

Interpersonal Skills of Gifted Students:

Risk versus Resilience

by

Holly Joy Perham

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

Approved April 2012 by the
Graduate Supervisory Committee:

Linda Caterino, Chair
Dina Brulles
Jack Naglieri

ARIZONA STATE UNIVERSITY

May 2012

ABSTRACT

The population of intellectually gifted youth encompasses a wide range of abilities, talents, temperaments, and personality characteristics. Although generalizations are often made outside of the empirical literature regarding the interpersonal skills of these children, much remains to be understood about their social behavior. The aim of this study was to examine the within-group differences of gifted children, and it was hypothesized that subgroups of the gifted population would differ from each other in terms of interpersonal skill development. Gifted education teachers within a large K-12 public school district in the Southwestern United States completed the Devereux Student Strengths Assessment (DESSA) regarding the social-emotional competence of 206 elementary and middle school students classified as gifted. Correlational analyses and factorial analysis of variance were conducted to compare interpersonal skills (as measured by DESSA ratings) and students' level of giftedness, area of identification as gifted, gender, and age. Results indicated that interpersonal skills were significantly related to gender, area of identification, and level of giftedness. Female children were described as having significantly higher levels of interpersonal skills overall, and children identified as gifted with both nonverbal and quantitative measures exhibited significantly higher levels of interpersonal skills than those identified with verbal or nonverbal measures alone. Significant correlations were also observed between the level of children's estimated gifted abilities and their interpersonal skills. Trends in the data suggested that as children's cognitive abilities increased, their interpersonal skills also increased,

placing profoundly gifted children at social advantages over their moderately gifted peers. However, it was also noted that although the two variables were significantly related, they were not commensurate. While children presented with above-average cognitive abilities, their interpersonal skills were within the average range. This suggests that gifted children may benefit from interventions that target interpersonal skill development, in an effort to bring their social skills more in line with their cognitive abilities.

DEDICATION

To my family, for being a steadfast source of support, comfort, and love. To my friends, who have prayed faithfully and cheered me on. To Chelsea, for her genuine, uncanny enthusiasm and her readiness to selflessly give of herself. To Randy, for being the perfect husband and best friend, speaking words of wisdom when I needed them most, patiently enduring through trying times, encouraging me, and making me laugh. Above all, to the Lord; His peace, strength, joy, and assurance have brought me through the most challenging of times.

ACKNOWLEDGEMENTS

Special thanks to Dr. Linda Caterino for her selfless dedication to the field of school psychology, the success of graduate students, and the completion of my degree. Further thanks to Drs. Dina Brulles and Jack Naglieri, for their guidance and support.

TABLE OF CONTENTS

	Page
LIST OF TABLES.....	vi
LIST OF FIGURES	vii
CHAPTER	
1 INTRODUCTION & LITERATURE REVIEW	1
Historical Research on Gifted Children’s Social Development.....	2
Modern Perceptions of Gifted Children’s Social Development.....	3
Risk versus Resilience: Between-Group Differences	4
Resilience	5
Emotional Stability and Adjustment.....	9
Low Rates of Behavior Problems	10
Communication Skills.....	10
Coping Strategies and Problem-Solving.....	11
Self-Concept	12
Risk.....	12
Asynchronous Development	14
Internalizing and Stress.....	15
Stigma of Giftedness.....	16
Risk versus Resilience: Within-Group Differences	18
Profound Giftedness	18
Area of Identification	22
Age.....	25

CHAPTER	Page
Gender	26
Present Research Questions.....	26
2 METHOD	31
Participants	31
Measures	33
Cognitive Abilities Test	33
Devereux Student Strengths Assessment	33
Procedure	35
3 RESULTS	37
4 DISCUSSION	42
Limitations and Future Directions	46
Conclusions	48
REFERENCES	50
APPENDIX	
A Institutional Review Board Approval	59

LIST OF TABLES

Table	Page
1. Student Characteristics	61
2. Descriptive Statistics of CogAT Composites According to Area of Identification	62
3. Descriptive Statistics of CogAT, DESSA Total, and DESSA Subscale Scores.	63
4. Summary of Obtained and Corrected Intercorrelations, Means, and Standard Deviations for CogAT and DESSA Scores	64
5. Summary of Intercorrelations, Means, and Standard Deviations for Area of Identification, Gender, Age, and DESSA Scores.....	65
6. Factorial ANOVAs Examining DESSA Total, Relationship Skills, and Social- Awareness scores as a function of Gender and Area of Identification.....	66
7. Tukey HSD Comparison of Area of Identification across DESSA Total scores	67
8. Tukey HSD Comparison of Area of Identification across DESSA Relationship Skill scores.....	68

LIST OF FIGURES

Figure	Page
1. The variation of DESSA Total scores according to CogAT composite scores..	69
2. The variation of DESSA Relationship Skills scores according to CogAT composite scores.	70
3. The variation of DESSA Social-Awareness scores according to CogAT composite scores..	71
4. The variation of DESSA Total scores according to gender and area identification.....	72
5. The variation of DESSA Relationship Skills scores according to gender and area identification.....	73
6. The variation of DESSA Social-Awareness scores according to gender and area identification.....	74

Chapter 1

Introduction & Literature Review

Gifted children and youth were described by The Office of Educational Research and Improvement in the United States Department of Education (1993) as those with outstanding talent who have the potential for superior levels of intellectual, creative, and/or artistic achievement. Most recently, the National Association of Gifted Children (NAGC, 2011) described giftedness as high aptitude, as defined by ability to reason and learn, or competence, as determined by performance or achievement in the top ten percent of the population. The NAGC further outlined that giftedness might occur in the domains of academic skills (e.g., mathematics or language) or sensorimotor skills (e.g., painting, dance or sports). This definition lends to a conceptualization of giftedness that encompasses a broad array of individuals and their talents and abilities. Although many generalizations regarding the characteristics of gifted children are made outside of the research literature, much remains to be understood empirically regarding the common attributes of this population.

The range and variety of individuals labeled as gifted is influenced by theories of giftedness and criteria applied for identification. While some identified children may display high talent potential in a specific area, such as language or nonverbal skills, other children identified as gifted may exhibit significant potential in multiple areas (Heller Monks, Sternberg, & Subotnik, 2000). In addition, depending on the criteria being applied, some children who have above-average abilities may be labeled as gifted, falling within the same classification as

individuals with extremely high intelligence, or profound giftedness, resulting in a group that has a wide range of talents and abilities (Heller et al., 2000).

Although a largely heterogeneous group, there appear to be certain aspects of homogeneity within the gifted population that cause a divergence from the typical population. Furthermore, there may be within-group differences along which sub-groups of gifted children are especially distinct from other gifted children. One topic of interest regarding the between- and within-group characteristics of gifted youth is the area of interpersonal skills. Much remains to be understood regarding the interpersonal skills of this population, and whether giftedness serves as a risk or protective factor for healthy social development.

Historical Research on Gifted Children's Social Development

The widespread query into the interpersonal skills of gifted children is not a recent pursuit. As early as 1891, Lombroso postulated that gifted children were characteristically unpopular, weak, and disturbed, and suggested that genius was accompanied by psychopathology. This idea became known as the divergence hypothesis, due to its suggestion that gifted children exhibited a significant divergence between cognitive and social ability.

Lewis Terman, in the interest of examining the validity of Lombroso's divergence hypothesis, was one of the first researchers to undertake the empirical investigation into the social and emotional consequences of high intellectual ability (Terman, 1925). Terman's *Genetic Studies of Genius* strongly contradicted the notions of the divergence hypothesis; instead of supporting a strong positive correlation between high cognitive ability and psychopathology, the evidence

supported a strong negative correlation between the two variables, suggesting that there was a lower frequency of mental and emotional disturbances among gifted individuals, in comparison to the mean of the general population.

Furthermore, a follow-up study conducted by Terman and Oden (1947) found that twenty years later, the same gifted individuals were more emotionally stable, showed better personal adjustment, and had lower rates of dementia and delinquency than the general population. Thus, Terman and Oden were among the first to present evidence in support of the protective effect of high cognitive ability on interpersonal skill development.

Leta Hollingworth (1942) also examined the link between giftedness and social-emotional development. Instead of comparing the development of gifted individuals to that of the general population, Hollingworth systematically compared subgroups of gifted children to each other. The findings suggested that there were patterns of social adjustment that differentiated between individuals of *very high* cognitive abilities and *still higher* cognitive abilities. Gifted youth with extremely high cognitive abilities were noted to experience significant deficits in social adjustment and development.

Modern Perceptions of Gifted Children's Social Development

Although a multitude of research and theories has led to various conceptualizations of the interpersonal skills of gifted children, there remains great confusion regarding the social characteristics of this unique group (Merrell & Gill, 1994). This confusion exists both within the empirical literature and

within public perception. The prevailing and popular misperceptions surrounding the interpersonal skills of gifted children are numerous (Garland & Zigler, 1999).

Despite conflicting and inconclusive empirical findings regarding the social vulnerabilities of gifted children, anecdotal reports and popular perceptions have served to prolong the viewpoint that gifted children are at exceptional risk for social difficulties (Bain & Bell, 2004). Although some empirical literature does suggest that giftedness can support the development of interpersonal skills, there exists a large body of non-experimental literature and anecdotal reports that detail the social woes of gifted children and suggest that gifted children are socially at-risk (McCallister, Nash, & Meckstroth, 1996).

The public perception of gifted children as socially at-risk often becomes apparent when parents or educators voice concerns that gifted children are prone to social and emotional maladjustment (Bain, Choate, & Bliss, 2006). These perceptions are hazardous without sufficient attention to empirical support, due to the likelihood that they may serve as barriers for the healthy development of social skills for gifted youth (Robinson, 2008).

Risk versus Resilience: Between-Group Differences

The empirical literature comparing the interpersonal skills of gifted children to those of typical children has produced mixed and contradictory results. While some researchers have concluded that no difference exists between the interpersonal skills of the two groups, other studies have found that gifted children are at an advantage in the development of interpersonal skills, and still others have determined that gifted children display deficits in social skill

development. The existing literature can be categorized into a risk versus resilience conceptualization (Neihart, 2002).

Risk and protective factors are personal characteristics that may shift developmental trajectories, resulting in positive or negative outcomes (Neihart, 2002; Werner & Smith, 1982). While risk factors are environmental stressors that a child may encounter and that may heighten vulnerability and hinder optimal development, protective factors include a multitude of tools that support resilience and allow the child to overcome adversities and display average or above-average development (Lopez & Sotillo, 2009; Neihart, 2002). Resilience, therefore, can be understood as one's ability to avoid negative outcomes and achieve emotional health and social competence, despite being faced with adversity or stress (Neihart, 2002).

Resilience. Studies supporting the resilience of gifted children posit that there is insufficient evidence that children identified as gifted experience greater peer rejection or deficits in interpersonal skills when compared to the general population (Bain & Bell, 2004). Numerous studies have concluded that there is no greater incidence of social difficulties among the population of gifted children than among their typical peers, and that gifted children are at relatively equal risk for deficits in interpersonal skills, as compared to typical children (e.g., Czeschlik & Rost, 1994; Garland & Zigler, 1999; Painter, 1976; Reynolds & Bradley, 1983).

In terms of social interest, Painter (1976) found that high-IQ children displayed an interest in peer relationships that was equivalent to their typical peers

of average intelligence. Gifted children were also equally as likely to report that they had at least one close friend (Painter, 1976).

Another study using teacher and peer ratings observed no difference in the social adjustment of gifted children ages 4 – 17, as compared to their typical peers (Lopez & Sotillo, 2009). Additionally, the rates of peer-estimated social acceptance, social rejection, social visibility, and social preference did not differ between gifted and typical children and adolescents (Lopez & Sotillo, 2009).

Other studies have concluded that there is no difference between gifted and non-gifted children in rates of depression, anxiety, suicidal ideation, neuroticism, behavior problems, and difficulty with peer relationships (Czeschlik & Rost, 1994; Garland & Zigler, 1999; Martin, Burns, & Schonlau, 2010; Reynolds & Bradley, 1983). These findings taken together provide evidence refuting the notion of giftedness as a social risk, and suggest that the social skill development of gifted children is not unlike that of their typical peers.

Additional studies have found that not only is giftedness not a social risk, but it may actually be a social asset, placing gifted children at a social advantage in comparison to their typical peers (e.g., Bain & Bell, 2004; Knepper, Obrzut, & Copeland, 1983; Lopez & Sotillo, 2009; Luftig & Nichols, 1990; McCallister et al., 1996; Merrell & Gill, 1994; Richards, Encel, & Shute, 2003). Advanced levels of social development have been observed in gifted children in domains such as patterns of friendship, play interests, social behavior, social knowledge, and personality, suggesting that the intellectual potential of gifted children places

them at a developmental advantage for advanced social and emotional skills (Assouline & Colangelo, 2006).

Studies conducted by social psychologists have frequently depicted gifted children as having above-average self-concept and advanced social cognition, and cite these strengths as advantages in social development (McCallister et al., 1996). In some studies, gifted children have been observed to display high levels of social skills (Ludwig & Cullinan, 1984; Lupkowski, 1989), superior skills in solving social problems (Jackson & Robinson, 1980), greater popularity and enjoyment of peers in preschool (Wright, 1990), and above-average knowledge of social rules and expectations (Scott & Bryant, 1978).

Characteristics have been observed in gifted children that are consistent with childhood popularity, such as good social skills, few behavioral problems, strong leadership skills, high academic success, and high self-esteem (Bain & Bell, 2004; Richards et al., 2003). In addition, studies examining the characteristics of resilient children have found them to share traits commonly held by gifted children, including curiosity (Anthony & Cohler, 1987), self-efficacy (McMillan & Reed, 1994), high moral regard (Coles, 1986), a sense of humor, and problem-solving ability (Masten, Best, & Garnezy, 1990).

Some studies have documented these advantages of giftedness across ages and cultures as well. In comparison to non-gifted children, gifted preschoolers appear to have advanced language skills, more cooperative play patterns, and a more advanced understanding of social relationships (Barnett & Fiscella, 1985; Lupkowski, 1989; Robinson, 2008). Gifted children in Spain have also been

observed to display resilience connected to their high ability level. These children tend to have a lower incidence of behavioral and mental disorders, to be more autonomous, and to frequently be voted as popular by their peers (Lopez & Sotillo, 2009).

