh et al. (2000) found membership in a highly regarded academic environment resulted in a significant positive effect on academic self-concept for sixth through ninth grade students, though the negative effect was the most prevailing, as predicted by the BFLPE. While Trautwein, Lüdtke, Köller, Marsh, and Baumert (2006) found such a positive effect was fully mediated by teacher-assigned grades and thus no direct assimilation effect was significant, Preckel and Brüll (2010) and Preckel et al. (2010) found the opposite result—a positive effect remained apparent even after controlling for teacher-assigned grades.

Because of its critical implications, the BFLPE has been studied massively and has received widespread support in a variety of settings (Marsh & Craven, 2002; Marsh & Hau, 2003; Marsh et al., 2008; Seaton et al., 2009). In testing cross-cultural generalizability, Marsh and Hau (2003) found reliable evidence of the BFLPE across 26 countries. Later, Seaton et al. (2009) indicated the BFLPE consistently appeared for students in different schools in 41 countries that differed culturally and economically. Marsh et al. (2007) conducted a longitudinal study, documented the BFLPE among students who attended a selective school, and followed these students even after they graduated. Despite gender, level of achievement, school subjects, or ability groups, the BFLPE was evident for these students (Ireson & Hallam, 2009; Marsh et al., 2008).

Despite widespread support for the BFLPE, some have questioned how the theory holds up under certain conditions. For instance, Wheeler and Suls (2004) argued the
social comparison process can positively affect students, contradicting the BFLPE’s predictions. Following this line of reasoning, if a student uses upward comparison in assessing personal performance against a student whom he or she thinks is superior, achievement can be enhanced. Using the higher-ability student as a frame of reference for his/her own abilities pushes the student to work harder, thus increasing achievement. Consequently, the assimilation effect counteracts any potential negative effects. To support this argument, Wheeler and Suls cited two studies that reinforced this same indication. Marsh et al. (2008) responded to these conflicting findings by stating such studies did not assess academic self-concept in particular and average school achievement was not measured—two issues at the core of BFLPE theory. Accordingly, further examination is warranted to demonstrate valid evidence refuting the BFLPE (Marsh et al., 2008).

Further supporting Marsh et al. (2008), Seaton et al. (2008) analyzed data collected by Blanton, Buunk, Gibbons, and Kuyper (1999) and Huguet, Dumas, Monteil, and Genestoux (2001). The results of these analyses showed the BFLPE was evident; specifically, these studies found school-average achievement resulted in a significant decline in academic self-concept, whereas individual achievement increased academic self-concept. Although the two studies were dissimilar in terms of sample, educational systems and settings, and school-average achievement measures, the BFLPE was robust for nearly all subjects in both. As a result, Marsh et al. (2004) advised parents not to send gifted children to selective schools or into other similarly selective academic contexts since participation in such programs has been proven repeatedly to have a negative impact on academic self-concept. Marsh et al. (2006) took the argument even further to
include students with special needs, stating enrollment in full inclusion schools or mainstreaming for students with mild disabilities might cause the BFLPE to manifest itself.

While labeling benefits gifted students in a heterogeneous environment, research has shown grouping gifted students into one setting causes previously beneficial labeling to have detrimental effects on academic self-concept. Comparison with other high achievers in a homogeneous setting leads students to devalue their own achievements and abilities. On a positive note, when students are returned to a mixed ability classroom, their self-concept can be expected to return to previously high levels (Riaz & Shahzad, 2010).

**Measurement of Self-Concept**

As a result of self-concept being multidimensional, various components of self-concept are often assessed. According to Bong and Skaalvik (2003), a common way to achieve this is by utilizing self-report measures. These measurement tools normally seek to assess a student’s competence perceptions of academic ability and ease of work completion in various subjects. Hoge and Renzulli (1993) conducted a meta-analysis to analyze seven studies that used different instruments to assess self-concept. Not only were differences between scales and questions examined but also different conceptualizations of self-concept. A lack of a universal agreement about how to conceptualize self-concept resulted in differing measures with some variations.

In addition, Hoge and Renzulli’s study (1993) identified common instruments used to measure self-concept: How I See Myself scale (Gordon, 1968), ME scale (Feldhusen & Kolloff, 1981), Rosenberg Self-Esteem scale (Rosenberg, 1965), Sears
Self-Concept Inventory (Sears, 1963), Self-Concept of Ability scale (Bilby, Brookover, & Erickson, 1972), Self-Description Questionnaire III (Marsh & O'Neill, 1984), Self-Esteem Inventory (Coopersmith, 1967), Self-Perception Inventory (Soares & Soares, 1969), Tennessee Self-Concept scale (Fitts, 1965), Piers-Harris Children's Self-Concept scale (Piers, 1984), Self-Description Questionnaire (Marsh, 1990), and Self-Perception Profile for Children (Harter, 1982, 1985).

Hoge and Renzulli (1993) recommended researchers consider using one of the following three measures--Self-Description Questionnaire, the Self-Perception Profile for Children and Adolescents, and the Piers-Harris Children's Self-Concept Scale--when assessing self-concept in general or specific areas as research found they demonstrated consistent reliability and validity and tended to be most commonly used in research. The development of these tools of measurement offers a practical way to appraise the multifaceted self-concept construct (Bong & Skaalvik, 2003).

**Self-Description Questionnaire**

Drawn upon the Shavelson et al. (1976) model, the Self-Description Questionnaire (SDQ) was developed by Marsh et al. (1988) to measure several concepts of self: math, physical appearance, general esteem, honesty/trustworthiness, physical abilities, verbal, emotional stability, parent relationships, academic (general), same-sex relationships, opposite-sex relationships, spiritual values/religion, and problem-solving. The questionnaire includes SDQ-I for pre-adolescents (ages 5-12, 76 items), SDQ-II for early adolescents (ages 13-17, 102 items), and SDQ-III for late adolescents to adults (age 17 and over, 136 items). Bracken (2009) described the SDQs as “theoretically based, multidimensional in nature, have sound psychometric characteristics, evenly weighted
subdomains, and some have national normative samples” (p. 92). The validity and reliability for the SDQs are well established in the literature: internal consistency yielded a Cronbach’s alpha ranging from .85 to .94 (e.g., Areepattamannil & Freeman, 2008; Byrne & Shavelson, 1996; Leach, Henson, Odom, & Cagle, 2006; Marsh, 1992; Marsh et al., 2001). For eight of the individual scales, internal consistency was as follows: parent relations = .80, physical performance = .90, general school = .86, general self = .81, and the coefficient alphas for total non-academic, total academic, and total self-score were .91, .92 and .94, respectively (Marsh, 1992). Extensive support has been documented for the validity of the SDQ (Gilman, Laughlin, & Huebner, 1999; Marsh, 1991; Plucker, Taylor, Callahan, & Tomchin, 1997). Byrne (2002) stated the SDQ is one of the best available tools to measure general self-concept as well as specific domains of the self-concept.

**Self-Perception Profile for Children and Adolescents**

Harter (1982, 1985) proposed two instruments that have been used in many studies (see Lee, Olszewski-Kubilius, & Thomson, 2012; Rudasill et al., 2009) to assess types of different self-concept: the Self-Perception Profile for Children (SPPC; Harter, 1982, 1985) and the Self-Perception Profile for Adolescents (SPPA; Harter, 2012). The SPPC (36 items) is for students in grades three through eight and measures the following areas: scholastic competence, social acceptance, athletic competence, physical appearance, behavioral conduct, as well as overall self-worth. In addition to these areas, the SPPA (used for students grades 8-11 and consisting of 45 items) measures romantic appeal, job competence, and close friendships. The SPPC and SPPA have been found to be reliable and valid measures: internal consistency yielded a Cronbach’s alpha ranging
from .71 to .93 for both measures (Harter, 1985; Lee et al., 2012; Rudasill et al., 2009). More specifically, individual reliability values were as follows: athletic competence $\alpha = .87\text{ to } .93$, social acceptance $\alpha = .81\text{ to } .86$, scholastic competence $\alpha = .68\text{ to } .75$, behavioral conduct $\alpha = .77\text{ to } .85$, physical appearance $\alpha = .85\text{ to } .90$, and global self-worth $\alpha = .77\text{ to } .84$. In terms of validity, the average factor loading on the five subscales of both measures ranged from .43 to .84, implying the instruments had acceptable validity (Harter, 1985, 1988).

**Piers-Harris Children's Self-Concept Scale**

The Piers-Harris Children's Self-Concept Scale (Piers, 1984) is a well-recognized measure developed to assess students’ (age 7-18) perceptions about their global self-worth and self-concept in different specific domains including physical appearance and attributes, intellectual and school status, happiness and satisfaction, freedom from anxiety, behavioral adjustment, and popularity. This instrument was originally developed to measure global self-worth but was later revised to include the stated areas. The reliability and validity are reported to be acceptable. Internal consistency for the total score yielded a Cronbach’s alpha ranging from .77 to .91 (Piers, Harris, & Herzberg, 2002). The Guttman split-half reliability analysis for each domain was as follows: intellectual and school status = 0.43, behavior adjustment = 0.68, freedom from anxiety = 0.81, physical appearance and attributes = 0.71, popularity = -0.24, and happiness and satisfaction = 0.4101 (Lemley, 2004). The validity of the instrument was generally sound as its correlation with other self-concept measures ranged from .63 to .85 (Lemley, 2004).
Factors Correlated with Academic Self-Concept

Academic self-concept is related to many factors that can contribute to the overall student schooling experience. To better understand each factor and its relationship to academic self-concept, a discussion of several of these factors as they relate to academic self-concept is provided.

Academic Achievement

Academic achievement is correlated with academic self-concept (Marsh et al., 2008; Valentine et al., 2004). The relationship between academic self-concept and achievement was well established in the literature and found across nearly all grade levels (Daniel & King, 1995; Haynes, 2005; Helmke & van Aken, 1995; Marsh & Craven, 2002; O’Mara & Marsh, 2006; Stringer & Heath, 2008; Van Damme, Opdenakker, De Fraine, & Mertens, 2004; Walter, 2003). In a study performed by McCoach and Siegle (2003), academic self-concept was one significant predictor of achievement, explaining approximately 20% of the variance in high-ability students’ achievement. “Academic self-concept is theoretically more closely related to academic achievement than most other cognitive variables” (Lyon, 1993, p. 203). Ma and Kishor (1997) conducted a meta-analysis and found a positive correlation between academic self-concept and achievement in mathematics, suggesting when academic self-concept is high, achievement is likely to also be high. Ma and Kishor supported Hansford and Hattie’s (1982) meta-analytic findings, which also indicated a positive correlation between different types of self-concept including academic self-concept and achievement.

