Investigating Social Competence in Students with High Intelligence

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Dedication

Socrates viewed competent individuals as “those who manage well the circumstances they encounter daily, and who possess judgment which is accurate in meeting occasions as they arise and rarely miss the expedient course of action.” Completing this project was in many ways a work of miracles, editing expectations to fit into daily life circumstances, prioritizing what was necessary to tend to over what I wanted to be doing. But never losing sight of the ultimate goal of completion and bringing to fruition the attention needed to this group of learners. Thus, I dedicate this work to my three children, Emily Brigida, Samuel Wellington and Charles Augustine. The greatest joy I have ever known is being their mom and I want them to remember to reach for their goals, no matter how lofty they may seem, no matter how unattainable it may look at times. Dig deep within yourselves and become the persons you were created to be.

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We are never the product of our difficulties, only those we overcome.

Abstract

Social competence is vital for healthy development (Canto-Sperber & Dupuy, 2001; Spence, Barrett & Tuner, 2003). Beginning in childhood and heavily influenced by culture, social competence develops as we combine personal and environmental resources for positive social outcomes and includes the absence of negative behaviors alongside the presence of positive behaviors (Bierman & Welsh, 2008; Davidson, 2001). Social competence is particularly demonstrated through our verbal and nonverbal communication skills with others: categorized as pragmatic language. Often introduced in kindergarten, these skills include how to greet others, take turns, make requests, interpret cues and respond appropriately to others.

Intellectual functioning has a role in social competence. While individuals may have the capacity to use long complex sentences with correct grammar, if they have not mastered the rules for social language their ability to communicate may be impaired. Most studies of the psychological characteristics of students with high intelligence have not demonstrated clinical symptoms beyond those of the general population, yet the absence of significant differences in clinical symptoms are often equated to having social competence (Lehman & Erdwins, 1985; Neihart, Reis, Robinson, & Moon, 2002; Rimm, 1995; Robinson, Lanzi, Weinberg, Ramey, & Ramey, 2002; Rose-Krasner, 2006). While the connection between communication skills and social competence is known for the general population and for students with diagnosed social difficulties, little is known about either the social competence of students with high intelligence, or the role

pragmatic language skills have in their observed social competence (Merrell, Merz, Johnson, & Ring, 1992).

This study replicates earlier research by affirming a negative relationship between high intelligence and psychopathology and poor social competence, yet goes beyond mere quantification of these characteristics to investigate the presence of underlying social language skills and association between pragmatic language and social competence. Multisource indices of social competence, clinical pathology and pragmatic language were gathered on a sample of 79 children, aged 7–10 years with intelligence quotient scores above 130 (FSIQ $\geq$ 130). Parents report lower incidence of clinically defined internalizing, externalizing and total problems for these students when compared to the general population. While students' scores on the measure of pragmatic language did not predict their scores on the measure of social competence, they did demonstrate less frequency of clinical scores on pragmatic language than the general population and teachers report them as being more adjusted to school. This study contributes significantly to the literature by providing objective evidence of psychopathology, social competence and pragmatic language for a quantifiable sample of students with high intelligence. Methodological considerations are discussed, as are implications for further research.

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CHAPTER 1

Introduction

We have all met them—people whose combined high intellect and social awkwardness prohibits them from initiating or maintaining conversations, promoting workplace ideas, having meaningful relationships, or even getting a date. Are those people typical or atypical, for there are people with high intellect who seem to navigate socially without such outcomes? Is social competence adversely affected by high intellect? Furthermore, to the extent that social competence relies on language skills, do highly intelligent students possess core language skills underlying social competence? Unfortunately, little is known about either the social competence of students with high intelligence, or the role of pragmatic language in their observed social competence.

Social competence matters. Successful adaptation in society requires, in addition to intellectual development, specific social and cognitive behaviors (Pellegrini, 1998; Riyanto, 2002). The ability to cooperate with others comprises a crucial aspect of human capital in today's society (Canto-Sperber & Dupuy, 2001). This proficiency, often termed *social competence*, begins in childhood and refers to one's ability to effectively organize personal and environmental resources to make and maintain positive social outcomes (Bierman & Welsh, 2008; Davidson, 2001). As a construct, social competence contains an array of interactive components dependent on situational and cultural factors (Bierman & Welsh, 2008; Whelley, Cash, & Bryson, 2003) A broad range of problems can result from impairments in underlying social skills (Bagwell, Molina, Pelham, & Hoza, 2001; Hill & Furniss, 2006; Hilton, Graver, & LaVesser, 2007; Matson & Boisjoli, 2007).

Evaluating social competence merely through absence of negative behaviors is insufficient, as social competence includes the presence of positive behaviors concomitant to the absence of negative behaviors (Gresham & Reschly, 1986).

While there is a myriad of behaviors that add to the construct of social competence, language is especially crucial (Mendez, Fantuzzo, & Cicchetti, 2002; Ylvisaker, Hibbard, & Feeney, 2006). Pragmatic language in particular is foundational to social exchanges and includes the verbal and nonverbal skills used for a defined social purpose (Brinton & Fujiki, 1999). As Rinaldi (2000) notes: "pragmatic language is how we interpret the meaning of what the speaker intends." Phelps-Terasaki and Phelps-Gunn (2007) learned that students with low scores on a measure of pragmatic language are likely to have poor skills in spoken communication and an associated range of social difficulties. Thus, measuring the particular skills that contribute to positive social outcomes becomes necessary. However, much of the research to date on language and social competence has been conducted in groups with presenting disabilities (Brinton & Fujiki, 2004; 2005; Gresham & Reschly, 1987; Laws, Taylor, Bennie, & Buckley, 1996; Mendez et al., 2002; Ylvisaker et al., 2006). We know very little about pragmatic language skills of students with high intelligence, unless they have an existing developmental diagnosis.

Persons with high intellect demonstrate a variety of positive outcomes, with their intelligence often serving as a protective factor against many problems later in life (Garmezy, 1995; Seeley, 1984; White, 1985). At 2½% of the population, students with high intelligence number the same as the intellectually disabled, yet sit in classrooms

every day with unmet learning needs. Research shows this lack of appropriate education has consequences for their socioemotional development (Archambault et al., 2002). While professionals have information about the unique needs of learning-disabled children, there is no similar set of state or federal guidelines for the evaluation and educational planning for intellectually gifted children. Mandated funding for gifted education does not exist, as it does for other learning needs, and state support varies wildly, often leaving this population of learners with unaddressed academic and social needs (Beatty, 2010; Gihring, 2010; Ross, 1993). The absence of a collective and operational definition for gifted, as well as pervading myths that highly intelligent students will do fine on their own and are emotionally well adjusted, limits our ability to understand and serve this population (Colangelo, Assouline, & Gross, 2004; Colangelo & Davis, 2002; National Association for Gifted Children [NAGC], 2010; Winner, 1996a).

While most studies of highly intelligent students have not demonstrated more clinically-defined pathological behaviors than the general population, these findings are often equated as validation of social competence (Lehman & Erdwins, 1985; Neihart et al., 2002; Rimm, 1995; Robinson et al., 2002; Rose-Krasner, 2006; Sayler & Brookshire, 1993). Missing from this is a foundational understanding of social competence that includes, along with an absence of pathology, the presence of constructive behaviors foundational to the construct—such as pragmatic language skills. While individuals may have advanced verbal skills and the capacity to use long, complex sentences with correct grammar—if they have not mastered the rules for social language—their capacity to communicate can be impaired. Understanding if persons with high intellect possess

pragmatic language skills that contributes to their level of social competence is invaluable for understanding their social competence.

Investigation of social competence and communication in students with high intellect is limited to investigation of language skills of children diagnosed with Asperger's or specific language impairments (Brinton & Fujiki, 2011; Sigman & Ruskin, 1999). Findings suggest the lack of affect sharing and taking another's perspective is especially deficient in this population (Baron-Cohen, 1998; Klin, Jones, Schultz, Volkmar & Cohen, D. 2002). No research has investigated pragmatic language in intellectually gifted students or the extent to which social language skills contribute to their social competence.

This study investigated social competence of students with high intelligence. It postulates that the presence of specific communication skills may play a more significant role in understanding their social competence than merely through the lenses of clinically defined psychological behaviors. Discussion begins by operationally defining high intelligence and social competence and then investigating the influence specific language skills have in promoting competence. This leads to the current study addressing three research questions:

1. Given a sample of intellectually gifted students, what is the incidence of psychopathology, social competence and pragmatic language?
2. Does this differ from what we would expect in the general population?

3. What is the nature of the relationship between scores on a measure of pragmatic language and scores on a measure of social competence for this sample?

The hypothesis that a target sample of students with high intelligence will demonstrate (a) nonclinical scores on a measure of psychopathology, (b) nonclinical scores on a measure of social competence, and (c) clinical scores on a measure of pragmatic language is tested. Scores on the measure of pragmatic language are compared to those on social competence to determine if a relationship exists. Conclusions are presented as well as discussion about future directions for this area of research.

CHAPTER 2

Review of Relevant Literature

According to federal and state education definitions, roughly 3 million of the 55 million students in the American K–12 educational system have documented academic performance or intellectual competence in the top 10 percentile (United States Department of Commerce, 2010; Minnesota Department of Education [MDE], 2012; NAGC, 2012). While their progress through developmental stages is similar to other children (though often at a younger age), research indicates that there are needs and problems that appear more often among children with high intelligence (Webb & Kleine, 1993). And, while we know a lot about outcomes for students below the mean of intellectual functioning, there is a paucity of research on students whose intellect is above the mean. Particularly lacking is solid understanding of their social competence.

This chapter provides a review of literature germane to investigating the social competence of students with high intelligence. Historical and current myths abound as to the characteristics and qualities these students possess yet definitional constraints confound understanding. Thus, discussion begins with historical contexts, theoretical understandings, and definitions of students with high intelligence. Next, the unique socioemotional characteristics of this group of learners are presented, leading to discussion of social competence in attempts to further understanding in one area of development for learners with high intelligence.[1]

[1] For the purpose of this study, "high intelligence" is quantifiably defined as two or more standard deviations above the mean on a valid and reliable measure of intelligence. Terms such as "gifted" are used interchangeably to conform to populist terms, yet discussion remains within the realm of demonstrated intellectual difference.

Several theories and defining characteristics of social competence are presented next, with attention to specific components found in healthy social competence. The role of intelligence on developing social competence is then presented with particular attention to the role of communication skills. Last, methodological constraints and contributions to the field are offered, with particular attention to how the present study furthers understanding of social competence in students with high intelligence.

Defining High Intelligence

Historical Perspective

Recognition and specialized treatment for children with precocious ideas, or highly developed math and linguistic abilities is not new. During the Tang Dynasty child prodigies were summoned for additional educational training, with individuals performing extraordinarily selected for elite government positions (DuBois, 1970; Karnes & Nugent, 2002). It was only when Sir Francis Galton (1894) began using terms such as *gifted*, did formal classification of people by their intellect occur. Alfred Binet provided the first numerical representations and distinction of "giftedness" by developing a classification tool to assess intelligence, whereas earlier methods relied exclusively on anecdotal observations of interesting behaviors (Hollingworth, 1942; Jolly, 2005). Lewis Terman (1923) and Leta Hollingworth (1925) conducted the first noteworthy research, using large samples of classifiably "gifted" students to produce the first quantifiable data distinguishing this group of learners from typical.

Theoretical Models

While various theories aim at conceptualizing "giftedness," no single theory fully encapsulates "giftedness" or is grounded in definitive empiricism, even as large-scale research projects and interventions are designed around these theories (Morelock, 1996; Sternberg & Davidson, 2005). Numerous, often conflicting, theoretical understandings of intellectual giftedness have arisen, largely as a result of attention towards the use of IQ measurement for high intelligence (Watkins, Greenawalt, & Marcell, 2002). The first generation of psychologists studying intelligence believed it best understood as a single general capacity for problem solving and conceptualizations that could also be measured. This was largely reflected in Terman's use of IQ as sole criteria for determining potential achievers (Terman, 1975). This aligns to Charles Spearman's Two Factor theory of Intelligence (1927). Theorizing trait organization using statistical analysis of test scores, Spearman suggests all intellectual activities have a single common factor called the general factor or "g" factor. Through statistical exploration, Spearman looked at interrelations among scores obtained across various tests with positive correlations between any two mental functions attributing to a "g" factor. Proponents of a general intelligence factor, or "g," promote g's predictive validity demonstrated most notably in the area of job performance while no other theory has shown comparable validity (Rettig, 2005).

The "gifted achiever" strand identifies "giftedness" as a generalized capacity for knowledge and abstract ability arising in childhood and predictive of adult accomplishments. This was quickly challenged by Guilford (1967) and Thurston (1938),

psychologists who argued that intelligence was the result of a number of factors or components. This led to Robert J. Sternberg's Triarchic theory of Intelligence, the first theory to go against the psychometric approach to intelligence, instead relying on elements of cognitive theory. Sternberg (1985) argued that traditional intelligence tests and definitions of giftedness aligning to those, fail to recognize creative processes and practical intelligence (Gladwell, 2008). While recognizing the role of IQ, "giftedness" in this theory is viewed as occurring in multiple forms, developmentally based and identified through excellence in performance with inclusion of creativity (Sternberg, 1997). Joseph Renzulli's Three Ring Concept of Giftedness from which the Schoolwide Enrichment Model was developed, built on this premise and is a widely accepted model of service delivery for gifted students (Renzulli, 1988). Howard Gardner's work reinforced this principle and his theory of Multiple Intelligences postulates that intelligence is a broad, multifaceted construct that goes beyond "g", again emphasizing limitations of traditional understandings of IQ as measuring only one "type " of intelligence (Gardner, 1983).

Alongside these theories was the "gifted child" strand movement, perceiving "giftedness" as intellectual development surpassing what was expected for the child's chronological age and consequential to emotional vulnerabilities and social–emotional needs unique from their peers (Morelock, 1996). While stemming from Terman's work, this shift in thinking was largely an outgrowth of Leta Hollingworth's work, and focuses on specific educational needs for these students, with emphases on socioemotional characteristics (Roedell, Jackson, & Robinson, 1980; Terman & Oden, 1947). This work

acknowledges the use of IQ testing in identification of gifted students, yet focuses more on designing educational adaptations and attending to inherent psychological differences resulting from discrepancies in developmental domains.

Although giftedness may be defined in many ways, identification as "intellectually gifted" is quantified by performance at superior levels on an individual intelligence test (Winner, 2000). State education regulations for identification of gifted students often embed IQ cutoff scores as partial requirements (United States Board of Education, 2000). The Wechsler Intelligence Scale for Children–IV Edition (WISC–IV; Weschler, 2004) is the most popular instrument for the assessment of gifted children (Sparrow & Gurland, 1998). Whether the WISC–IV measures *g* or multiple abilities in addition to a general factor remains debatable (Daniel, 1997). Even without shared theoretical underpinnings, there is unanimous agreement that the WISC-IV is a "carefully constructed, technically superior instrument, with attractive materials, sensitive items (by gender and ethnicity), exceptional standardization, strong construct validity, reliable and stable IQ scores, and intelligently written manuals that facilitate test interpretation" (Weschler, 2004, p. 158). The present study attends to present definitional ambiguity by specifying investigation of students with advanced intellectual development who have been identified as two or more standard deviations above the mean on the WISC–IV. This attends to measurement constraints and definitional controversies as well, permitting investigation of correlates of intellect with developmental outcomes for other populations (those with typical or developmentally delayed intellect). This model serves to combine

theoretical strands previously discussed by presenting a uniform definition of intellect while addressing innate characteristics of the child.

Contemporary Definitions of Giftedness

Ongoing debate and lack of consensus about definition and identification coupled with poor fiscal support for needs of intellectually gifted students, often has obscured rather than illuminating understanding of students with advanced development (Feldhusen & Jarwan, 1997; Neihart et al., 2002; Osborn, 2001). Even on a basic level, the lack of unanimous agreement in the field for how to refer to this group of students poses hurdles. Terms such as *gifted, gifted–talented, highly able* and specifically *intellectually gifted,* are used interchangeably as if there is a collective agreement of what is meant with little objective means for substantiating these definitions. The Office of Educational Research and Improvement in the U.S. Department of Education provides the following definition of "gifted"

> i... children and youth with outstanding talent performance or show the potential for performing at high levels of accomplishment when compared with others of their age, experience or environment.
>
> ii...These children and youth exhibit high performance capability in intellectual, creative, and or artistic areas, possess an unusual leadership capacity or excel in specific academic fields.
>
> iii. . . . and require services or activities not ordinarily provided by schools.

iv. Furthermore, these outstanding talents are present in children and youth form all cultural groups, across all economic strata and in all areas of human endeavor. (Neihart et al., 2002, p. 26)

This definition is widely used for developing state definitions and highlights areas important to this study by acknowledging there are children who perform higher than their peers in specific academic fields and require services directly aligned to these differences. This acknowledgement supports the existence of this group of learners and suggests their needs are unique.