The common perception that gifted children are actively rejected by their peers has been examined through teacher reports, self-reports, and sociometric ratings. Sociometric ratings were utilized with 4th – 8th grade gifted students and students not identified as gifted (Luftig & Nichols, 1990). Both groups completed sociometric instruments on which they rated classmates, and a comparison was made between four groups- gifted girls, gifted boys, non-identified girls, and non-identified boys. The results suggested that gifted boys were the most popular, non-identified boys and girls were rejected more frequently than gifted boys and girls, and boys in general were rejected more frequently than girls. Thus, the rejection of gifted children was not supported, and the data suggested that gifted children were actually rejected less frequently than their non-identified peers.

Teacher ratings of student behavior have also been used to evaluate the interpersonal skills of gifted children. Using the School Social Behavior Scales (Merrell, 1993), Merrell and Gill (1994) observed significant differences between gifted children and children of average intelligence in grades 1 - 6. Gifted children exhibited significantly higher levels of social skills and significantly lower rates of antisocial behavior. Compared to their average peers, gifted children displayed significantly better abilities to take part in positive and productive peer relationships. However, it is noteworthy that there appeared to be a small subset

of gifted children who displayed poor social competence and high levels of antisocial behavior (Merrell & Gill, 1994).

Self-reports of gifted children have also suggested an advantage in social skills. Bain and Bell (2004) found that 4th, 5th, and 6th grade students identified as gifted generally displayed higher levels of self-concept in socially related domains. Gifted children rated themselves higher on measures of physical ability, physical appearance, and peer relations. Gifted children also reported significantly higher overall self-concept in comparison to non-identified peers (Bain & Bell, 2004).

Given the empirical findings suggesting that giftedness supports the resilience of interpersonal skill development, studies have attempted to identify the specific mechanisms serving as protective factors for gifted children. Some of the identified protective factors include: emotional stability and adjustment (e.g., Helt, 2008; Rhoades, Warren, Domitrovich, & Greenberg, 2011); low rates of behavior problems (Merrell & Gill, 1994); strong communication skills (Longoria, Page, Hubbs-Tait, & Kennison, 2009); coping strategies and social problem-solving skills (Knepper et al., 1983); strong self-concepts (Bain & Bell, 2004).

Emotional stability and adjustment. Social awareness, affected by the understanding of emotion, is a skill thought to impact social-emotional competence and to develop very early in childhood (Rhoades et al., 2011). Understanding emotions both expressively and receptively is, therefore, important for long-term social and behavioral adjustment. Helt (2008) observed a significant

relationship between IQ and adolescents' abilities to identify and label various emotions, with gifted adolescents displaying better emotion identification than their average peers. A higher level of emotional adjustment among gifted students has also been observed by Beer (1991), Grossberg and Cornell (1988), and Nail and Evans (1997).

Low rates of behavior problems. Research findings also suggest that gifted children display lower rates of problem behavior than their peers, which likely supports the premise that they may have more positive interpersonal functioning. Research examining the association between peer rejection and behavior problems has concluded that physical and verbal aggression has the greatest influence on children being actively disliked by their peers (Luftig & Nichols, 1990). Luftig and Nichols further determined that gifted students are not likely to display aggressive or threatening behavior toward peers. These conclusions were partly based on the findings of Lehman and Erdwins (1981), who reported that gifted students have high levels of social skills, as well as fewer antisocial and negative behaviors than their peers. Similar findings that children with high IQs are less likely to have physical, behavioral, or discipline problems have been reported in support of the notion of giftedness as a protective factor for social skills (Gallucci, 1988; Grossberg & Cornell, 1988).

Communication skills. The empirical literature also supports the notion that strong communication skills foster the development of interpersonal skills in gifted children (Longoria et al., 2009). Children who lack pragmatic communication skills tend to be judged less positively by their peers and are less

likely to have experience with appropriate social problem-solving (Howes & Phillipsen, 1998; Place & Becker, 1991).

Expressive and receptive communication skills have also been found to impact the development of social skills. A negative correlation has been observed between expressive language difficulties and peer acceptance (Gertner, Rice, & Hadley, 1994), supporting the hypothesis that verbal conflict mediation is superior to physical conflict mediation, in that it allows a child to be understood by peers and to successfully navigate play situations (Gallagher, 1999). Receptive language skills have also been observed to positively impact social competence; Gertner et al. (1994) found that receptive language difficulty was among the strongest predictors of social rejection. Thus, gifted children who display specific strengths related to verbal ability and communication may possess protective factors that support their interpersonal skill development (Longoria et al., 2009).

Coping strategies and problem-solving. Coping strategies and social problem-solving, which have been found to support interpersonal skill development, have also been observed as elevated in gifted children. According to Kitano and Lewis (2005), high intelligence may contribute to resilience by way of supporting positive coping strategies. Knepper et al. (1983) found that high levels of cognitive development were positively correlated with the development of interpersonal and intrapersonal cognitive problem-solving skills. Rhoades et al. (2011) reported that gifted children tended to use coping skills such as withdrawal or forms of self-initiated time-out to adjust to difficult social situations. Rhoades

et al. (2011) further observed that gifted children used cognitive appraisal at early ages, to aid in the perception and interpretation of social situations.

Self-concept. A link has also been established between the self-concept of gifted children and the development of social skills. The majority of gifted children display satisfactory self-esteem, in comparison to their non-identified peers (Janos, Fung, & Robinson, 1985). It has been suggested that the external recognition of a student as gifted likely improves self-concept, and this effect is likely magnified by educational placement (Bain & Bell, 2004). Pyryt and Mendaglio (1994) found that gifted 9th graders displayed significantly higher self-perception than their non-identified peers on a self-report survey.

Importantly, Tannenbaum (1983) reported that the self-esteem of gifted children is positively correlated with successful social relationships, as well as with academic achievement, psychological adjustment, and personality traits such as self-confidence, self-expression, effort, and leadership. This link between self-esteem and positive social-emotional development leads to the conclusion that self-concept likely serves as a protective factor in the development of gifted children's interpersonal skills.

Risk. Despite the extensive literature suggesting that giftedness constitutes a protective factor for the development of interpersonal skills, there also exists a large body of evidence suggesting that certain aspects of giftedness place a child at significant risk for social deficits (e.g., Coleman & Cross, 1988; Janos et al., 1985; Silverman, 1993). Although many studies conclude that gifted children are equally as well adjusted as their typical peers, there have also been findings to

suggest that children with high intelligence may encounter specific sources of risk in the development of interpersonal skills (Neihart, Reis, Robinson, & Moon, 2002).

For example, Janos et al. (1985) found that 20-25% of gifted children have experienced social and/or emotional difficulties. Other authors have determined that gifted children are at increased risk for developing internalizing disorders with symptoms such as social isolation and loneliness (Kaiser & Berndt, 1985; Kline & Short, 1991). Self-reports have identified gifted children as frequently rating themselves as introverted, less socially adjusted, less popular, at a social disadvantage, and as experiencing greater difficulty joining social activities and initiating friendships (Dauber & Benbow, 1990; Monks & Ferguson, 1983). Freeman (1979) found that gifted children identified through parent nomination had poor levels of personal and social adjustment, were overly sensitive, tended to have a difficult temperament, and experienced peer problems.

Gifted students have also been frequently labeled by adults as troublemakers and misfits (Gridley, 1990). What's more, researchers have suggested that gifted children's social and emotional difficulties often distract from their talents and abilities, and contribute to frequent misdiagnoses of psychiatric disorders, including Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), and mood disorders such as Depression, Dysthymic Disorder, and Cyclothymic Disorder (Webb, 2000). Given the range of these findings, it appears that a certain

aspect of giftedness, whether internal or external to the child, results in a degree of increased risk for social difficulties.

Various studies have investigated the specific stressors that may contribute to social deficits in gifted children. Identified risk factors for interpersonal maladjustment include asynchronous development, tendency toward introversion, and enhanced sensitivity, stress, pressure, high expectations, perfectionism, fear of failure, and stigma of giftedness (e.g., Anderson & Messick, 1974; Coleman & Cross, 2000; Heller et al., 2000; Neihart et al., 2002).

Asynchronous development. Social asynchrony is said to occur when children feel mismatched with their peers (Silverman, 2002). Although not limited to gifted children, this developmental asynchrony may be especially likely to occur in children of high cognitive ability, due to the marked disparity between their mental age and chronological age (Helt, 2008). Research has suggested that gifted children often do not develop in the same patterns and trajectories as their typical peers (Silverman, 1993). While gifted children tend to experience increased cognitive maturity compared to their chronological age, their physical size and emotional development are rarely commensurate with their cognitive maturity (Robinson, 2008). Therefore, gifted children's cognitive, social, and emotional development may progress at different rates and create inconsistencies between their mental and chronological ages (Bain & Bell, 2004).

Potentially due to asynchronous development, it is not uncommon for gifted children to voice that they have trouble making friends, are lonely, and feel different from their peers of average intelligence. According to Klene (1988),

gifted children tend to have fears, perceptions, and concerns that are similar to those of older children (as cited in Robinson, 2008). They experience elevated levels of creativity, intensity, and aspirations, as well as impatience and irritability with non-gifted peers, further impacting their social experiences (Neihart et al., 2002). Thus, gifted children often choose to form relationships with older children and adults, instead of with their same-age peers (Austin & Draper, 1981; Luftig & Nichols, 1990).

Emotional regulation in gifted children has been observed to be more mature than expected, given their chronological ages, but less mature than expected with consideration to their mental ages (Neihart et al., 2002). These internal asynchronies increase the likelihood that the environments of gifted children will be poorly calibrated to match their interests, social development, and emotional maturity. This likelihood will also increase with higher levels of intelligence, leaving extremely gifted children at especially high risk for asynchronous social development (Silverman, 2002). The higher a child's intelligence, the more likely he or she is to seek older friends, to have fewer friends, and to recognize that it can be difficult to make friends (Janos, Marwood, & Robinson, 1985).

Internalizing and stress. The mismatch between a gifted child's chronological age and mental age (Robinson, 2008), as well as increased sensitivity and tendency towards introversion (Silverman, 1993), may contribute to the development of stress in gifted children. Furthermore, it has been suggested that labeling students as gifted during childhood may lead to an increase in

expectations and pressure to achieve, which may in turn contribute to high stress and increases in social difficulties (Freeman, 2006). The perception of high expectations may cause anxiety and perfectionism, which is associated with increases in mental health concerns. Due to these observations, authors have concluded that children identified as gifted may be at an increased risk for difficulties with social and emotional development (Galluci, Middleton, & Kline, 1999; Hayes & Sloat, 1989; Hillyer, 1988; Nugent, 2000; Silverman, 1993; Webb, Meckstroth & Tolan, 1983).

Internalizing behaviors have also been observed in gifted children and are likely to impact the development of interpersonal skills. Gifted children have shown a tendency towards introversion and withdrawal, giving peers the impression that they are uninterested in social interaction and potentially contributing to difficulty forming friendships (Silverman, 1993). Robinson (2008) further suggested that gifted children, who have shown heightened levels of social and emotional sensitivity (Rothenberg, 1970), may be more sensitive to issues of unfairness or minor slights from peers, leading them to seek justice for the perceived wrongdoings and further ostracize other children.

Stigma of giftedness. The stigma of giftedness also has a strong influence on social development. A stigma-of-giftedness paradigm was developed by Coleman and Cross (1988; 2000) and is hypothesized to influence social relationships. The tenets of this theory are that gifted children desire positive social interaction with others, but that they see the label of giftedness as causing peers to treat them differently. As a result, gifted children may feel isolated,

misunderstood, and alienated from their peers, seeing themselves as alone amongst classrooms full of peers (Hébert & Neumeister, 2002).

In support of this notion of giftedness as a social stigma, Janos et al. (1985) found that over a third of 271 gifted children ages 6 - 10 reported feeling different from others, and described negative views of themselves and their social relationships. In addition, Peterson and Ray (2006) reported that in elementary school, gifted students often experience teasing about being smart or getting good grades; these problems with teasing begin as early as kindergarten and peak in sixth grade.

In accordance with the stigma-of-giftedness paradigm, several researchers have found that gifted students' perceptions may cause them to wish for typicality and to make attempts at fitting in. These attempts might include guarding information about themselves, denying or hiding their giftedness, emphasizing popularity and peer acceptance, and seeking involvement in extracurricular activities (Neihart et al., 2002). Cross, Coleman, and Stewart (1993) reported that many gifted children begin hiding their talents and abilities in elementary school in an effort to fit in with their peers. Middle school students queried by Buescher (1989) reported many coping strategies for improving their social relationships; among these strategies were pretending to know less, acting smart in order to be left alone, changing language and behavior to mask abilities, avoiding programs designed for gifted students, engaging in community activities where age isn't important, developing talents outside of academics, focusing on high achievement in school and in non-academic areas, seeking relationships with adults, seeking

refuge in programs designed for gifted students, forming friendships with children who also have exceptional abilities, and using one's abilities to help peers.

Risk versus Resilience: Within-Group Differences

Some researchers have suggested that research studies should shift away from a focus on the differences between gifted and nongifted children, and instead strive towards a better understanding of the characteristics of subgroups of gifted children, and how giftedness may impact certain children in a unique way (Sowa, McIntire, May, & Bland, 1994). Researchers have noted that there appear to be subsets of children identified as gifted, such as females or the profoundly gifted, who are at elevated risk for emotional or behavioral maladjustment, and are more likely to exhibit poor social competence or higher levels of antisocial behavior (e.g., Austin & Draper, 1981; Galloway & Porath, 1997; Garland & Zigler, 1999; Gross, 2002; Merrell & Gill, 1994; Shaywitz et al., 2001). Therefore, while the gifted population is largely heterogeneous (Heller et al., 2000), more information is needed regarding the within-group differences of gifted children.

Profound Giftedness. The results of some studies suggest that subgroups of children with profound levels of giftedness may present with unique patterns of social skill development. Although the definition of profound giftedness varies slightly according to each study, observations of profoundly gifted children's interpersonal skills suggest that they may be a particularly vulnerable group (Shaywitz et al., 2001).

