

Academically Gifted Students' Perceived Interpersonal Competence and Peer Relationships

## Abstract

Perceptions of the interpersonal competence and peer relationships of 1,526 gifted adolescents who had previously participated in academic gifted programs at the Center for Talent Development were examined, using an online survey. Major findings included that the gifted students had generally positive perceptions of their abilities to initiate, form, and maintain relationships with other people, including same-age non-gifted peers, and demonstrated levels of interpersonal ability and peer relationships, comparable to that of grade equivalent students in the norming group. The students did not perceive their giftedness as a negative factor affecting their peer relationships but rated their academic self-concept more positively than their social self-concept. Differences were found by gender and experience with subject acceleration in school, favoring female students over male students and favoring students who were accelerated in a subject in school over students who were not. The results also suggested that gifted students whose academic strength was in the verbal area over other areas were more likely to face difficulties with peer relationships.

## Academically Gifted Students' Perceived Interpersonal Competence and Peer Relationships

Understanding the interpersonal competence and peer relationships of academically gifted students continues to be a concern of both researchers and practitioners in the field of gifted education. On the one hand, empirical literature suggests that in most situations, being intellectually gifted is generally an asset socially and emotionally (Janos & Robinson, 1985; Neihart, 1999, 2002, 2007; Robinson, 2008) and gifted students tend to be well-received by peers (Austin & Draper, 1981; Neihart, 1999, 2002, 2007). On the other hand, some evidence reveals that many gifted students express that they do not “fit the mold” and “feel different” (Coleman & Cross, 1988; Delisle, 1984; Janos, Fung, & Robinson, 1985; Rimm, Rimm-Kaufman, & Rimm, 1999; Swiatek & Dorr, 1998), and this sense of difference may, in turn, lead to general feelings of unease or lack of competence in social situations and difficulties creating and maintaining relationships with other people including peers of the same age (see Bickley, 2002; Cross, Coleman, & Stewart, 1993; Columbus Group, 1991; Kerr, 1991; Silverman, 1993, 2002). It is not clear why some gifted students feel different and others do not. Some plausible explanations include asynchrony or a discrepancy between their advanced intellectual or cognitive abilities and psychosocial development which can be exacerbated by degree of giftedness (Robinson, 2002), and/or a lack of fit between a gifted student's interests or abilities and those of his/her peers, the educational opportunities and programming available, and school, family, or cultural environments (Eddles-Hirsch et al., 2010; Neihart, 2006; Rimm, 2003; Robinson, 2008).

This study examined how academically gifted students perceive their interpersonal competence (specifically their interpersonal abilities, such as initiating relationships, asserting influence, resolving conflicts, etc.), their social adjustment, and their peer relationships compared

to age equivalent, mixed-ability heterogeneous groups of students. Before presenting our study, we review literature regarding the interpersonal competence and peer relationships of gifted students overall and how these vary or affected by some characteristics of the students, type of giftedness, and participation in gifted programs.

*Gifted Students' Interpersonal Competence and Peer Relationships*

Generally, interpersonal abilities, particularly peer relationships of academically gifted students are portrayed positively (Austin & Draper, 1981; McCallister, Nash, & Meckstroth, 1996; Neihart, 1999, 2002, 2007; Robinson, 2008). Little evidence exists that children identified as gifted suffer from greater peer rejection than their non-gifted counterparts. Many of the studies cited in previous reviews of literature indicate that as a whole, gifted children are generally well liked by other people and sometimes even more popular than their non-gifted peers (Austin & Draper, 1981; Neihart, 1999) and generally, gifted students tended to be above average in some or most of the interpersonal skill areas assessed (e.g., McCallister, Nash, & Meckstroth, 1996).

However, evidence that some gifted children do struggle with interpersonal relationships also exists. Gifted students often demonstrate an early command of language, a more advanced vocabulary, greater articulateness, and a higher degree of flexibility in communication (Robinson, 2007). Verbal precocity manifest itself in more abstract thinking, early thought and communication on questions of values, personal philosophy, and individual identity that their same-age peers cannot understand or do not find purposeful (Altman, 1983). Similarly, gifted students may have a tendency toward more judgmental and critical thinking, which might be off-putting to other children who are not as comfortable with such deep or sustained self-evaluation (Altman, 1983). The dissimilarities between the interests and abilities of the gifted and those of

their same-age peers may require an uneasy compromise between their own interests and abilities, on the one hand, and their desire to be accepted into a social group, on the other. Moreover, gifted students may interpret the lack of understanding or interest on the part of others as rejection.