To further understand the relationship between achievement and academic self-concept, a study by Daniel and King (1995) investigated different types of self-concept
including academic self-concept. Despite finding a positive relationship between achievement and self-concept in one school subject (e.g., math), the study uncovered a negative relationship between achievement in one subject (e.g., math achievement) and self-concept in another subject (e.g., English self-concept; Möller, Streblow, & Pohlmann, 2009). High academic achievement in one subject might negatively impact academic self-concept in another subject.

The direct causality of such a relationship is still debated; some believe high academic self-concept generally results in subsequent high achievement (e.g., a self-enhancement model) while others maintain high achievement works to develop a subsequent high academic self-concept, (e.g., a skill development model; Huang, 2011). Additionally, research suggested a reciprocal relationship between academic self-concept and achievement. High academic self-concept can positively affect achievement just as high achievement can positively affect academic self-concept (Marsh & Craven, 2006; Marsh & Martin, 2011; Marsh et al., 2005). It should be mentioned that Niepel, Brunner, and Preckel (2014) explained the reasoning behind this interaction is still not fully grasped.

**Giftedness**

Many gifted students often feel they are different from their non-identified peers; therefore, it is logical to assume they hold a distinct view of themselves, particularly regarding their academic ability (Janos, 1990). Research suggested consistently more positive academic self-concept for gifted students as compared to their peers (Hoogeveen, Van Hell, & Verhoeven, 2009; McCoach & Siegle, 2003; Pyryt & Mendaglio, 1994; Robinson, 2002; Zeidner & Schleyer, 1999). In a study by Hoge and Renzulli (1993) on
academic self-concept, gifted students scored themselves higher in academic self-concept than their fellow students. Hoge and Renzulli conducted a meta-analysis of studies on different self-concept domains of gifted students. They discovered increased self-concept overall for gifted students when contrasted with that of non-identified students. Academic self-concept was found to show the greatest disparity between the two groups. In a recent study aimed at investigating the differences between 197 gifted and non-identified secondary school children ages 12- to 16-years-old, Riaz and Shahzad (2010) found a significant difference in self-concept between the two groups that favored gifted students. Another study by Sarouphim (2011) compared gifted and non-identified students ranging in age from 12- to 14-years-old in the areas of depression, academic self-concept, and self-esteem. The analysis found gifted students displayed higher ratings in self-esteem as well as academic self-concept.

Academic researchers Litster and Roberts (2011) synthesized research investigating gifted students’ self-concept. The goal was to examine global self-concept as well as specific sub-categories (e.g., academic self-concept) through the analysis of published and non-published studies. The study uncovered that in academic self-concept areas involving intelligence and reasoning ability, identified gifted students were significantly higher than non-identified students. The most prominent difference between the two groups was in the degree of academic self-concept of the gifted students. Contradicting the findings of Rudasill et al. (2009), grade level mediated the difference, indicating academic perceptions further develop as students increase in grade level (Harter, 1999; Litster & Roberts, 2011; Shapka & Keating, 2005; Shavelson et al., 1976). As Litster and Roberts concluded, even though researchers used various measures to
assess academic self-concept, gifted students consistently scored themselves higher regarding not just academic but nearly all self-concept domains. Identification of giftedness might encourage positive self-concept and protect students from adverse experiences that usually impact the self-concept of other non-identified students (Litster & Roberts, 2011; Rudasill et al., 2009).

Additionally, there are several reasons the academic self-concept of gifted students is shown to be higher than that of their cohorts. Intellectual ability is certainly one such factor and emerges as positively relating to academic self-concept (Hotulainen & Schofield, 2003). Consistent academic achievement works to create and reinforce positive academic self-concept. When considering the internal cognitive processes outlined by Harter (1986), a child’s perception of his or her own advanced achievement leads to an increased academic self-concept. The labeling process also plays a significant role in the gifted student’s academic self-concept. Specifically, labeling a student as gifted communicates higher scholastic expectations, further encouraging the child to develop better academic self-concept (Cornell, 1983). This process occurs regardless of gender, ethnicity, or socioeconomic status (Van Tassel-Baska, Olszewski-Kubilius, & Kulieke, 1994).

Another area of note to consider when exploring self-concept in gifted students is gender. Research showed varied results in the academic self-concept of female and male gifted students. According to Dai (2001), when attending special schools for gifted students, gifted girls tended to have higher academic self-concept in comparison to male gifted students in the same type of educational setting. Rinn et al. (2010) found of students aged 11 to 16 years, gifted girls scored themselves higher than boys in verbal
self-concept. Likewise, Marsh and Yeung (1997) examined a large sample consisting of 20,000 students and found girls had a higher verbal self-concept than did boys. A study conducted by Catsambis, Mulkey, and Crain (2001) suggested gender might not affect gifted students’ academic self-concept and, if it did, it might likely favor gifted females. However, Rudasill et al. (2009) examined gifted females and males (grades 5 to 11) participating in a two-week enrichment program. Consistent with the results of Worrell, Roth, and Gabelko (1998) and Gabelko, Roth, and Worrell (1997), no significant difference was found in how gifted females and males perceived their scholastic competency (also see Preckel, Goetz, Pekrun, & Kleine, 2008; Rinn et al., 2010; Swiatek, 2004).

Rudasill et al. (2009) did, however, discover academic self-concept in females was less stable than in males and tended to decline over time. Further, Kerr and Nicpon (2003) and Preckel and Brüll (2008) found gifted girls showed lower levels of perception of academic potential compared with those of gifted boys. Gifted males tended to have higher math self-concepts than did gifted girls. Somewhat similarly, Preckel, Zeidner, Goetz, and Schleyer, (2008) noted gender might slightly affect academic self-concept of the gifted in favor of boys but only if statistical controls for individual and class average achievement were in place. Without controlling for the two variables, no significant difference was found.

With respect to grade level, research yielded inconsistent results. For example, Worrell et al. (1998) stated grade level did not affect academic self-concept of gifted students. However, gifted females were impacted by grade level and experienced decreases in academic self-concept as they increased in grade level (Klein & Zehms
1996). Rinn et al. (2010) noted a weak relationship between grade level and students’ perceptions of their abilities. The findings of Shi, Li, and Zhang (2008) gave a similar picture: the academic self-concept of gifted students aged 13 did not differ from 11-year-olds but rather differed from 9-year-olds.

Using meta-analysis, Litster and Roberts (2011) suggested grade level could work as a mediator for the effect on students’ academic perceptions. This supported the notion that age could play a role in shaping academic self-concept; when students age, academic self-concept develops and differences increase. As students become older, they are more capable of comparing their abilities with those of others, which is assumed to lead to a difference between older and younger students (Harter, 1999; Litster & Roberts, 2011; Shapka & Keating, 2005).

**Theories That Influence Academic Self-Concept**

**Theories of Intelligence**

Theories of intelligence such as those proposed by Dweck (1986) might help explain why students differ in their academic self-concepts (Wilson, Siegle, McCoach, Little, & Reis, 2014). Academic self-concept as well as other educational factors (e.g., achievement, motivation, etc.) might differ from one student to another based on the intelligence theory each one personally adopts. According to Dweck (1999), theories of intelligence consist of entity theory and incremental theory. Entity theory assumes intelligence is fixed and unchangeable. Students holding an entity theory mindset believe their giftedness must continue to be proved. Since such students view intelligence as indisputable and measured by outcome results (i.e., IQ), they tend to hold themselves to unrealistic expectations and feel they need to keep proving to others they are “worthy” of
any label of intelligence. If they fail to reach a certain level of achievement as expected, they begin to doubt their intelligence, leading to a reduction in academic self-concept. This harm to academic self-concept can be compounded if students also begin to avoid challenging academic tasks they fear will demonstrate incompetence (Dweck, 1999).

The opposite of an entity theory of intelligence is an incremental theory of intelligence. Individuals who hold an incremental view of intelligence believe intelligence can grow through increased attention and effort. Instead of having a fixed mindset as in entity theory, incremental theory views intelligence as malleable. Incremental theory-driven gifted students believe intelligence is flexible; as a result, they tend to concentrate on continuous personal improvement rather than simply striving to uphold the gifted label (Dweck, 1999). These students are more likely to experience decreased pressure because the goal is not to perform to the high expectations of others but to focus their efforts on enhancing skills and advancing knowledge. In contrast to entity theory, these students expend more effort as the difficulty of a task increases rather than avoiding such task in fear of failure. Therefore, students who adopt an incremental theory of intelligence tend to have a more positive and less fragile academic self-concept (Dweck & Leggett, 1988).

**Achievement Goal Theory**

Achievement goal theory is related to theories of intelligence and might influence students’ academic self-concept. Generally, achievement goal theory (Elliot & Church, 1997) contended different goals can motivate people to achieve certain aims. The theory held these goals represented a continuum from performance to mastery. Mastery goals are associated with many desirable outcomes such as persistence, seeking a deep
understanding, and intrinsic motivation (Hulleman, Godes, Hendricks, & Harackiewicz, 2010). On the other hand, students with performance goal approaches might pursue pride and recognition as major goals of their efforts (Niepel et al., 2014). These goals also tended to be domain-specific in certain subjects (e.g., math, history, etc.; Bong, 2001).

Mastery goals are more concerned with personal competence and understanding in a subject. Mastery goals can be further subdivided into mastery-approach and mastery-avoidance goals (Elliot & McGregor, 2001). A student who has a strong personal desire to achieve competence and learn has set a mastery-approach goal for himself, while a student who works hard and puts effort into learning to avoid the appearance of incompetence has set a mastery-avoidance goal for him/herself (Elliot & McGregor, 2001).

Conversely, students set performance goals when they aim to outperform others. Performance goals are also divided into different subcategories—performance-approach goals and performance-avoidance goals (Elliot & Church, 1997). With regard to performance-approach goals, a gifted student might study hard and desire to earn a perfect score on his math exam because he is motivated by the accolades he will receive if he earns the highest exam score in his math class. Or a gifted student sets a performance-avoidance goal for himself and studies hard for a test to avoid performing worse than others in the class.

If students are able to attain either type of performance goal, their fragile academic self-concepts are likely to be maintained or even increased (Niepel et al., 2014). Students with performance goals typically have an entity view of intelligence and worry they will be seen as less intelligent. Continuous opportunities to outperform others in the
classroom might help students never feel others view them as less intelligent and their academic self-concept remains largely intact (Skaalvik, 1997).

Niepel et al. (2014) discovered performance-based approaches could predict academic self-concept over time. However, mastery goals did not predict changes in academic self-concept over time. A performance-based approach could leave one more vulnerable to effects on academic self-concept as performance in relation to others could change in varied settings. Specifically, after studying 769 students in grades five, six, and eight, Niepel et al. (2014) discovered a performance goal approach was positively associated with academic self-concept, i.e., as an individual’s performance increased, so did his/her academic self-concept and vice versa. Niepel et al. (2014) postulated this might occur as students increase their academic performance by engaging in opportunities to outperform others. For example, a student endorsing a performance-approach goal might go above and beyond the requirements for a class presentation in order to display their competence. This tendency to apply more effort in school could lead to more achievement and therefore an increase in academic self-concept. On the other hand, a student might strive for greater achievement but fail to do so, which could damage his/her academic self-concept.