This perception is not a new concept. In fact, Burks, Jensen, and Terman (1930) hypothesized about this very phenomenon when they compared children

across different levels of giftedness. The results identified individuals with extraordinarily high intelligence as experiencing social problems most acutely. Burks et al. observed that children with IQ estimates higher than 170 had difficulty making social adjustments; parent and teacher reports identified two-thirds of these children as having difficulties with social adjustment (Burks et al., 1930). Burks et al. hypothesized that this finding could be attributed to social asynchrony.

Also referring to social asynchrony within the gifted population, Terman explained that a 6-year-old child with an IQ of 180 likely matches the intellectual level of an 11-year-old, and that an 11-year-old gifted child with an IQ of 180 likely presents intellectually as a high school graduate. Thus, the profoundly gifted potentially experience the greatest social asynchrony and, according to Terman, “The inevitable result is that the child of IQ 180 has one of the most difficult problems of social adjustment that any human being is ever called upon to meet” (p. 264).

Hollingworth (1942) also posited that profoundly gifted children were more likely to experience social problems and isolation. Hollingworth found that students who demonstrated IQs above 180 on the Stanford-Binet Scale displayed higher rates of social adjustment difficulties when compared to children with cognitive scores in the moderately high range (Hollingworth, 1942). These individuals with extremely high ability displayed greater difficulty relating to peers without common interests, identifying and developing leisure activities, and learning when to conform and when to argue. Thus, Hollingworth concluded that

a *socially optimum* range of intelligence existed between IQs of approximately 125 to 155, and that people with extremely high cognitive abilities may experience greater difficulty with social adjustment and development.

Contemporary research has further addressed the hypothesis that profoundly gifted children are at greater risk for social difficulties. Brody and Benbow (1986) reported that highly gifted children were at particular risk for difficulty developing relationships with peers. Furthermore, children with exceptionally high intelligence were frequently described as less popular and as having more difficulty with peer relationships (Dauber & Benbow, 1990).

Many studies have observed negative linear correlations between giftedness and social functioning. When Freeman (1979) compared children with a mean IQ of 134 to those with a mean IQ of 147, children in the higher IQ group were 17 times more likely to report feeling different from their peers. In addition, 83% of children in the higher IQ group reported having few friends, compared to 30% of children in the lower IQ group.

Kitano (1990) also reported that as children's intellectual abilities increased, the likelihood also increased that their parents would rate them as impatient, liking to do things differently than peers, preferring to work independently, and being preoccupied with abstract ideas. These findings, although not specifically addressing the issue of profound giftedness, suggest that as IQ increases, so does one's likelihood for interpersonal difficulties.

Students with IQs higher than 160 were examined when Gross (1993) studied the social experiences of extremely gifted children. Gross found that 80%

of students with IQs higher than 160 experienced significant degrees of social isolation in the regular education classroom. Gross noted that these children had a tendency to monitor their social behavior and to conform to the social norms of their peer groups.

The asynchrony of social development in profoundly gifted children has also been supported by recent research. A strong relationship between level of giftedness and conceptualization of friendship has been observed and is hypothesized to contribute to difficulty with interpersonal skills (Gross, 2001). At ages when nongifted children are typically looking for friends who can serve as play partners, gifted children are often more interested in friendships that are close, stable, and trusting. Children with IQs in the profound range of giftedness reportedly tend to seek friendships characterized by honesty and trust 4 to 5 years earlier than their nongifted peers (Gross, 2001). Additionally, Shaywitz et al. (2001) found that profoundly gifted boys in grades 4-7 reported less popularity than their moderately gifted peers, and that the profoundly gifted boys displayed behavior patterns that were similar to students with learning disabilities, including high rates of impulsivity, tractability (e.g., preschool history of needing constant supervision, difficulty with babysitters, difficulty with visiting friends), conduct problems (e.g., cheats, complains of unfair treatment), and negative affect.

Although a large body of evidence points to a negative correlation between level of giftedness and interpersonal skills, other studies have observed no difference, and even positive relationships, between the two variables. Freeman (1979) found that there was no evidence of greater adjustment problems

for children with mean IQ scores of 155, compared to children with mean scores of 120. Follow-up data with 52 of Terman's participants indicated that individuals with IQs over 180 were not significantly different from individuals with more moderate IQ scores (Feldman, 1984).

In addition, Galluci (1988) found that behavior problems and psychopathology were not observed to be more common in children with profound levels of giftedness, when compared to moderately gifted children and the normative population. Garland and Zigler (1999) used parent ratings of the psychosocial adjustment of children to compare moderately and extremely gifted youth. No evidence was observed that supported profoundly gifted children as exhibiting significantly higher levels of emotional and behavior problems, when compared to their moderately gifted peers.

When Grossberg and Cornell (1988) studied children ages 7 through 11 with IQs ranging from 120 to 168, they found that the profoundly gifted children actually presented as less anxious and nervous than moderately gifted children, were less likely to have problems with physical or cognitive development, and were less likely to display behavior and discipline problems. Furthermore, Janos (1983) found that for children with IQs ranging from 120 to 140, those with a higher intellectual ability were actually associated with better social adjustment.

Area of Identification. In addition to level of giftedness, researchers have hypothesized that the interpersonal skills of gifted children may vary according to specific area of measured high ability, such as verbal, quantitative, or nonverbal. The findings in have also produced inconclusive and mixed results.

While children identified as gifted with verbal measures have been noted in some studies to be more tense and strained, less talkative, more withdrawn and introverted, and as perceiving themselves as less accepted than their peers (Swiatek, 1995), other studies have observed identification with verbal measures to correlate positively with the understanding of social situations, knowledge of social conventions, and the ability to draw on past experiences (Bain & Bell, 2004).

In comparison, children with uniquely high ability measured by quantitative tests (with average to moderate performance on tests measuring verbal skills) have been cited by some researchers as more outgoing and sociable, independent, spontaneous, and socially mature than their peers with high verbal abilities (Solano, 1983). However, other studies have observed children with high performance on quantitative tests to present with lower social status and a worsened perception of self-competence than those with high performance on verbal tests (Dauber & Benbow, 1990).

Wong and Cornell (1999) further observed that, in a sample of adolescent males, those with perceptual IQ (PIQ) scores that were significantly higher than their verbal IQ (VIQ) scores were more likely to exhibit hostile attribution bias and have difficulty with social problem solving. The larger the discrepancy between measured PIQ and VIQ, the more likely the adolescent was to exhibit behaviors related to delinquency (Wong & Cornell, 1999). These findings are similar to those of Joseph, Tager-Flusberg, and Lord (2002), who found that when nonverbal IQ scores were significantly higher than verbal IQ scores, children with

autism experienced greater social difficulties than children with nonverbal and verbal IQ scores that were comparable. When Black, Wallace, Sokoloff, and Kenworthy (2009) further examined this relationship, they found that children with autism experienced more social frustrations when they had discrepantly high scores on either verbal or nonverbal measures. Although the empirical literature has not yet explored how similar discrepancies impact gifted children, this does suggest that discrepantly high verbal or nonverbal performance may affect one's social functioning.

Although some differences have been observed between children with high performance on verbal tests, in comparison to those exhibiting high performance on nonverbal tests, some studies have concluded that no difference in social skills exists between the two groups (Knepper et al., 1983). Galloway and Porath (1997) found that on measures of self-esteem, depression, and the incidence of behavior problems, there was no difference between students identified as talented using mathematical tests and those identified as talented using verbal tests. The only significant difference was in the perception of popularity, with students identified as gifted using verbal tests perceiving themselves as less popular. Students identified as gifted with verbal and quantitative tests were also contrasted by Dauber and Benbow (1990), who found that there was no difference in group involvement or personality traits between the two groups. It was noted, however, that children identified using quantitative tests were more likely to perceive peer acceptance as important.

Age. Subgroups of gifted children have also been compared across ages and grade levels. Studies have compared the interpersonal skills of gifted children in early childhood, elementary school, middle school, and adolescence, suggesting that the relationship between social skill development and giftedness may vary according to age (Austin & Draper, 1981; Knepper et al., 1983).

There has been evidence to support that gifted preschoolers develop certain aspects of social understanding and knowledge earlier than their typical peers, but that this is not necessarily linked with higher levels of prosocial behavior (Austin & Draper, 1981). In addition, intellectually gifted students in preschool and kindergarten are not necessarily more popular than their non-identified peers (Austin & Draper, 1981). However, as a gifted child ages and moves into elementary grades, there does appear to be a positive correlation between intelligence and social acceptance (Austin & Draper, 1981).

The positive relationship between intelligence and social acceptance appears to continue into middle school; Knepper et al. (1983) found that intellectual giftedness for 11 year olds is significantly linked to the development of interpersonal and intrapersonal problem-solving skills. However, in adolescence the relationship between giftedness and interpersonal skills weakens and possibly even becomes unfavorable. Austin and Draper (1981) found that intellectually gifted students tended to lose social status in adolescence; this trend was particularly remarkable for female students. Although gifted males also lose social status in early adolescence, this status is typically regained later in high school (Austin & Draper, 1981). Therefore, it may be that gifted children are

generally well-liked and may present with social advantages in comparison to their typical peers, but that as children age, these advantages change, lessen, or disappear altogether (Neihart et al., 2002).

Gender. In the general population of children and adolescents, females tend to demonstrate higher rates of prosocial behaviors and better social adjustment, in comparison to same-age males (Lindeman, Harakka, & Keltikangas-Jarvinen, 1997; Masten, Juvonen, & Spatzier, 2009). These gender differences have been observed in gifted children as well, with gifted girls displaying higher overall social-emotional ability, greater frequencies of prosocial behaviors, and fewer negative social behaviors (D'Ilio & Karnes, 1987; Helt, 2008). However, this difference does not necessarily result in fewer friendships for gifted male children, or in less time spent with friends (Kao, 2011). In fact, research has shown that gifted boys tend to be more popular than their non-identified peers, and that gifted girls have been observed to be less popular than both gifted boys and their non-identified peers (Luftig & Nichols, 1990). There is also evidence suggesting that girls identified as gifted tend to have lower self-concepts than gifted boys (Bain & Bell, 2004).

Present Research Questions

Given the large body of evidence suggesting that giftedness serves to protect children from interpersonal difficulties, contrasted with the many empirical studies documenting the social woes of gifted children, it can be difficult to make definitive conclusions regarding the interpersonal development of gifted children. While some studies conclude that gifted children are uniquely

vulnerable to social and emotional problems (e.g., Coleman & Cross, 1988; Coleman & Cross, 2000; Janos et al., 1985), others posit that gifted children are equally as well adjusted as their peers (e.g., Lopez & Sotillo, 2009; Painter, 1976), or are even at a social advantage compared to nongifted children (e.g., Bain & Bell, 2004; Luftig & Nichols, 1990). Some researchers have hypothesized about the reason for this discrepancy in evidence.

One potential explanation for the difference in research findings is issues with research methodology. Sampling errors have been proposed to contribute to the discrepant findings, including the selection of experimental groups and control groups, low number of participants, restricted range of intelligence in participants, and under- or over-representation of certain ethnic or socioeconomic groups (McCallister, Nash, & Meckstroth, 1996).

Further issues pertain to sample composition. The methods by which gifted students are identified has also been called to question, and cited as a possible confounding variable when comparing students already identified as gifted with their non-identified peers. Because referrals for gifted testing are typically made by teachers or parents, McCallister et al. (1996) hypothesized that certain features of social adjustment affect the likelihood of referrals and therefore impact the identification of students as gifted. For example, children who are not well-adapted and not popular with teachers may be less likely to be referred for gifted testing (McCallister et al., 1996).

Furthermore, the type of educational programming in which gifted students are placed may have a great impact on their interpersonal skill

development. The existing literature includes students from a broad range of educational environments, ranging from summer camps for gifted children to self-contained gifted programs and residential academies. This could be contributing to discrepancies in the empirical findings, as researchers have found that educational placements can significantly impact students' social coping skills (Cross & Swiatek, 2009).

Another possible explanation for the discrepancies in research findings is an issue of instrumentation error (McCallister et al., 1996). Interpersonal skills are frequently measured by self-report, teacher-report, or parent report; these measures have been shown to be vulnerable to bias that decreases the validity of responses (Anastasi, 1988). Further issues of instrumentation relate to the psychometric properties of the instruments used to measure interpersonal skills. The measures used are frequently instruments that are new and have been developed by the researcher, without adequate examination of validity or reliability evidence prior to reporting results (McCallister et al., 1996).

Critiques of the existing literature have also cited issues with operational definitions of interpersonal skills and a lack of attention to possible third-variables affecting these skills. The construct of social competence, as well as the construct of intelligence and giftedness, have taken on different definitions and conceptualizations over time (McCallister et al., 1996). For example, some studies define interpersonal skills broadly and as a single construct, while others detail the specific attributes thought to be representative of interpersonal skills, such as popularity (Helt, 2008). Therefore, comparing studies with broad dates of

publication can result in the comparison of altogether different variables.

Furthermore, because interpersonal skills are defined broadly and are comprised of a variety of behaviors and skills, oversimplified experimental designs may overlook third variables and make erroneous conclusions (McCallister et al., 1996).

Given the conflicting findings regarding the interpersonal skills of profoundly gifted children, in comparison to their moderately gifted peers, more definitive information is needed to confidently conclude whether the social development of the two groups differs. It may be that, as Hollingworth posited, there exists an optimal range of intelligence that serves to support the development of interpersonal skills without the effect of risk factors inhibiting social development (Shaywitz et al., 2001). However, the existing research does not definitively reach a conclusion in this area. By shifting the comparison from between-group differences to a focus on within-group differences, specific subsets of gifted children might be identified who display specific resilience or risk factors in the development of interpersonal skills.

Consequently, the present study examined the interpersonal skills of gifted students. Specific attention was given to the ways in which interpersonal skills varied according to level of giftedness. It was expected that a curvilinear correlation would be observed, in that moderately gifted students would exhibit above-average social skills, but that profoundly gifted students would tend to be rated as having slightly impaired social skills.