Quantifying High Intelligence

Conceding to the existence of intellectual giftedness does not preclude the presence of other "types" but permits an area of shared agreement—intelligence is an area where some children will excel, can be measured, and educational options offered. Intelligence or "IQ" testing is one method used by psychologists to measure intellectual performance. The most commonly used measures, with high statistical reliability and validity are: Stanford-Binet–V and Weschler Intelligent Scales for Children–IV (WISC–IV). The average IQ is 100, and an IQ score up to 1 standard deviation above 100 is considered normal, or average. Research is profuse on the consequences to later development for children with IQs 2 standard deviations below the mean, including relationship disturbances, poverty, social and behavioral difficulties (Herrnstein & Murray, 1994). And, while we can quantify the existence of students with performance two standard deviations above the mean on standardized measures, we have reached limited consensus about other areas of their development.

The Study of Mathematically Precocious Youth Model of Talent Development (SYMPY; Lubinski & Benbow, 2005) is the only model used in programming for exceptional youth that includes advanced intellect as a primary component of theoretical and programming framework. This model acknowledges the presence of a general intelligence factor *(g)* assuming that students develop at different rates and pathways and that measurement of specific aptitudes is more helpful for academic planning than generalized classifications of overall ability (Benbow & Lubinski, 2005). SYMPY also supports the use of standardized measures, in particular IQ measures, for identifying students for global enrichment programs (Brody & Stanley, 2005).

Characteristics of Students with High Intelligence

While we are able to quantify intellectual development, findings are varied on outcomes in other developmental areas and characteristics of this population. Advanced learners share school experiences and academic characteristics uniquely associated to them (Davis & Connell, 1985). Reis & Renzulli's extensive review (2004) notes the following characteristics are present more in students with advanced development than in typically developing children—extensive and detailed memory; precocious language and communication skills (prime characteristic of many gifted toddlers); exceptional reasoning ability; intense intellectual curiosity accompanied by insatiable desire to learn new material; rapid learning rate with little or no need for repetition or practice; vivid imaginations; and early moral concerns and a keen sense of justice. Other researchers note increased rates and higher levels of analytical thinking; developmentally advanced comprehension of complex material; ability to learn new material at a faster pace; grasp

and manipulate sophisticated and abstract concepts at an earlier age; reason accurately, swiftly, and logically at earlier ages; reason mathematically at an advanced, abstract level; observe connections between subjects and transfer learning across subject areas better; discover and seek answers to difficult problems; and increased motivation and persistence in learning with less need for repetition of learned material (Clark, Prior, & Kinsella, 2002; Colangelo & Davis, 2002; Davis & Rimm, 2004; Gross, 2004; Rogers, 2002; Silverman, 1997; Sternberg & Davidson, 2005; VanTassel-Baska, 1998). Lubinski (2009) showed SYMPY participants earned higher incomes and produced more products of ingenuity and creativity (i.e., patents obtained) than typically performing students.

While recognizing the need for proficiency of academic skills, the majority of students who are at and above this intellectual level receive little or no academic challenges, often resulting in socioemotional difficulties (Archambault et al., 1993; Loveless, Farkas, & Duffett, 2008; Reis & Moon, 2004; Rogers, 2002). Furthermore, when their educational needs go unmet they can experience the following characteristics: difficulties making friends, preserving positive self-concepts, controlling and regulating agitations, and sustaining optimistic outlooks (Archambault et al., 1993; Bickley 2002; Lovecky, 1994; Westberg, Archambault, Dobyns, & Salvin, 1992). Rimm (1995) conducted longitudinal studies and found students with high abilities who are not receiving adequate educational challenges show a marked decline in academic performance; poor study skills and work habits; and persistent decline in self-esteem and confidence. Roedell (1985) found preschool children placed in educational environments that are under-stimulating and insensitive to their needs showed poorer self-concepts. The

effects on personality development, of receiving education attuned to their high intelligence is important for interpreting the findings of the present study and will be attended to in the Discussion section of this paper.

Positive socioemotional characteristics. Neihart et al. (2002) concluded in an extensive review of socioemotional traits that, while no apparent pattern exists, students with high intelligence possess social characteristics distinctively different from typically functioning peers (Hollingworth, 1926; Janos & Robinson, 1985; Neihart et al., 2002; Reis & Renzulli, 2004; Terman, 1924). These characteristics may include higher rates of highly and early developed social skills, advanced perspective-taking, unyielding need for mental stimulation; seeking answers to deep philosophical questions; perfectionism; emotional and moral intensity; acute self-awareness; dislike for unclear or ambiguous or illogical areas (tradition, faith, feelings); acquisition and retention of new information quickly; excellent and advanced sense of humor; higher rates of sensitivity and empathy, perseverance; acute self-awareness; nonconformity; persistent questioning of rules/authority; and tendency to introversion (Hollingworth, 1942; Neihart et al., 2002; Roeper, 1996; Silverman, 1995; Terman, 1925; Tucker & Lu Hafenstein, 1997).

Many of these characteristics can produce positive outcomes. In fact, with their high intelligence and leadership skills alone, students with high intelligence will most likely comprise a larger percentage of leadership positions in the next generation (NAGC, 2010). Several factors appear to impact socioemotional characteristics of this group of learners, with findings cautioned because of this interaction. Neihart (2001) notes the

interaction between types of advanced development (intellectual, athletic, musical...), the educational fit, and personal characteristics influence the well-being of these students.

Negative socioemotional characteristics. Some studies show persons with high intelligence demonstrate higher negative social characteristics (Manor-Bullock, Look, & Dixon, 1995; Swiatek, 2002; Webb, 1994). Often students with advanced intellect endure mismatched learning environments, resulting in negative outcomes for them educationally, emotionally and socially (Archambault et al., 1993; Nagel, 2009; Neihart et al., 2002). Davis and Rimm (1998) note increased stubbornness; nonparticipation in class activities; uncooperativeness; cynicism; sloppiness and disorganization; poor executive functioning skills; an increased tendency to question and not accept authority; emotional frustration; absentmindedness; and low interest in detail**.** Webb (1994) notes characteristics that could be problematic specifically in social interactions including a need to organize people and things, constructing complicated rules; being perceived as bossy; rigidly organizing peer play; overly inquisitive; asking embarrassing questions; excessive self-criticism; impatient with others; dislike for basic routines; intolerance for less-able peers; enthusiasm for expressing own knowledge (often viewed by peers as showing off); hobbies or interests so defined as may not find others sharing interests; prone to depression, intolerant of others; avoidance of risk-taking—often a necessary tool in early relationship building; perfectionism; neglects people or duties during periods of intense focus. Barnett & Hustedt (2005) noted that these children may avoid social situations where peer rejection, criticism or intense emotional reactions may result from the above characteristics.

One theory suggests children with high intelligence experience dyssynchrony in overall development (Morelock, 1996; Silverman, 1995, Webb & Kleine, 1996). Silverman (2003) defines this as the disparity between the mental age (intellectual abilities) and chronological age (physical, social) suggesting the gap increases with higher intellectual capacity. Bickley (2002) distinguishes asynchronous development as a paramount factor in giftedness best encompassed through Dabrowski's Theory of Overexcitabilities (1964). Children with "overexcitabilities" (OE) present as an abundance of physical energy, heightened acuity of senses, vivid imagination; intellectual curiosity and drive. Numerous studies have found that gifted students have stronger OEs than average learners (Miller, Falk, & Huang, 2009; Nelson, 1989; Silverman, 1995). Some researchers suggest the unevenness can manifest itself in any part of their development, resulting in emotional outbursts and extreme frustration (Davis & Rimm, 1998; Savage, 1985; Webb, 1994).

Regardless of the negative characteristics, not all students with high intelligence experience social problems as a resulting consequence (Barnett & Hustedt, 2005). Some studies show that these children demonstrate positive social adjustment and that emotional differences between gifted and other children are small. Cornell, Delcourt, Bland, Goldberg, and Oram (1994) reported low incidence of psychological, psychosocial, and conduct problems, both in number and seriousness of the behavior, among elementary gifted program students. A National Educational Longitudinal Study (1993) compared gifted students with average students on areas of locus of control, self-concept, popularity and behavioral problems, and showed that gifted students

demonstrated superior adjustment (Sayler & Brookshire, 1993). Baker (1995) compared gifted high school students with those with average class rankings and showed no statistical difference in the area of depression. In Robinson et al. (2002) study, the top 3% of third-grade students were compared to average performing students and found by both teachers and parents to be superior in personal and social adjustment. Cornell, Delcourt, Bland, Goldberg, and Oram (1994) reported low incidence of psychological, psychosocial, and conduct problems, both in number and seriousness of the behavior, among elementary gifted program students. Similarly, in their literature review, Olszewski-Kubilius, Kulieke, and Krasney (1988) concluded that when differences on measures of personality adjustment appear between gifted students and non-gifted students, gifted students appeared more well-adjusted. Unfortunately, a shared characteristic of these studies is that the students studied were already receiving appropriately matched educational curriculum, an issue discussed more in the methodological constraints section of this paper.

Another common finding is the more divergent a child's intellectual functioning from their peers the more difficulties in socioemotional adjustment experienced (Roedell, 1985; Tannebaum, 1998). Hollingsworth (1942) found that children with IQs above 180 demonstrated problems adjusting emotionally and socially, whereas Terman (1925, 1959) reported that children with IQs of 140 and above were better adjusted than less intelligent children. In a study of mathematically and verbally highly gifted youth, Dauber and Benbow (1990) compared students who, before age 13, scored either 700 or greater on the SAT–Math or 630 or greater on the SAT–Verbal with students whose combined SAT

scores were at or below 540, but who were in the top 3% of the national norms on at least one subtest of a standardized achievement test. The highly gifted group of students viewed themselves as less socially adept, more inhibited, less popular, and less socially active. Dauber and Benbow (1990) concluded that these highly gifted youth, especially the verbally gifted, may be at a greater risk for developing problems in emotional and social adjustment than their less gifted counterparts.

Analysis of Research on Socioemotional Characteristics

Analysis of these studies suggests common findings, yet researchers caution conclusions. There is shared agreement that students with high intellect experience unique academic and socioemotional characteristics that combined with their being identified as gifted, and (often) unmet academic needs, may impact social outcomes. Yet, Robinson et al. (2002) caution against the interpretation of negative findings, suggesting that differences are the result of the dyssynchrony between the developing intellect and emotional maturity. What appears as qualitatively different may be common to other young people of chronological ages equivalent to the mental ages of the individuals being described. Norman, Ramsay, Roberts, and Martray (2000) suggest mixed findings may result from failing to distinguish between levels of intelligence, a simple yet frequent oversight often skewing research results. Reis & Renzulli (2004) suggest the difference may be attributable to the mismatched academic environments that are nonresponsive to the pace and needs of gifted students.

Differences in outcomes, resulting in negative social behaviors, are more likely attributable to specific factors than evidenced by the group as a whole (Bickley, 2002;

Dauber & Benbow, 1990; Robinson et al., 2002, Silverblank, 1973; Silverman, 1997; Tuttle, Becker, & Sousa, 1988). These factors include the degree of advancement, gender, age and unmet learning needs, talent domains, personality, familial factors, and students' attitudes to being labeled exceptional (Archambault et al., 1993; Bickley, 2002; Freeman, 1979; Neihart, 2001; Shore, Cornell, Robinson, & Ward, 1991). Yet, whereas students with high intellect may show advanced cognitive skills, these may not translate to actual social behavior (Janos & Robinson, 1985). The combination of these students' exceptionalities and socioemotional characteristics may directly influence students' opportunities for social interactions (Farmer, 1996), placing them at risk for poor social competence. Current studies have yet to make this clear, nor have they successfully identified skills contributing to social competence in students with high intelligence.

Social Development Linked to Healthy Outcomes

Researchers, educators and psychologists have attempted to understand conditions that facilitate or impede children's development into healthy, productive adults (Gross, 2005; Matthews, 2008; Rogers, 2002; VanTassel-Baska, 2005). Social competence is one area vital for overall development and refers to one's ability to successfully master the social, emotional and intellectual skills required within specific settings, in accordance with developmental level and the norms and expectations of society to make and maintain positive social outcomes (Bierman & Welsh, 2008; Canto-Sperber & Dupuy, 2001; Chang, 2004; Davidson, 2001; Davidson, 2008; Odom, McConnell, & Brown, 2008; Semrud-Clikeman, 2007; Spence et al., 2003). Indexed by one's effectiveness in relationships, social competence is actualized through the demonstration of positive

interpersonal skills along with the absence of internal psychopathology (Bierman & Welsh, 2008; Davidson, 2001; Guralnick, 1990; Katz & McClellan, 1997; Kostelnik, Whiren, Soderman, Stein, & Gregory 2002; Whelley et al., 2003). Regardless of gender, race, or socioeconomic status, social competence is predictive of an individual's overall social development; important as a foundation for peer relations; influential to academic success and a crucial ingredient in ascertaining and maintaining positive occupational pursuits and healthy outcomes across all developmental domains (Appleyar, Egeland, & Sroufe, 2007; Chang, 2004; Renk & Phares, 2004; Warden & Mackinnon, 2003).

Theoretical Overview

The construct of social competence has fascinated yet eluded theorists for decades, and there remains much academic attention given to researching it even though it retains numerous conceptualizations (Ladd, 2005). Several studies attempt to address this by defining components, indices and correlates of social competence (Stumpf, Riley, Wu, & Hawley, 2009). Stumpf et al. (2009) describe this as the "top down approach" whereas specific behaviors or components of relations are identified as being social competence. Inversely, a "bottom up approach" focuses on the roots of the behavior determining outcomes. While there are benefits and limitations to either approach, viewing social competence through a top down approach lends to designing interventions more easily and aligns more closely with the study at hand.

Rose-Krasnor (2006) cautions that a "skills-based approach," while helpful for assessing behavior and defining interventions, fails to recognize that behaviors often serve a variety of functions for each person across different situations (Hughes, 1990;

Rose-Krasnor, 2006; Waters & Sroufe, 1983). Thus a single act may appear competent yet, without transference across settings or taking into account an individual's ability to alter behavior based on a function of the interaction, one's social competence can be questioned. Given the limited knowledge about social competence for students with high intelligence, beginning with a skills-based approach initiates discussion and promotes understanding. Thus the following theories will be discussed within this framework, chosen for their applicability to the study at hand.

Rose-Krasnor (2006) attends to definitional ambiguity and provides an example of the "top down approach" by grouping theories of social competence around a shared component central to each—effective interactions between individuals. Categorizing current understandings of social competence through an effectiveness-oriented lens coincides with literature on general competence and highlights the importance of transactions between persons, as opposed to merely individual characteristics (Waters & Sroufe, 1983). Rose-Krasnor (2006) proposes a "Social Competence Prism" as an optimal framework for encapsulating components necessary for optimal competence. The prism base is comprised of motivation and skills integral to social competence and includes social, emotional and cognitive skills. These become the foundation upon which interactions, relationships and group status are formed. The middle section is made of components found in self and others with the smallest portion of the prism the theoretical understandings. This model incorporates individual goals and motivations, proposing individuals are successful to the degree they are able to balance the goals of others and themselves. This model logically presents the specific components and interacting

variables that may exist, yet fails to discuss factors of culture and methods of moving through the pyramid.

Kostelnik, Whiren, Soderman, Stein, & Gregory (2002) provide another example of a top-down approach by conceptualizing social competence within six categories: adoption of social values, development of a sense of personal identity, acquisition of interpersonal skills, regulating personal behavior in accord with societal expectations, planning and decision-making, and development of cultural competence. Social competence within this framework epitomizes two components applicable to this study: self-regulation of behavior and acquisition of interpersonal skills. Kostelnik et al. (2002) describe self-regulation of behavior as the ability to control impulses, delay gratification, resist temptation and peer pressure, and perhaps most applicable—the ability to reflect on one's feelings and monitor one's behavior. The second component of Kostelnik et al.'s model is the acquisition of interpersonal skills; specifically understanding needs and feelings of others, solving problems, expressing emotions, accurately interpreting social situations and adjusting behavior to meet various demands of social settings (Kostelnik et al., 2002; Odom et al., 2008). Key to regulating one's behavior is the management of emotions, noted as "the extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions..." (Thompson & Plomin, 1994). Denham et al. (2003) found preschoolers' ability to self-regulate to contribute significantly to their long-term social competence. Thompson & Plomin (1994) reiterate the importance of suppressing negative behaviors, found in self-regulation, as key to social competence.

Yet, Kostelnik's theory provides little understanding of how one might acquire attributes prominent in social competence.