A negative relationship between performance-avoidance and academic self-concept was also found; students who avoid low performance might also avoid learning opportunities and situations that would potentially expose their perceived incompetence (Niepel et al., 2014). As an example, a student might avoid answering questions in class because he/she fears he/she will give an incorrect answer. Avoiding these types of opportunities to engage in the classroom could hinder learning progress. As
performance-avoidance students further avoid situations where their lack of competence could be on display, they progress more slowly and their academic self-concept declines over time (Niepel et al., 2014).

Studying 2,987 students in grade six, Wouters, Colpin, Van Damme, and Verschueren (2015) discovered positive main effects of achievement goals on academic self-concept. Students in mixed ability groups endorsing any kind of achievement goal experienced positive increases in academic self-concept. Mastery and performance approaches were both positively correlated with academic self-concept; however, performance-avoidance goals, in particular, were negatively correlated with academic self-concept, meaning academic self-concept declined when students adopted performance-avoidance goals.

**Academic Self-Concept and Ability Grouping**

The environment serves as the foundation for the development of self; thus, the learning environment can affect gifted students’ academic self-concept. Because of potential negative effects, there is an ongoing debate as to whether or not similar-ability students should be grouped together. Starting with the definition, ability grouping is defined as “any arrangement that attempts to place students with similar levels of ability in instructional groups” (Neihart, 2007, p. 333). Grouping can be either full- or part-time and is frequently based on shared learning characteristics such as skill level, ability, achievement, interests, etc. This practice could be performed within or between classes. Within classes, small or cluster groups could be formed containing students who possess similar learning characteristics. Between classes, this could be achieved through pullout programs or gifted classes. In other programs, gifted students are grouped together full-
rather than part-time. Full-time grouping occurs in school-within-school programs (identified students are grouped while remaining in the larger school community), special schools for gifted and talented students, and/or summer programs (Olszewski-Kubilius, 2010).

Ability grouping has been shown to play a role in shaping academic self-concept. Some research indicated ability grouping might produce encouraging results for all students including the gifted. Researchers have found benefits with regard to achievement (Hattie, 2002; Rogers, 2007; Shields, 2002), motivation, engagement, attitudes toward school (Goldring, 1990; Hattie, 2002; Rogers, 2007; Shields, 2002), and social development, e.g., establishment of positive relationships with peers (Neihart, 2007). Conversely, findings of other research could be cause for concern regarding the detrimental impact this approach could have on academic self-concept. When a student’s academic self-concept is negatively affected, achievement can deteriorate (Marsh et al., 2005). This could also be applied to gifted students as grouping them together might lead them to experience a decline in academic self-concept. Studies examining this phenomenon showed high-ability learners demonstrated higher academic self-concept when in mixed ability groups versus when placed in high ability groups (Marsh et al., 1995; Zeidner & Schleyer, 1999). This is commonly referred to as the big-fish-little-pond effect (BFLPE; Marsh, 1984).

Gifted Students and Big-Fish-Little-Pond Effect

Gifted programs have been studied from the angle of BFLPE as they can be “an ideal test bed for the BFLPE theory because participation in such programs gets close to the essence of the metaphor of a big fish in a little pond suddenly turned medium or small
when thrown into a big pond with many big or bigger fish” (Dai & Rinn, 2008. p. 11). In other words, gifted students previously at the top of their class (big fish in a little pond) could begin to doubt their abilities when they are surrounded by many other high-ability students (small fish in a big pond). Despite consistent evidence supporting BFLPE, testing the paradigm with gifted programs has produced only varied results. In support of BFLPE for example, Marsh et al. (2008) found participating in homogenous groups was detrimental to academic self-concept. Assessing 157 elementary gifted students’ academic (reading, math, and school) and non-academic self-concepts revealed the students experienced a decline in academic self-concept when participating in separate classes for the gifted (Marsh et al., 1995). The BFLPE was consistent across gender, age, and initial ability levels.

Zeidner and Schleyer (1999) examined BFLPE with 982 gifted students (grades four to six) participating in gifted and regular classes. Academic self-concept, test anxiety, and school grades were primary concerns. Students in separate gifted classes documented a negative impact with respect to all three variables compared with their matched group in mixed ability classrooms.

A longitudinal study of 211 secondary gifted students by Preckel and Brüll (2008) reaffirmed these findings, showing grouping high-ability students into tracks resulted in negative effects on their academic self-concept in the areas of general education, math, and German. The largest effect was detected as occurring early in the academic year. Another longitudinal study by Brüll (as cited in Preckel et al., 2010) found even after controlling for a positive effect resulting from being a member of a gifted class, fifth grade gifted students experienced a significant BFLPE. Particularly, math self-concept of
93 ninth grade students declined significantly upon participation in special classes for gifted students (Preckel et al., 2010). In their study, math self-concept was examined three times during the course of the academic year, revealing BFLPE was most pronounced early in the year. As stated previously, teacher-assigned grades might affect the magnitude of BFLPE. A strength of this study was the researchers controlled for the effect of teacher-assigned grades; yet, the BFLPE was still found. Preckel et al. (2008) studied 769 elementary and junior high gifted students in 33 homogenous, full-time classes and found a significant BFLPE within these classes. In other words, within gifted settings, the BFLPE could be replicated. High-achieving students were assumed to be prone to the BFLPE.

Even with highly exceptional, radically accelerated gifted children, the BFLPE struck again (Gross, 1992, 1993). However, Gross (1993) interpreted this otherwise, writing profoundly gifted students might overestimate their academic ability in a non-accelerated setting:

It might be anticipated that exceptionally gifted children who have been radically accelerated would score high on the index of academic self-esteem. By contrast, they display positive but modest scores, between the mean for their age groups and .7 of a standard deviation above. Interestingly, it is the children who have not been radically accelerated whose academic self-esteem is unusually inflated. (p. 97)

Marsh et al. (1995) interpreted Gross’s (1993) findings differently, stating even though the elementary gifted students who participated in Gross’s study scored an IQ four standard deviation above the mean, they had a “radically deflated” academic self-concept. This was probably the result of self-comparing academic ability with older, abler students with whom they were now grouped; this, in turn, meant there was only a modest difference in academic self-concept between them and their own age group. On
the other hand, non-accelerated students as they compared their ability with average students had a more realistic academic self-concept consistent with their high level of intelligence.

Enrollment in a selective environment could lead to a drop in academic self-concept in students of all levels of ability including those who are gifted (Marsh et al., 1995). Marsh et al. (1995) maintained the only situation in which gifted students might be satisfied with themselves is when they are the top student, which is most likely to occur in regular classrooms. In competitive settings such as selective schools and classes designated solely for the gifted, the chances of achieving top standing are reduced. As a result, it is more likely academic self-concept might be negatively impacted.

Although an assimilation effect (i.e., positive effect resulting from membership in a highly regarded group) might be present when a student belongs to a gifted program (Trautwein, Lüdtke, Marsh, & Nagy, 2009), gifted students might also experience a negative effect created by the BFLPE when they are grouped homogeneously with others of like ability (Craven et al., 2000; Marsh et al., 1995, 2004; Preckel et al., 2010; Shields, 2002; Zeidner & Schleyer, 1999).

Others researchers believe participation in homogeneous ability grouping does not cause a decline in academic self-concept. For instance, Dai et al. (2013), Makel et al. (2012), and Cunningham and Rinn (2007) demonstrated the academic self-concept of high-ability students participating in summer programs for the gifted was not negatively affected (Rinn et al., 2010).

Further, Olszewski et al. (1987) found academic self-concept was only affected by summer program participation on the first day. It remained stable after the first day as
it did not significantly decrease or increase. Similarly, Gibbons et al. (1994) investigated
the effects of gifted program participation on the academic self-concept of 200 students
(13- and 14-years-old) and concluded although lower academic self-concept was initially
detected, after six months of enrollment in the program, the negative effects had
vanished.

Although Zeidner and Schleyer (1999) uncovered a statistical difference between
two groups of gifted students who did and did not participate in homogenous programs,
academic self-concept of both groups seemed reasonably high. In a study of 722 fifth
grade students, Preckel and Brüll (2010) demonstrated gifted students in a full-time
program showed non-significant negative effects. Their reasoning for the non-significant
negative effects was the positive effects (assimilation) were comparable to the negative
effects, thus they counterbalanced each other and stabilized academic self-concept.

As indicated, assimilation effects refer to the positive influence derived from
belonging to gifted classes. As Dai et al. (2013) pointed out, although numerous studies
provided sound evidence of the BFLPE in several settings and among various samples,
mixed results existed with respect to gifted students. Some findings indicated a
significant decline in academic self-concept while others demonstrated an increase or no
changes at all in academic self-concept. As the BFLPE predicted long-term negative
effects on academic self-concept, studies with gifted program participants did not
consistently support such predictions, which in turn, called into question the external
validity (i.e., generalization) of the BFLPE (Dai & Rinn, 2008; Moon, Feldhusen, &
Dillon, 1994).
Conclusion

Giftedness and academic self-concept are complex constructs. Researchers have attempted to operationalize both constructs; however, lack of uniformity in definitions has led to disparate conclusions that have impacted generalizability of research study findings. Although lack of generalizability is an issue, ability grouping is believed to be related to many positive educational outcomes and can be an effective means of educating gifted students. In fact, gifted students often express ability grouping enriches their educational experiences and challenges them in positive ways.

While ability grouping is correlated with several education advantages, research also pointed to possible negative effects. One of the main concerning negative effects is the BFLPE as it can lead students to compare their academic ability with other high-ability students and cause them to doubt themselves. This self-doubt could then lower a student’s academic self-concept as he/she begins to feel that his/her abilities are not as exceptional as once believed. This is a cause for concern as achievement and other educational factors (e.g., motivation, attitude, aspiration, etc.) can decrease when a student’s academic self-concept is negatively affected (Marsh et al., 2005). High-ability students typically demonstrate a higher academic self-concept when in mixed-ability groups versus when placed in high-ability groups (Marsh et al., 1995; Zeidner & Schleyer, 1999). However, the decline in academic self-concept when high-ability students are grouped with their like-ability peers is often short lived as it is believed they are eventually able to embrace a more realistic view of their academic abilities when appropriately challenged.
CHAPTER III

METHODOLOGY

Purpose of the Study

The purpose of this study was to investigate the effect of gifted schools on the academic self-concept of gifted middle school students in Saudi Arabia. This study attempted to recognize the potential differences in academic self-concept between identified gifted students at schools specializing in gifted education and identified gifted students at mixed ability schools. The following research questions guided this study:

Q1 Is there a difference between academic self-concept of identified gifted students at schools specializing in gifted education and identified gifted students at mixed ability schools in Saudi Arabia?