In addition, the present study examined the ways that interpersonal skills differed across gender, age, and areas in which students qualified for gifted education services. It was hypothesized that significant relationships would be observed between interpersonal skills and gender, with females having higher skills. It was also expected that interpersonal skills would vary according to age, with younger students exhibiting greater social skills than their older peers. A final hypothesis, relating to area of identification, predicted that students who qualified for gifted services based on high performance on verbal tests would exhibit stronger social skills than students who qualified using nonverbal or quantitative tests.

Chapter 2

Method

Participants

Participants in the study were 37 gifted education teachers employed by a large K-12 school district in the Southwestern United States. Teachers completed the Devereux Student Strengths Assessment (DESSA; LeBuffe, Shapiro, & Naglieri, 2009) during the spring semester of the 2010-2011 school year, regarding the social-emotional competence of 276 elementary and middle school students (grades K-8) receiving gifted education services.

An equal number of students were chosen from the three gifted education services with the highest student population within the district: (1) self-contained classes where gifted students are educated in the same classroom for all subjects, (2) content-replacement services where gifted students are provided with accelerated and enriched programming from a gifted specialist, and (3) cluster settings where gifted students are grouped into mixed-ability classrooms at each grade level (Brulles, Saunders, & Cohn, 2010).

Students in the sample were classified as gifted according to the criterion identified in Arizona state law, which was performance on a verbal, quantitative, or nonverbal test within the 97th percentile or above. Students classified as gifted were identified prior to the current study, through cognitive assessments administered by the school district. To ensure that the same instrument was used for all students, those who qualified for gifted services with an assessment other than the Cognitive Abilities Test (CogAT; Lohman & Hagen, 2001) ($n = 69$) were

excluded from the analyses. One outlier, whose CogAT score was within the 94th percentile, was also excluded from the analyses. These exclusions resulted in a final sample of 206 students. The students' ages in this final sample ranged from 6 - 14 years ($M = 10.32$, $SD = 2.27$), with relatively even distribution of gender (117 females, 89 males). The sample was 54% White, 14% two or more races, 12% Asian, 11% Hispanic, 1.5% Black/African American, and 0.5% Native Hawaiian or other Pacific Islander (see Table 1 for demographic information).

Twenty-four percent of students ($n = 50$) in the sample were identified as gifted solely based on a nonverbal ability estimate, 20% ($n = 41$) were identified based on a verbal ability estimate alone, and 10% ($n = 21$) were identified solely based on a quantitative ability estimate. Other students in the sample were identified in more than one ability area (Verbal and Quantitative, $n = 28$, 14%; Verbal and Nonverbal, $n = 25$, 12%; Quantitative and Nonverbal, $n = 21$, 10%). Ten percent ($n = 20$) of students in the sample were identified as gifted in all three ability areas (see Table 2).

Because the criterion used to determine qualification for gifted education services in the school district was each student's percentile rank, specific CogAT standard scores were not recorded in students' gifted education files within the district. For the purpose of the present study, students' CogAT raw subscale scores were obtained and converted to standard scores. Composites were then calculated based on subscale scores; for students without scores in all three subscales ($n = 10$), composites were calculated according to procedures outlined in the CogAT manual (Lohman & Hagen, 2001). CogAT standard scores were

collected for 151 students in the current sample; thus, analyses examining students' level of giftedness utilized an n of 151. See Table 3 for information regarding the distribution of CogAT scores in the sample.

Measures

Cognitive Abilities Test. The CogAT, Form 6 (Lohman & Hagen, 2001) is a norm-referenced test designed to measure the learned reasoning and problem-solving abilities of students in grades K-12. It has two editions (Primary and Multilevel), each with three batteries: Verbal (including the Verbal Classification, Sentence Completion, and Verbal Analogies subtests), Quantitative (including the Quantitative Relations, Number Series, and Equation Building subtests), and Nonverbal (including the Figure Classification, Figure Analogies, and Figure Analysis subtests). The Primary Edition is used in grades K-2, and the Multilevel Edition is administered to grades 3 through 12. Batteries can be administered individually as well as collectively, and the number of items varies according to grade level. The measure produces a universal scale score, standard score, percentile rank, and stanine score for each battery, with the normative average being at the 50th percentile with a standard score of 100 and a standard deviation of 16.

Devereux Student Strengths Assessment. The Devereux Student Strengths Assessment (DESSA; LeBuffe, Shapiro, & Naglieri, 2009), a 72-item norm-referenced behavior rating scale, was used to collect information regarding the social-emotional competence of the selected gifted students. The DESSA is a nationally standardized, strengths-based assessment designed to measure the

social-emotional competence of gifted students in grades K-8. The DESSA was constructed to be used primarily in schools, with acceptable raters including parents/guardians, teachers, and other school staff. The standardization sample consisted of approximately 2,500 typical, non-identified children from across the United States, and was representative of the U.S. population in respect to gender, race, ethnicity, region, and economic status (LeBuffe, et al., 2009).

The DESSA assesses eight strength subscales, including: Optimistic Thinking (attitude of confidence and hopefulness about self and life situations), Self-Management (success in controlling emotions and behaviors), Goal-Directed Behavior (initiation of and persistence in task completion), Self-Awareness (realistic understanding of strengths and limitations), Social-Awareness (capacity to interact with others respectfully), Personal Responsibility (care and reliability in actions contributing to group efforts), Decision Making (problem solving), and Relationship Skills (actions that promote positive connections with others) (LeBuffe et al., 2009). In addition to the eight subscales, the DESSA also yields a composite score (DESSA Total Protective factors) that estimates a child's overall resilience, social-emotional competence, and school success.

Although DESSA ratings in the present study assessed all eight subscales, interpretations were limited to the DESSA Total Protective factors scores and the Social-Awareness and Relationship Skills subscale scores. These specific subscales were chosen because, according to Lebuffe and Linkins (2009), they can provide useful information regarding a child's interpersonal strengths or needs.

Each of the 72 DESSA items begins with the same sentence stem (“During the past four weeks, how often did the child . . .”) and ends with a descriptor regarding a strength-based behavior (e.g., try to do his or her best? respect another person’s opinion?). Raters then respond to the item on a 5-point Likert scale (0 = *never*; 1 = *rarely*; 2 = *occasionally*; 3 = *frequently*; 4 = *very frequently*). DESSA results are reported using T scores ($M = 50$, $SD = 10$) and percentile ranks. Therefore, scores greater than or equal to 60 are considered strengths, whereas scores at or below 40 are considered to be areas in need of improvement. Table 3 lists the distribution of DESSA Total and subscale scores in the present sample.

The reliability of DESSA score interpretation has received adequate empirical support (LeBuffe et al., 2009; Nickerson & Fishman, 2009). The internal consistency of the Total Protective factors score, as estimated by alpha coefficients, is high ($\alpha = .99$), as is the internal consistency of the subscale scores ($\alpha = .89$ to $.94$). Test-retest reliability of the Total Protective factor, with a 1-week interval, is very good (Teachers = $.94$; Parents = $.90$). Furthermore, the test-retest reliability coefficients for the subscales range from $.79$ to $.94$, for both parent and teacher ratings (LeBuffe et al., 2009).

The validity of DESSA interpretation has been empirically supported as well. Sources of validity evidence include criterion validity, as well as convergent and divergent validity. Nickerson and Fishman (2009) found that the DESSA full-scale and subscale scores have significant, moderate-to-high correlations with the Behavior Assessment System for Children-2 (BASC-2; Reynolds & Kamphaus,

2004) and Behavioral and Emotional Rating Scales-2 (BERS-2; Epstein, 2004) scores. This convergent validity support was observed for both parent and teacher raters. Nickerson and Fishman (2009) found that the divergent validity of the assessment was supported through a comparison of DESSA full-scale and subscale scores to clinical scale scores on the BASC-2.

Procedure

Students were selected via stratified random selection by the Director of Gifted Education in the school district. The Director distributed the DESSA rating scales to the students' gifted teachers, asking them to complete one rating scale for each of the selected students. Teachers received compensation for participation in the study. In order to protect anonymity, demographic information for each student was recorded, and student names were replaced with identification numbers prior to the research team's involvement. Upon receipt of the completed rating scales, the research team scored the responses.

Chapter 3

Results

In order to gather information regarding the relationship between interpersonal skills and level of giftedness, data was analyzed through a correlational analysis. The outcome variable, interpersonal skills, was operationalized by DESSA Total Protective factor standard scores, as well as Social-Awareness and Relationship Skills subscale scores.

To measure students' level of giftedness, standard scores ($M = 100$; $SD = 16$) were computed based on each student's CogAT raw scores. Standard scores were obtained for each student's performance on the verbal, quantitative, and nonverbal batteries of the CogAT; in addition, a composite standard score was computed for each student.

Correlation coefficients were computed among CogAT composite, verbal, quantitative, and nonverbal standard scores and DESSA Total, Relationships Skills, and Social-Awareness scores. Correlation coefficients were then adjusted for restriction of range, because using the obtained coefficients would have artificially lowered the correlation estimates (Guilford & Fruchter, 1978). These adjustments were made by dividing $[r_c(S_u/S_c)]$ by the square root of $1 - r_c^2 + r_c^2 \times (S_u^2/S_c^2)$, where r_c was the correlation within the restricted group (i.e., the initial correlations calculated between CogAT and DESSA scores), S_c was the standard deviation of the variable on which the restriction occurs (i.e., 8.25, 13.63, 11.07, and 12.19 for CogAT composite, verbal, quantitative, and nonverbal scores) and

S_u is the standard deviation of the same variable in the unrestricted group (i.e., 16 for all CogAT scores) (Guilford & Fruchter, 1978).

Examination of the scatterplots revealed positive linear relationships between interpersonal skills and level of giftedness, in that DESSA Total, Relationship Skills, and Social-Awareness scores increased as CogAT composite scores increased (see Figures 1-3). The corrected correlation coefficients presented in Table 4 show that significant relationships were observed between CogAT composite scores and each measure of interpersonal skills (DESSA Total, Relationship Skills, and Social-Awareness). However, the correlations between CogAT composites and DESSA Relationship Skills and Social-Awareness scores were weak. The correlation between CogAT composite scores and DESSA Total scores was the strongest, $r(149) = .32, p < .01$. The strength of this relationship was moderate; 10% of the variance in DESSA Total scores was accounted for by variation in CogAT composite scores, $r^2 = .10$. Significant relationships were not observed between the three measures of interpersonal skills and any of the individual CogAT batteries (verbal, quantitative, and nonverbal).

A correlational analysis was also used to assess the degree of relationship between interpersonal skills, area of identification, age, and gender (see Table 5). Five of the nine correlations were statistically significant and were greater than or equal to .16. The correlation between age and interpersonal skills was not significant, nor was the correlation between gender and Social-Awareness. However, a significant relationship was observed between gender and DESSA Total scores, and gender and Relationship Skills scores. Significant correlations

were also identified between area of identification and each of the three measures of interpersonal skills (DESSA Total, Social-Awareness, and Relationship Skills). These relationships, although significant, were weak. The correlation between gender and Relationship Skills was strongest, with 5% of the variance in Relationship Skills accounted for by gender, $r(204) = .23, p < .01, r^2 = .05$.

Because the correlations were statistically significant between gender and interpersonal skills, and area of identification and interpersonal skills, these relationships were further explored through factorial analysis of variance. Assumptions of independency, homogeneity, and normality were met. Interpersonal skills were again operationalized using the DESSA Total scores, as well as the Social-Awareness and Relationship Skills subscale scores. Thus, these three measures of interpersonal skills were used in separate factorial ANOVAs for both independent variables (area of identification and gender). Area of identification, a between-subjects factor, consisted of seven levels: (a) verbal, (b) quantitative, (c) nonverbal, (d) verbal and quantitative, (e) verbal and nonverbal, (f) quantitative and nonverbal, (g) verbal, quantitative, and nonverbal.

The results of the first ANOVA, using DESSA Total scores as the measure of interpersonal skills, revealed significant main effects for gender, $F(1, 192) = 7.57, p < .01, \text{partial } \eta^2 = .04$, and area of identification, $F(6, 192) = 2.74, p < .05, \text{partial } \eta^2 = .08$ (see Table 6). In general, the interpersonal skills of females were rated more positively than the interpersonal skills of males. In addition, students identified in both quantitative and nonverbal areas were reported to have the strongest interpersonal skills, and students identified solely in

the area of nonverbal ability had the weakest interpersonal skills. This difference was especially pronounced for females (see Figure 4). However, there was not a significant interaction between gender and area of identification on interpersonal skills, $F(6, 193) = .76, p > .05$, partial $\eta^2 = .02$.

Because the main effect for area of identification involved more than two levels, follow-up tests were conducted to evaluate pairwise differences among the seven areas of identification (see Table 7). Tukey's HSD procedure was used to control for Type I error across the pairwise comparisons. The results of this analysis indicate that students identified as gifted in both quantitative and nonverbal areas had significantly higher DESSA Total ratings than students identified solely with verbal or nonverbal measures. There was no significant difference between other areas of identification, indicating that students identified with quantitative *and* nonverbal measures have interpersonal skill advantages when compared to students identified with verbal or nonverbal measures alone.

Results of the second factorial ANOVA, comparing gender and area of identification to Relationship Skills subscale scores, yielded similar results to the first factorial ANOVA (see Figure 5). The analysis indicated no significant interaction between gender and area of identification, $F(6, 192) = 1.42, p > .05$, partial $\eta^2 = .04$, but significant main effects were identified for gender, $F(1, 192) = 13.90, p < .01$, partial $\eta^2 = .07$, and area of identification, $F(6, 192) = 3.06, p = .01$, partial $\eta^2 = .09$ (Table 6). Follow-up analyses indicated that students identified as gifted with both quantitative and nonverbal measures had significantly higher Relationship Skill ratings than those identified solely with

nonverbal measures (Table 8). However, unlike the first ANOVA, there were no other significant differences between areas of identification, indicating that students identified solely with a verbal measure did not have significantly different Relationship Skill ratings than their peers identified with both quantitative and nonverbal measures.

Results of the third factorial ANOVA indicated no significant relationships between Social-Awareness and gender, $F(1, 192) = 3.31, p > .05$, partial $\eta^2 = .02$, area of identification, $F(6, 192) = 2.14, p > .05$, partial $\eta^2 = .06$, or the interaction between the two factors, $F(6, 192) = .79, p > .05$, partial $\eta^2 = .02$ (see Table 6). This analysis indicated that, although the pattern of Social-Awareness scores according to area of identification appeared similar to the patterns observed for DESSA Total and Relationships Skills scores, there was not a significant effect of area of identification or gender on students' estimated Social-Awareness scores (see Figure 6).