### *Gifted Students Perceptions of Stigma and Its Effects on Social Interactions*

While the objective data may not indicate any bias against “being gifted,” gifted students may nonetheless perceive such a bias (Austin & Draper, 1981; Janos & Robinson, 1985; McCallister et al., 1996; Robinson, 2008). Colangelo and Kelly (1983) found that while gifted youth were positive about being labeled gifted, they perceived teachers and non-gifted peers as having negative views of them. Kerr, Colangelo, and Gaeth’s (1988) study also indicated that the attitude of gifted adolescents toward their own giftedness was positive in terms of their own personal growth and academics; however, in peer relationships, they perceived their giftedness to be a negative factor. Particularly in a peer and school culture that values conformity, the academic success and interests of gifted students may be seen as aberrant, even possibly threatening, to others (Cross, 2007), and gifted students may fear that their intellectual advancement puts them at risk for social rejection (Gross, 1989; Robinson, 2008). The majority of gifted students believe that their peers are unlikely to accept a demonstrated interest in academic pursuits (Tannenbaum, 1991) or the achievement of outstanding grades (Brown & Steinberg, 1990). Even though many students (both gifted and non-gifted) claim to value intelligence, they simultaneously note the “anti-intellectual” stigma expressed by their friends and do not attribute any social benefits to being smart (Schroeder-Davis, 1999; Robinson, 2008).

Coleman and Cross (1988) argued that gifted students’ perceptions of stigma regarding their giftedness have a real effect on their social interactions with other people. Empirical studies

revealed that for some gifted students, their perceived difference and lack of peer acceptance affect their interpersonal abilities, in particular peer relationships and social coping skills. For example, gifted students who are unable to find same-age peers that share their interests and general beliefs about friendship may choose to more or less “opt out of the social scene” altogether (Gross, 1989). Children who refuse or are unable to make a compromise between their own interests and abilities and their desire to be accepted into a social group often prefer to work and play alone (Austin & Draper, 1981; Gross, 1989). Alternatively, gifted children who cannot find children of their own age that share their interests may “find a new social scene” by seeking out the companionship of older children (Gross, 1989; Janos & Robinson, 1985; Silverman, 2002). More negatively, in responding to the lack of availability of suitable same-age peers, gifted students may be tempted to “conform to the given social scene” by hiding or denying their giftedness, which they perceive to be the primary cause of their lack of acceptance by the peer culture (e.g., Davis & Rimm, 1998). Gross (1993) described that gifted students continuously monitored their behavior in order to conform to the expectations of their peer group and to better fit in and be appreciated within a peer culture that values conformity. As a result, gifted students may mask their giftedness and develop alternative identities that are perceived as more socially acceptable.

#### *Interpersonal Competence and Peer Relationships Among Subpopulations of the Gifted*

When considering the mixed results regarding the interpersonal competence and peer relationships of gifted students, it is important to note that some studies have also reported differential results for subpopulations of gifted students (Austin & Draper, 1981, Janos & Robinson, 1985; McCallister et al., 1996). Particularly, these studies found differences based on students' age, gender, domain and level of giftedness, and educational experiences.

*Age.* Studies of elementary-and early-middle-school-aged children (Gallagher & Crowder, 1957; Grace & Booth, 1958) found no apparent biases against gifted children by their peers. Indeed, there tended to be a positive correlation between IQ and social acceptance--at least up until a certain threshold IQ, after which further increases in IQ did not increase peer standing (Grossman & Wrighter, 1948). However, by age 13, the popularity advantage that bright students may have experienced disappeared (Austin & Draper, 1981; Rimm, 2002). With adolescence, the intellectually gifted students, particularly the girls, lost status, and their intellectual achievements were increasingly devalued over the high school years (Coleman, 1961; Keislar, 1955). Similarly, gifted adolescents were more likely than their younger counterparts to report difficulty creating and maintaining friendships among their classmates (Brown & Steinberg, 1990; Coleman & Cross, 1988; Cross, 2007) and to experience general feelings of social isolation in their regular classrooms (Cross, Coleman, & Stewart, 1993; Cross, Coleman, & Terhaar-Yonkers, 1991).