Q2 When controlling for individual student achievement, which of the following factors best predict academic self-concept for gifted middle school students in Saudi Arabia: grade, gender, class rank, school type (gifted and mixed ability schools), and/or class average achievement?

Setting

Cultural Context

The educational system in Saudi Arabia presents unique characteristics. For example, girls and boys are separated into different schools by law. All children in Saudi Arabia are required to attend school until reaching college. Elementary schooling begins at the age of six and continues for six years. Elementary students attend two semesters per year with each semester containing at least 15 weeks of schooling. The school week
runs from 7 a.m. to 12 p.m., Thursday to Sunday. A school day is divided into six classes each 45 minutes in length. English language classes begin in Grade 4. The performance of elementary students is not formally evaluated until they progress to Grade 5. These evaluations are conducted by teachers who assess students’ competencies in all subjects. If students do not pass final examinations during Grades 5 and 6, they are held back and required to repeat the grade. With regard to the parents’ role in their children’s education, parents often defer to and place trust in the school and teachers when making educational decisions for their children.

Middle school in Saudi Arabia consists of Grades 7 through 9 and is for students aged 12-14. The general length and structure of middle school is the same as elementary school; however, a two-week examination period follows the 15-week school period for middle school students. Grade point average is calculated based on performance throughout the entire school year rather than being divided separately by semester.

High school is Grades 10 through 12 for students aged 15 to 18. High school is similar to middle school in terms of examination periods but students are required to choose one of two streams--mainstream or vocational stream. Mainstream consists of traditional classes with an emphasis on math, science, physics, biology, and chemistry. The vocational stream emphasizes Arabic, religion, literature, and social sciences. Students in Grade 10 and above begin taking standardized tests in preparation for college.

Additionally, Saudi Arabia has been engaged in considerable national efforts in developing educational programming for gifted students. Gifted education is relatively new and still developing in Saudi Arabia as compared to Western nations. Since 1996, the Ministry of Education has supported a research project designed to seek out and
identify gifted students and provide them with relevant programs (Majiney, 2008).

Gifted programs in Saudi Arabia are of two types: academic year programs and summer programs (Majiney, 2008). Academic year programs are either special schools or special classes in a general education setting. In special schools for gifted students, students are given the same curriculum as regular students. Examinations are similar to those given to regular students. Teachers in gifted schools have the same training as teachers in other schools. The only significant difference between gifted schools and regular schools is gifted students are grouped together.

Eligibility for gifted schools is determined by the Ministry of Education. Students are referred to take a standardized test that determine giftedness in elementary schools by their teachers. If students pass by reaching 130 in an IQ test, they are identified as gifted and recommended to attend a gifted school. One unique characteristic of education in Saudi Arabia is single-sex education. Within the gifted education context, gifted boy and girls are educated separately for the entire K-12 experience.

The Ministry of Education in Saudi Arabia is responsible for 42 school districts and each district has one gifted education department. The gifted education department is responsible for identifying gifted students as well as providing gifted services for these students. No statistics were available regarding the number of identified students; but on a very general basis, 5% of the student population has been identified as gifted (“Ministry of Education,” 2016). The cognitive assessment cut-off score used for identification varies from one district to another and from year to year. Gifted education services also differ from district to district as some provide gifted classes during or after school, pull-
out programs, and summer programs; others provide schools specializing in gifted education.

**Study Setting**

The Qassim district was chosen for this study. As of 2010, the number of people in the region was 614,093. It is a large region with around 150 elementary schools, 50 middle schools, and 30 high schools. These schools are very similar in size. Further, the Qassim district is one of five districts that offer schools specializing in gifted education. Another reason for the selection was the Qassim district is more accessible, geographically. Access to the other four districts that have established gifted schools would be more challenging to achieve given the time limitation set for this study.

The focus of this study was middle schools. Middle schools run from seventh to ninth grades. The average size is 250-300 students per middle school. Due to standards set by the Ministry of Education, all middle schools follow the same curriculum and receive the same funding. There are around 20-30 students per teacher. Students remain in their classroom, but receive education from different teachers with specific specialties throughout the day.

Eight of 50 middle schools in the region agreed to participate in the study (these schools were contacted for another research study that took place earlier in the academic year). There are two gifted middle schools in the region; one is for males and the other is for females. These gifted schools only admit gifted students identified by the Ministry of Education. The other six schools are regular education schools comprised of students of mixed ability levels. All eight schools have the same curriculum. Additionally, all teachers have the same general training in the same curriculum and pedagogy.
Although there is no available metric regarding socio-economic levels in the region, the socio-economic levels of the students in these schools are believed to be highly comparable to one another (A. Alharbi, personal communication, May 15, 2016).

Participants

Using a convenience sampling approach, the sample of this study consisted of 147 identified gifted Saudi middle school students in grades 7, 8, and 9. With this kind of sampling, researchers select a sample that is easy to access (Gall, Gall, & Borg, 2007). For the chosen analyses, this number of students satisfied statistical power recommendations (Soper, 2013). The ages of the participants ranged from 12 to 16 with a mean age of 13.9. All participants met the eligibility requirements to be identified for gifted programs--teachers’ nomination and attaining a score of 130 or above on an IQ test. The students attended one of two different types of middle schools in the Qassim region of Saudi Arabia--either middle schools that only admitted gifted students or middle schools heterogeneously mixed by ability. Approximately, half of the sample was students enrolled in schools specializing in gifted education and the other half was students enrolled in regular schools. Eight schools agreed to participate in this study; two were for identified gifted students only (one was for male students and one was for female students) and six were mixed ability schools (three were for males and three were for females). One hundred percent of the gifted schools in the region participated in the study. Demographic characteristics of the participants are presented in Tables 1 and 2.
Table 1

*Cross-Tabulation of Participant’s Gender and Grade Level by School Type*

<table>
<thead>
<tr>
<th></th>
<th>Gifted schools</th>
<th>Mixed ability schools</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td>51</td>
<td>44</td>
<td>95</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td>25</td>
<td>27</td>
<td>52</td>
</tr>
<tr>
<td><strong>7th grade</strong></td>
<td>36</td>
<td>22</td>
<td>58</td>
</tr>
<tr>
<td><strong>8th grade</strong></td>
<td>22</td>
<td>18</td>
<td>40</td>
</tr>
<tr>
<td><strong>9th grade</strong></td>
<td>18</td>
<td>31</td>
<td>49</td>
</tr>
</tbody>
</table>

Table 2

*Respondents by School Type, Gender, and Grade Level*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gifted schools</td>
<td>76</td>
<td>51.7</td>
<td>51.7</td>
</tr>
<tr>
<td>Mixed ability schools</td>
<td>71</td>
<td>48.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Male</td>
<td>95</td>
<td>64.6</td>
<td>64.6</td>
</tr>
<tr>
<td>Female</td>
<td>52</td>
<td>35.4</td>
<td>100.0</td>
</tr>
<tr>
<td>7th grade</td>
<td>58</td>
<td>39.5</td>
<td>39.5</td>
</tr>
<tr>
<td>8th grade</td>
<td>40</td>
<td>27.2</td>
<td>66.7</td>
</tr>
<tr>
<td>9th grade</td>
<td>49</td>
<td>33.3</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Response Rate

Two-hundred surveys were distributed to students across both school types. Parents agreed their child could participate in the study via informed consent. A total of 147 students participated in the study for an overall response rate of 73%.

Data Entry and Missing Data

Participants completed the Self-Description Questionnaire (SDQ) online, which was developed in Qualtrics (see Appendix A). After individual participants completed the survey, the researcher received the data and exported as an SPSS file using Qualtrics. Once the data were obtained, it was checked for duplicate cases to remove from the data set. No missing data were found because the force response feature in Qualtrics was utilized--participants could not proceed to the next question until they responded to the current question.

To analyze the responses appropriately, all items on the survey were worded either all positively or all negatively (i.e., one direction). However, if the survey contained questions with two directions (i.e., positive and negative), positive or negative questions were reverse coded. Here, both negative items (i.e., Q4 and Q7) were reverse coded. Thus, the score of each item was reverse coded. For all items in the academic subscale of SDQ, a 1 was the minimum score and a 5 was the maximum score.

Additionally, several variables were converted to dummy variables (i.e., they were coded as 0 and 1) for the purpose of statistical analysis: school type (0 = mixed ability schools and 1 = gifted schools, grade level (i.e. when coding for seventh grade: seventh grade = 1, eighth grade = 0, and ninth grade = 0; when coding for eighth grade:
eighth grade = 1, seventh grade = 0, and ninth grade = 0; when coding for ninth grade: ninth grade = 0) and gender (0 = female and 1 = male).

Means, standard deviations, skewness, kurtosis, and reliability coefficients are reported in Table 3. Academic self-concept as measured by SDQ had a mean value of 4.28 and a standard deviation of .42. Students’ mean GPA was 97.30—considered an “A” in both school types sampled in this study. Cronbach’s alpha reliability coefficient was .70, indicating an acceptable internal consistency in the measure.

Table 3

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>13.97</td>
<td>.99</td>
<td>.28</td>
<td>-.32</td>
<td>.70</td>
</tr>
<tr>
<td>ASC</td>
<td>4.28</td>
<td>.42</td>
<td>-.51</td>
<td>.23</td>
<td></td>
</tr>
<tr>
<td>Class Average</td>
<td>87.71</td>
<td>5.93</td>
<td>-.26</td>
<td>-1.62</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>1.35</td>
<td>.48</td>
<td>.61</td>
<td>-1.64</td>
<td></td>
</tr>
<tr>
<td>GPA</td>
<td>97.30</td>
<td>1.97</td>
<td>-.75</td>
<td>.36</td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td>1.94</td>
<td>.85</td>
<td>.11</td>
<td>-1.62</td>
<td></td>
</tr>
<tr>
<td>Rank</td>
<td>3.88</td>
<td>3.09</td>
<td>1.56</td>
<td>2.72</td>
<td></td>
</tr>
<tr>
<td>School Type</td>
<td>.51</td>
<td>.50</td>
<td>-.06</td>
<td>-2.03</td>
<td></td>
</tr>
</tbody>
</table>

Note. ASC= Academic self-concept.
Measurement

The Self-Description Questionnaire (SDQ) was based on the Shavelson et al. (1976) model, (Marsh et al., 1988). The SDQ measures several concepts of self, including math, physical appearance, general esteem, honesty/trustworthiness, physical abilities, verbal/ emotional stability, parent relationships, academic (general), same-sex relationships, opposite-sex relationships, spiritual values/religion, and problem-solving. This set of instruments includes the SDQ-I for pre-adolescents (ages 5-12, 76 items), SDQ-II for early adolescents (ages 13-17, 102 items), and SDQ-III for late adolescents and to adults (age 17 and over, 136 items). Bracken (2009) described the SDQs as “theoretically based, multidimensional in nature, hav[ing] sound psychometric characteristics, evenly weighted subdomains, and some hav[ing] national normative samples” (p. 92). For this study, a 5-point Likert-type scale was used to measure self-concept from the participants’ perspectives: 1 = false statement, 2 = a somewhat false statement, 3 = neutral, 4 = a somewhat true statement, and 5 = a true statement.