Crick and Dodge's (1994) Social–Information Processing model attends to limitations in Kostelnik's theory by addressing distorted information processing and includes attention to relevant social cues as key variables in developing social competence. Crick and Dodge demonstrate successful processing promotes competence, while deficient processing leads to deviance. While this model has largely been used in research of children's aggressive behavior, it furthers understanding of social competence as it views social behavior as resulting from sequentially functioning processes that interact to produce an outcome. These steps include encoding and interpreting social cues, clarification of goals, determining appropriate response and then choosing behavior (Crick & Dodge, 1994; Dodge, Pettit, McClaskey, & Brown, 1986). The reformulated model suggests a cyclical understanding, positing that children are consistently involved in the process of encoding, interpreting and accessing responses (Crick & Dodge, 1994). This theory supports the acquisition of positive behaviors along with submersion of negative behaviors as determinant factors of social competence. While age is hypothesized to impact one's ability to process social information in this model, the tertiary cognitive development needed for progression and specifically high intelligence is not studied as a contributing factor.

While these theories present key underlying components, they lack in providing direct means for demonstrating competence. Rose-Krasnor and Denham (2009) suggest successful social functioning requires social problem-solving skills, prosocial behavior,

and communication abilities. Since facial expressions provide crucial information about thoughts or messages sent, skill deficits in accurately interpreting these place individuals at a disadvantage in almost every social situation, especially when required to interpret cues from multiple persons simultaneously (Eibl-Eibesfeldt, 1973; Ekman, 1973). Baron-Cohen, Tager-Flusberg, and Cohen (2000) hypothesize it is specific failures in communication that impact reciprocity necessary in social interactions, emphasizing the crucial role communication plays in developing social competence.

Components of Social Competence

While theoretical frameworks guide our understanding, viewing specific skills and outcomes that comprise social competence permits ease of measurement and assessment. Building on Stumpf et al.'s (2009) "top down approach" and the cognitive information processing model of Rose-Krasnor (2006), the framework for social competence developed to guide this study includes investigation of the specific components of social cognition. Viewing social competence as the combination of thoughts, neural processes and behaviors brought to bear on interactions, and the specific communications that in turn influence interactions —social language, allows for a more complete understanding of this construct (Odom et al., 2008; Spivak & Shure, 1974).

Social Cognition

Social cognition is the set of thoughts, behaviors and skills brought to bear on interactions and how a child interprets another's behavior (Crick & Dodge, 1994; McCay & Keyes, 2002; Odom et al., 2008). In order to participate socially, children must be able to understand another's viewpoint, and then adjust their own behavior accordingly to

adequately address the needs of the situation (sharing, taking turns, listening, engaging, initiating; Pellegrini, 1998). Kostelnik et al. (2002) identify the following skills as particularly important: understanding others' needs and feelings, articulating one's own ideas and needs, expressing emotion, "reading" social situations accurately, and adjusting one's behavior to meet the demands of different social situations. Bauminger (2002) learned that children with High Functioning Autism displayed problems with social cognition, including difficulties with emotional recognition of self and others, and a tendency to focus on more peripheral rather than central details in social situations. Garfield, Peterson, and Perry (2001) noted the ability to understand the world from another's point of view, a shared characteristic of the previously outlined theories on social competence, is dependent on language acquisition and developing social language.

Social Language

While behaviors and thoughts are integral components of social competence, the role of communication is key in demonstrating mastery over these skills (Campos, Frankel, & Camras, 2004; Vygotsky, 1978). This involves not only direct behaviors between individuals but perceptions and motivations as well (Semrud-Clikeman, 2007; Spitzberg, 2000). First demonstrated in kindergarten, these skills include how to greet others, take turns, make requests, interpret cues and respond appropriately to others (Phelps-Terasaki & Phelps-Gunn, 2007). Children do this regularly when they read facial and behavioral cues and alter their responses accordingly.

Research has shown that deficits in specific language impairment (SLI) are related to deficits in a variety of psychosocial outcomes (Aram, Ekelman, & Nation,

1984; Baker & Cantwell, 1982; Brinton, Fujiki, & Higbee, 1998; Clegg, Hollis, Mahwood, & Rutter, 2005). McCabe and Meller (2004) found high comorbidity between specific communication skills deficits and problems in social competence. We know from studies of children with specific language impairments that the absence of essential language skills necessary for having meaningful peer interactions may hamper children's social interactions and reduce opportunities for social experiences (Brinton, Fujiki, Montague, & Hanton, 2000; Merrell et al., 1992). Language skills used in social communication are referred to as pragmatics and will be the next area of focus as we continue to understand the nature of social competence of students with high intelligence.

Defining Pragmatics

Erickson and Shulte (1997) suggest the ability of specific communication skills permits accurate monitoring of the context at hand. These skills known as "pragmatics" serve as building blocks for other areas of communication and are key components to relationship building (Hyter, 2007). Pragmatic language is defined as "using language contextually for social purposes" (Beukelman & Mirenda, 1998). Pragmatic competence involves using language for different purposes; changing language according to the needs of a listener or situation, and following rules for conversations and storytelling (including how to use verbal and nonverbal signals, how close to stand to someone when speaking, how to use facial expressions and eye contact to alter social interactions).

Studies of pragmatic language abilities are often limited to those with diagnosed difficulty in this area or with developmental diagnoses. In a study of 10 children without formal diagnoses yet demonstrating difficulties in social language, Botting and Conti-

Ramsden (2009) found these children to be impaired more than their peers in the areas of stereotyped language, rapport and context. Scores on the Harter scale of peer interactions also showed these same students as performing significantly poorer. Colle, Baron-Cohen, Wheelwright, and Van der Lely (2008) studied language skills of 12 subjects with High Functioning Autism and Asperger's syndrome. Results from these studies confirm difficulties in linguistics can be causally related to impairments socially. While we know that children with developmental diagnoses and pragmatic language problems may demonstrate lower social acceptance, we do not know if students with high intellect inversely demonstrate competent pragmatic skills and if in turn, these influence their social competence (Gresham & MacMillan, 1997; McCabe & Meller, 2004; Schneider, Smith, & Goldstein, 2000).

Role of Intelligence in Social Competence

While the theories presented share characteristic understandings of social competence, they lack attention to the plausible role gradient levels of intelligence play in one's ability to demonstrate components deemed necessary in social competence. Instead, when investigating social competence in relation to intellect, studies are limited to investigation of language skills of children with high cognitive abilities who also have a diagnosis of high-functioning autism [HFA], Autism spectrum disorders [ASD], learning disabilities, ADHD-type, PDD, and psychiatric conditions (Jewell, Jordan, Hupp, & Everett, 2009; Merrell et al., 1992; Sigman & Ruskin, 1999). Studies reveal the lack of social communication skills—in particular affect sharing and the ability to take another's perspective—are especially deficient (Baron-Cohen, 1998; Klin et al., 2002).

Children with high intelligence and unmet academic needs are a group potentially at risk for low social competence (Czeschlik & Rost, 1994; Neihart et al., 2002; Rogers, 2002). No research has focused on the social competence of students with high intelligence, even as clinical experience and theoretical literature suggests these students may exhibit social development similar to those experienced in children with Autism Spectrum Disorder (ASD; Volkmar, Carter, Grossman, & Klin, 1997). Commonly identified social–language difficulties with ASD include inability to maintain and initiate conversations, impaired expression of own emotions and decreased understanding of nonliteral language.

High intellect does not guarantee advanced development in other areas (Gross, 2004). And while intellectual giftedness is viewed as an academic advantage, it can pose challenges for the gifted child (Hollingworth, 1926; Janos & Robinson, 1985; Neihart et al., 2002; Terman, 1942). Whereas a person can be linguistically capable—demonstrating facility with expressive and receptive language and using correct semantics, syntax and phonology—this does not necessarily equate to competence in applying social rules of language (Goertz & Phemister, 1994; Phelps-Terasaki & Phelps-Gunn, 2007; Vialle & Quigley, 2011). More research is needed to determine if high verbal performance in particular equates with higher social communication abilities.

Role of Psychological Well-being in Social Competence

As noted in the above theories, the effectiveness with which a person is able to establish and sustain quality interactions with others and maintain mutually satisfying relationships determines one's level of social competence (Welsh, Parke, Widaman, &

O'Neil, 2001). Psychopathological problems emerging during early development persist into adulthood, and have direct implications on the development of social competence (Carter, Briggs-Gowan, & Davis, 2004). For students not classified as highly intelligent, those low in social competence demonstrate poor academic performance; higher rates of school dropout; higher rates of juvenile delinquency; poor adult mental health; and difficulty in making friends and establishing relationships with the opposite sex (Gresham & Elliott, 1981; Hartup, 1996; Parker & Asher, 1987; 1994; Wentzel, 1991a). Other studies have shown that poor social competence is predictive of increases in depressive and conduct problems over the course of development (Bergeron et al., 2007; Keiley et al., 2003; Kim et al., 2003; Saint-Jacques et al., 2006). In turn, reduced mental health has been linked to numerous negative developmental outcomes such as poor academic performance, behavior problems, school violence, substance abuse, special education referral, suicide, and criminal activity (Whelley et al., 2003).

Impairments in specific social skills are related to a broad range of psychosocial problems including juvenile delinquency (Roff, Sells, & Golden, 1972), ADHD (Bagwell et al., 2001; Boo & Prins, 2007), developmental disabilities (Hilton et al., 2007; Lee, David, Rusyniak, Landa, & Newschaffer, 2007; Matson & Boisjoli, 2007; Matson & Francis, 1994; Matson & Wilkins, 2009), social isolation and withdrawal (Matson & Boisjoli, 2007), aggressive and antisocial behavior (Webster-Stratton, Reid, & Hammond, 2001), mental health problems, challenging behaviors (Fox, Keller, Grede, & Bartosz, 2007; Hill & Furniss, 2006), and dropping out of school. Inversely, researchers have demonstrated how healthy social competence can serve as a protective factor against

the occurrence of depressive and conduct problem symptoms. Discussing psychological well-being concurrently with social competence acknowledges the interdependency of these two constructs.

While research on the psychological well-being of intellectually gifted learners has not demonstrated clinical symptoms beyond those of the general population, this finding is often accepted as documenting high social competence (Rimm, 1995). When social behaviors have been investigated in this population, investigators have more typically examined antisocial acts and or the mere presence of diagnosable psychological disorders and concluded an absence of these as automatic validation for the presence of social competence (Crick & Dodge, 1994; Pellegrini, Masten, Garmezy, & Ferrarese, 1987; Salmivalli, 2005).

In the few studies where prosocial behaviors are considered in students with high intelligence, it is limited to leadership, likeability factors and personal attractiveness (Pellegrini et al., 1987; Warden & MacKinnon, 2003). Missing from these investigations is a baseline understanding of the social competencies present in this population and the specific skills related to social competence.

Model for Social Competence in Highly Intelligent Students

Many of the theoretical frameworks presented for understanding social competence look at the positive demonstrable behaviors necessary for increasing likelihood of continued positive interactions. There are shared emphases on the inherent developmental progression necessary; the demonstration of social skills including communication and internal decision making; and positive peer interactions and self-

management for the purpose of initiating and maintaining positive social relationships with others (Gresham & MacMillan, 1997; Haager & Vaughn, 1995) As noted in the previously presented theoretical models of social competence as a construct, social competence contains a myriad of interactive components—dependent on situational and cultural factors—and allows us to deduce that to be deemed *socially competent* an individual must possess an absence of negative behaviors known to impede social interactions while simultaneously demonstrating positive behaviors known to aid social interactions (Bierman & Welsh, 2008; Davidson, 2001;Whelley et al., 2003). It is the combined attributes of absence of clinical pathology along with presence of specific communicative skills that determine presence of social competence. Utilizing previously presented theoretical frameworks and objective understandings of the behaviors comprising social competence; the model defining social competence developed for use in this study aligns to the work of Kostelnik et al. (2002). This model reinforces the acquisition of interpersonal skills and the need for regulating personal behavior in accordance with societal and cultural expectations.

Methodological Constraints

Conceptual and methodological problems make studying social skills of children with advanced intellect particularly difficult (McCallister, Nash, & Meckstroth, 1996). Reis and Renzulli's (2004) extensive review of the research on social emotional functioning of intellectually advanced students highlights difficulties interpreting findings from these studies. The most common are lack of unifying definition of "gifted," small homogenous samples, an overrepresentation of single case design, lack of standardized

measures to quantify behaviors, and poor comparison groups (Barnett & Hustedt, 2005; Bickley 2002). Findings are often weak, nongeneralizable, difficult to replicate and subject to numerous design flaws such as lack of quantifiable measures, poor identifying variables, sampling errors, definitional constraints, instrumental limitations and often producing obvious results (e.g., teachers of students with severe behavioral disorders observe more negative social skills) with outdated findings (Sayler & Brookshire, 2004). Additionally, there is paucity of longitudinal or cross sectional studies; lack of control groups; absence of comparisons to a peer group or, more importantly, equally gifted students who were not participants (Janos & Robinson, 1985; Richardson & Benbow, 1990). In addition, correlational methods used often include chronological age comparisons (same age peers)—comparing advanced intellect students with average-achieving students, or a mental age comparison (groups of gifted students out of developmental age; Moon, 2004). Robinson, Zigler, and Gallagher (2000) recommend the mental age group comparisons as a better fit for researching socio-emotional characteristics of gifted students. Mental age is the level of mental ability of an individual, usually a child, expressed as the chronological age of the average individual at this level of ability, as determined by an intelligence test. Children with advanced intellectual development often develop at rates different than their same aged peers. Comparison groups using chronologically-aged peers cannot be assumed similar and findings can be misconstrued because of these differences. All of these factors can have implications for interpreting results.

Summary of Research

Successful social functioning requires prosocial behavior, communication abilities as well as self-regulation skills (Rose-Krasnor & Denham, 2009). In the present study two aspects of social functioning of students ages 8–11, with high intelligence, were assessed through parental and teacher ratings. Social competence was operationalized as the presence of positive behaviors as well as the absence of clinically defined psychological disorders. Further assessment was conducted of specific language abilities deemed critical to mastery of social skills, pragmatic language. The following conclusions can be made on the basis of previous literature. First, studies confirm the importance of healthy social development in predicting later outcomes. Second, research identifies an association between language development and social functioning, in particular for children with diagnosed developmental disabilities (Brinton et al., 2000; Hart et al., 2004). Yet, no research has looked at this same correlation for students with advanced intellect, even as other research shows that students with intellectually advanced development may exhibit social difficulties. Third, theories and empirical findings suggest that difficulties in specific social language skills may place children at risk for healthy social development (Snowling, Muter, & Carroll, 2007; Vygotsky, 1978). While no research has been done on the language skills of children with advanced intellect, previous research about their socioemotional functioning and unmet academic needs suggests they may be at risk for developing poor social competence.

Contributions to Field

Few studies have looked at the relationship between social competence and intellectual functioning and no studies have looked at the presence of socially competent behaviors in students with high intelligence (Czeschlik & Rost, 1994). Furthermore, most of the previous research has been conducted on students with diagnosed clinical conditions where language impairments can be confounded with existing developmental disabilities (Bishop, 2002c). Thus, no link between language and social competence among children with high intelligence has been found, even though intervening in communication skills is more responsive than attempting larger scale interventions of social competence. The present study examines gaps in the literature and investigates the presence of pragmatic language skills and social competence in a group of highly intelligent students without identified psychiatric symptoms. The hypothesis is that students with high intelligence will exhibit nonclinical scores on measures of psychopathology and social competence, while scores on a measure of pragmatic language will show highly intelligent students performing lower than the general population.

CHAPTER 3

Methods

Design

This study used a descriptive design to quantify the presence of clinical psychopathology, social competence and pragmatic language skills; and to determine the relationship of pragmatic language skills to social competence in a population of intellectually gifted learners. Standardized and nationally normed survey instruments were used to assess social competence and psychopathology. An individually administered, standardized and nationally normed language assessment tool was used to assess pragmatic language.

Sample

Subjects included 79 students—30 females and 49 males, between the ages of 7 and 10 and Grades 1–5. The mean age of study participants was 8.33 and the mean IQ was 135 with a minimum of 130 and maximum of 148. Demographic information regarding race and economic status was not obtained. All students demonstrated proficiency with the English language, with no students being identified as using English as their second language. No students reported diagnosable medical, learning or behavioral conditions. While all subjects reported receiving specialized service for highly intelligent students, the level of programming was not collected and thus cannot be reported. Frequency data are reported below.

Table 1

Frequency Data on Study Participants

Demographics	Frequency	%
Gender		
Female	30	38.0
Male	49	62.0
Total	79	100.0
Age		
7	17	21.5
8	26	32.9
9	29	36.7
10	7	8.9
IQ Score		
130–134	48	60.8
135–139	17	21.5
140–144	9	11.4
145–150	5	6.3

These subjects were selected from a large, affluent suburban school district near Minneapolis, Minnesota. While specific demographic data on socioeconomic status and race was not collected during the application process, this district was in the 19th largest city in Minnesota with 51,451 residents, a median household income of $105,000 (2008),

and median home sales priced at $330,000 (2008). Seven percent of the district's students received free or reduced lunch, 10% were enrolled in special education and 2% had limited English proficiency.