Chapter 4

Discussion

This study was designed to gather information regarding the interpersonal skills of gifted children. Specific aims included examining the relationships between children's interpersonal skills and their level of giftedness, area of identification, gender, and age. Researchers have long sought to understand the dynamic between gifted ability and various aspects of interpersonal functioning, and have yet to reach definitive conclusions on this topic. The overarching goal of this study was to add to the empirical literature in this quest for understanding the social experience of gifted children.

Previous research has produced mixed and conflicting results regarding the interpersonal skills of gifted children. While some studies have suggested that gifted children are at great risk for social difficulties and frustrations, others have concluded that gifted children actually possess protective factors that enhance their interpersonal skills and place them at a social advantage over their typical peers. One possible explanation for this discrepancy in findings is that there are subsets of gifted children who are at specific risk or advantage in the development of interpersonal skills. Thus, this study was designed to compare gifted children to each other, in an effort to identify any within-group differences among this unique population. Several of the study's findings support the notion that there are specific subsets of the gifted population who may have better developed interpersonal skills than their other gifted peers.

Significant correlations were identified between the level of children's estimated gifted abilities and their interpersonal skills. These results are consistent with the findings of Grossberg and Cornell (1988) and Janos (1983), suggesting that a slight positive linear relationship exists between level of giftedness and social skills. However, a "socially optimum" range of intelligence was not identified, as the strength of the relationship between level of giftedness and interpersonal skills was only weak to moderate. Level of giftedness (as measured by CogAT composite scores) accounted for 10% of the variance in interpersonal skills (as measured by DESSA Total scores).

Trends in the data suggest that children who have higher cognitive abilities do have slightly higher interpersonal skill ratings, as compared to children with abilities in the moderately gifted range. However, the interpersonal skills of profoundly gifted children do not appear to be commensurate with their cognitive abilities, as their interpersonal skills were generally within the average range. This suggests that students with extremely high cognitive skills may benefit from interventions that target interpersonal skill development, such as social and emotional learning (SEL) training, in an effort to better align their social skills with their cognitive abilities (Merrell & Gueldner, 2010; Payton et al., 2008; Zins, Weissberg, Wang, & Walberg, 2004).

Further findings of the present study indicate that interpersonal skills did not correlate significantly with the age of gifted children. These findings are contrary to a portion of the existing literature that has suggested that the interpersonal skills of young gifted children are greater than those of adolescent

gifted children (Knepper et al., 1983; Neihart et al., 2002). A potential explanation of these discrepant findings might be provided by Austin and Draper (1981), who explained that although evidence exists that young gifted children possess certain aspects of social understanding and knowledge, this does not necessarily equate to higher levels of prosocial behavior. Because the present study utilized teacher ratings of children's behavior, and didn't account for the understanding or knowledge of the children, it may be that their behavior did not reflect their internal thought processes.

While interpersonal skills were not found to be significantly related to age, these skills were found to vary significantly according to gender. Although the variables were only mildly correlated, in general, the interpersonal skills of females received higher ratings than the interpersonal skills of males. This pattern was consistent across area of identification, suggesting that gifted female students exhibited interpersonal strengths regardless of the area in which they were identified as gifted. These findings are in agreement with numerous studies concluding that females in both the general population and the gifted population exhibit stronger interpersonal skills (D'Ilio & Karnes, 1987; Helt, 2008; Lindeman, Harakka, & Keltikangas-Jarvinen, 1997; Masten, Juvonen, & Spatzier, 2009).

Significant correlations were identified between interpersonal skills and the area in which a child was identified as gifted. Further exploration of these findings revealed that students identified as gifted with both nonverbal and quantitative tests had the strongest interpersonal skills (as measured by DESSA

Total and Relationship Skills scores), and the estimated skills of these students differed significantly from those students identified with a verbal measure alone or a nonverbal measure alone. These findings were completely contrary to the hypothesis that children identified with verbal measures would exhibit the strongest interpersonal skills. The findings of Swiatek (1995), who found that children identified using verbal measures had greater interpersonal difficulties, were thus corroborated.

Interestingly, children identified with nonverbal strengths alone were found to have the weakest interpersonal skills overall. This begs an examination of the difference between students identified with nonverbal strengths alone, and those identified with both quantitative and nonverbal strengths. There are a few potential explanations for these findings. One explanation is apparent when examining the mean standard scores for the groups. The mean standard score of students identified with nonverbal measures alone ($M = 125$) was lower than the mean standard score of students identified with both nonverbal and quantitative measures ($M = 132$). Thus, the findings may represent a difference in level of giftedness, which was found to correlate significantly with interpersonal skills.

Another possible explanation may relate to the findings of Naglieri and Ford (2005), who determined that students with poor English language skills are not likely to earn high scores on verbal and quantitative ability measures, regardless of their actual intellectual ability. Naglieri and Ford further determined that many measures of cognitive ability, including the CogAT, inadvertently require academic skills to earn high test scores. Although information was not

available regarding the language skills or educational exposure of students in the present sample, it may be that those who qualified for gifted education services with nonverbal measures alone represent a unique group of students who also have low language skills, learning disabilities, limited exposure to English, or limited educational experiences. Future studies could shed light on this potential interpretation by comparing the interpersonal skills of gifted students fluent in English to those of gifted English language learners.

Another potential explanation for the current findings is that an interaction between nonverbal and quantitative abilities places children at specific social advantages. This may relate to the findings of previous studies that children with uniquely high ability as measured by quantitative tests, with average to moderate performance on verbal tests, tend to exhibit certain interpersonal strengths (Solano, 1983). Solano (1983) observed that children with high performance on quantitative assessments considered positive traits such as friendliness and adaptability to be important characteristics. However, little information exists in the current literature regarding possible interaction effects of nonverbal and quantitative ability on interpersonal skills. This apparent interaction certainly deserves further exploration in future empirical studies.

Limitations and Future Directions

It is important to acknowledge that the interpretation of these results is limited by various aspects of the present study, including the sample and methods utilized. Some of the limitations existing in previous research were, unfortunately, beyond the scope of control in the present study. For example, as discussed

earlier, there may exist a selection bias that affects which students are identified as gifted. That is, the interpersonal skills of children may influence whether they are referred for gifted programming; the gifted abilities of children with poor social skills may go undetected, as their social behavior distracts from their cognitive abilities and academic performance. The sample is also limited in that the distribution of ethnicity is not resemblant of the population. This limits the generalizability, as some minority groups (e.g., Black, Native American, Hispanic) were not adequately represented, and other groups were overrepresented (e.g., Asian, two or more races).

The present results must be also interpreted with caution because many of the relationships observed, although significant, were weak. Therefore, the observed correlations may only represent mild to moderate relationships that are actually of limited practical importance. Further examination of these relationships is warranted, in order to gather further information regarding the strength of correlation between interpersonal skills and level of giftedness, gender, and area of identification.

The interpretation of the current findings may be further limited by the methods used to assess gifted ability and interpersonal skills. The assessment of children's interpersonal skills may have been limited by reliance solely on teacher ratings. With teacher ratings may come biases towards certain students, potentially tainting the validity of the behavior reports. Although self-reports may have added valuable information, these measures could not be utilized in the

present study, due to the study design and a need to protect the anonymity of the students.

Furthermore, the evaluation of children's gifted abilities may have been limited by the tools used to measure said abilities. There is evidence suggesting that the CogAT simultaneously measures cognitive ability and academic achievement. Thus, children who qualified for gifted education services with verbal, quantitative, or nonverbal measures may have had fundamentally different characteristics serving as confounding variables, such as language development or educational exposure. Additionally, the ceiling standard score of 150 on the CogAT potentially limited the differentiation of students within the upper extreme range of cognitive abilities.

Additional possible third variables could have also impacted the present results, influencing the development of interpersonal skills, and possibly affecting the way in which teachers rated certain children's social behavior. Valuable information could be gathered from future studies that examine variables such as children's levels of motivation, or family dynamics and composition. Studies that compare students across types of gifted education programming could also provide information regarding the impact of educational placement on the development of interpersonal skills.

Conclusions

Gifted children are a largely heterogeneous group, with innumerable constellations of talent, skill, experience, interest, and temperament. Outside of the empirical literature, many broad generalizations are made regarding the

common attributes of this population- particularly in reference to the domain of interpersonal skills. However, pursuits to empirically understand the interpersonal skills of gifted children have yet to be conclusive. While some studies have suggested that giftedness serves as a risk factor in the development of interpersonal skills, others have concluded that giftedness supports the resilience of social skill development. One possible explanation for discrepant research findings may be that subgroups of gifted children have significantly unique attributes that set them apart socially from both their gifted and non-identified peers.

The present study supports this notion, providing evidence of distinctive subgroups of gifted children. That is, interpersonal skills were observed to vary according to level of gifted ability, gender, and the area in which children were identified as gifted. Although these findings should be interpreted with the discussed limitations in mind, they could carry important implications for educators, mental health workers, and families who have the opportunity to interact with gifted children. Identifying the common attributes of these subgroups could have crucial implications for understanding the development and needs of the young gifted population, aiding in the development of interventions and instructional practices, and helping children with high abilities to achieve optimal development in social domains.

REFERENCES

- Anastasi, A. (1988). *Psychological testing (6th ed.)*. New York, NY, England: Macmillan Publishing Co, Inc.
- Anderson, S., & Messick, S. (1974). Social competency in young children. *Developmental Psychology, 10*, 282–293.
- Anthony, E.J., & Cohler, B.J. (Eds.). (1987). *The invulnerable child*. New York, NY: Guilford Press.
- Assouline, S. G., & Colangelo, N. (2006). Social-emotional development of gifted adolescents. In F. A. Dixon & S. M. Moon (Eds.), *The handbook of secondary gifted education* (pp. 65–85). Waco, TX: Prufrock Press.
- Austin, A.B., & Draper, D.C. (1981). Peer relationships of the academically gifted: A review. *Gifted Child Quarterly, 25*, 129–133.
- Bain, S. K., & Bell, S. M. (2004). Social self-concept, social attributions, and peer relationships in fourth, fifth, and sixth graders who are gifted compared to high achievers. *Gifted Child Quarterly, 48*, 167-178.
- Bain, S. K., Choate, S. M., & Bliss, S. L. (2006). Perceptions of developmental, social, and emotional issues in giftedness: Are they realistic? *Roeper Review: A Journal on Gifted Education, 29*, 41-48.
- Barnett, L., & Fiscella, J. (1985). A child by any other name . . . A comparison of the playfulness of gifted and nongifted children. *Gifted Child Quarterly, 29*, 61–66.
- Beer, J. (1991). Depression, general anxiety, test anxiety, and rigidity of gifted junior high and high school children. *Psychological Reports, 69*, 1128-1130.
- Black, D. O., Wallace, G. L., Sokoloff, J. L., & Kenworthy, L. (2009). Brief report: IQ split predicts social symptoms and communication abilities in high-functioning children with autism spectrum disorders. *Journal of Autism Developmental Disorders, 39*, 1613-1619.
- Buescher, T. M., & Higham, S. J. (1989). A developmental study of adjustment among gifted adolescents. In J. L. VanTassel-Baska, & P. Olszewski-Kubilius (Eds.), *Patterns of influence on gifted learners: The home, the*

- self, and the school* (pp. 102-124). New York, NY, US: Teachers College Press.
- Burks, B. S., Jensen, D. W., & Terman, L. M. (1930). *Genetic studies of genius. III: The promise of youth*. Oxford, England: Stanford University Press.
- Brulles, D., Saunders, R., & Cohn, S.J. (2010). Improving performance for gifted students in a cluster grouping model. *Journal for the Education of the Gifted*, 34, 327-350.
- Coles, R. (1986). The moral life of children. *Educational Leadership*, 43, 19-25.
- Coleman, L. J. & Cross, T. L. (1988). Is being gifted a social handicap? *Journal for the Education of the Gifted*, 11, 41-56.
- Coleman, L. J., & Cross, T. L. (2000). Social-emotional development and the personal experience of giftedness. In K. A. Heller, F. J. Monks, R. J. Sternberg, & R. F. Subotnik (Eds.), *International handbook of giftedness and talent* (pp. 203-212). New York, NY: Elsevier Applied Science Publishers.
- Cross, T. L., Coleman, L. J., & Stewart, R. (1993). The social cognition of gifted adolescents: An exploration of the stigma of giftedness paradigm. *Roeper Review*, 16, 37-40.
- Cross, T.L., & Swiatek, M. A. (2009). Social coping among academically gifted adolescents in a residential setting: A longitudinal study. *Gifted Child Quarterly*, 53, 25-33.
- Czeschlik, T., & Rost, D. H. (1994). Socio-emotional adjustment in elementary school boys and girls: Does giftedness make a difference. *Roeper Review: A Journal on Gifted Education*, 16, 294-297.
- Dauber, S. L., & Benbow, C. P. (1990). Aspects of personality and peer relations of extremely talented adolescents. *Gifted Child Quarterly*, 34, 10-15.
- D'Ilio, V. R., & Karnes, F. A. (1987). Social performance of gifted students as measured by the social performance survey schedule. *Psychological Reports*, 60, 396-398.
- Epstein, M. H., & Sharma, J. M. (1998). *Behavioral and Emotional Rating Scale - Second Edition*. Austin, TX: PRO-ED.
- Freeman, J. (1979). *Gifted Children*. Baltimore, MD: University Park Press.