The reliability for the SDQs has been well established in the literature. Internal consistency yielded a Cronbach’s alpha ranging from .85 to .94 (e.g., Areepattamannil & Freeman, 2008; Byrne & Shavelson, 1996; Leach et al., 2006; Marsh, 1992; Marsh et al., 2001). For eight of the individual scales, internal consistency was as follows: physical ability = .90, general esteem= .81, parent relations = .80, general academic = .86, and the coefficient alphas for total non-academic, total academic, and total self-score were .91, .92, and .94, respectively (Marsh, 1992).

Extensive support has also been documented for the validity of the SDQs (Gilman et al., 1999; Marsh, 1991; Plucker et al., 1997). Marsh et al. (1988) tested the construct
validity of the instrument and found the multidimensional structure of the instrument was supported. They tested the convergent validity by comparing all of the SDQs to the Coopersmith (1967) Self-Esteem Inventory (SEI). Convergent validity between these measures was determined to be adequate. Additionally, Marsh et al. examined the relationship between all of the SDQs and the Harter Perceived Competence scale and found support for the convergent and discriminant validities of the SDQ. Byrne (2002) stated the SDQ is one of the best available tools to measure general as well as specific domains of self-concept.

The most often used instrument for assessing general academic self-concept in Arabic is the translation/adaptation of the general academic self-concept subscale of SDQ-I. This was adapted and translated to the Arabic language by Aal-Hussain (1991). Although the original SDQ-I was designed for English-speaking pre-adolescents (i.e., 5 to 12 years), Abu-Hilal and Aal-Hussain (1997) and Abu-Hilal and Bahri (2000) found the Arabic version of SDQ-I was also applicable to the early adolescents. In their study that aimed to test the SDQ-I with Arabian students, the Arabic SDQ-I demonstrated an acceptable level of reliability and structural validity when it was used with students in grades 5, 6, 8, and 9 (Abu-Hilal & Aal-Hussain, 1997). Another study revealed the Arabic SDQ-I was also appropriate to utilize with high school Arabian students (Aal-Hussain, 1991).

The general academic self-concept subscale measures an individual’s interests and abilities in schoolwork (e.g., “I learn things quickly in most school subjects”; Marsh, 1990, p. 6). It consists of 10 questions (see Appendix A for the original subscale and Appendix B for the subscale translated into Arabic).
Reliability for the Arabic version was also found to be acceptable. Internal consistency-reliability estimates for all scales of the SDQ were found to be in the range of .80 to .90, which indicates acceptable reliability. Coefficient alphas for all scales had a median of .86. The alpha coefficient for the entire scale was .91. The alpha coefficient for the academic scale was .94, whereas the non-academic was .92 (Aal-Hussain, 1991).

**Data Collection Procedures**

The Ministry of Education was contacted to get permission to conduct a pilot study on this topic earlier in the academic year. The Ministry of Education gave permission to conduct the study, and they had sent out information about the study to all middle schools in the Qassim region. The schools were informed about the required characteristics of the participants for the study (e.g., identified gifted students). Eight out of 150 schools agreed to participate in the study.

All students in the schools that specialized in gifted education received the consent and assent forms (see Appendices C and D). Only those students identified for gifted education services at the mixed ability schools received these forms. The consent and assent forms contained descriptions of the study, explanations of possible risks, and a notification of the voluntary nature of the study. The researcher’s contact information was provided so if parents had any concerns, they could be contacted. Once the forms were returned to the school by the parents, the classroom teacher collected them and noted who had and who had not returned the consent forms. The forms were then given to the researcher. Students who did not provide the forms did not participate in the pilot study and did not participate in the current study. As was determined by the pilot study, the survey took 15-20 minutes for the students to complete.
Since parental consent and assent have been previously collected for the pilot version of the study, this information was not collected again. Further, Institutional Review Board (IRB) approval was obtained (see Appendix E).

For the current research study, new data were collected through an online version of the SDQ. To protect their confidentiality, students were not asked for any identifying information when filling out the survey. Students were asked to provide the last four digits of their phone number to avoid duplicated responses. Further, their responses were password protected and only accessed by the researcher and his advisors. The technology teacher in each school facilitated the administration of the questionnaire. These teachers were given written instructions by the researcher on how to administer the questionnaire (see Appendix F). If students did not understand certain items on the survey, the teacher was advised to rephrase the item in a way the student could understand. In the case of the schools that specialized in gifted education, all students whose parents consented to participation in the study went to the computer lab with the technology teacher. In the mixed ability schools, the technology teacher pulled out the identified gifted students whose parents consented and assented to participation in the study. Students took the online survey in the computer lab in the school. As was successfully done in the pilot study, the link to the online survey was written on the whiteboard in the computer lab and the students keyed in the URL. Students whose parents did not return the form or opted not to have their child participate were supervised in the classroom by a teacher who had a planning period at that time.

The Ministry of Education provided class average achievement data for each school. Self-reported GPA for the current academic year and class ranking were collected
through the online survey (Qualtrics). Self-report was assumed to be valid based on previous research (Preckel & Brüll, 2010).

**Data Analysis**

Demographic information was gathered through the online questionnaire administered to the participants. It contained questions pertaining to the middle school name, student gender, age, grade level (seventh, eighth, and ninth), and individual achievement (i.e., school grades; see Appendix A).

**Research Question 1**

Is there a difference between academic self-concept of identified gifted students at schools specializing in gifted education and identified gifted students at mixed ability schools in Saudi Arabia?

For the first research question, a t-test was utilized to examine the differences between gifted students in gifted and mixed ability schools. Schools specializing in gifted education and mixed ability schools served as the independent variables in this study and the dependent variable was academic self-concept as measured by the SDQ.

Two primary assumptions were met for the t-test. To meet those assumptions, the following steps were taken. The normality assumption was examined, as well as the Levene’s test of equality of error variances, which was used to check for the homogeneity of variances assumption.

**Research Question 2**

When controlling for individual student achievement, which of the following factors best predicted academic self-concept for gifted middle school students in Saudi Arabia: grade, gender, class rank, school type (gifted and mixed ability schools), and/or class average achievement?

For the second research question, multiple regression was used to examine the factors that predicted academic self-concept of Saudi gifted middle school students. The
purpose of multiple regression is to examine the relationship between several independent (predictor) variables and a dependent (criterion) variable (Cohen, Cohen, West, & Aiken, 2013). Since there were more than one predictors, this method of analysis was appropriate because it tested the relationship between variables.

The independent (predictor) variables for this analysis were as follows: school type (gifted and mixed ability schools), class average achievement, individual student achievement, grade, class rank, and gender. Class average achievement was based on the students’ achievement in all subjects at the end of the first semester. Individual achievement consisted of self-reported GPA for the current academic year based on the conventional numeric grading scale in Saudi Arabia; this scale ranged from 0 to 100 (100 being the highest GPA a student could earn). Self-reported student ranking in the classroom was also an independent variable as students typically knew how they ranked compared to others in their classroom. Ranking information was provided to students on their report cards (e.g., it might say “You are ranked #1 in your classroom”). Grade levels ranged from seventh to ninth grades. Seventh graders were in their first year at a gifted school. Eighth and ninth graders were in their second and third years at a gifted school, respectively. Gender was also an independent variable. The main dependent variable was academic self-concept. Academic self-concept was measured using the appropriate subscale of the SDQ.

Statistical assumptions required for the multiple regression analysis were checked, including normality, homoscedascity, independence, linearity, and multicollinerality. (Montgomery, Peck, & Vining, 2015).
CHAPTER IV

RESULTS

This chapter explains the results of the data analyses. For all analyses, SPSS 22 was used to answer the research questions. Statistical assumptions were inspected and discussed. Next, the research questions are addressed.

Data Analyses

Prior to conducting the necessary analyses to answer the research questions, data were screened for any outliers since extreme scores could have been a potential problem for the analysis. Upon inspection of the standardized residual plot, two of the variables--school type and GPA--possessed a few outlying points. Such outliers posed a problem for normality assumption but did not affect the analysis significantly; therefore, they were removed from the data. Before removing the outliers, the result of the analysis chosen for this study (t-test and multiple regression) were significant ($p=.001$). Upon removing the outliers, the statistical significance remained unchanged ($p=.001$). Normality, homoscedasticity, independence of residuals, and linearity were also inspected (i.e., Kolmogorov-Smirnov) (see Figure 1). These assumptions will be discussed in greater detail in later sections.
Research Questions

Upon inspecting the statistical assumptions, the data were then statistically analyzed. For the first question, an independent samples $t$-test was used. Assumptions are examined, procedures are described, and the results are reported.

Q1 Is there a difference between the academic self-concept of identified gifted students at schools specializing in gifted education and mixed-ability grouped schools in Saudi Arabia?

To obtain a valid result, the equal variances assumption was checked. Levene’s test for equality of variances evaluated whether or not the two groups held equal variances. The result of Levene’s test showed a significant value, indicating variances were not equal. As such, the $t$-test result that indicated “equal variances were not assumed” was used. The independent variable was school type (i.e., gifted schools vs.
mixed ability schools) and the dependent variable was academic self-concept.

Comparing the two groups with respect to academic self-concept revealed a significant
difference between students at gifted schools and their cohorts at mixed ability schools ($t$
(137) = 6.07, $p = .001$). Effect size of group differences was also calculated, suggesting a
medium effect size ($d= 0.45$). The 95% confidence interval for the difference in means
was 0.25 to 0.50 (see Table 4).

Table 4

<table>
<thead>
<tr>
<th></th>
<th>$t$-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equal variances</td>
<td>$t$</td>
</tr>
<tr>
<td>not assumed</td>
<td>6.07</td>
</tr>
</tbody>
</table>

Q2 When controlling for individual student achievement, which of the
following factors best predict academic self-concept for gifted middle
school students in Saudi Arabia: grade, gender, class rank, school type
(gifted and mixed ability schools), and/or class average achievement?

To determine which factors predicted academic self-concept, standard multiple
regression was used. To analyze data properly, the multiple regression assumptions were
inspected. Normality, linearity, homoscedasticity, multicollinearity assumption, and
independence of residuals were checked, indicating none of the assumptions were
violated.