The District defined students as *high potential* based on outcomes from identification procedures demonstrating they had outstanding talent relative to others of their age, experience or environment and required special services to meet these needs. This information was used to determine which level of service (Levels 1–4) would best meet the students' needs. Level 1 service provided pull-out services once a week for intellectually gifted students with a Gifted Education specialist (not their mainstream teacher) within a small group setting outside their classroom. Level 2 services offered enrichment in addition to mainstream curriculum where students participated in independent investigations of a topic of interest, developed a project and shared their findings under the supervision of High Potential staff. Level 3 exposed identified students to critical and creative thinking skills through materials provided by the High Potential Staff but presented by the mainstream teacher in their mainstream classroom. Level 4 provided a full-day immersion program (classroom within a school) where identified students engaged in specialized instruction provided by highly trained teachers in gifted education, matched to students' high-intellect needs alongside similarly identified students. Identification for Level 4 service occurred through a multidimensional screening process and included: teacher observation, parent input, student input, classroom performance, and current intellectual functioning as determined by the administration of the Weschler Intelligence Scale for Children–IV.

Selection Criteria

One hundred twenty students completed the application process for Level 4 services (described above). Subjects were recruited for this study based on their scores on the Weschler Intelligence Scale for Children–IV (WISC–IV) administered in partial fulfillment for application to specialized classroom for highly intelligent students (the Level 4 services referenced above). Subjects were selected for participation in the study if they scored 2 standard deviations above the mean. Once meeting these criteria, the study was presented to the student and their parent. Upon expressed interest, consent forms were signed by both the child and parent (see Appendices A and B). Once received, parent measures were mailed and teachers were contacted to discuss the study (see Appendices C & D). Teachers received rating forms and facilitated scheduling the language assessment (see Appendices E & F). All efforts were made to obtain an equal percentage of male and female students with representation from various programming categories. No student was excluded based on primary language, or socioeconomic status. All requirements of the University of Minnesota's Human Subjects Internal Review Board and the District superintendent were met to ensure proper protocol for researching human subjects (see Appendix G: IRB #0903P61622).

Excluded Subjects

While 63% (N = 79) of students comprised the final sample, 125 students were initially tested and 37% (n = 46) were excluded from participation in this study. The mean IQ of the excluded group (n = 46) was 131 with a minimum of 119 and maximum

of 151. Of those, 28 were male and 18 were female. Sixteen were 8 years old, 23 were 9 years old, and 7 were 10 years old.

Several factors contributed to of the exclusion of subjects. Thirty-seven percent (n = 46) were not included in the final sample because either they did not meet study parameters (WISC–IV score too low; n = 33) or parents declined participation. For 10% of these (n = 13) parents revealed that they believed the student had a diagnosable mental health condition and they believed "additional testing would be too hard on them." Some parents reported their students were "distressed" about not meeting eligibility into the specialized District programming for high potential students (Level 4 programming referenced above) and parents did not want to "remind them of that by participating in this study." Two other families were marked as "uninterested" in the study because their parents felt they were "struggling socially in their current learning environment and didn't want them disrupted more." Data on these students was crucial to the guiding hypothesis and exclusion of these students' scores has potentially impacted findings and will be discussed more in later sections.

Teachers

Teacher information was initially obtained from the eight "High Potential" teachers in the school district. These teachers, all with extensive training in gifted education, spend at least 1 hour per week providing instruction matched to student ability. Two of these teachers provide instruction for the entire day as a part of the newly designed classroom program. The District High Potential Coordinator made presentation of the study to the "High Potential" teachers. Participation was encouraged and supported

by District Administration. Later, mainstream teachers became the primary source of information as parents preferred presenting the study directly to their child's teacher. Follow-up phone calls and emails were sent to participating teachers and parents, to clarify the study, answer questions and encourage form return. Three teachers chose not to participate in the study.

Measures

Assessments included an individually administered measure of intellectual ability for determination of initial study participation—1 questionnaire completed by parent, 2 completed by either the mainstream or "high potential" teacher, and 1 individually administered language assessment completed by the child and administered by the principal investigator.

Selection Criteria

Intellectual Assessment

Intellectual ability was quantified through the Wechsler Intelligence Scale for Children—Fourth Edition (WISC–IV; Weschler, 2004) and used as the preliminary parameter for study inclusion. The WISC–IV is an individually administered, comprehensive clinical instrument for assessing intelligence of children ages 6 years 0 months through 16 years, 11 months. Administration time for the WISC–IV averages 1½ to 2 hours. The WISC–IV is divided into 15 subtests, with 10 subtests forming the core of the measure and 5 supplemental subtests used to accommodate children in rare cases or to be used in substitution of poor performing scores, preferably determined a priori. Testers are allowed no more than 2 substitutions throughout the entire test or no more than 1 per

index. A total of 5 composite scores are obtained that represent intellectual functioning in specific cognitive areas (i.e., Verbal Comprehension Index–VCI, Perceptual Reasoning Index–PRI, Working Memory Index–WMI and Processing Speed Index–PSI). These combine to provide a composite score that converts to a scaled score to represent a child's general intellectual ability—FSIQ. Obtained scores are converted to standard scores with standard scores on all 10 core subtests contributing equally to the FSIQ.

The WISC–IV standardization sample consisted of 2,200 children between the ages of 6 years and 16 years, 11 months. The sample represented racial demographics in proportion to the general population and included children identified as gifted, children with mild or moderate mental retardation, children with learning disorders, children with expressive and mixed receptive expressive language disorders, children with Autism, Asperger's and Attention Deficit/Hyperactive Disorders, children with open or closed head injury and children with motor impairment. Many validation studies have been conducted on the WISC–IV and have found it validated with measures of achievement, memory, adaptive behavior, emotional intelligence and giftedness. Evidence of convergent and discriminant validity of the WISC–IV is provided by correlational studies with the WISC–III, WPPSI–III, WAIS–III, WASI, WIAT–II, CMS, GRS, BARonEQ and the ABAS–II. Construct validity was evidenced through exploratory and confirmatory factor-analytic studies of mean comparisons using matched samples of clinical and nonclinical children (Weschler, 2004).

Utilizing the cut-off Full Scale Intelligence Quotient (FSIQ) score of 130 or above is consistent with parameters set by the WISC–IV technical and interpretive manual

wherein intellectually gifted is defined as a FSIQ score 2 standard deviations (or more) above the mean (Weschler, 2004). The reporting of scores for intellectually gifted students supports the validity of this measure of intelligence (Winner, 2000). This score was used as selection criterion and not included in analysis.

Outcome Variables

Measure of Psychopathology—Child Behavior Checklist (CBCL)

To test the literature findings regarding clinical pathology for this population, psychopathology was assessed through the Achenbach Child Behavior Checklist (CBCL). The CBCL is designed to identify syndromes of problems that occur together. It provides an empirical foundation for identifying problems that tend to occur together (syndromes) from which to construct a taxonomy of childhood disorders (Achenbach, 1993). The CBCL was normed on 1,200 (N = 1200) children ages 4 to 11, chosen to be representative of the 48 contiguous states with respect to socioeconomic status, ethnicity, region and urban–suburban–rural residence. The sample was selected from a pool of children who had not received mental health services or special remedial educational services within the past 12 months. This was intentionally constructed to obtain a normative sample of children considered to be "healthy" in the sense that they had not received professional help for behavioral and emotional problems (Achenbach, 1993, p. 20).

The CBCL/6–18 provides raw scores, *t*-scores, and percentiles for 3 competence scales (Activities, Social, and School), Total Competence, 8 cross-informant syndromes, and 3 composite scales—Internalizing, Externalizing, and Total Problems. The CBCL

demonstrates strong reliability and validity coefficients. This measure converts raw scores into standard scores and is based on distributions from the national normative sample of cases (N = 1200). The mean for the standard score distribution of subscale scores is 50 with a standard deviation of 10.

The first portion of the CBCL is unique to the respondent (Parent Form, Teacher Form, and Youth Self-Report) and is outlined below separately for teacher and parents. This portion was not included in analysis for either the Parent or Teacher respondents due to lack of incomplete data (less than 5%) and as reported in the manual, raw scores on the competence scales were negatively skewed in the normative sample, with a large proportion of children receiving inflated competence scores (Achenbach, 1993, p. 26).

Since one purpose of this study, and the rationale for including this measure, was to identify the presence of clinically defined psychopathology, only the total scale scores for Total Problems, Externalizing Problems and Internalizing Problems Scales were used in the analyses (obtained from the second portion of the form). These scores can be converted to *t*-scores, with *t*-scores 60 and above considered "clinical." This is in line with the CBCL test manual that utilized a relative operating characteristic analysis to compare the distribution of total problem scores in demographically matched referred and nonreferred children. A range of scores was identified where the difference between the cumulative percentage of referred children who obtained all scores up to a particular score and the cumulative percentage of nonreferred children who obtained all scores up to that same score. The score which the nonreferred children exceeded the referred children by the greatest percent represented the most efficient cut point. Scores in the

82nd to 90th percentile were found to provide the most efficient discrimination. *T*-scores of 60–63, which span these percentiles, were chosen to demarcate the clinical range (Achenbach, 1991). For purposes of analysis in this study, scores below 60 were recoded with 0 and assigned "nonclinical" status and scores above this mark were recoded *1* and assigned "clinical" status.

Respondents were asked to take 20 minutes to review a list of 113 items that describe children and youth in general and think of their child now or within the past 6 months. Using a Likert response, they were to circle a *2* if the behavior is very true or often true for their child, a *1* if the behavior is somewhat or sometimes true and a *0* if the behavior is not true for their children. Respondents were asked to answer each question, even if it did not apply to the child (i.e., item #99—"smokes, chews or sniffs tobacco"). Sample questions include: acts too young for age, fidgets, confused, overtired, rather be alone than with others, talks too much, messy work… Each of the 113 items groups in a specific pattern and weighs onto the nine subscales, which in turn load onto the overall composite scales—Internalizing, Externalizing and Total Problem Scales. The Internalizing Subscale includes scores obtained from Anxiety, Withdrawn and Somatic Complaint subscales. The Externalizing Behavior subscale includes scores from Social Problems, Thought Problems, Attention Problems, Rule Breaking, and Aggression scales. The Total Problems Scale includes scores from all of the subscales, or a composite of scores from the Internalizing and Externalizing subscales. Cross-informant ratings are available from the CBCL/6–18, Teacher Report Form (TRF) and Parent Report Form (PRF) on the Aggressive Behavior; Anxious/Depressed; Attention Problems; Rule-

Breaking Behavior; Social Problems; Somatic Complaints; Thought Problems; and Withdrawn/Depressed scales. A high score notes (more) incidence of psychological difficulty and *t*-scores at 60 or above on these subscales are considered "clinical." Frequency data of "clinical" and "nonclinical status" is reported in Table 3.

Parent Reporting

The CBCL requires approximately 20 minutes per pupil for administration. Parents were provided instruction on how to complete the form and were asked to think of their child now or within the past 6 months. Parents were asked to complete the form from their view of the child's behavior "even if other people might not agree." Parents were to circle a *2* if the behavior is very true or often true for their child, a *1* if the behavior is somewhat or sometimes true and a *0* if the behavior is not true for their children (as defined above). Total scale scores were computed by summing the 1s and 2s for the scale's items that were scored as describing the child. A high score on this measure notes (more) incidence of psychological difficulty and *t*-scores at 60 or above on these subscales are considered "clinical." Frequency data of "clinical" and "nonclinical status" is reported in Table 3.

Teacher Reporting

Teachers completed the Teacher Form of the Child Behavior Checklist (CBC–T). The second portion of the Teacher form, replicated by parents, provided overall scale scores: Total Problems, Externalizing Problems and Internalizing Problems. In this portion teachers were asked to take 20 minutes to review a list of 113 behaviors that describe children and youth in general and think of their student now or within the past 6

months. Using a Likert response, they were to circle a *2* if the behavior is very true or often true for their student, a *1* if the behavior is somewhat or sometimes true and a *0* if the behavior is not true for their student. Teachers were asked to answer each question, even if it did not apply (i.e., item #99—"smokes, chews or sniffs tobacco"). A high score on this measure notes (more) incidence of psychological difficulty and *t*-scores at 60 or above on these subscales are considered "clinical." Frequency data of "clinical" and "nonclinical status" is reported in Table 3.

Measure of Social Competence (SSCSA)

To address the presence of social competence in this target population, teachers completed the *Walker-McConnell Scale of Social Competence and School Adjustment (SSCSA)*. The SSCSA was selected because of its strong psychometric properties, apparent utility for teachers in applied educational settings, inclusion of behaviors defined by research in social competence, and ease of use. The SSCSA is an individually administered measurement containing 43 questions that reflect adaptive social behavioral competencies within the school environment (Walker & McConnell, 1995). The Elementary version of the SSCSA provides teacher ratings of students' status on three dimensions of social–behavioral competence important to school success and personal effectiveness and is represented in the scales: Teacher Preferred Social Behavior; Peer-preferred Social Behavior and School Adjustment Scales.

The SSCSA requires approximately 5 to 10 minutes per pupil for administration. Teachers completed the scales after having had a minimum of 6 to 8 weeks of observation and were provided instruction on how to complete the ratings. The items are

rated using a 5-point Likert-scale ranging from *1* "never occurs" to *5* "frequently occurs." The scale yields standard scores on three empirically derived subscales: Teacher Preferred Social Behavior; Peer-preferred Social Behavior and School Adjustment Scales (M = 10, SD = 3) as well as a Total Score which is a composite of the three subscales (M = 100, SD = 15). The Teacher Preferred Social Behavior subscale includes 16 items measuring peer related social behaviors valued by teachers. The Peer Preferred Social Behavior-subscale includes 17 items measuring peer related social behaviors highly valued by other children. The School Adjustment Behavior subscale includes 10 items reflecting social–behavior competencies especially important in academic instructional settings. The mean for the standard score distribution of total scores is 100 with a standard deviation of 15; for subscales the standard score mean is 10 with a standard score of 3. The SSCSA demonstrates strong reliability coefficients. This measure converts raw scores into standard scores and is based on distributions from the national normative sample of cases (N = 1812; mean = 100; SD = 15).

A low score on this measure denotes lower social competence—and the further that score is from the mean, the greater a student's "clinical status." The higher the percentile rank, the "more socially skilled and well-adjusted the student is considered to be and vice versa" (Walker & McConnell, 1995, p. 20). Because raw scores can be converted to standard score equivalents, we can use this normative data to make comparisons with our sample relative to the population and we can use the parameters "typical" for identifying students at risk in special education qualifications—using scores at least 1 standard deviation from the mean as the "clinical cut-off range." The manual

suggests that students who score 1 to 1½ standard deviations below the norm sample on Total scale score or the three subscales would be "candidates for further assessments and evaluation to determine the exact nature of their specific deficits and problems" (Walker & McConnell, 1995, p. 23).

For the three subscales *t*-scores above or equal to 8, and for the Total Scale equal to or above 85, were recoded a *0* and assigned "nonclinical" status. Scores below this were recoded a *1* and given "clinical" status. Thus "nonclinical" was defined for each of the scales as follows: the Teacher-Preferred Subscale scores below 45 (scaled score = 7), the Peer-Preferred Subscale scores below 51 (scaled score = 7), and on the School Adjustment Subscale, scores below 29 (scaled score = 7) were assigned as "clinical." The Total Competence Scale on the SSCSA, *t*-scores at or below 85 were considered "clinical" and rescored a *1*.

Predictor Variable

Test of Pragmatic Language—TOPL–2. To assess this sample's pragmatic language skills, students were administered the *Test of Pragmatic Language, version 2 (TOPL–2;* Phelps-Terasaki, D. & Phelps-Gunn, T., 2007). Effective assessment of pragmatic language requires analysis of a situation requiring the use of social language. The TOPL–2 was chosen because of its apparent utility in applied educational situations, as well as how it utilizes narratives and story contexts that revolve around natural, every day communicative and social interactions. The TOPL–2 is an individually administered standardized assessment with 43-items for ages 8 to 18 or a 17-item tool for ages 6 to 7, designed to measure students' ability to effectively use social or pragmatic language. The

demographic characteristics of the normative sample are compared with those projected for the school-age population in the year 2005 by the U.S. Census Bureau.

The TOPL–2 yields one score, The Pragmatic Language Use Index, which is a standard score based on the sum of the scores from the 43 primary items. The Pragmatic Language Use Index has a mean of 100 with a standard deviation of 15. Standard scores from 90 to 110 account for 50% of the population. Scores below that range indicate a potential deficiency in the appropriate use of pragmatic language. Roids (1989) continuous norming procedure was used to develop the Pragmatic Language Usage Index. This procedure maximizes accuracy of norming procedures by using information from all age groups as opposed to just measures of central tendency or distribution shape (Phelps-Terasaki & Phelps-Gunn, 2007).