- Freeman, J. (2006). Giftedness in the long term. *Journal for the Education of the Gifted*, 29, 384–403.
- Gallagher, T.M. (1999). Interrelationships among children's language, behavior, and emotional problems. *Topics in Language Disorders*, 19, 1–15.
- Galloway, B., & Porath, M. (1997). Parent and teacher views of gifted children's social abilities. *Roeper Review: A Journal on Gifted Education*, 20, 118-121.
- Galluci, N. (1988). Emotional adjustment of gifted children. *Gifted Child Quarterly*, 32, 273-276.
- Gallucci, N. T., Middleton, G., & Kline, A. (1999). Intellectually superior children and behavioral problems and competence. *Roeper Review: A Journal on Gifted Education*, 22, 18-21.
- Garland, A., & Zigler, E. (1999). Emotional and behavioral problems among highly intellectually gifted youth. *Roeper Review: A Journal on Gifted Education*, 22, 41-44.
- Gertner, B. L., Rice, M. L., & Hadley, P. A. (1994). Influence of communicative competence on peer preferences in a preschool classroom. *Journal of Speech & Hearing Research*, 37, 913-923.
- Gross, M. U. (1993). Nurturing the talents of exceptionally gifted individuals. In Heller K. A., Mönks F. J. and Passow A. H. (Eds.), *International handbook of research and development of giftedness and talent* (pp. 473-490). Elmsford, NY: Pergamon Press.
- Gross, M. U. (2001). Ability grouping, self-esteem, and the gifted: A study of optical illusions and optimal environments. In N. Colangelo, & S. G. Assouline (Eds.), *Henry B. and Jocelyn Wallace national research symposium on talent development* (pp. 59-88). Scottsdale, AZ: Great Potential Press.
- Gross, M. U. (2002). Social and emotional issues for exceptionally intellectually gifted students. In Neihart, M., Reis, S. M., Robinson, N. M., & Moon, S. M., (Eds.). *The social and emotional development of gifted children: What do we know?* (pp. 19-29). St. Paul, MN: Prufrock Press, Inc.
- Grossberg, I. N., & Cornell, D. G. (1988). Relationship between personality adjustment and high intelligence: Terman versus Hollingworth. *Exceptional Children*, 55, 266-272.

- Guilford, J. P., & Fruchter, B. (1978). *Fundamental statistics in psychology and education (6th ed.)*. New York: McGraw-Hill.
- Hayes, M. L., & Sloat, R. S. (1989). Gifted students at risk for suicide. *Roeper Review: A Journal on Gifted Education, 12*, 102-107.
- Hébert, T. P., & Neumeister, K. L. (2002). Fostering the social and emotional development of gifted children through guided viewing of film. *Roeper Review: A Journal on Gifted Education, 25*, 17-21.
- Heller, K., Monks, F., Sternberg, R., & Subotnik, R. (Eds.). (2000). *The international handbook of giftedness and talent*. Amsterdam: Elsevier.
- Helt, C. (2008). *The role of IQ and gender in the social-emotional functioning of adolescents*. (Doctoral dissertation). Retrieved from ProQuest Information & Learning. (2009-99170-022)
- Hollingsworth, L. S. (1942). *Children above 180 IQ Stanford-Binet: Origin and development*. Yonkers-on-Hudson, NY: World Book Company.
- Howes, C., & Phillipsen, L. (1998). Continuity in children's relations with peers. *Social Development, 7*, 340-349.
- Jackson, N. E., & Robinson, H. B. (1980). *Gifted young children*. New York: Teachers College Press.
- Janos, P. M. (1983). *The psychological vulnerabilities of children of very superior intellectual ability*. (Doctoral dissertation). Retrieved from ProQuest Information & Learning. (1984-51289-001)
- Janos, P. M., Fung, H., & Robinson, N. M. (1985). Self concept, self esteem, and peer relations among gifted children who feel "different." *Gifted Child Quarterly, 29*, 78-82.
- Janos, P. M., Marwood, K. A., & Robinson, N. M. (1985). Friendship patterns in highly intelligent children. *Roeper Review: A Journal on Gifted Education, 8*, 46-49.
- Joseph, R. M., Tager-Flusberg, H., & Lord, C. (2002). Cognitive profiles and social-communicative functioning in children with autism spectrum disorder. *Journal of Child Psychology and Psychiatry, 46*, 807-821.
- Kaiser, C. F., & Berndt, D. J. (1985). Predictors of loneliness in the gifted adolescent. *Gifted Child Quarterly, 29*, 74-77.

- Kao, C. (2011). The dilemmas of peer relationships confronting mathematically gifted female adolescents: Nine cases in Taiwan. *Gifted Child Quarterly*, 55, 83-94.
- Kitano, M. (1990). Intellectual abilities and psychological intensities in young children: Implications for the gifted. *Roeper Review: A Journal on Gifted Education*, 13, 5-10.
- Kitano, M. K., & Lewis, R. B. (2005). Resilience and coping: Implications for gifted children and youth at risk. *Roeper Review: A Journal on Gifted Education*, 27, 200-205.
- Klene, R. (1988, August). *The occurrence of fears in gifted children*. Paper presented at the annual meeting of the American Psychological Association, Atlanta.
- Kline, B. E., & Short, E. B. (1991). Changes in emotional resilience: Gifted adolescent boys. *Roeper Review: A Journal on Gifted Education*, 13, 184-187.
- Knepper, W., Obrzut, J. E., & Copeland, E. P. (1983). Emotional and social problem-solving thinking in gifted and average elementary school children. *The Journal of Genetic Psychology: Research and Theory on Human Development*, 142, 25-30.
- LeBuffe, P. A., & Likins, L. (2009). An Introduction to the Devereux Student Strengths Assessment (DESSA). Retrieved from http://www.devereux.org/site/PageServer?pagename=dessa_index
- LeBuffe, P. A., Shapiro, V. B., & Naglieri, J. A. (2009). *The Devereux Student Strengths Assessment*. Lewisville, NC: Kaplan.
- Lehman, E. B., & Erdwins, C. J. (1981). The social and emotional adjustment of young, intellectually-gifted children. *Gifted Child Quarterly*, 25, 134-137.
- Lindeman, M., Harakka, T., & Keltikangas-Järvinen, L. (1997). Age and gender differences in adolescents' reactions to conflict situations: Aggression, prosociality, and withdrawal. *Journal of Youth and Adolescence*, 26, 339-351.
- Lohman, D. F., & Hagen, E. P. (2001). *Cognitive Abilities Test (Form 6)*. Itasca, IL: Riverside.
- Lombroso, C. (1895). *The man of genius*. New York: Charles Scribner & Sons.

- Longoria, A. Q., Page, M. C., Hubbs-Tait, L., & Kennison, S. M. (2009). Relationship between kindergarten children's language ability and social competence. *Early Child Development and Care, 179*, 919-929.
- Lopez, V., & Sotillo, M. (2009). Giftedness and social adjustment: Evidence supporting the resilience approach in Spanish-speaking children and adolescents. *High Ability Studies, 20*, 39-53.
- Ludwig, G., & Cullinan, D. (1984). Behavior problems of gifted and nongifted elementary school girls and boys. *Gifted Child Quarterly, 28*, 37-39.
- Luftig, R. L., & Nichols, M. L. (1990). Assessing the social status of gifted students by their age peers. *Gifted Child Quarterly, 34*, 111-115.
- Lupkowski, A. E. (1989). Social behaviors of gifted and typical preschool children in laboratory school programs. *Roeper Review: A Journal on Gifted Education, 11*, 124-127.
- Martin, L. T., Burns, R. M., & Schonlau, M. (2010). Mental disorders among gifted and nongifted youth: A selected review of the epidemiologic literature. *Gifted Child Quarterly, 54*, 31-41.
- Masten, A. S., Best, K. M., & Garnezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Development and Psychopathology, 27*, 425-444.
- Masten, C. L., Juvonen, J., & Spatzier, A. (2009). Relative importance of parents and peers: Differences in academic and social behaviors at three grade levels spanning late childhood and early adolescence. *The Journal of Early Adolescence, 29*, 773-799.
- McCallister, C., Nash, W. R., & Meckstroth, E. (1996). The social competence of gifted children: Experiments and experience. *Roeper Review: A Journal on Gifted Education, 18*, 273-276.
- McMillan, J. H., & Reed, D. F. (1994). At-risk students and resiliency: Factors contributing to academic success. *Clearing House, 67*, 137-140.
- Merrell, K. W. (1993). *School Social Behavior Scales*. Austin, TX: Pro-Ed.
- Merrell, K. W., & Gill, S. (1994). Using teacher ratings of social behavior to differentiate gifted from non-gifted students. *Roeper Review: A Journal on Gifted Education, 16*, 286-289.

- Merrell, K. W., & Gueldner, B. A. (2010). *Social and emotional learning in the classroom: Promoting mental health and academic success*. New York, NY: Guilford Press.
- Mönks, F. J., & Ferguson, T. J. (1983). Gifted adolescents: An analysis of their psychosocial development. *Journal of Youth and Adolescence*, *12*, 1-18.
- Naglieri, J. A., & Ford, D. Y. (2005). Increasing minority children's participation in gifted classes using the NNAT: A response to Lohman. *Gifted Child Quarterly*, *49*, 29-36.
- Nail, J. M., & Evans, J. G. (1997). The emotional adjustment of gifted adolescents: A view of global functioning. *Roeper Review: A Journal on Gifted Education*, *20*, 18-21.
- Neihart, M. (2002). Risk and resilience in gifted children: A conceptual framework. In Neihart, M., Reis, S. M., Robinson, N. M., & Moon, S. M., (Eds.). (2002). *The social and emotional development of gifted children: What do we know?* (pp. 113-122). St. Paul, MN: Prufrock Press, Inc.
- Neihart, M., Reis, S. M., Robinson, N. M., & Moon, S. M., (Eds.). (2002). *The social and emotional development of gifted children: What do we know?* St. Paul, MN: Prufrock Press, Inc.
- Nickerson, A. B., & Fishman, C. (2009). Convergent and divergent validity of the Devereux Student Strengths Assessment. *School Psychology Quarterly*, *24*, 48 – 59.
- Nugent, S. A. (2000). Perfectionism: Its manifestations and classroom-based interventions. *Journal of Secondary Gifted Education*, *11*, 215-221.
- Painter, E. (1976). *A comparison of achievement and ability in children of high intellectual potential*. (Unpublished master's thesis). London University, England.
- Payton, J., Weissberg, R.P., Durlak, J.A., Dymnicki, A.B., Taylor, R.D., Schellinger, K.B., & Pachan, M. (2008). *The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews*. Chicago, IL: Collaborative for Academic, Social, and Emotional Learning.
- Peterson, J. S., & Ray, K. E. (2006). Bullying and the gifted: Victims, perpetrators, prevalence, and effects. *Gifted Child Quarterly*, *50*, 148–168.

- Place, K. S., & Becker, J. A. (1991). The influence of pragmatic competence on the likeability of grade-school children. *Discourse Processes, 14*, 227-241.
- Reynolds, C. R., & Bradley, M. (1983). Emotional stability of intellectually superior children versus nongifted peers as estimated by chronic anxiety levels. *School Psychology Review, 12*, 190-194.
- Reynolds, C. R., & Kamphaus, R. W. (2004). *Behavior Assessment System for Children, Second Edition*. Circle Pines, MN: AGS.
- Rhoades, B. L., Warren, H. K., Domitrovich, C. E., & Greenberg, M. T. (2011). Examining the link between preschool social-emotional competence and first grade academic achievement: The role of attention skills. *Early Childhood Research Quarterly, 26*, 182-191.
- Richards, J., Encel, J., & Shute, R. (2003). The emotional and behavioural adjustment of intellectually gifted adolescents: A multi-dimensional, multi-informant approach. *High Ability Studies, 14*, 153-164.
- Robinson, N. M. (2008). The social world of gifted children and youth. In Pfeiffer, S. I. (Ed.), *Handbook of giftedness in children: psychoeducational theory, research, and best practices* (pp. 33-51). New York: Springer Science + Business Media.
- Scott, E. & Bryant, B. (1978). Social interactions of early-reading and non-reading kindergarten students with high intellectual ability. *Catalog of Selected Documents in Psychology, 8*, 95.
- Shaywitz, S. E., Shaywitz, B. A., Jamner, A. H., Towle, V. R., & Barnes, M. A. (1986). Heterogeneity within the gifted: Boys with higher IQ exhibit increased activity, impulsivity, and parenting problems. *Annals of Neurology, 20*, 415-416.
- Shaywitz, S., Holahan, J., Freudenheim, D., Fletcher, J., Makuch, R., & Shaywitz, B. (2001). Heterogeneity within the gifted: Higher IQ boys exhibit behaviors resembling boys with learning disabilities. *Gifted Child Quarterly, 45*, 16-23.
- Silverman, L.K. (1993). *Counseling the gifted and talented*. Denver, CO: Love Publishing Co.
- Silverman, L. K. (2002). Asynchronous Development. In Neihart, M., Reis, S. M., Robinson, N. M., & Moon, S. M., (Eds.). (2002). *The social and emotional development of gifted children: What do we know?* (pp. 31-37). St. Paul, MN: Prufrock Press, Inc.

- Solano, C. H. (1983). Self-concept in mathematically gifted adolescents. *Journal of General Psychology, 108*, 33-42.
- Sowa, C. J.; McIntire, J.; May, K. M. & Bland, L. (1994). Social and emotional adjustment themes across gifted children. *Roeper Review: A Journal on Gifted Education, 17*, 95-98.
- Swiatek, M. A. (1995). An empirical investigation of the social coping strategies used by gifted adolescents. *Gifted Child Quarterly, 39*, 154-161.
- Tannenbaum, A. (1983). *Gifted children*. New York: Macmillan.
- Terman, L. M. (1925). *Genetic studies of genius*. Stanford, CA: Stanford University Press.
- Terman, L. M., & Oden, M. H. (1947). *The gifted child grows up: Twenty-five years' follow-up of a superior group*. Oxford, England: Stanford University Press.
- U.S. Department of Education, Office of Educational Research and Improvement. (1993). *National excellence: A case for developing America's talent*. Washington, DC: U.S. Department of Education.
- Webb, J. T. (2000, August). *Mis-Diagnosis and Dual Diagnosis of Gifted Children: Gifted and LD, ADHD, OCD, Oppositional Defiant Disorder*. Paper presented at the American Psychological Association Annual Convention, Washington, DC.
- Webb, J. T., Meckstroth, E. A., & Tolan, S. S. (1983). Stress management: Some specific suggestions. *Creative Child & Adult Quarterly, 8*, 216-220.
- Werner, E. S., & Smith, R. S. (1982). *Vulnerable but invincible: A longitudinal study of resilient children and youth*. New York: Adams, Bannister, & Cox.
- Wright, L. (1990). The social and nonsocial behaviors of precocious preschoolers during free play. *Roeper Review: A Journal on Gifted Education, 12*, 268-274.
- Zins, J. E. (2004). *Building academic success on social and emotional learning: What does the research say?* New York: Teachers College Press.