The multivariate normality assumption means the scores of the independent and
dependent variables are normally distributed. To check for this assumption, normality
tests in SPSS were performed for all variables (note that categorical variables were transformed into dummy variables). It was shown this assumption was not violated; the normality tests demonstrated non-significant values, meaning the data were normally distributed. Multiple regression also requires a linear relationship between independent and dependent variables. This assumption was checked using a normal P-plot, which showed no violation. In a normal P-Plot, the points lie in a relatively straight line from the bottom left to the top right. This implies no major deviations from normality, linearity, homoscedasticity, and independence of residuals.

Another assumption is homoscedasticity, which means variances in variables are roughly equal. A residuals scatterplot was inspected to check for this assumption and no violation was determined (see Figure 2). The independence of residuals assumption was checked to see if the data were independent of and not influenced by each other. The residuals scatterplot showed the cases were independent; thus, this assumption was met. In this scatterplot with standardized residuals, most scores were roughly and rectangularly distributed and concentrated in the center. Thus, the normality, homoscedasticity, and independence of residuals of the data assumptions were met.
Multicollinearity is another assumption that refers to the relationship among independent variables. When checking for this assumption, a high correlation ($r = .95$) was found between two variables—school type (as this variable was transformed into a dummy variable) and class average, which impacted analysis. Collinearity diagnostics were also performed and showed high variance inflation factor (VIF) values for the two variables—school type (14.42) and class average (14.77). This indicated a violation of the multicollinearity assumptions as a VIF value of 10 and above can violate this assumption. Therefore, it was decided to drop class average from the variables list.

Figure 2. Scatterplot for regression standardized residuals.
Following the inspection of assumptions, the data were analyzed. In the initial analysis, the mean of academic self-concept was analyzed as a dependent variable and individual student achievement grade, gender, class rank, school type (gifted and mixed ability schools), and/or class achievement were analyzed as independent variables. As noted earlier, a high correlation \( r = .96 \) existed between two variables--school type and class average. Also, when examining school type and class average individually with respect to the regression model and how each variable contributed to the overall model, both variables demonstrated similar results. Taking this together, class average was removed from the model. Since the purpose of this study was to investigate the impact of gifted schools (i.e., school type) on students’ academic self-concept, school type was retained over class average achievement. Thus, the final model included individual student achievement, grade, gender, class rank, and school type (gifted and mixed ability schools) as independent variables.

Before assessing the regression model, relationships among variables were assessed. A correlation between variables was conducted. As noted earlier, categorical variables were converted to dummy variables (i.e., they were coded as 0 and 1) for the purpose of statistical analysis. These variables were school type (0 = mixed ability schools and 1 = gifted schools), grade level (i.e., when coding for seventh grade: seventh grade = 1, eighth grade = 0, and ninth grade = 0; when coding for eighth grade: eighth grade = 1, seventh grade = 0, and ninth grade = 0; when coding for ninth grade: ninth grade = 0) and gender (0 = female and 1 = male).

As shown in Table 5, academic self-concept was significantly and positively correlated with GPA (i.e., if GPA increased, academic self-concept also increased) and
negatively with rank (i.e., if a student’s rank decreased—being ranked #1 for his/her grade for example—academic self-concept increased). Academic self-concept also correlated significantly with school type and grade level (seventh, eighth, and ninth). With gender and academic self-concept, the results did not suggest a significant correlation between the two variables. Thus, the direction of this correlation could not be determined since the categorical variables (school type, gender, and grade level) were transformed into dummy variables.

Table 5

*Pearson’s Correlations of Variables*

<table>
<thead>
<tr>
<th></th>
<th>ASC</th>
<th>GPA</th>
<th>School Type</th>
<th>Rank</th>
<th>Gender</th>
<th>7th</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPA</td>
<td>.487***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Type</td>
<td>-.447***</td>
<td>-.398</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rank</td>
<td>-.347***</td>
<td>-.741</td>
<td>.494</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.089</td>
<td>-.117</td>
<td>.054</td>
<td>.051</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7th</td>
<td>.211**</td>
<td>-.101</td>
<td>.167</td>
<td>.256</td>
<td>.131</td>
<td></td>
</tr>
<tr>
<td>8th</td>
<td>-.097</td>
<td>-.222</td>
<td>.040</td>
<td>-.022</td>
<td>-.059</td>
<td>-.494</td>
</tr>
</tbody>
</table>

*Note.* ASC= Academic self-concept, school type (ref = non-gifted school), gender (ref = female), and grade level (ref = 9th grade). *= less than or equal .05, **= less than or equal .01, ***= less than or equal .001.

Evaluating the overall multiple regression model, it was found the $R^2$ was .44 and adjusted $R^2$ was .42, meaning the model explained 42% of the variance in academic self-
concept. The adjusted $R^2$ was adjusted for the number of predictors in the model; hence, it was used (see Table 6).

Table 6

**Overall Model of Regression**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>11.834</td>
<td>6</td>
<td>1.972</td>
<td>19.036</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>14.506</td>
<td>140</td>
<td>.104</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>26.340</td>
<td>146</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When evaluating each of the independent variables to see which variables contributed significantly to the model, the results showed individual achievement (i.e., GPA); school type, and grade levels contributed significantly to predicting academic self-concept ($p = .00$, $p = .00$, $p = .00$, respectively). On the other hand, class rank and gender did not demonstrate a significant prediction of the dependent variable ($p = .23$, $p = .38$, respectively; see Table 7).

Examining standardized beta values given by the analysis provided valuable information to answer the research questions. In order to compare the contribution of each independent variable to the model, standardized coefficient beta values were used. The standardized beta values also indicated the number of standard deviations; when the independent variable changed one standard deviation, the score of the dependent value changed to that amount (i.e., beta value) either negatively or positively. The results showed individual achievement had a beta value of .518—the largest beta coefficient; it
was followed by seventh grade (.422), school type (-.379), eighth grade (.241), rank (.124), and gender with the smallest (-.056; see Table 7). The unstandardized regression coefficients ($B$) and intercept, the standardized regression coefficients ($\beta$), semipartial correlations ($sr_i$), and collinearity statistics are reported in Table 7.

Table 7

*Coefficients of the Multiple Regression Model*

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients $B$</th>
<th>Std. Error</th>
<th>Standardized Coefficients $\beta$</th>
<th>Correlations Part ($sr_i$)</th>
<th>Collinearity Statistics VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>-6.656</td>
<td>2.174</td>
<td>-3.061</td>
<td>.003</td>
<td></td>
</tr>
<tr>
<td>GPA</td>
<td>.112</td>
<td>.022</td>
<td>.518</td>
<td>5.124</td>
<td>.321</td>
</tr>
<tr>
<td>School Type</td>
<td>-.321</td>
<td>.061</td>
<td>-.379</td>
<td>-5.224</td>
<td>-.328</td>
</tr>
<tr>
<td>Rank</td>
<td>.017</td>
<td>.014</td>
<td>.124</td>
<td>1.196</td>
<td>.075</td>
</tr>
<tr>
<td>Gender</td>
<td>-.049</td>
<td>.057</td>
<td>-.056</td>
<td>-.870</td>
<td>-.055</td>
</tr>
<tr>
<td>Seventh</td>
<td>.365</td>
<td>.066</td>
<td>.422</td>
<td>5.555</td>
<td>.348</td>
</tr>
<tr>
<td>Eighth</td>
<td>.229</td>
<td>.074</td>
<td>.241</td>
<td>3.113</td>
<td>.195</td>
</tr>
</tbody>
</table>
CHAPTER V

IMPLICATIONS, LIMITATIONS, SUGGESTIONS
FOR FUTURE RESEARCH, AND CONCLUSION

This study investigated the academic self-concept of identified Saudi Arabian gifted seventh, eighth, and ninth grade students. The impact of gifted schools on academic self-concept was the focus of this study. Two primary research questions guided this study. The first research question sought to understand if school type (i.e., gifted schools versus mixed ability schools) impacted the academic self-concept of gifted middle school students. The second research question aimed to determine which factors best predicted academic self-concept for gifted middle school students in Saudi Arabia including grade, gender, class rank, individual achievement, school type (gifted and mixed ability schools), and/or school average achievement.

Previous research postulated academically rigorous environments could have a negative effect on students’ beliefs about themselves and their academic ability as demonstrated by the Big-Fish-Little-Pond Effect (BFLPE; Marsh & Craven, 2002; Marsh & Hau, 2003; Marsh et al., 2008; Seaton et al., 2009). However, when this belief was examined with regard to gifted students, results were mixed. Some studies found significant effects (Craven et al., 2000; Marsh et al., 1995, 2004; Preckel et al., 2010; Shields, 2002; Zeidner & Schleyer, 1999) while others were unable to demonstrate significant effects on academic self-concept (Cunningham & Rinn, 2007; Dai et al., 2013; Makel et al., 2012; Preckel & Brüll, 2010).

In this study, the academic self-concept of identified gifted students in a homogeneous-ability grouped environment and identified gifted students in a heterogeneous-ability grouped environment was examined. Overall, findings from this study suggested students who were
grouped full-time with their like-ability peers (i.e., gifted schools) had a lower academic self-concept than students who were in mixed-ability schools. Findings are presented utilizing the two major research questions.

**Findings**

**Research Question 1**

Is there a difference between academic self-concept of identified gifted students at schools specializing in gifted education and identified gifted students at mixed ability schools in Saudi Arabia?

Findings from research question 1 provided support to BFLPE claims by researchers (Marsh et al., 2008; Seaton et al., 2009) that type of school impacted academic self-concept. A statistically and practically significant difference was found between the academic self-concepts of students in gifted and mixed ability schools. Gifted students at gifted schools had a lower mean for their academic self-concept while their peers at regular schools had a higher academic self-concept. This finding could suggest that gifted students demonstrated a lower academic self-concept when they are surrounded by peers who they perceive as just as academically capable or even more capable than them. They are no longer the big fish in a little pond but just another big fish in a big pond with other equally big or bigger fish (Marsh et al., 2008).

This study lent support to some previous studies examining the BFLPE with gifted students. Marsh et al. (1995) found elementary gifted students experienced a decline in academic self-concept when participating in separate classes for the gifted. Zeidner and Schelyer (1999) echoed the previous study’s results as they found gifted students in separate gifted classes experienced a negative impact to their academic self-concept when compared to an equivalent group in mixed ability classrooms. This study’s findings reaffirmed Preckel and Brüll (2008) who discovered grouping high-ability students negatively affected their academic self-concept. Preckel et al. (2008) also lent support to previous findings when gifted students in full time gifted classes showed significant a BFLPE.
On the other hand, studies have said a dip in student academic self-concept was temporary and returned to a normal level after some time (Gibbons et al., 1994; Olszewski et al., 1987). Although this study did not specifically examine academic self-concept over time, initial findings did not appear to support these claims. A lower academic self-concept was found for grouped gifted students compared to their peers in mixed-ability schools seven months after the beginning of the academic year, suggesting academic self-concept did not improve over time.