The manual suggests that students with low standard scores (below 90) will likely show poor skills in spoken language and demonstrate an array of difficulties or disorders (Phelps-Terasaki & Phelps-Gunn, 2007, p. 20). For this study, *t*-scores of 43 and below were given "clinical status" and reassigned a *1* for purposes of data analysis. Otherwise scores were assigned a *0* and assigned "nonclinical" status. The magnitude of the reported coefficients suggests that the TOPL–2 has strong levels of reliability (.82–.93) with large magnitudes of validity.

Procedure

Students completed the WISC–IV and TOPL in their school or at an office in the District administration building by the principal investigator, a licensed School Psychologist. Intellectual testing was conducted during two separate admission

processes—in May 2009 and February 2010. Assessments of social competence and psychopathology were completed by parents and teachers and returned July 2009 through April 2010. The parents completed the CBCL and the teachers completed the CBCL and SSCSA measures. In accordance with data privacy, all subjects were assigned study identification numbers and all subject data were coded to maintain privacy (names removed, identification numbers assigned and used instead).

Data Analyses

This study investigated social competence of intellectually gifted learners and hypothesized that the presence of specific communication skills may play a more significant role in understanding their social competence than merely through the lens of psychopathology and a measure of social competence. The hypothesis guiding this study, that a target sample of intellectually gifted students will demonstrate nonclinical scores on a measure of psychopathology, nonclinical scores on a measure of social competence, and clinical scores on a measure of pragmatic language, was tested. The following three research questions and analyses were designed to test this in a sample of intellectually gifted students. The analyses used will be elaborated here.

The first research question addressed by this study: Given a sample of intellectually gifted students, what is the incidence of clinically defined psychological behaviors and social competence? Scores were obtained for each measure and descriptive statistics computed. Having the means and standard deviations for the sample permitted an initial perusal of potential deviation from the sample means. Having an understanding of how deviant sample means are from population means tells us little about the

frequency of "clinically defined" scores. Thus, subjects' raw scores were converted to categorical scores with determinations of "clinical" and "nonclinical" status assigned. This was done through comparison of individual scores in this sample to the "clinical cut-off scores" contained in the corresponding manuals and assigning a *0* = "nonclinical status" for scores outside this cut-off or else *1* = "clinical status" for all other scores. Now, we can not only understand how their scores compare to a typical score in the population, but more importantly the frequency of students' scores deemed "clinical." The percentage of students in these dichotomous categories was calculated and shown in Table 3.

Knowing the frequency of students with scores of "clinical" status permitted the second research question to be addressed: Does this differ from what we would expect in the general population? To address this question, the observed frequencies in the sample were compared with expected frequencies in the population distribution. Chi-Square Goodness of Fit is a nonparametric statistical method for assessing whether the distribution of observed frequencies is statistically different from the expected frequencies of the population distribution and was used as the test statistic for this question. For each of these tests, the respective H_o: The proportion of "clinically defined" students in the sample is equal to the proportion of clinical students in the population ($_{freq}n = {}_{freq}N$) and the H_1: The proportion of the clinical students in the sample is not equal to the proportion of clinical students in the population ($_{freq}n$ does not = $_{freq}N$) was tested.

Absence of pathology is only one factor contributing to social competence and demonstrating presence of adaptive skills underlying the construct, in particular those

pertaining to communication, may be more informative. Having scores on a measure of pragmatic language allows us to investigate the nature of the relationship between communication skills and social competence. The final question looked at students' scores on a measure of pragmatic language in relation to their scores on the measure of social competence (What is the nature of the relationship between scores on a measure of pragmatic language and scores on a measure of social competence for this sample?). Using Pearson's Correlation Coefficient, a regression analysis was completed using the total scores on both measures to test the hypothesis regarding the usefulness of a measure of pragmatic language in predicting social competence. Utilizing a review of the literature, clinical experience and the hypotheses guiding this study, the expectation for this study was that the portion of this sample with low scores on pragmatic language would also have low scores on the measure of social competence.

This finding alone only looks at the nature of the relationship. Of more interest is the predictive nature of actual scores (high on SSCSA, low on TOPL–2). First the sample means were compared to population means. To do this, the scores for the sample were split into "high" and "low" scores. Scores were given the designation of "high" if they were above the median for the measure, with scores below designated as "low." This permitted further analyses to determine if low performance on the language measure predicted low performance on the measure of social competence. According to the hypothesis guiding this research, the anticipated finding is that students with low scores on social competence also have low scores on pragmatic language.

CHAPTER 4

Results

This study examined the frequency of clinically defined behaviors across three measures, and using this information analyzed the nature of the relationship between these measures. The null hypothesis that this sample will demonstrate equal percentages of clinically defined behaviors when compared to the population (${}_{freq}n = {}_{freq}N$) was tested on a sample of highly intelligent students. The alternative hypothesis states these percentages will not be equal. To address these hypotheses, descriptive statistics were first calculated for each measure with findings presented in Table 2.

Table 2

Descriptive Statistics by Measure

Measure	Mean	Standard Deviation
Measure of Intellectual Functioning (WISC–IV) for Sample (*n* = 79)		
Full Scale IQ	135.00	5.34
Measure of Psychopathology (CBC) for Sample (*n* = 71)		
Parent rating		
Total Internal Behav Scale	49.59	10.42
Total Extern Behav Scale	49.04	9.50
Total Prob Scale	48.99	10.60
Teacher rating		
Total Internal Behav Scale	51.50	8.84
Total External Behav Scale	51.37	8.65
Total Probs Scale	51.13	8.64
Measure of Social Competence (SSCSA) for Sample (*n* = 69)		
Teacher Preferred Behavior Scale	9.87	3.00
Peer Preferred Behavior Scale	9.97	3.32
School Adjustment Scale	10.72	2.20
Total Competence Scale	99.43	14.18
Measure of Pragmatic Language Usage (TOPL–2) for Sample (*n* = 68)		
Prag. Lang. Usage Index	49.34	7.52

Descriptive Analyses

Initial perusal of these data suggests that on the measure of intellectual functioning, this sample is 2 standard deviations above the mean for the population. This was the only inclusion criterion for admission into the study, and thus aligns with expectations. On all other measures sample means obtained are similar to those obtained from the population mean. Subjects' mean scores provide no information about the presence of psychopathology or social competence, thus further analysis was done.

The initial research question: given a sample of intellectually gifted students, what is the incidence of psychopathology and social competence—was calculated by obtaining frequencies of subjects with "clinical" scores. Observed proportions of children with CBCL scores in the clinical range for each measure were compared to expected proportions of children in this range from the (normative) population. To estimate population proportions, T scores were converted to percentile ranks, which were then converted to expected proportions in the general population. *T*-scores used for determining "clinical" status for the CBCL–Total Problems, Externalizing and Internalizing Problems Scales are footnoted and frequencies and percentages for both the observed (sample) and expected (population) are presented in Table 3 below.

Table 3

Clinical Status Ratings by Measure

Measure	Observed "Clinical" Sample		Expected "Clinical" Population	
	Frequency	%	Frequency	%
Measure of Psychopathology (CBC [1]) for Sample (n = 71) and Population (N = 1951)				
Parent rating				
Total InternBehav Scale	15	21%	877	45%
Total ExternBehavScale	13	18%	605	31%
Total Prob Scale	11	16%	565	29%
Teacher rating				
Total InternBehav Scale	10	14%	273	16%
Total ExternBehav Scale	11	16%	312	16%
Total Probl Scale	10	14%	312	16%
Measure of Social Competence (SSCSA [2]) for Sample (n = 69) and Population (N = 1812)				
Teacher Pref Behav Scale	14	20%	308	17%
Peer Pref BehavScale	17	25%	326	18%
School Adjust Scale	6	9%	362	20%
Total Compt Scale	12	17%	289	16%
Measure of Pragmatic Language Usage (TOPL–2 [3]; n = 68; N = 1136)				
Pragmatic Language Usage Index	7	10%	284	25%

CLINICAL T SCORES: 1. Clinical for CBCL = $\underline{T\geq}60$. 2. SSCSA–Teacher-Preferred $T<45$ (scaled score = 7), Peer-Preferred $T< 51$ (scaled score = 7), School Adjust. $T< 29$ (scaled score = 7) Total Competence Scale $\underline{T\leq} 85$. 3. TOPL–2 $\underline{T\leq} 43$

Initial perusal of the above data notes on 8 of the 11 variables the sample shows less or similar clinical frequency than would be expected in the general population. On the teacher and peer preferred behavior subscales on the measure of social competence, this sample showed a higher percentage of these behaviors than the population. However, nothing of statistical significance can be determined from these percentages alone. Thus, the second research question addressed—Does the percentage of students defined as "clinical" in the sample differ statistically from the percentages we would expect defined as "clinical" in the normative population? By using the calculated expected frequencies for each measure, we can use the expected frequency of clinical and nonclinical to obtain the Chi Square statistic and *p*-value for each measure. For each of these tests, the respective H_o: The proportion of "clinically defined" students in the sample is equal to the proportion of clinical students in the population ($_{freq}n = {}_{freq}N$) and the H_1: The proportion of the clinical students in the sample is not equal to the proportion of clinical students in the population ($_{freq}n$ does not = $_{freq}N$) was tested and results are presented in Table 4.

Table 4

Expected Value Clinical Status Ratings by Measure with X^2 Values

Measure	Observed Clinical		Expected Clinical		X^2	*p*-value
	Freq	%	Freq	%		
CBC-Parent Rating (*n* = 71; *N* = 1951)						
Total Int Behav Scale	15	21%	32	45%	16.442	.000*
Total Ext Behav Scale	13	18%	22	31%	5.345	.021*
Total Probl Scale	11	16%	21	29%	6.291	.012*
CBC-Teacher Rating (*n* = 71; *N* = 1951)						
Total Int Behav Scale	10	14%	11	14%	1.530	.696
Total Ext Behav Scale	11	16%	11	16%	.003	.959
Total Probl Scale	10	14%	11	16%	1.530	.696
Scale of Social Competence (*n* = 69; *N* = 1812)						
Teacher Pref Behav Scale	14	20%	12	17%	.529	.467
Peer Pref Behav Scale	17	25%	12	18%	2.060	.151
School Adjustmt Scale	6	9%	14	20%	5.556	.018*
Total Competence Scale	12	17%	11	16%	.099	.753
Test of Pragmatic Language (*n* = 68; *N* = 1136)						
Pragmatic Lang Use Index	7	10%	17	25%	7.843	.005*

X^2 is significant $p < .05$.

These results indicate there is a significant difference between several scores obtained in the sample and those expected in the population. In particular, for the parent reporting on the measure of psychopathology we reject the null hypothesis that the proportion of "clinically defined" students in the sample is equal to the proportion of clinical students in the population ($_{freq}n = {}_{freq}N$).

These effects were not replicated for teacher reports. Specifically, differences were not identified between observed and expected proportions of children scoring in the clinical range on teacher-completed questionnaires. Teachers did report fewer students in this sample having clinically defined scores than in the population for the School Adjustment scale on the measure of social competence. No significant differences between observed and expected proportions were found for the remaining three variables obtained on the Scale of Social Competence (Teacher Preferred Behavior, Peer Preferred Behavior and Total Competence Scales).

For the measure of pragmatic language, a significant difference was found between expected and observed rates of clinically defined students in the sample, inversely to the hypothesis, showing this sample having less clinically defined scores on the measure of pragmatic language than in the population.

As noted earlier, absence of pathology is only one factor of social competence and demonstrating presence of adaptive skills, in particular those pertaining to communication may be more informative. Having scores on a measure of pragmatic language allows us to investigate the nature of the relationship between communication skills and social competence. The final question as to whether the existence of pragmatic

language in this sample influences scores on a measure of social competence was addressed by asking: What is the nature of the relation between scores on a measure of pragmatic language and scores on a measure of social competence for this sample?

A Pearson Correlation Coefficient was calculated to test the null hypothesis that a relation exists between these two measures. Results indicate $r = .09$ which is not significant at the .05 level; indicating there is no evidence of a relation between measures of pragmatic language and social competence. This low correlation answers the overall research question, as well as addressing the hypothesis that students with poor pragmatic language would also have poor social competence.

This was addressed by separating students' scores into dichotomous categories for each measure. Student scores were included in the "high" category if their score was above the sample median or "low" if it was below. These findings are presented in Table 5.

Table 5

Frequencies of High and Low Scores on Measures of Social Competence and Pragmatic Language

	Social Competence (n = 69)	Pragmatic Language (n = 81)
"High"—above median	75% (52)	79% (64)
"Low"—below median	25% (17)	21% (17)

Twenty-five percent (25%), or 17, of the subjects in this study show low scores on the measure of social competence and 21% show low scores on the measure of pragmatic language. Of particular interest to one of the hypotheses guiding this study is whether the 17 students with below median scores in pragmatic language, would also show below median scores on the social competency measure. Using the *Crosstabulation* function, scores on these two measures were explored further with results shown in Table 6 below. Conducting this analysis addressed the hypothesis that students with low pragmatic language will also have low scores on a measure of social competence.

Table 6

*TOPL.Tscore.low * SSc.Tscore.LO Crosstabulation*

			SSCSA		
			Higher than median	Lower than median	Total
TOPL	Higher than median	Count	16	15	31
		%	51.6%	48.4%	100.0%
	Lower than median	Count	14	17	31
		%	45.2%	54.8%	100.0%
Total		Count	30	32	62
		%	48.4%	51.6%	100.0%

CHAPTER 5

Discussion

Overall Findings

This study investigated the social competence of highly intelligent students. Based on the findings from this study, the subjects demonstrated similar social competence to the population data. The model framing this study defined social competence as the absence of psychopathology with the presence and demonstration of positive social behaviors, in particular the presence of pragmatic language skills. Parent and teacher reports collected on two measures to assess these constructs and findings suggest that highly intelligent students demonstrate low clinical scores on a measure of psychopathology and low clinical scores on a measure of social competence compared to the general population.

The hypothesis tested by this study was that highly intelligent students would show low clinical pathology, adequate social competence and low pragmatic language skills. Findings indicate from the parent measure that highly intelligent students demonstrate fewer clinically defined (pathology) internalizing and externalizing behaviors than compared to the population. Additionally, significant findings from teachers on the measure of social competence report highly intelligent students are better adjusted to school than students from the general population. An individually administered measure of pragmatic language yielded significant results suggesting that highly intelligent students have better pragmatic language skills when compared to the general population. Findings from teachers reporting of psychopathology and social

competence yielded nonsignificant results suggesting that we cannot infer the relationship between scores from this sample and that of the normative population. Analyses between the nature of the relationship between social competence and pragmatic language also were nonsignificant, suggesting this sample's pragmatic language skills do not predict their scores on a measure of social competence.

Results also support findings of previous studies that academically gifted students do not demonstrate a presence of psychological behaviors or low social competence significantly more than the general population (Galluci, Middleton, & Kline, 1999; Garland & Zigler, 1999; Gentry, Gable, & Springer, 2000; Merrell, Gill, McFarland, & McFarland, 1996; Robinson et al., 2002). In fact, statistically significant results were found for the parents reporting on Internalizing, Externalizing and Total Problems scale on the measure of psychopathology indicating that these students obtain "clinical" scores less often than would be expected in the general population. Teachers reported on this same measure no significant difference between this sample and scores in the clinical range for the population. Teachers also did not report statistically significant differences between these samples scores on the measure of social competence when compared to the population (with one exception noted below). This data support the initial hypotheses that intellectually gifted students will show low pathology and high social competence and negates other research findings that highly intelligent students demonstrate more externalizing or internalizing behaviors (Manaster & Powell, 1983; Tannebaum, 1998).

According to parents in this sample, having intellectual giftedness does not make one more susceptible to concurrently having more "clinically" defined psychological

characteristics, especially those classified under “externalizing” behaviors—social problems, thought problems, attention problems, rule breaking, and aggression; “internalizing behaviors”—anxiety, withdrawn, and somatic complaints; and total problem behaviors. This finding contradicts some of the literature and dispels myths suggesting intellectually gifted students demonstrate more psychological characteristics and difficulty with social interactions (Janos & Robinson, 1985; Tannebaum, 1998).

Teachers, however, do not share this observation and report that students with high intelligence show frequencies of clinically defined psychopathology typical of that in the general population (see Table 4). We know from studies comparing teachers and parents as raters of children’s behaviors that these differences are more reflective of truly different behavior exhibited across contextual situations as opposed to informant bias, as may often be theorized (LosReyes, Henry, Tolan, &Wakschlag, 2009).

We know from the literature that social competence contains many components and the mere absence of clinical pathology is insufficient for evaluating this construct (Bierman & Welsh, 2008; Davidson, 2001; Whelley et al., 2003). Few studies have looked at relationships between social skills ratings and academic skills in typically performing students, and many have not looked at the presence of socially competent behaviors—regardless of one’s level of pathology (Czeschlik & Rost, 1994). Much of the literature focuses on "discussing" social behaviors or socioemotional needs rather than empirically quantifying and making recommendations based on these observations (Baron-Cohen, 1998; Cross, 2007). The measure of social competence completed by these subjects’ teachers was used to objectively determine the existence of positive

behaviors in the classroom setting. One out of four variables on this measure was significant, with teachers reporting fewer students having clinically defined scores for the School Adjustment Scale. These behaviors include listening to teachers' directions, answering questions when called on, displaying independent study skills, responding promptly to teacher requests, completion of assigned seatwork and related tasks. Students scoring lower on this scale exhibit a poorer sense of school adjustment and these findings suggest that this sample of highly intelligent students is able to manage these tasks adaptively, and better than the population.