APPENDIX A
INSTITUTIONAL REVIEW BOARD APPROVAL



Office of Research Integrity and Assurance

To: Linda Caterino Kulhavy
EDB

to **From:** Mark Roosa, Chair *sm*
Soc Beh IRB

Date: 09/27/2011

Committee Action: Exemption Granted

IRB Action Date: 09/27/2011

IRB Protocol #: 1109006852

Study Title: Gifted and Social Skills

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(1).

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.

Table 1

Student Characteristics

	<i>N</i> = 206		<i>n</i> = 151	
	<i>n</i>	%	<i>n</i>	%
Gender				
Male	89	43	61	40
Female	117	57	90	60
Ethnicity				
White	111	54	84	56
Two or More Races	29	14	17	11
Asian	25	12	19	13
Hispanic	22	11	15	10
Black	3	1.5	3	2
Native Hawaiian / Other Pacific Islander	1	0.5	1	1
Blank	15	7	12	7
Grade				
Kindergarten	5	2	0	0
First	15	7	12	8
Second	19	9	17.5	11
Third	33	16	32	21
Fourth	25	12	17.5	11
Fifth	29	14	26	17
Sixth	22	11	20	13
Seventh	33	16	20	13
Eighth	25	12	7	5

Note. Analyses examining students' level of giftedness utilized an *n* = 151. All other analyses utilized an *N* = 206.

Table 2

Descriptive Statistics of CogAT Composites According to Area of Identification

	<i>n</i>	%	<i>M</i>	<i>SD</i>	Min	Max
Verbal	41	20	127.4	4.9	120	150
Quantitative	21	10	129.2	8.1	118	150
Nonverbal	50	24	126.8	5.2	114	143
Verbal & Quantitative	28	14	135.0	7.4	117	150
Verbal & Nonverbal	25	12	133.1	6.8	115	145
Quantitative & Nonverbal	21	10	132.9	6.2	118	149
Verbal, Quantitative, & Nonverbal	20	10	136.5	8.2	121	148

Note. $N = 206$. The first two columns represent the number and percentage of students qualifying for gifted education services in a given area. The final four columns represent the distribution of CogAT composite scores according to each area of identification. For students whose CogAT composite standard scores were not obtained ($n = 55$), composites were calculated based on percentile rank.

Table 3

Descriptive Statistics of CogAT, DESSA Total, and DESSA Subscale Scores

	<i>M</i>	<i>SD</i>	Min	Max
CogAT Composite	130.1	8.3	114	150
CogAT Verbal	126.0	13.6	91	150
CogAT Quantitative	125.3	11.2	102	150
CogAT Nonverbal	124.7	12.3	99	150
DESSA Total	54.7	9.9	29	72
DESSA Social-Awareness	53.2	10.6	29	72
DESSA Relationship Skills	54.9	10.5	28	72
DESSA Self-Management	55.0	9.5	34	72
DESSA Personal Responsibility	55.2	10.5	31	72
DESSA Optimistic Thinking	55.1	11.1	28	72
DESSA Goal-Directed Behavior	54.4	11.3	29	72
DESSA Self-Awareness	54.3	10.6	29	72
DESSA Decision Making	54.8	10.3	28	72

Note. CogAT scores ($n = 151$) are presented as standard scores ($M = 100$, $SD = 16$). DESSA Total and subscale scores ($N = 206$) are presented as T scores ($M = 50$, $SD = 10$).

Table 4

Summary of Obtained and Corrected Intercorrelations, Means, and Standard Deviations for CogAT and DESSA Scores

		Pearson Correlation								
		1	2	3	4	5	6	7	8	9
CogAT Composite										
	Obtained	.17*	.09	.13	.15	.15	.18*	.17*	.20*	.16
	Corrected	.32**	.17*	.25**	.28**	.28**	.33**	.32**	.37**	.30**
CogAT Verbal										
	Obtained	.04	-.06	.05	-.01	.05	.04	.10	.06	.00
	Corrected	.05	-.07	.06	-.01	.06	.05	.12	.07	.00
CogAT Quantitative										
	Obtained	-.02	-.06	-.05	-.07	-.01	.02	.04	.03	-.01
	Corrected	-.03	-.09	-.07	-.10	-.01	.03	.06	.04	-.01
CogAT Nonverbal										
	Obtained	.05	.09	-.01	.13	.05	.01	.04	.06	.12
	Corrected	.07	.12	-.01	.17*	.07	.01	.05	.08	.16*
	1. DESSA Total ^a	-	-	-	-	-	-	-	-	-
	2. Social-Awareness		-	.80**	.85**	.76**	.75**	.68**	.69**	.82**
	3. Relationship Skills			-	.80**	.80**	.80**	.71**	.81**	.84**
	4. Self-Management				-	.84**	.72**	.75**	.69**	.86**
	5. Personal Responsibility					-	.77**	.91**	.75**	.85**
	6. Optimistic Thinking						-	.78**	.83**	.76**
	7. Goal-Directed Behavior							-	.77**	.83**
	8. Self-Awareness								-	.82**
	9. Decision Making									-

Note. $n = 151$. Correlations were adjusted for restriction of range; adjusted values are listed in rows labeled “corrected”, and original correlations are in rows labeled “obtained”. Items 2-9 represent individual DESSA subscales. Although correlations for all eight DESSA subscales are listed, only the Social-Awareness and Relationship Skills subscales were interpreted for the present study.

^aCorrelation coefficients were not computed, because DESSA Total scores subsume DESSA subscale scores.

* $p < .05$., ** $p < .01$.

Table 5

Means, Standard Deviations, and Pearson Correlations of Area of Identification, Gender, Age, and DESSA Scores

	Pearson Correlation					<i>M</i>	<i>SD</i>
	2	3	4	5	6		
1. Area of Identification	-.13	.03	.18**	.18*	.19**	3.6	1.9
2. Gender	-	-.01	.16*	.23**	.09	1.6	0.5
3. Age ^a		-	-.06	-.07	.03	10.1	2.3
4. DESSA Total			-	-	-	54.7	9.9
5. DESSA Relationship Skills				-	.80**	54.9	10.5
6. DESSA Social-Awareness					-	53.2	10.8

Note. *N* = 206.

^a Chronological age in years.

* $p < .05.$, ** $p < .01.$

Table 6

Factorial ANOVAs Examining DESSA Total, Relationship Skills, and Social-Awareness scores as a function of Gender and Area of Identification

	<i>df</i>	<i>F</i>	partial η^2	<i>p</i>
DESSA Total				
Gender	1	7.57**	.04	.006
Area of Identification	6	2.74*	.08	.014
Gender x Area (interaction)	6	.76	.02	.602
Error	192	-	-	-
DESSA Relationship Skills				
Gender	1	13.90**	.07	.000
Area of Identification	6	3.06**	.09	.007
Gender x Area (interaction)	6	1.42	.04	.208
Error	192	-	-	-
DESSA Social-Awareness				
Gender	1	3.31	.02	.070
Area of Identification	6	2.14	.06	.051
Gender x Area (interaction)	6	.79	.02	.582
Error	192	-	-	-

Note. $N = 206$.

* $p < .05$., ** $p < .01$.

Table 7

Tukey HSD Comparison of Area of Identification across DESSA Total scores

Comparisons	Mean Difference	Standard Error	95% CI	
			Lower Bound	Upper Bound
V vs. Q	-3.20	2.56	-10.84	4.44
V vs. NV	1.23	2.01	-4.77	7.22
V vs. Q and NV	-8.01*	2.56	-15.64	-.37
Q vs. NV	4.42	2.48	-2.97	11.82
Q vs. V and NV	-.78	2.83	-9.20	7.65
NV vs. V and Q	-3.73	2.25	-10.45	2.98
NV vs. Q and NV	-9.23**	2.48	-16.63	-1.84

* $p < .05$.

Table 8

Tukey HSD Comparison of Area of Identification across DESSA Relationship Skill scores

Comparisons	Mean Difference	Standard Error	95% CI	
			Lower Bound	Upper Bound
V vs. Q	-3.74	2.66	-11.68	4.20
V vs. NV	1.81	2.09	-4.42	8.04
V vs. Q and NV	-7.45	2.66	-15.39	.48
Q vs. NV	5.55	2.58	-2.14	13.24
Q vs. V and NV	-.57	2.94	-9.33	8.18
NV vs. V and Q	-4.49	2.34	-11.47	2.49
NV vs. Q and NV	-9.26*	2.58	-16.95	-1.57

* $p < .05$.

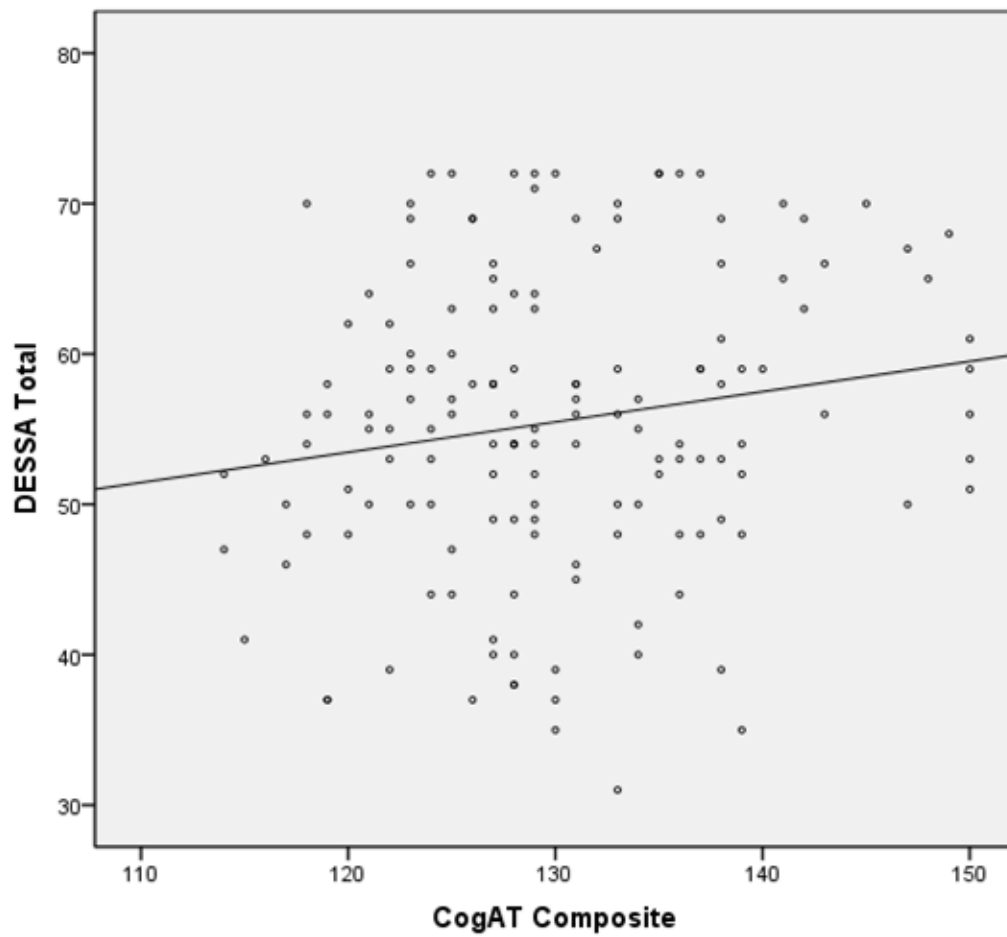


Figure 1. The variation of DESSA Total scores according to CogAT composite scores.

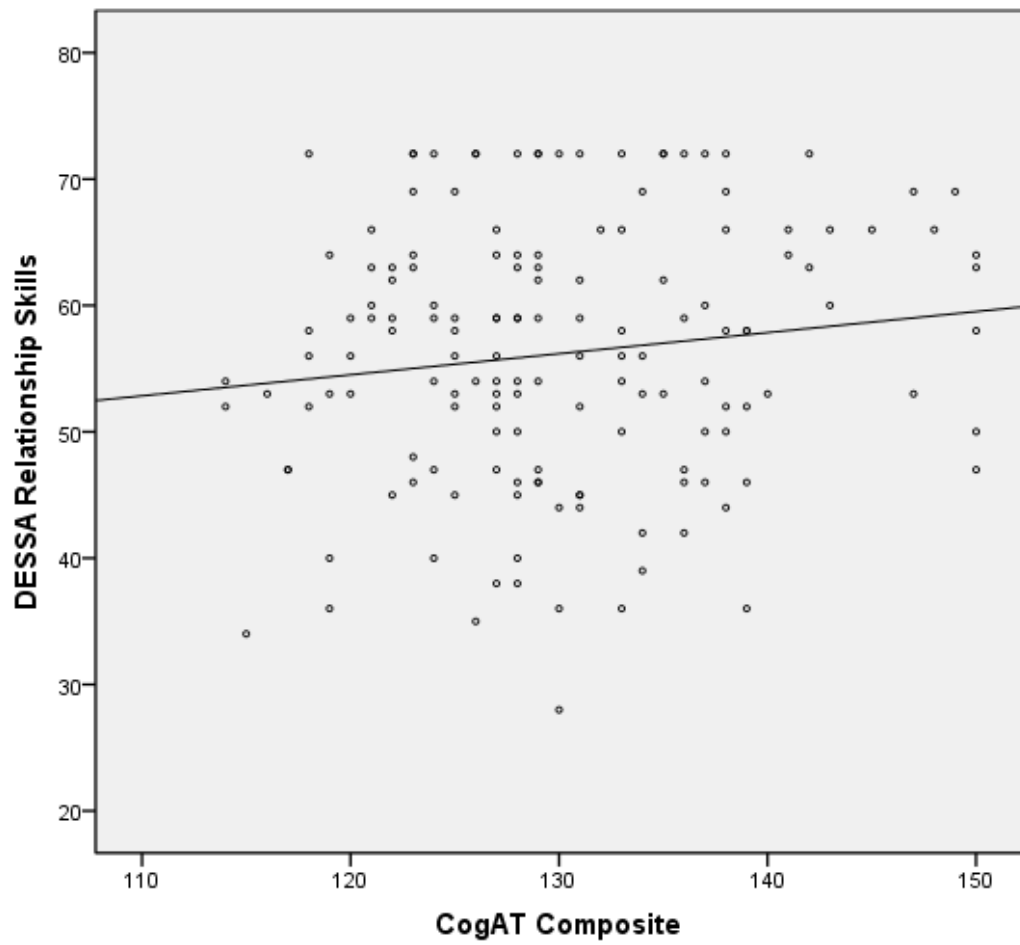


Figure 2. The variation of DESSA Relationship Skills scores according to CogAT composite scores.