Although Arab culture is often believed to support positive academic self-concept in students (e.g., Abu-Hilal & Bahri, 2000), findings from the current study did not support this claim. Researchers have suggested that Arab culture is capable of counterbalancing the status of gifted students’ academic self-concept because society frowns upon students judging their own academic performance. Of particular relevance to the social comparison process, Abu-Hilal and Bahri (2000) observed Arab students are often educationally socialized in a way that discourages them from evaluating themselves as they believe this to be the role of teachers. As quoted by one of the students in Abu-Hilal and Bahri’s study, “Are you sure you want us to judge our performance? I think that teachers can tell you better than we can” (p. 320). The effects of gifted ability grouping on student academic self-concept in this study were still apparent despite the fact that Saudi culture discourages social comparisons. This lends support to Marsh et al.’s (2015) findings that the BFLPE existed in some Middle Eastern countries (Kuwait, Tunisia, and Iran).

**Research Question 2**

When controlling for individual student achievement, which of the following factors best predict academic self-concept for gifted middle school students in Saudi Arabia: grade, gender, class rank, school type (gifted and mixed ability schools), and/or school average achievement?

With regard to the multiple regression analysis, it was hypothesized the variables (grade, gender, class rank, school type, and school average) would directly affect gifted students’ academic self-concept. After controlling for grade level, GPA, class rank, and gender, school type was found to be a significant predictor of academic self-concept; as previously noted, school
average achievement was replaced with school type as the two variables were highly correlated. Findings suggested school type could predict academic self-concept as students attending gifted schools were more vulnerable to having a lower academic self-concept compared with their peers at mixed ability schools. Grade point average (GPA) was found to be the strongest predictor of academic self-concept. Grade level (7th, 8th, and 9th) was another a significant predictor of academic self-concept. No statistically significant prediction was indicated with respect to class rank and gender.

The current study suggested some support regarding the relationship between GPA and academic self-concept. The relationship between academic self-concept and achievement is well established in the literature and was found across nearly all grade levels. Numerous studies examining the BFLPE found individual achievement positively affected academic self-concept and school-average achievement negatively affected academic self-concept (Daniel & King, 1995; Haynes, 2005; Helmke & van Aken, 1995; Marsh et al., 2002, 2015; O’Mara & Marsh, 2006; Seaton et al., 2008; Stringer & Heath, 2008; Van Damme et al., 2004; Walter, 2003). In other words, the higher a student’s GPA, the more positive his/her academic self-concept will be. While the higher other students’ GPAs are, the lower his/her academic self-concept will be because of social comparison. These claims were supported by the findings from this study.

Grade level (7th, 8th, and 9th) was also found to be a significant factor. Students at lower grade levels had a higher academic self-concept. As grade level increased, academic self-concept decreased. This finding aligned with findings from several studies that examined the relationship between age/grade level and academic self-concept (Harter, 1999; Litster & Roberts, 2011; Shapka & Keating, 2005). A plausible reason for this finding was students’ self-awareness matured as they increased in age. As their level of self-awareness developed, they increasingly evaluated themselves in relation to others around them.
Consistent with current research, the gender variable was not statistically significant. Although Dai (2001) found girls attending special schools for gifted students tended to have higher academic self-concept when compared to male gifted students in the same type of educational setting, more current studies found no statistical differences between girls and boys (Preckel et al., 2008; Rinn et al., 2010; Rudasill et al., 2009; Swiatek, 2004). Findings from this study also suggest gifted girls and boys tended to have similar academic self-concepts in grouped settings despite cultural differences in Saudi Arabia.

One unique aspect of this study was the added factor of class ranking. It was speculated class ranking would be a factor that could shape academic self-concept. In Saudi Arabia, students hold class ranking in high regard. Class ranking (based on GPA) can serve as an objective measure of one’s academic ability in relation to others as it is publicly posted. However, although this study suggested this variable yielded a significant correlation with academic self-concept and GPA, it was not a statistically significant predictor of academic self-concept. This was an unexpected finding since GPA was found to be a significant predictor of academic self-concept. Given class ranking is public knowledge and students can see their academic ranking relative to their classmates, this type of social comparison should be harmful to student academic self-concept, especially since the school type was a significant predictor. This could be because class ranking was not a reliable indicator of one’s ability when compared to others. For example, if one student had a GPA of 99.1% and another student had a GPA of 99.2%, the student with a 99.2% GPA would be ranked higher than the student with a 99.1% GPA. Students might feel the 0.1% difference is negligible; thus, class ranking was not strong enough to significantly impact their academic self-concept. As class rank is based on GPA, students’ rankings could also easily change from semester to semester. A student’s ranking might change from the first to the second semester simply because his/her GPA differed by 0.1%. Thus, students might not see it as a viable means of determining their academic ability as it is constantly changing.
Implications for Practice

Academic self-concept is well-established as an important academic factor in the success of students; however, it has not been studied extensively with Arab student populations. The results of this study pointed to a critical need to address the education provided to gifted students in Saudi Arabia. Grouping gifted students has been shown to be beneficial in certain ways: increased achievement (Hattie, 2002; Rogers, 2007; Shields, 2002), motivation, attitudes toward school (Goldring, 1990; Hattie, 2002; Rogers, 2007; Shields, 2002), and social development (Neihart, 2007). But these benefits could not overshadow some potential negatives. For example, academic self-concept might be lowered, which could impact other educational factors such as achievement, motivation, and academic aspirations. School administrators should take these findings into consideration when planning gifted education programs. Administrators could look for ways to maintain the benefits of ability grouping while still protecting and nurturing a positive academic self-concept. Students might be provided with an intervention designed to support their psychological well-being (Goetz et al., 2008). Another solution would be to expose students to factors that improve their academic self-concept. For example, differentiated instruction within gifted schools and/or ability groups might counterbalance the impacts of the BFLPE (Hattie, 2002). With this method of instruction, assessments are individualized and have a higher level of subjectivity than many other types of assessments. This way, students are not expected to all learn at the same pace.

Based on these findings, professional development on BFLPE is recommended. Educators would benefit from learning how it operates and how its effects might be mitigated. For example, teachers could structure the classroom in a way that discourages social comparison (Marsh et al., 1995). Assessments could be oriented toward individual improvement and advancement rather than focusing on how students are lacking in comparison to others. Teacher preparation is an important component that could help teachers understand giftedness is more
than achievement. With appropriate preparation, teachers could limit how often they indirectly or directly encourage social comparison among their students. Additionally, teachers should be trained on how to meet the affective needs of gifted students. If a student is experiencing poor academic self-concept, teachers need to be able to recognize this and intervene before this translates into bigger issues in the students’ schooling experience (e.g., underachievement, dropping out). Teachers could consider the school environment from students’ perspectives to better understand the pressure they might feel from being gifted and being surrounded by other highly capable students.

Encouraging mastery-based achievement might also be helpful (Niepel et al., 2014). Instead of viewing giftedness as performance, educators could measure success in myriad ways and understand giftedness as the ability to master ideas and concepts. Students could also be given open-ended assignments and projects where the purpose is not to arrive at the right answer but rather explore a subject with curiosity and a willingness to learn. These types of open-ended assignments and projects might positively improve students’ academic self-concept as they could find confidence in the work they had done without having the opportunity to compare themselves to others. Performance-based achievement is important and could benefit students in different ways such as increased overall achievement and motivation. However, performance-based achievement should not be totally replaced with mastery-based achievement; rather, mastery-based achievement could be focused upon and sometimes supplemented with performance-based achievement. This retains some of the benefits of performance-based achievement while still nurturing academic self-concept of students and mitigating the BFLPE through an emphasis on mastery-based achievement.

**Limitations and Suggestions for Future Research**

A limitation of the study overall was the design employed. Causal inferences cannot be made from non-experimental designs. Therefore, the findings from this study need to be
interpreted with caution. Another limitation was this study employed one data collection point. A suggestion for future research would be the use of experimental designs and the use of multiple data collection points that could strengthen conclusions made by this research.

The BFLPE is the net effect of two factors: the assimilation effect and the contrast effect. In the assimilation effect, students experience benefits to their academic self-concept. In the contrast effect, students experience negative effects to their academic self-concept because they compare themselves to others. Although the assimilation effect is the weaker of the factors, this study was still limited by only studying the contrast effect. Therefore, a suggestion for a future study would be to study the two factors simultaneously to better understand the academic self-concept of identified Saudi gifted students.

As stated earlier, some variables were not accounted for and controlled by this research. Future research could control for some of these key variables, e.g., the effects of differentiated instruction, mastery environments vs. competitive environments, and teacher assigned grades. This research further demonstrated that academic self-concept is a complex construct impacted by an array of variables, factors, and educational settings. Thus, for its significance to educational goals such as achievement, motivation, and future aspirations, it warrants further investigation. Likewise, a potential limitation to this finding was that curriculum was not controlled in the analysis. Curriculum difficulty might differ depending on grade level and impact students’ academic self-concept; therefore, one recommendation for a future study would be to examine academic self-concept after controlling for such an effect.

As discussed early, one limitation of this study regarding gender was the researcher could not be certain differences did not exist because the males and females were in separate schools. Therefore, gender might likely have been confounded by the effect of the school; thus, it should be examined while controlling for the school effect. Additionally, despite aforementioned speculations regarding class ranking, there are variables that could be further examined. One
such variable is class ranking. Although it stood to reason class ranking would play a role in influencing academic self-concept, the results found no such influence existed. However, class ranking is a relatively unexplored variable as it only exists in a few educational settings (including Saudi Arabia’s educational system). Class ranking within a gifted school is even rarer, leading to a need for additional studies that employ a variety of methods (quantitative, qualitative, mixed methods, etc.). The findings of the present study raised an interesting question--why can academic self-concept be predicted by GPA but not with class ranking? This question could be explored in future studies, especially ones that specifically look at the relationship between GPA and class ranking.

Conclusion

Little research on the impact of BFLPE on students in Arab countries has been conducted. This study filled a gap in the existing knowledge on the BFLPE by investigating the academic self-concept of not just Saudi students, but Saudi gifted students. Giftedness and academic self-concept have a complex relationship for a variety of reasons. For one, gifted students have different reactions to academic environments. Some gifted students demonstrated a significantly lower academic self-concept, which could lead to undesirable outcomes. Secondly, academically challenging environments have had varied effects on gifted students and could play an important role in shaping academic self-concept: culture, teachers, curriculum, feedback styles, and setting the atmosphere (e.g., competitive or collaborative). Simply stated, because of the various characteristics presented by gifted students, as well as the different environments in which such students might find themselves, researchers have found varying implications for parents, educators, and policymakers.