Teachers did not report highly intelligent students as demonstrating a statistically different frequency of clinical status on the scales of Teacher Preferred Behavior, Peer Preferred Behavior and Total Competence Scale; however review of obtained frequencies is surprising. Out of the eleven variables included in analyses, these are the only variables that present the sample as having a higher frequency of clinically defined behaviors. Looking at the specific types of behaviors being measured on these scales, it could be defensibly argued that these are more reflective of the components of social competence defined for this study (i.e., sensitive to needs of others, initiates conversations with peers, copes with aggression appropriately, cooperates with peers, can accept not getting their way, reads social situations appropriately, is considerate of others feelings, seeks others out, compromises, plays and talks with peers for extended periods of time). And that a significant result for School Adjustment Scale is only reinforcing of what we know—these kids do well in the adult constructed environment that supports their learning, whereas the other variables operationalize how they get along with peers.

The last variable investigated was pragmatic language. This study hypothesized that the presence of pragmatic communication skills may contribute more to our understanding of social competence for intellectually gifted students, than absence or presence of behaviors measured by the other scales (CBC and SSCSA). When investigation of social competence and communication has been done with children with high cognitive abilities, these studies are limited to investigation of language skills of children with a comorbid diagnosis of autism or diagnosed learning disability (Sigman & Ruskin, 1999). Findings from these studies reveal that the lack of social communication skills—in particular affect sharing and the ability to take another's perspective—are especially deficient (Baron-Cohen, 1998; Klin et al., 2002). Understanding the specific communicative abilities supporting social competence in intellectually gifted student has not been done before this study, even though intervening in communication skills is more responsive than attempting larger scale interventions of social competence.

Based on clinical experiences, it was hypothesized that this sample would have poorer pragmatic language skills than in the general population. It was presumed that while these students have acquired the social behaviors highly regarded in our culture (e.g., academically motivated; competent with adult interactions; leaders; verbally adept) their ability to exercise the underlying communication skills that are crucial for building relationships with others and tactfully presenting their ideas may be deficient. Instead, data revealed a statistically significant difference between these students and the population, with this sample having less frequency of clinically defined pragmatic scores than the general population.

Having baseline information about the psychological characteristics of intellectually gifted students and their overall social competence and pragmatic language, permitted attention to the relation between social competence and pragmatic language skills to address the third research question: what is the nature of the relationship between scores on a measure of pragmatic language and scores on a measure of social competence for this sample? The hypothesis was that these students' scores on a measure of pragmatic language would predict their scores on the measure of social competence. Using Pearson's Correlation Coefficient, a regression analysis was completed using the total scores on both measures to test the hypothesis regarding the usefulness of a measure of pragmatic language in predicting social competence. The correlation between the measure of pragmatic language and the measure of social competence was not significant and thus this hypothesis is not supported. There is a positive relationship, although weak, and thus obtaining high scores on one measure does not mean we can expect high scores on the other measure. The nature of the relationship between these two measures is unclear without further analyses suggesting instead there may be other factors present that impacted the scores these students received. Implications of these findings are discussed below.

Limitations of the Study

Various conceptual arguments suggest why the results may not have supported the hypotheses generated and will be elaborated in the following section.

Methodological Constraints

Identification. McCallister, Nash, and Meckstroth (1996) suggest several errors in research design plaguing the study of gifted students' socioemotional outcomes. The most common are lack of unifying definition of "gifted," small sample sizes, an overrepresentation of single case design, lack of standardized measures to quantify behaviors, and poor comparison groups. This study addressed those constraints by having a relatively large sample size (N = 79) and using quantifiable means for assessing intellectual giftedness, social competence and psychological well-being. An intelligence quotient of 2 or more standard deviations above the mean served as a primary determinant for inclusion in this study. There are many theoretical and philosophical issues relating to identifying gifted children exclusively on a measure of intelligence. However, obtaining an IQ score on every participant permitted quantifiably defined parameters for "intellectually gifted" and eliminates some of the definitional controversies surrounding identification.

Rather than getting a random sample of persons with IQ of 130 and above, the additional component of applying to a specialized program (new school, new teachers, and entirely new format to education) set these students and their families apart from those who did not. Those persons who applied to this specialized program may already have certain socially competent behaviors if they are able to move easily to an entirely different school, even for only a year (as they would be in another school the next year for junior high), leaving their friends and all they are familiar with (school setting and routine, administration, busing). And, while this analysis was not done for this study,

with the high comorbidity between communication and social skills one would assume high verbal skills may predict scores on a social competence measure. Thus by nature of their high performance on a verbal measure of intelligence, they may already possess communication skills necessary for competent social interactions.

Finally, the constricted and homogenous nature of the sample as defined by the inclusion parameters (intellectually gifted, demonstrating 2 or more standard deviations from the mean) is likely different from the population. Parameters used for defining "gifted" in assessment measures were not specified in test manuals yet it can be assumed the normed population of "gifted" aligns with contemporary understandings encompassing students of various capacities and not limited to "intellectually gifted" as was this study. Without knowing if the normed groups are defined exclusively as "intellectually gifted", as is the sample, may lend to impure comparisons. This in turn impacts conclusions we make about other sample characteristics. The 29% that are "clinical" in the population may mean something different than it does in the sample population.

Sample.

Recruitment. The District constricted subject recruitment to those students who were applying to a specialized program for intellectually gifted. This eliminated potential subjects who may have met the study inclusion criteria of IQ and could have demonstrated a greater sampling of behavior, however because they were not applying for admission to the specialized programming they did not learn about the study. The mere fact that subjects were applying to a specialized school creates a bias, as there may

be other factors that separate them from the "general population" of families who choose not to apply.

Excluded subjects. The school district maintained direction on which students were permissible to include in the study. As such, even though some students obtained scores on the WISC–IV that permitted their inclusion, it was not always permissible to contact them. There were 46 subjects excluded from this study for various reasons (see Methods section). The decision largely rested with the families and the District to not include these students. Unfortunately, for thirteen of these students, loss of their data may have had serious implications for the validity of this study as they may have been the exact students worthy of studying. Several parents reported some of these students had diagnosable mental health condition and families felt "additional testing would be too hard on them." Other parents reported their students were "distressed" about not having received admission to the specialized school and parents did not want to "remind them of that by participating in this study." Lastly, other families expressed that their students were "struggling socially in their current learning environment and didn't want them disrupted more." The loss of these students in this research is perhaps the greatest flaw to this study. Inclusion of these students' data would have more accurately represented the population and led to stronger conclusions about the data. The fact that these students were admittedly already experiencing difficulties would have allowed further comparisons and may have actually increased the clinical ranges, making them align more with the population means and indeed lent to stronger correlations between independent variables.

Assuming some liberties, we can assume these students' scores on measures of psychopathology and social competence would have placed them in clinical ranges (opposite of what this study showed, especially on the social competence measure), increasing these percentages and aligning them more closely with percentages at or above that for the population. To not have these students in the final sample may have seriously skewed results.

Comparison group. The empirical literature on social and emotional issues of gifted students has often used correlational designs to look at characteristics of gifted students with another comparison group (Moon, 2004). The comparison groups can be average-achieving students (same age peers—or chronological age comparison studies = CA) or other groups of gifted students (mental age peers = MA). Not only did this not coincide with the original plan for this study, but recommendations from the National Center for Gifted and Talented suggest utilizing a matched-pairs design comparing gifted students scores with their mental-age peers (MA)—typically one to two grades above them—instead of chronologically aged peers (CA). However, these methods rely on singular characteristics to match groups, in an attempt to better align them for comparison. This substantially increases the chance for error if the groups do not have a lot of overlap. In the case of this study—comparing the sample to the population—there is ambiguity regarding defining characteristics suggesting low overlap. An alternative would be to use a propensity score matching approach (PSM). PSM attends to simple selection bias in nonexperimental settings for the particular use when selecting a subset of comparison characteristics is difficult. PSM utilizes a predicted probability of group

membership based on observed predictors, usually obtained from logistic regression to create a counterfactual group and would attend to issues regarding creating an adequate comparison model.

Measures.

***Assessment of psychopathology*.** Having a valid measure of one's psychopathology is merely a snapshot of that point in time. The inclusion of this variable in this study permitted attention to mutually exclusive and contradictory findings in the literature whether intellectually gifted students demonstrate more clinically defined psychological behaviors than found in the population. Being able to quantify this, using a relatively large sample size adds substance to these claims. Yet, the measures available to do this are often based on ambiguous questions that may not accurately assess the concept.

Of particular concern with the measures used for this study is the reporting of means and frequencies in the manual. None was reported for the teacher portion of the measure. This prevented comparison of teacher sample data to population data (a huge loss statistically). Additionally, the measure reports population statistics by select age groups (6 years old, 8 years old, and 10 years old). To obtain frequencies for comparison a "weighted average" was obtained by calculating the average frequency from data on 8-year-olds and 10-year-olds. For the population Total Problems scale, 30% of 8-year-olds obtained a clinical score and 28% of 10-year-olds received a score of clinical status. These two percentages produced an average of 29%, which was used as the comparison

statistic. This is not an ideal, nor perhaps highly accurate, method and thus the analyses may have been skewed as a result. Comparisons are interpreted with caution.

Assessment of social competence. While the multimethod and multisource approach to collecting data is recommended, at times it can confound results. McCabe and Marshall (2006), using a multimethod assessment of social competence, found significant association across settings indicating shared variance across measures and possible correlations among informants. Junttila, Voeten, Kaukiainen, and Vauras (2006) suggest low correlations indicative of each source providing unique information.

Odom and McConnell (1992) note the importance of utilizing a multidimensional approach to assessing social competence, utilizing other assessment methods including observation of social behaviors, and peer ratings. Numerous authors argue for a multidimensional, performance-based approach to assess social competence that includes direct observations, ratings by teachers and parents, social problem solving measures and sociometric assessments (Odom et al., 2008; Renk & Phares, 2004). A definite strength of this study was that it drew on multiple informants by having teachers and parents rate the child, but the inclusion of peer ratings, direct observations and sociometric measures may have been more conclusive.

Assessment of pragmatic language. A variety of factors was considered when choosing the TOPL–2. Not only is it a low cost option (pertinent since $N = 79$ and there was no outside funding nor research assistants) and easy to administer, but it has sound reliability and validity and is widely used by practitioners. Additionally, administration by the same person who conducted the intelligence testing provided ample opportunity

for observations of subject and behavioral trends. Having made this choice, it became clear that the dichotomy of scoring (*0* = not present; *1* = present) prohibited the wealth of information contained in the answers. Some subjects' responses were far more detailed and demonstrative of having obtained certain skills while others were less developed, and yet often these two individuals could both receive full credit. In addition, and perhaps inversely so, sometimes credit was not assigned because it did not fit into the scoring criteria, and yet it appeared the student had demonstrated skill. These reasons, among others, question whether the total score accurately reflects the subject's true ability in pragmatic language—either over- or underestimating. The age range of subjects (7–10) prohibited full analyses of all items on the TOPL–2. Students age 6 to 7 were only administered 17 of the 41 possible items. This represented 21% of all subjects and certainly could have impacted results substantially.

Administration of intelligence testing as well as the assessment of pragmatic language afforded the researcher unique opportunity to view the subjects across settings. While subjects consistently demonstrated ability in answers requiring direct requests or assertiveness (during the administration of the TOPL–2), the next level of pragmatic competence involved recommending a shift in topic or the acknowledgement of the other person's feelings or viewpoint. This next step is critical for being able to view situations from another's perspective and was not observed often in students' responses. Being able to assert one's viewpoint, while important, alone does not permit dyadic conversation. The TOPL–2 manual suggests further inquiry into failed items as a means for analyzing response sets more completely. In this sample, it is hypothesized that looking at content

of responses would permit more formative conclusions than can be obtained from a total scale score (elaborated in next section).

Analyses

Pragmatic language data. The TOPL–2 offers very limited interpretation and scaling. A more informative scale would permit each question to be scored on a scale (0–5) rather than merely absence or presence, showing the array of responses and make the total score more reflective of ability. Many students were able to get the "gist" without reflectively acknowledging where it comes from (noting facial expression). Scoring is highly dependent on the interpretation of the examiner and explanations are vague.

Using Norris and Hoffman's (1993) situational–discourse–semantic model as a framework, Phelps-Terasaki, and Phelps-Gunn (2007) suggest evaluation of various items within the seven subcomponent scales of the TOPL–2. Anecdotal observations support this as the examiner noted a prominence of difficulty in the subjects' answers gauging and adjusting to audience mood ("Audience" subcomponent); monitoring facial expressions, body language and gestures ("Visual–Gestural" subcomponent); and informing, explaining, apologizing, regulating ("Purpose" subcomponent). Such a framework would allow for more thorough, albeit qualitative, analysis of the specific skills rather than viewing the Total Score as the only measure of pragmatic language.

Future Studies

One hundred twenty-eight items measuring specific traits of psychopathology were collected for this study. Future studies could utilize this database to address questions about intellectually gifted students. Examining the scores on the various

measures by gender, programming, age group, comparison group, familial variables, socioeconomic status, or the psychological variables would provide interesting and important information to the knowledge base and educational planning regarding these students. In addition, observation of the data suggests certain similarities of pathological behaviors in this population. In particular there was frequent reporting of students on the CBCL as "bragging, boasting, talks too much, demands a lot of attention, interrupts often, disrupts class discipline…," again echoing the verbal component of social skills development. While the results on the measure of pragmatic language did not confirm the hypothesis (that intellectually gifted students would be low), observations and reporting from parents and educators of these students suggests there might be other factors in these students' communication skills influencing their relational abilities. Perhaps this study was unable to decipher that, but future studies could look specifically at the quality of peer relationships and different communication skills utilized across various settings as well as looking at the frequency of reporting on the particular variables mentioned above. This avenue of inquiry will hopefully lead to the development of intervention programs or at a minimum attention for intellectually gifted students who lack specific communication skills necessary for relating to peers and for augmenting our understanding of this population as a whole.

Pragmatic language is an important cognitive ability and the correlation between the TOPL–2 and the WISC–III Full Scale IQ is reportedly .52 (TOPL Manual, Phelps-Terasaki & Phelps-Gunn, 2007). Particularly interesting would be to look at a sample of intellectually gifted students' scores on the verbal portions of an intelligence test and look

at the nature of the relationship to their scores on the measure of pragmatic language and social competence. For the language measure, examining first the correlation coefficient between the TOPL–2 total score and WISC–IV Full Scale IQ and then the WISC–IV Verbal Performance Scores with the TOPL–S would be interesting. Another step would be to look at verbal scores on WISC–IV as predictors of TOPL–2 subcomponent scales. The question then becomes: Given a target sample of intellectually gifted students do Verbal Composite scores on a measure of intelligence predict subscale scores on a measure of pragmatic language?

Concluding Remarks

Of the 32 states that responded to a national survey, 17 identified 6 to 21% of their population as "gifted" (Swanson, 2002). The National Association for Gifted Children (NAGC) estimates 3 million or approximately 6% of the student population in grades K–12 as *gifted* (http://www.nacg.org). In Minnesota, where this study was conducted, an estimated 800,000 students were identified in 2008 as "gifted" (http://education.state.mn.us). Yet federally mandated funding for gifted education doesn't exist, as it does for other learning needs, and state support varies wildly, often leaving this population of learners with unaddressed academic and social needs (Beatty, 2010; Gihring, 2010; Ross, 1993). Ross (1993) noted in a report to the U.S. Department of Education that while professionals have information about the unique needs of learning-disabled children, there is no set of guidelines for the evaluation and educational planning for students on the upper end of the bell curve. Efforts to plan, educate, and understand this population of learners are grossly inadequate to the demonstrated need.

This study attempted to expand understanding of intellectually gifted learners by investigating social competence and underlying communication skills. While findings from this study confirmed portions of the original hypothesis, it also addressed gaps in the literature and can conclude with a degree of certainty that students with high intelligence are socially competent.