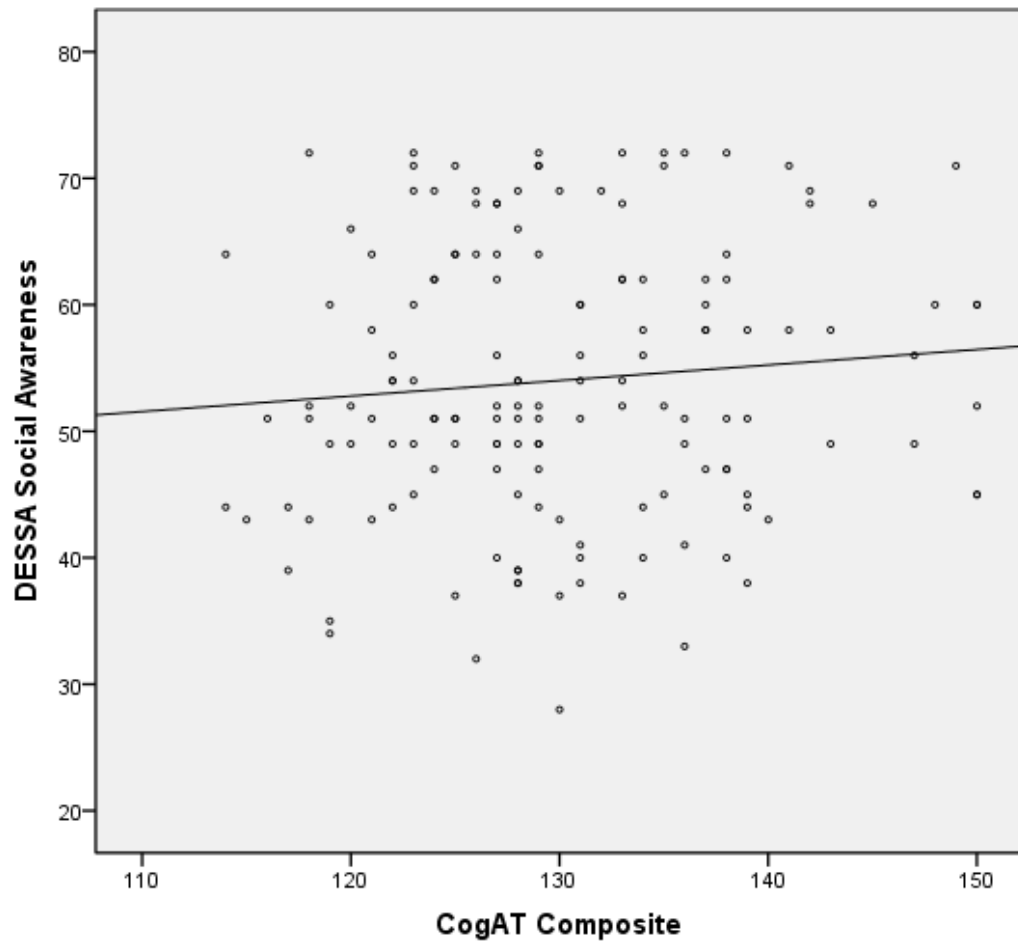


Figure 3. The variation of DESSA Social-Awareness scores according to CogAT composite scores.

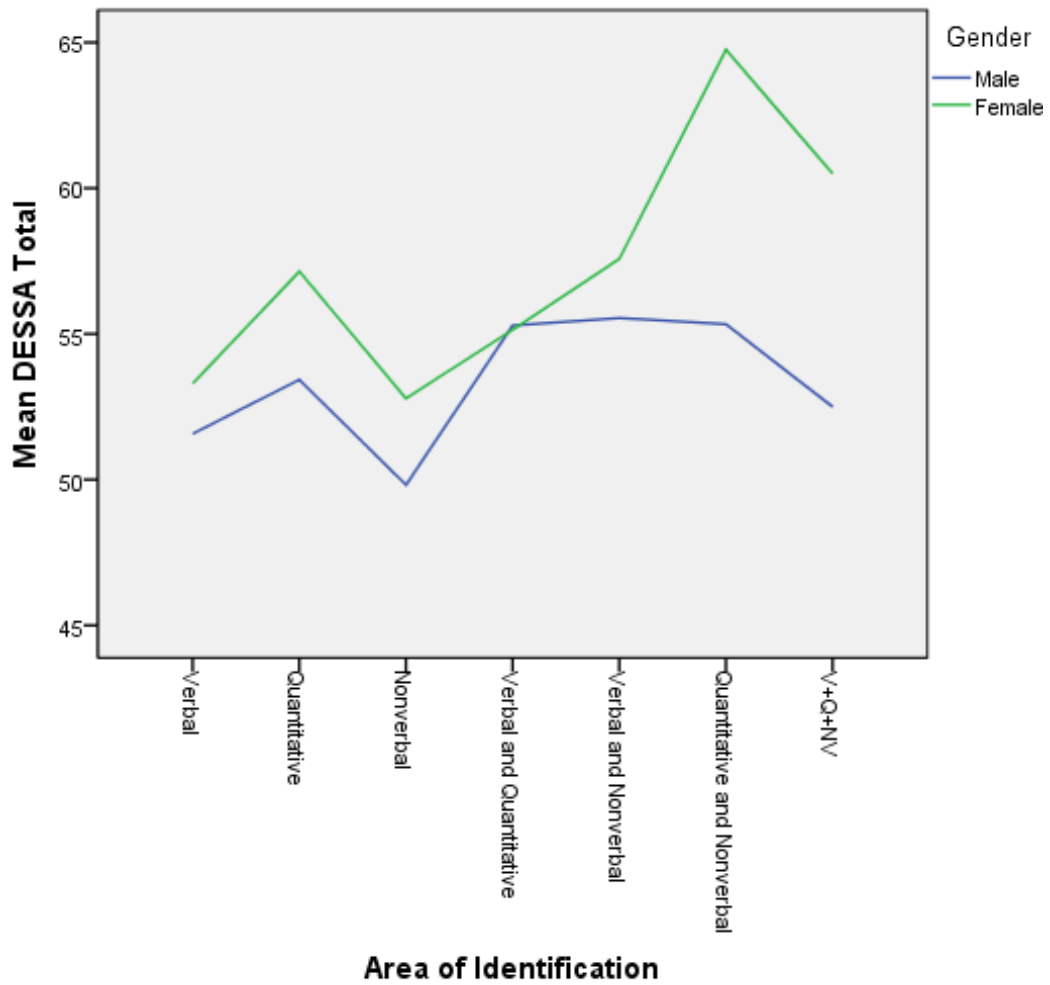


Figure 4. The variation of DESSA Total scores according to gender and area identification.

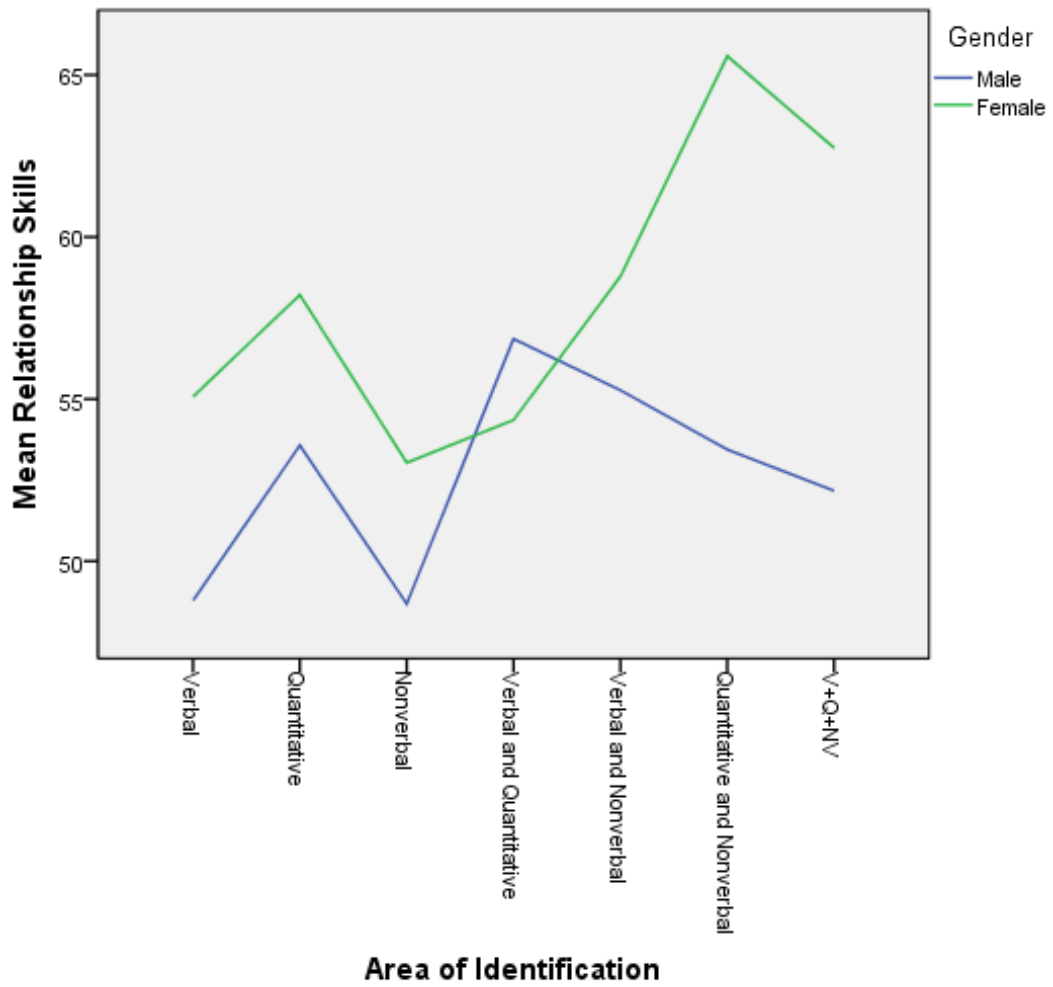


Figure 5. The variation of DESSA Relationship Skills scores according to gender and area identification.

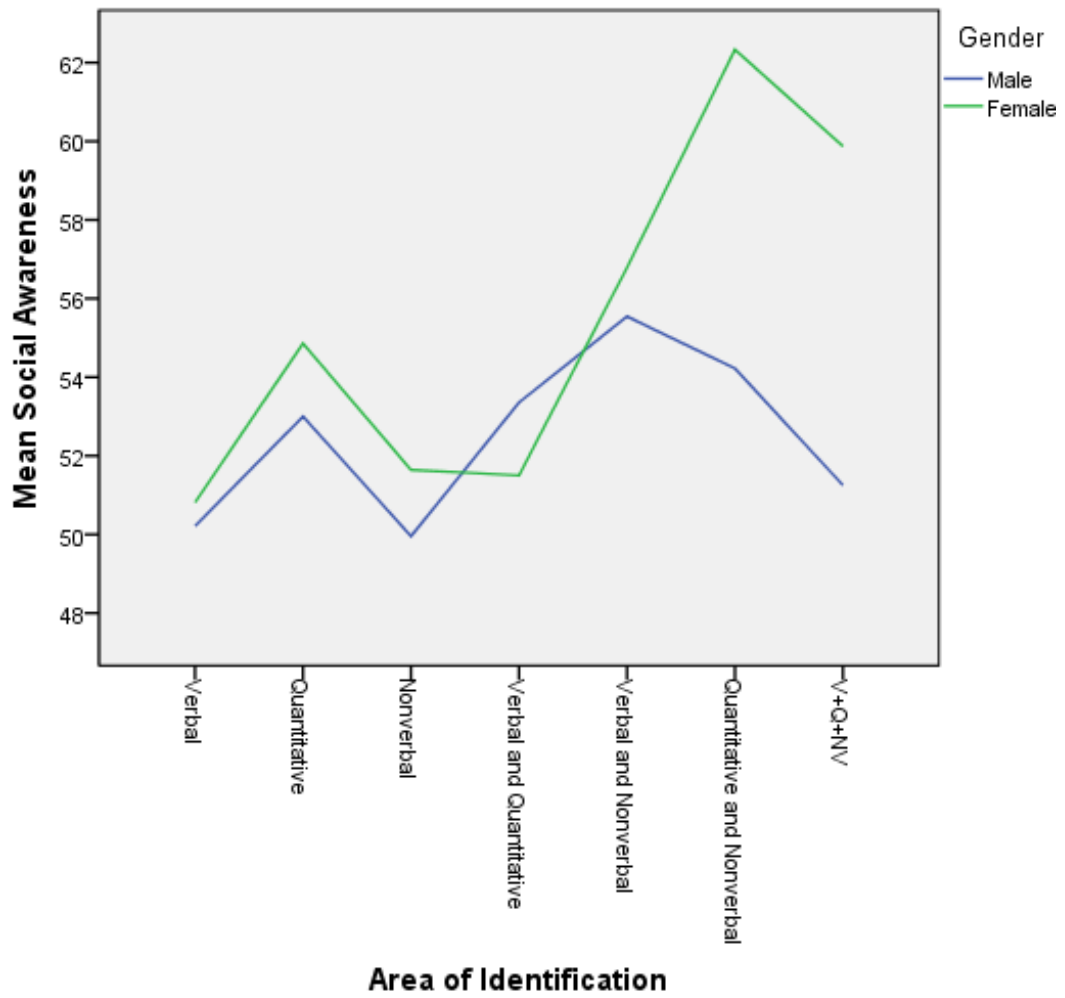


Figure 6. The variation of DESSA Social-Awareness scores according to gender and area identification.