To enhance learning, education must offer effective, quality education to all students, including gifted students. This education should aim to fulfill student needs and address emerging issues in order to provide a thorough approach. Low academic self-concept is of
particular concern because of its power to influence academic achievement, motivation, academic interests, attitudes toward schools, and future academic choices. Negative outcomes are likely to be observed when this issue is neglected, leading to underachievement, depression, boredom or, in a worst-case scenario, dropping out of school. Taking academic self-concept into consideration is an embedded goal of any successful program designed to meet the needs of gifted students and enable them to reach the highest degree of development. Academic self-concept needs to be adequately addressed in programs designed for gifted students to help them maximize their potential.
REFERENCES


Makel, M. C., Putallaz, M., & Wai, J. (2012). Teach students what they don't know but are ready to learn: A commentary on “rethinking giftedness and gifted education.”


APPENDIX A

SELF DESCRIPTION QUESTIONNAIRE
Dear gifted student,

This is a chance to look at yourself. It is not a test. There are no right answers, and everyone will have different answers. Be sure that your answers show how you feel about yourself. PLEASE DO NOT TALK ABOUT YOUR ANSWERS WITH ANYONE ELSE. We will keep your answers private and not show them to anyone. When you are ready to begin, please read each sentence and choose an answer. (You may read quietly to yourself as I read aloud.) There are five possible answers for each question: "True," "False," and three answers in between. There are five boxes next to each sentence, one for each of the answers. The answers are written at the top of the boxes. Choose your answer to a sentence and make a check mark in the box under the answer you choose. DO NOT say your answer out loud or talk about it with anyone else. For all the sentences be sure that your check mark is on the same line as the sentence you are answering. You should have one answer and only one answer for each sentence. Do not leave out any of the sentences. Once you have started, please make sure to be quiet.

Demographic Information

Q1. How old are you?

Q2. Gender

Male     Female

Q3. What are the last four digits of your home phone number?

Q4. Which school are you in?

Q5. How long have you been in this school?

Q6. What grade are you in?

7th Grade  8th Grade  9th Grade

Q7. What is your GPA?

Q8. What is your rank in your classroom?
Select the statement which best answers each question.

<table>
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<th>False</th>
<th>Mostly False</th>
<th>Sometimes False/Sometimes True</th>
<th>Mostly True</th>
<th>True</th>
</tr>
</thead>
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<tr>
<td>F</td>
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</tbody>
</table>

I'm good at all SCHOOL SUBJECTS
I enjoy doing work in all SCHOOL SUBJECTS
I get good marks in all SCHOOL SUBJECTS
I hate all SCHOOL SUBJECTS
I learn things quickly in all SCHOOL SUBJECTS
I am interested in all SCHOOL SUBJECTS
I am dumb in all SCHOOL SUBJECTS
I look forward to all SCHOOL SUBJECT
Work in all SCHOOL SUBJECTS is easy for me
I like all SCHOOL SUBJECTS
APPENDIX B

ARABIC VERSION OF GENERAL ACADEMIC SUBSCALE
OF SELF-DESCRIPTION QUESTIONNAIRE I
السلام عليكم ورحمة الله وبركاته.

عزيزي الطالب:

فبما يلي مجموعة من الأسئلة تتعلق بفكرتك عن نفسك.
لا توجد إجابة صحيحة وأخرى خاطئة بل الإجابة الصحيحة هي التي تعبر عن وجهة نظرك بصدق.
الهدف من هذا الاستبيان دراسة علمية يقوم بها الباحث، لذا ارجوا تعاونك بالإجابة على كل سؤال بدقة، وكما تراه شخصيا أنها الإجابة التي تمثل أفضل الإجابات بالنسبة لك.
شكري الجزيل لتعاونك متمنيا لك التوفيق والنجاح.

معلومات عامة
كم عمرك؟
الجنس؟
ما هو آخر أربعة أرقام من هاتف المنزل؟
ما اسم مدرستك؟
بأي صف تدرس؟
ما هي نسبة تحصيلك الدراسي؟
اختر العبارة التي قد تكون الجواب الأفضل لكل سؤال.

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<tr>
<th>تعبير</th>
<th>خاطئ في الأغلب</th>
<th>أحياناً صحيح وأحياناً خاطئ</th>
<th>صحيح في الأغلب</th>
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<td>أنا جيد في جميع المواد</td>
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<td>أجد المتعة ببذل الجهد في جميع المواد</td>
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<td>أحصل على علامات جيدة في جميع المواد</td>
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<td>أكره جميع المواد</td>
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<td>أنا بطيئ الفهم في جميع المواد</td>
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<td>أميل جداً إلى جميع المواد</td>
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<td>دراسة جميع المواد أمرًا سهلاً بالنسبة لي</td>
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<td>أحب جميع المواد</td>
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APPENDIX C

CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
CONSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH UNIVERSITY OF NORTHERN COLORADO

Parental Consent

Project Title: The Effects of Private Schools for Gifted and High Ability Students On Self-Concepts
Researcher: Mohammad Alhanaya, School of Special Education
Research advisor:
Dr. Stuart Omdal and Dr. Jennifer Ritchotte, School of Special Education
Email: stuart.omdal@unco.edu, jennifer.ritchotte@unco.edu
Phone Number: (970) 351-1674, (970) 351-269

I am studying the academic self-concept of gifted children enrolled in middle school. If you grant permission and if your child indicates to us a willingness to participate, I will give your child a short survey in a quiet computer lab at his/her school. The survey will take around 15 minutes to complete. Your child’s class grades will not be affected by the decision whether to participate in the research. The survey will take place after school, so your child will not miss any class. The survey questions will ask your child about their self-concepts, such as “Do you consider yourself good at math?”

I foresee very minimal risks to the participants of this study beyond those that are encountered on a daily basis. The only potential minor risk might be mild embarrassment or anxiety from answering the survey questions. If your child does experience this, counseling will be provided free of charge by the Ministry of Education. On the other hand, your child may benefit from the opportunity to express themselves by answering the survey questions.

To maintain confidentiality, the completed surveys will be stored electronically and password protected. Only the primary researcher will have the login credentials to access these surveys. When they are no longer needed for research, they will be deleted. The names of subjects will not appear in any professional report of this research.

Please feel free to phone me if you have any questions or concerns about this research and please retain one copy of this letter for your records.
Thank you for assisting me with this research.

Sincerely,

Participation is voluntary. You may decide not to allow your child to participate in this study and if he begins participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. Having read the above and having had an opportunity to ask any questions, please sign below if you would like your kid to participate in this research. A copy of this form will be given to you to retain for future reference. If you have any concerns about your selection or treatment as a research participant, please contact Ministry of Education: Mr. Abdalah Alumiriny; s-47795@abe.gov.sa; +966505141212
Sherry May, IRB Administrator, Office of Sponsored Programs, 25 Kepner Hall, University of Northern Colorado Greeley, CO 80639; 970-351-1910

__________________________________ ______________________________
Child’s Full Name (please print)

____________________________________________________

Child’s Birth Date (month/day/year)

________________________________________________

Parent/Guardian’s Signature _____________________Date ____________________

Researcher’s Signature ________________________Date ____________________
APPENDIX D

ASSENT FORM FOR HUMAN PARTICIPANTS IN RESEARCH
Hi!

My name is Mohammad Alhanaya and I’m a graduate student at the University of Northern Colorado. I do research on the self-concepts of gifted students. That means I study the way gifted students view themselves. I would like to ask a lot of 12-17 year old students about their self-concepts. If you want, you can be one of the students in my research.

If you want to participate in this research, I will ask you to complete a 20 minute survey about your own self-concepts. There are no right or wrong answers and there won’t be a score or grade for how you answer. Your answers will be kept private and your individual answers will not be linked to your names. Also, your class grades will not be affected by your decision whether to participate in the research. The survey will take place after school, so you will not miss any class.

Taking this survey may only have a very minimal risk of slight embarrassment or anxiety from answering questions about yourself. If this does occur, there are free counseling services available to you through the Ministry of Education. However, a small benefit from participating in this research could be the chance to express yourself by answering the survey questions.

Your parents said it was ok for you to talk with me, but you don’t have to. It’s up to you. Also, if you say “yes” but then change your mind, you can stop any time you want to. Do you have any questions for me about my research?

If you want to be in my research and take a survey about your self-concepts, sign your name below and write today’s date next to it. Thanks!

Student ___________________________ Date___________

Researcher ___________________________ Date___________
APPENDIX E

INSTITUTIONAL REVIEW BOARD APPROVAL
DATE: August 24, 2015

TO: Mohammad Alhanaya
FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [728455-3] The Effects of Private Schools for Gifted and High Ability Students on Self-Concepts

SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVED
APPROVAL DATE: August 20, 2015
EXPIRATION DATE: August 20, 2016
REVIEW TYPE: Expedited Review

Thank you for your submission of Amendment/Modification materials for this project. The University of Northern Colorado (UNCO) IRB has APPROVED your submission. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on applicable federal regulations.

Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require that each participant receives a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. Please use the appropriate revision forms for this procedure.

All UNANTICIPATED PROBLEMS involving risks to subjects or others and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of August 20, 2016.

Please note that all research records must be retained for a minimum of three years after the completion of the project.

If you have any questions, please contact Sherry May at 970-351-1910 or Sherry.May@unco.edu. Please include your project title and reference number in all correspondence with this committee.
Hello Mohammad,

Thank you for the modifications you have made to your IRB application. Your application is now approved and I wish you luck with your research.

Sincerely,

Nancy White, PhD, IRB Co-Chair

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNC) IRB's records.
APPENDIX F

SCRIPT FOR SURVEY ADMINISTRATOR
SCRIPT FOR SURVEY ADMINISTRATOR

- Explain the research study to the class. “A doctoral student at the University of Northern Colorado in the United States is studying academic self-concept of gifted students. He would like you to complete a brief survey.”

- On the day of survey administration please follow these steps:
  - Be sure there is adequate space between students to protect student privacy
  - Read the entire survey introduction to students as it contains information that must be presented for students. The introduction should be read before the survey starts – students should not be taking the survey while the introduction is being read. (The introduction contains important information that’ll help build students’ trust in the process and encourage them to answer honestly. If the introduction is paraphrased, important information could be overlooked. It’s better to read the complete introduction to students rather than try to paraphrase.)
  - Please do not rush students as not to affect the quality of the survey results. Although the survey is estimated to take 15 minutes to complete, please allow up to 10-15 extra minutes if needed.
  - Please email me once the students have completed the survey, alha7063@bears.unco.edu

   Thank you for your support of this project!!!