Money matters. While identification of gifted students has been complex and plagued with controversy (Reis & Renzulli, 2004), securing funding is even more so. Almost 40 years after the Marland report (1972), the U.S. Federal government, in 2007, allocated only 0.02% of its education budget (approximately $10 million of $54 billion) to gifted and talented education. This amount is gravely disproportionate to the estimated 2% of the population deemed "gifted," which is 100 times the federal education budget allocated to them. In 2008, over $7½ million was allotted by the Jacob Javits Gifted and Talented Students Education Act (Javits). The Javits Act was passed by Congress in 1988 as part of the Elementary and Secondary Education Act to support talent development in the United States, and is the only federal program dedicated to the needs of gifted students. Javits does not fund programs, rather is designed primarily to orchestrate the coordination of scientific based research, demonstration projects and innovative strategies. In our own state—Minnesota, the legislature categorically eliminated special funding for gifted education in 1977. Funding did not resume until 2004. Current legislation allocates $12 times a district's cost pupil units to identify gifted and talented students; provides educational programs for gifted students and provides staff development to prepare teachers to meet unique needs of gifted and talented students

(MDE, 2010). Again, these amounts are gravely disproportionate to the demonstrated need.

We should care. Intellectually gifted students sit in classrooms day after day not learning anything new. Serious socioemotional consequences may result when their academic needs go unmet. Many of these students, in spite of lack of funding, understanding and opportunities, will find their own way, and by the nature of their drive and motivation—positively influence the world we live in. By quantifiably defining this population of learners and reliably demonstrating characteristics and competencies of intellectually gifted learners, this study has contributed understanding of specific skill deficits and facilitated true assessment of strengths and weaknesses that impact learning and socioemotional development of highly intelligent students.

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APPENDIX A

Student Assent Form

Student ID # _____

Hello! I am a student at the University of Minnesota. We know very little about students your age who are also smart so I am trying to learn more by doing a research project. Your school is a part of this project and they said you may be able to help!

If you agree to be in this study, I will ask you to answer questions about activities and interests you have and things you like and do not like [for example -I like animals- "true, not true, somewhat true"]. There is no right or wrong answer. The questions are about what you think, and because you know yourself best, there is nothing to study or prepare for. This part should take about ten minutes. You parents and teachers will also fill out questionnaires. All answers are private, no one gets to look at them or know who answered what. If you share something with me that I believe may be harmful for you or someone else I will have to share this information with another adult.

The next part will be me showing you a series of pictures and asking what you think is happening in each of these scenes. For example: if there was a picture of three students on the playground you would tell me what you saw them doing.

Your parents have to say it is okay for you to be in this study, but you may stop anytime you wish. After you and your parents decide it is okay, you will sign this paper which means you have read this and understand what is being asked. You can ask questions any time about this study. Remember, being in this study is up to you. No one will be upset if you choose not to. You or your parents can call or email me any time with questions you may have.

Thank you for your help. I'm excited to learn more about students your age. You will also get a copy of this form to keep. My number is ***651.442.0385*** and my email is ***schirvar@umn.edu***. Call or email me if you decide to not be in this study anymore, or if you have any questions.

Student Agreement to Participate
I have decided to be in the study even though I know I don't have to do it. All of my questions have been answered.

Printed Name of Study Participant	Signature of Study Participant
Signature of Parent or Guardian	Date
Signature of Researcher—Wendi M. Schirvar	Date

IRB Code #0903P61622 Version Date: May 9, 2009

APPENDIX B

Parent Consent Form

ID # _____

Hello. I am a doctoral student in the Educational Psychology Department at the University of Minnesota trying to learn more about students with high academic ability. Very little is known about the social-emotional characteristics and communication skills of students this age who are also very smart.

Based on your child's recent test scores your district has invited you and your child to participate in this study to learn more about the unique characteristics of this group of learners. This information will be collected for the purpose of research and to provide additional understanding to the teachers, parents and administrators. Please read this form and feel free to ask me any question before giving permission for your child to participate.

Background Information:
The purpose of this study is to identify socio-emotional characteristics of students with high academic ability and to look at the language skills these students use to impart ideas and relate to others.

Procedures:
Data gathering includes:

Your child completing:

- a task that measures their social language skills. This measure will be administered by me and take about thirty minutes to complete during school time. They will be presented a series of pictures showing various social scenes and asked to describe what they think is happening. For example: if there was a picture of three students on the playground they would be asked to say what they believed was happening in that picture.

You will be asked to:

- complete the same questionnaire regarding your perception of your child's likes and dislikes

Your child's teacher will be asked to:

- complete the same questionnaire about your child's likes and dislikes
- and a questionnaire about your child's social behaviors in the classroom (i.e. changes activities with peers to permit continued interaction).

These should take no longer than 10 minutes to complete.

Confidentiality:
The records of this study are confidential and all steps will be taken to ensure you and your child's privacy. No identifying information (names, school attending, phone numbers, email addresses) will be shared with anyone. Any information that is written, or discussed using this data, will not have any of your private information that will allow others to identify you, your child, or your child's school. All data will be stored and recorded on a password-protected computer, stored in a file accessible only to me and will be destroyed upon completion of this

project. The one exception to this is in the situation where a child or adult may report something that indicates harm to oneself or others. In this situation, this information will need to be shared with the appropriate personnel (i.e. school psychologist). All efforts will be taken to do so with utmost regard for you and your child.

Risks and Benefits of Being in this Study:
There are minimal risks to participating in this study. Because we are asking information that is private, there is a risk to confidentiality and several steps (locked data; restricted access; coded forms with names removed) are being taken to ensure you and your child's privacy. No one will be able to access either your child's private information or anyone's responses to any of the questionnaires. Findings from this study will be shared in a group presentation that you will be invited to and will include information on supporting socioemotional needs of high-ability learners. Upon return of all forms you will be given a coffee card as a small token of appreciation for your assistance in this study.

Voluntary Nature of the Study:
Participation in this study is voluntary. Your decision whether or not to participate will not affect you, or your child's current or future relations with the University of Minnesota, or with Minnetonka Public Schools. If you decide to participate, you are free to withdraw at any time with out affecting those relationships.

Contacts and Questions:
The researcher conducting this study is: Wendi M. Schirvar. If you have questions at any time, **you are encouraged** to contact her at schirvar@umn.edu or 651.442.0385. In addition, you may contact Dr. Scott McConnell at smcconne@umn.edu 612.624.6365 at the University of Minnesota; or Mr. Michael Postma, at the District level mpostma@minnetonka.k12.mn.us**.** If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.
You will be given a copy of this information to keep for your records.

Statement of Consent:
I have read the above information. I have asked questions and have received answers.
I consent to participate in the study and for my child to participate as well.

Your Child's Name: _____

Signature of parent or guardian: _____ Date: _____

Signature of Investigator: _____ Date: _____
Wendi M. Schirvar, M.A.

APPENDIX C

Child Behavior Checklist—Parent Form

Please print **CHILD BEHAVIOR CHECKLIST FOR AGES 6-18**

For office use only
ID #

CHILD'S FULL NAME First Middle Last

CHILD'S GENDER ☐ Boy ☐ Girl

CHILD'S AGE

CHILD'S ETHNIC GROUP OR RACE

TODAY'S DATE Mo._____ Date _____ Yr. _____

CHILD'S BIRTHDATE Mo._____ Date _____ Yr. _____

GRADE IN SCHOOL _____

NOT ATTENDING SCHOOL ☐

Please fill out this form to reflect *your* view of the child's behavior even if other people might not agree. Feel free to print additional comments beside each item and in the space provided on page 2. ***Be sure to answer all items.***

PARENTS' USUAL TYPE OF WORK, even if not working now. *(Please be specific — for example, auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant.)*

FATHER'S TYPE OF WORK _____

MOTHER'S TYPE OF WORK _____

THIS FORM FILLED OUT BY: (print your full name)

_____

Your gender: ☐ Male ☐ Female

Your relation to the child:

☐ Biological Parent ☐ Step Parent ☐ Grandparent
☐ Adoptive Parent ☐ Foster Parent ☐ Other (specify)_____

I. Please list the sports your child most likes to take part in. For example: swimming, baseball, skating, skate boarding, bike riding, fishing, etc.

☐ None

	Compared to others of the same age, about how much time does he/she spend in each?				Compared to others of the same age, how well does he/she do each one?			
	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average	Don't Know
a. _____	☐	☐	☐	☐	☐	☐	☐	☐
b. _____	☐	☐	☐	☐	☐	☐	☐	☐
c. _____	☐	☐	☐	☐	☐	☐	☐	☐

II. Please list your child's favorite hobbies, activities, and games, other than sports. For example: stamps, dolls, books, piano, crafts, cars, computers, singing, etc. (Do ***not*** include listening to radio or TV.)

☐ None

	Compared to others of the same age, about how much time does he/she spend in each?				Compared to others of the same age, how well does he/she do each one?			
	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average	Don't Know
a. _____	☐	☐	☐	☐	☐	☐	☐	☐
b. _____	☐	☐	☐	☐	☐	☐	☐	☐
c. _____	☐	☐	☐	☐	☐	☐	☐	☐

III. Please list any organizations, clubs, teams, or groups your child belongs to.

☐ None

	Compared to others of the same age, how active is he/she in each?			
	Less Active	Average	More Active	Don't Know
a. _____	☐	☐	☐	☐
b. _____	☐	☐	☐	☐
c. _____	☐	☐	☐	☐

IV. Please list any jobs or chores your child has. For example: paper route, babysitting, making bed, working in store, etc. (Include both paid and unpaid jobs and chores.)

☐ None

	Compared to others of the same age, how well does he/she carry them out?			
	Below Average	Average	Above Average	Don't Know
a. _____	☐	☐	☐	☐
b. _____	☐	☐	☐	☐
c. _____	☐	☐	☐	☐

Be sure you answered all items. Then see other side.

6-1-01 Edition - 201

Please print. Be sure to answer all items.

Below is a list of items that describe children and youths. For each item that describes your child ***now or within the past 6 months***, please circle the ***2*** if the item is ***very true or often true*** of your child. Circle the ***1*** if the item is ***somewhat or sometimes true*** of your child. If the item is ***not true*** of your child, circle the ***0***. Please answer all items as well as you can, even if some do not seem to apply to your child.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 1. Acts too young for his/her age
0 1 2 2. Drinks alcohol without parents' approval (describe):_____
_____
0 1 2 3. Argues a lot
0 1 2 4. Fails to finish things he/she starts
0 1 2 5. There is very little he/she enjoys
0 1 2 6. Bowel movements outside toilet
0 1 2 7. Bragging, boasting
0 1 2 8. Can't concentrate, can't pay attention for long
0 1 2 9. Can't get his/her mind off certain thoughts; obsessions (describe): _____
_____
0 1 2 10. Can't sit still, restless, or hyperactive
0 1 2 11. Clings to adults or too dependent
0 1 2 12. Complains of loneliness
0 1 2 13. Confused or seems to be in a fog
0 1 2 14. Cries a lot
0 1 2 15. Cruel to animals
0 1 2 16. Cruelty, bullying, or meanness to others
0 1 2 17. Daydreams or gets lost in his/her thoughts
0 1 2 18. Deliberately harms self or attempts suicide
0 1 2 19. Demands a lot of attention
0 1 2 20. Destroys his/her own things
0 1 2 21. Destroys things belonging to his/her family or others
0 1 2 22. Disobedient at home
0 1 2 23. Disobedient at school
0 1 2 24. Doesn't eat well
0 1 2 25. Doesn't get along with other kids
0 1 2 26. Doesn't seem to feel guilty after misbehaving
0 1 2 27. Easily jealous
0 1 2 28. Breaks rules at home, school, or elsewhere
0 1 2 29. Fears certain animals, situations, or places, other than school (describe): _____
_____
0 1 2 30. Fears going to school
0 1 2 31. Fears he/she might think or do something bad
0 1 2 32. Feels he/she has to be perfect
0 1 2 33. Feels or complains that no one loves him/her
0 1 2 34. Feels others are out to get him/her
0 1 2 35. Feels worthless or inferior
0 1 2 36. Gets hurt a lot, accident-prone
0 1 2 37. Gets in many fights
0 1 2 38. Gets teased a lot
0 1 2 39. Hangs around with others who get in trouble
0 1 2 40. Hears sounds or voices that aren't there (describe): _____
_____
0 1 2 41. Impulsive or acts without thinking
0 1 2 42. Would rather be alone than with others
0 1 2 43. Lying or cheating
0 1 2 44. Bites fingernails
0 1 2 45. Nervous, highstrung, or tense
0 1 2 46. Nervous movements or twitching (describe): ____
_____
_____
0 1 2 47. Nightmares
0 1 2 48. Not liked by other kids
0 1 2 49. Constipated, doesn't move bowels
0 1 2 50. Too fearful or anxious
0 1 2 51. Feels dizzy or lightheaded
0 1 2 52. Feels too guilty
0 1 2 53. Overeating
0 1 2 54. Overtired without good reason
0 1 2 55. Overweight
56. Physical problems ***without known medical cause:***
0 1 2 a. Aches or pains (***not*** stomach or headaches)
0 1 2 b. Headaches
0 1 2 c. Nausea, feels sick
0 1 2 d. Problems with eyes (***not*** if corrected by glasses) (describe): _____
0 1 2 e. Rashes or other skin problems
0 1 2 f. Stomachaches
0 1 2 g. Vomiting, throwing up
0 1 2 h. Other (describe): _____
_____

 Be sure you answered all items. Then see other side.

Please print. Be sure to answer all items.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 57. Physically attacks people
0 1 2 58. Picks nose, skin, or other parts of body (describe): _____
_____
0 1 2 59. Plays with own sex parts in public
0 1 2 60. Plays with own sex parts too much
0 1 2 61. Poor school work
0 1 2 62. Poorly coordinated or clumsy
0 1 2 63. Prefers being with older kids
0 1 2 64. Prefers being with younger kids
0 1 2 65. Refuses to talk
0 1 2 66. Repeats certain acts over and over; compulsions (describe): _____
_____
0 1 2 67. Runs away from home
0 1 2 68. Screams a lot
0 1 2 69. Secretive, keeps things to self
0 1 2 70. Sees things that aren't there (describe): _____
_____
_____
0 1 2 71. Self-conscious or easily embarrassed
0 1 2 72. Sets fires
0 1 2 73. Sexual problems (describe): _____
_____
_____
0 1 2 74. Showing off or clowning
0 1 2 75. Too shy or timid
0 1 2 76. Sleeps less than most kids
0 1 2 77. Sleeps more than most kids during day and/or night (describe): _____
_____
0 1 2 78. Inattentive or easily distracted
0 1 2 79. Speech problem (describe): _____
_____
0 1 2 80. Stares blankly
0 1 2 81. Steals at home
0 1 2 82. Steals outside the home
0 1 2 83. Stores up too many things he/she doesn't need (describe): _____
_____
_____
0 1 2 84. Strange behavior (describe): _____
_____
0 1 2 85. Strange ideas (describe): _____
_____
0 1 2 86. Stubborn, sullen, or irritable
0 1 2 87. Sudden changes in mood or feelings
0 1 2 88. Sulks a lot
0 1 2 89. Suspicious
0 1 2 90. Swearing or obscene language
0 1 2 91. Talks about killing self
0 1 2 92. Talks or walks in sleep (describe): _____
_____
0 1 2 93. Talks too much
0 1 2 94. Teases a lot
0 1 2 95. Temper tantrums or hot temper
0 1 2 96. Thinks about sex too much
0 1 2 97. Threatens people
0 1 2 98. Thumb-sucking
0 1 2 99. Smokes, chews, or sniffs tobacco
0 1 2 100. Trouble sleeping (describe): _____
_____
0 1 2 101. Truancy, skips school
0 1 2 102. Underactive, slow moving, or lacks energy
0 1 2 103. Unhappy, sad, or depressed
0 1 2 104. Unusually loud
0 1 2 105. Uses drugs for nonmedical purposes (***don't*** include alcohol or tobacco) (describe): _____
_____
_____
0 1 2 106. Vandalism
0 1 2 107. Wets self during the day
0 1 2 108. Wets the bed
0 1 2 109. Whining
0 1 2 110. Wishes to be of opposite sex
0 1 2 111. Withdrawn, doesn't get involved with others
0 1 2 112. Worries
113. Please write in any problems your child has that were not listed above:
0 1 2 _____
0 1 2 _____
0 1 2 _____

Please be sure you answered all items.

APPENDIX D

Teacher Participation Invitation Letter

September 29, 2009

Greetings!

I am a doctoral student in Educational Psychology at the University of Minnesota, conducting research on the social competencies of high-ability learners. With support and permission from District #276, Superintendent Dr. Peterson, the High Potential Coordinator Mike Postma, as well as the students and their parents, additional testing is being conducted to look at the social and emotional needs of these students. You are receiving this letter because as their (principal/) teacher you carry an invaluable perspective on their social functioning and I wanted to let you know I'd be coming to your school.

Attached is a description of the study. Involvement includes teachers completing two paper and pencil measures on each student (no more than 10-15 minutes) over the next six weeks. The parents (are/)have completed similar measures and have agreed to your participation. In addition, each student will assessed by me using the Test of Pragmatic Language. This looks at the practical language skills we use in every day interactions. It takes roughly thirty minutes and will be coordinated with your school to minimize disruption to the classroom and the students learning time.

All data will be treated with utmost care and confidentiality. No information will be ever be shared that will make it possible to identify you, your students or your school in any way. Findings from this study will be shared in group format and for the sole purpose of better understanding the developmental and learning needs of these students. Simple strategies for enhancing social competencies and increasing effective social language skills will be presented to you and the parents for use in the classroom and at home, upon completion of the study.

Participation in this study is completely voluntary. Should you choose to be included, upon receipt of completed forms, I will be sending a coffee card as a small token of appreciation for your additional time and enter you in a drawing for a $50 gift certificate to Target. I can not emphasize enough the importance of your perspective and the indebtedness I feel towards your participation. I firmly believe the information we obtain will make a difference in understanding this group of learners and supportive of your efforts in effective teaching.

I realize you may have questions, so please don't hesitate to contact me at any time. I can be reached at schirvar@umn.edu. I have enjoyed meeting these students and have developed positive relationships with them and their parents. I look forward to working with you as well.

Thank you for your time.

Regards,
Wendi M. Schirvar
Licensed School Psychologist
Doctoral Candidate, Educational Psychology
University of Minnesota
651.442.0385

APPENDIX E

Child Behavior Checklist—Teacher Form

TEACHER'S REPORT FORM FOR AGES 6-18

For office use only
ID #

Your answers will be used to compare the pupil with other pupils whose teachers have completed similar forms. The information from this form will also be used for comparison with other information about this pupil. Please answer as well as you can, even if you lack full information. Scores on individual items will be combined to identify general patterns of behavior. Feel free to print additional comments beside each item and in the spaces provided on page 2. ***Please print, and answer all items.***

PUPIL'S FULL NAME First Middle Last

PUPIL'S GENDER ❒ Boy ❒ Girl | PUPIL'S AGE | PUPIL'S ETHNIC GROUP OR RACE

TODAY'S DATE Mo._____ Date_____ Yr._____

PUPIL'S BIRTHDATE (if known) Mo._____ Date_____ Yr._____

GRADE IN SCHOOL _____

NAME AND ADDRESS OF SCHOOL _____

PARENTS' USUAL TYPE OF WORK, even if not working now *(Please be specific — for example, auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant.)*

FATHER'S TYPE OF WORK _____

MOTHER'S TYPE OF WORK _____

THIS FORM FILLED OUT BY: *(print your full name)*

_____

Your gender: ❒ Male ❒ Female

Your role at the school:

❒ Classroom Teacher ❒ Counselor

❒ Special Educator ❒ Administrator

❒ Teacher's Aide ❒ Other (specify):

I. For how many months have you known this pupil? _____ months

II. How well do you know him/her? 1. ❒ Not Well 2. ❒ Moderately Well 3. ❒ Very Well

III. How much time does he/she spend in your class or service per week?

IV. What kind of class or service is it? (Please be specific, e.g., regular 5th grade, 7th grade math, learning disability, counseling, etc.)

V. Has he/she ever been referred for special class placement, services, or tutoring?

❒ Don't Know 0. ❒ No 1. ❒ Yes — what kind and when?

VI. Has he/she repeated any grades? ❒ Don't Know 0. ❒ No 1. ❒ Yes — grades and reasons:

VII. Current academic performance — list academic subjects and check box that indicates pupil's performance for each subject:

Academic subject	1. Far below grade	2. Somewhat below grade	3. At grade level	4. Somewhat above grade	5. Far above grade
1. _____	❒	❒	❒	❒	❒
2. _____	❒	❒	❒	❒	❒
3. _____	❒	❒	❒	❒	❒
4. _____	❒	❒	❒	❒	❒
5. _____	❒	❒	❒	❒	❒
6. _____	❒	❒	❒	❒	❒

Be sure you answered all items. Then see other side.

Please print. Be sure to answer all items.

Below is a list of items that describe pupils. For each item that describes the pupil ***now or within the past 2 months,*** please circle the ***2*** if the item is ***very true or often true*** of the pupil. Circle the ***1*** if the item is ***somewhat or sometimes true*** of the pupil. If the item is ***not true*** of the pupil, circle the ***0***. Please answer all items as well as you can, even if some do not seem to apply to this pupil.

0 = Not True (as far as you know) **1 = Somewhat or Sometimes True** **2 = Very True or Often True**

0 1 2 1. Acts too young for his/her age
0 1 2 2. Hums or makes other odd noises in class
0 1 2 3. Argues a lot
0 1 2 4. Fails to finish things he/she starts
0 1 2 5. There is very little that he/she enjoys
0 1 2 6. Defiant, talks back to staff
0 1 2 7. Bragging, boasting
0 1 2 8. Can't concentrate, can't pay attention for long
0 1 2 9. Can't get his/her mind off certain thoughts; obsessions (describe): _____
_____
0 1 2 10. Can't sit still, restless, or hyperactive
0 1 2 11. Clings to adults or too dependent
0 1 2 12. Complains of loneliness
0 1 2 13. Confused or seems to be in a fog
0 1 2 14. Cries a lot
0 1 2 15. Fidgets
0 1 2 16. Cruelty, bullying, or meanness to others
0 1 2 17. Daydreams or gets lost in his/her thoughts
0 1 2 18. Deliberately harms self or attempts suicide
0 1 2 19. Demands a lot of attention
0 1 2 20. Destroys his/her own things
0 1 2 21. Destroys property belonging to others
0 1 2 22. Difficulty following directions
0 1 2 23. Disobedient at school
0 1 2 24. Disturbs other pupils
0 1 2 25. Doesn't get along with other pupils
0 1 2 26. Doesn't seem to feel guilty after misbehaving
0 1 2 27. Easily jealous
0 1 2 28. Breaks school rules
0 1 2 29. Fears certain animals, situations, or places other than school (describe):_____
_____
0 1 2 30. Fears going to school
0 1 2 31. Fears he/she might think or do something bad
0 1 2 32. Feels he/she has to be perfect
0 1 2 33. Feels or complains that no one loves him/her
0 1 2 34. Feels others are out to get him/her
0 1 2 35. Feels worthless or inferior
0 1 2 36. Gets hurt a lot, accident-prone
0 1 2 37. Gets in many fights
0 1 2 38. Gets teased a lot
0 1 2 39. Hangs around with others who get in trouble
0 1 2 40. Hears sounds or voices that aren't there (describe):_____
_____
0 1 2 41. Impulsive or acts without thinking
0 1 2 42. Would rather be alone than with others
0 1 2 43. Lying or cheating
0 1 2 44. Bites fingernails
0 1 2 45. Nervous, high-strung, or tense
0 1 2 46. Nervous movements or twitching (describe): _____
_____
0 1 2 47. Overconforms to rules
0 1 2 48. Not liked by other pupils
0 1 2 49. Has difficulty learning
0 1 2 50. Too fearful or anxious
0 1 2 51. Feels dizzy or lightheaded
0 1 2 52. Feels too guilty
0 1 2 53. Talks out of turn
0 1 2 54. Overtired without good reason
0 1 2 55. Overweight
56. Physical problems ***without known medical cause:***
0 1 2 a. Aches or pains (***not*** stomach or headaches)
0 1 2 b. Headaches
0 1 2 c. Nausea, feels sick
0 1 2 d. Eye problems (***not*** if corrected by glasses) (describe):_____
_____
0 1 2 e. Rashes or other skin problems
0 1 2 f. Stomachaches
0 1 2 g. Vomiting, throwing up
0 1 2 h. Other (describe):_____
_____
_____

 Be sure you answered all items. Then see other side.

Please print. Be sure to answer all items.

0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True

0 1 2 57. Physically attacks people
0 1 2 58. Picks nose, skin, or other parts of body (describe):_____
_____
0 1 2 59. Sleeps in class
0 1 2 60. Apathetic or unmotivated
0 1 2 61. Poor school work
0 1 2 62. Poorly coordinated or clumsy
0 1 2 63. Prefers being with older children or youths
0 1 2 64. Prefers being with younger children
0 1 2 65. Refuses to talk
0 1 2 66. Repeats certain acts over and over; compulsions (describe):_____
_____
0 1 2 67. Disrupts class discipline
0 1 2 68. Screams a lot
0 1 2 69. Secretive, keeps things to self
0 1 2 70. Sees things that aren't there (describe):
_____
_____
0 1 2 71. Self-conscious or easily embarrassed
0 1 2 72. Messy work
0 1 2 73. Behaves irresponsibly (describe):_____
_____
_____
0 1 2 74. Showing off or clowning
0 1 2 75. Too shy or timid
0 1 2 76. Explosive and unpredictable behavior
0 1 2 77. Demands must be met immediately, easily frustrated
0 1 2 78. Inattentive or easily distracted
0 1 2 79. Speech problem (describe):_____
_____
0 1 2 80. Stares blankly
0 1 2 81. Feels hurt when criticized
0 1 2 82. Steals
0 1 2 83. Stores up too many things he/she doesn't need (describe):_____
_____
_____
0 1 2 84. Strange behavior (describe):_____
_____
0 1 2 85. Strange ideas (describe):_____
_____
0 1 2 86. Stubborn, sullen, or irritable
0 1 2 87. Sudden changes in mood or feelings
0 1 2 88. Sulks a lot
0 1 2 89. Suspicious
0 1 2 90. Swearing or obscene language
0 1 2 91. Talks about killing self
0 1 2 92. Underachieving, not working up to potential
0 1 2 93. Talks too much
0 1 2 94. Teases a lot
0 1 2 95. Temper tantrums or hot temper
0 1 2 96. Seems preoccupied with sex
0 1 2 97. Threatens people
0 1 2 98. Tardy to school or class
0 1 2 99. Smokes, chews, or sniffs tobacco
0 1 2 100. Fails to carry out assigned tasks
0 1 2 101. Truancy or unexplained absence
0 1 2 102. Underactive, slow moving, or lacks energy
0 1 2 103. Unhappy, sad, or depressed
0 1 2 104. Unusually loud
0 1 2 105. Uses alcohol or drugs for nonmedical purposes (***don't*** include tobacco) (describe):_____
_____
0 1 2 106. Overly anxious to please
0 1 2 107. Dislikes school
0 1 2 108. Is afraid of making mistakes
0 1 2 109. Whining
0 1 2 110. Unclean personal appearance
0 1 2 111. Withdrawn, doesn't get involved with others
0 1 2 112. Worries
113. Please write in any problems the pupil has that were not listed above.
0 1 2 _____
0 1 2 _____
0 1 2 _____

Please be sure you answered all items.

APPENDIX F

Scale of Social Competence and School Adjustment Form

ELEMENTARY VERSION REORDER FORMS
ISBN 1-56593-495-4

Profile/Rating Form

The Walker-McConnell Scale of Social Competence and School Adjustment

Elementary Version

I. Student Demographic Information

Student Name _____ Date _____

Sex: ☐ Male ☐ Female School _____

Age: _____ Years _____ Months Teacher _____

Grade _____

II. Rating Instructions

Please read each item below carefully and rate the student's behavioral status in relation to it. If you have not observed the student displaying a particular skill or behavioral competency defined by an item, your answer would be a 1 indicating Never. If the student exhibits the skill at a high rate of occurrence your answer would be a 5, indicating Frequently. If the student's frequency is in between these two extremes, your answer would be 2, 3, or 4 indicating your best estimate of the rate of occurrence. RECORD YOUR ANSWER FOR EACH ITEM IN THE BLANK BOX UNDER THE CORRESPONDING SUBSCALE COLUMN.

Please answer each item. YOU NEED NOT MARK OR CHECK THE NUMBERS IN THE RATING FORMAT SECTION.

III. Items and Rating Formats

Item	Rating Format (Never 1 2 3 Sometimes 4 5 Frequently)	Subscale
1. Other children seek child out to involve her/him in activities.	1 2 3 4 5	1 2 3
2. Changes activities with peers to permit continued interaction.	1 2 3 4 5	
3. Uses free time appropriately.	1 2 3 4 5	
4. Shares laughter with peers.	1 2 3 4 5	
5. Shows sympathy for others.	1 2 3 4 5	
6. Makes friends easily with other children.	1 2 3 4 5	
7. Has good work habits (e.g., is organized, makes efficient use of class time, etc.).	1 2 3 4 5	
8. Asks questions that request information about someone or something.	1 2 3 4 5	
9. Compromises with peers when situation calls for it.	1 2 3 4 5	
10. Responds to teasing or name calling by ignoring, changing the subject, or some other constructive means.	1 2 3 4 5	
11. Spends recess and free time interacting with peers.	1 2 3 4 5	
12. Accepts constructive criticism from peers without becoming angry.	1 2 3 4 5	
13. Plays or talks with peers for extended periods of time.	1 2 3 4 5	
14. Voluntarily provides assistance to peers who require it.	1 2 3 4 5	
15. Assumes leadership role in peer activities.	1 2 3 4 5	

Item	Rating Format: Never		Sometimes		Frequently	Subscale
16. Is sensitive to the needs of others.	1	2	3	4	5	3
17. Initiates conversation(s) with peers in informal situations.	1	2	3	4	5	2
18. Expresses anger appropriately (e.g., reacts to situation without becoming violent or destructive).	1	2	3	4	5	1
19. Listens carefully to teacher instructions and directions for assignments.	1	2	3	4	5	3
20. Answers or attempts to answer a question when called on by the teacher.	1	2	3	4	5	3
21. Displays independent study skills (e.g., can work adequately with minimum teacher support).	1	2	3	4	5	3
22. Appropriately copes with aggression from others (e.g., tries to avoid a fight, walks away, seeks assistance, defends self).	1	2	3	4	5	1
23. Responds to conventional behavior management techniques (e.g., praise, reprimands, timeout).	1	2	3	4	5	3
24. Cooperates with peers in group activities or situations.	1	2	3	4	5	1
25. Interacts with a number of different peers.	1	2	3	4	5	2
26. Uses physical contact with peers appropriately.	1	2	3	4	5	1
27. Responds to requests promptly.	1	2	3	4	5	3
28. Listens while others are speaking (e.g., as in circle or sharing time).	1	2	3	4	5	1
29. Controls temper.	1	2	3	4	5	1
30. Compliments others regarding personal attributes (e.g., appearance, special skills, etc.).	1	2	3	4	5	2
31. Can accept not getting her/his own way.	1	2	3	4	5	1
32. Is socially perceptive (e.g., "reads" social situations accurately).	1	2	3	4	5	2
33. Attends to assigned tasks.	1	2	3	4	5	3
34. Plays games and activities at recess skillfully.	1	2	3	4	5	2
35. Keeps conversation with peers going.	1	2	3	4	5	2
36. Finds another way to play when requests to join others are refused.	1	2	3	4	5	1
37. Is considerate of the feelings of others.	1	2	3	4	5	1
38. Maintains eye contact when speaking or being spoken to.	1	2	3	4	5	2
39. Gains peers' attention in an appropriate manner.	1	2	3	4	5	1
40. Accepts suggestions and assistance from peers.	1	2	3	4	5	1
41. Invites peers to play or share activities.	1	2	3	4	5	2
42. Does seatwork assignments as directed.	1	2	3	4	5	3
43. Produces work of acceptable quality given her/his skill level.	1	2	3	4	5	3
					Subtotals:	

(Add subtotals for each column) **Total Scale Score:** ☐

APPENDIX G

University of Minnesota Internal Review Board Acceptance Letter

06/05/2009

Wendi M Schirvar
503 N 4th St.
Stillwater, MN 55082

RE: "Social Competencies of High-Ability Learners"
IRB Code Number: 0903P61622

Dear Ms. Schirvar

The Institutional Review Board (IRB) received your response to its stipulations. Since this information satisfies the federal criteria for approval at 45CFR46.111 and the requirements set by the IRB, final approval for the project is noted in our files. Upon receipt of this letter, you may begin your research.

IRB approval of this study includes the consent form and assent form dated May 9, 2009.

The IRB would like to stress that subjects who go through the consent process are considered enrolled participants and are counted toward the total number of subjects, even if they have no further participation in the study. Please keep this in mind when calculating the number of subjects you request. This study is currently approved for 100 subjects. If you desire an increase in the number of approved subjects, you will need to make a formal request to the IRB.

For your records and for grant certification purposes, the approval date for the referenced project is June 5, 2009 and the Assurance of Compliance number is FWA00000312 (Fairview Health Systems Research FWA00000325, Gillette Children's Specialty Healthcare FWA00004003). Research projects are subject to continuing review and renewal; approval will expire one year from that date. You will receive a report form two months before the expiration date. If you would like us to send certification of approval to a funding agency, please tell us the name and address of your contact person at the agency.

As Principal Investigator of this project, you are required by federal regulations to inform the IRB of any proposed changes in your research that will affect human subjects. Changes should not be initiated until written IRB approval is received. Unanticipated problems or serious unexpected adverse events should be reported to the IRB as they occur.

The IRB wishes you success with this research. If you have questions, please call the IRB office at 612-626-5654.

Sincerely,

Felicia Mroczkowski, CIP
Research Compliance Supervisor
FM/egk
CC: Scott McConnell