*Gender.* Differences in the relationship between popularity and academic achievement as a function of one's gender were identified in many studies (Coleman, 1961; Luftig & Nichols, 1990; Rimm, Rimm-Kaufman, & Rimm, 1999). For example, in a study of 500 middle-school students, Luftig and Nichols (1990) compared the social status of gifted students enrolled in a pull-out program with same-age peers who were not identified as gifted. They found that gifted boys tended to be among the most popular of the ability by gender groups, closely followed by nongifted boys and nongifted girls (who did not differ from each other in popularity). Gifted girls were found to be significantly less popular than their nongifted counterparts and were the least popular of all the groups. Coleman (1961) suggested that gifted boys were better able to dissipate their brainy image by excelling in sports, while gifted girls tended to be more accepted by their

peers if they were pretty although “the peer values in his sample prescribed that girls who dated should avoid displaying their intellectual abilities” (Coleman, 1961, p. 132).

*Domain of giftedness.* In light of a number of studies (Brody & Benbow, 1986; Ferguson & Maccoby, 1966) that found mathematically gifted students to be more outgoing, more sociable, and thus more popular than verbally gifted students, Dauber and Benbow (1990) found that mathematically gifted children believed that their peers would rate them higher in importance than did verbally gifted children. The authors noted that the verbally gifted may feel that their talents are not as socially acceptable as the mathematically gifted and that children with extreme mathematical ability may be less recognized than those with sophisticated vocabulary.

*Level of giftedness.* The vast majority of studies that investigated differential results among subpopulations of the gifted focused on the psychosocial development of extremely gifted students as compared to their moderately gifted counterparts. As early as 1925, Terman found that children with IQs higher than 170 tended to have considerably more difficulty in making social adjustments than did moderately gifted students. Similarly, Hollingworth (1926, 1942) noted that while students within the “socially optimal” IQ range of 125-155 tended to be well-balanced, self-confident, outgoing, and well-received by their same-age peers, students with an IQ above 155 were prone to special problems of social adjustment that were correlated with social isolation due to the absence of a suitable peer group with whom they could relate (see also Feldman, 1986; Gross, 1993). Other studies (e.g., Freeman, 1979; Gross, 2002, 2004; Janos, Marwood, & Robinson, 1985; Robinson, 2008) found that the exceptionally gifted were significantly more likely to report that being smart made finding friends harder, they had too few friends, and the friends they did have were older.



*Educational experiences.* While, on average, gifted students as a whole tend to be more socially mature than their age peers, certain social issues do tend to crop up when there is a disconnect between the level and pace of their development and the educational environment in which they spend much of their time (Robinson, 2008). One such issue is that in a school system that groups students primarily by age, gifted students may have difficulties meeting peers that share their interests, language development, and personal maturity (Gross, 2001). Educational programs that strive to correct this mismatch by providing appropriate academic challenge and access to compatible peers via accommodations such as acceleration have been shown to have positive effects on gifted students' social as well as academic development (Kulik, 2004; Rinn, 2006). Specifically, accelerative options such as early entrance to school, grade-skipping, pull-out programs, participation in residential summer programs for gifted students, mentorships, and dual-enrollment were found to lead to increased social self-concepts and more positive perceptions of peer relationships (Rogers, 2002).

In summary, while some empirical research has shown that gifted students as a whole are generally well-received by peers and well-adjusted socially (Austin & Draper, 1981; Janos & Robinson, 1985; McCallister, Nash, & Meckstroth, 1996; Neihart, 1999, 2002, 2007; Robinson, 2008), other research provides evidence that some gifted students struggle with interpersonal relationships (Bickley, 2002; Cross, Coleman, & Stewart, 1993; Columbus Group, 1991; Kerr, 1991; Silverman, 1993, 2002). Characteristics of gifted children, such as their exceptional scholastic achievements or level of giftedness, the articulateness with which they talk about their endeavors and their willingness to pursue every avenue of thought on a given topic, may set them apart from other same-age peers. While most gifted students may see these differences as assets, they are simultaneously aware that others may view them negatively (Colangelo & Kelly,

1983; Kerr, Colangelo, & Gaeth, 1988; Rimm, 2002; Swiatek, 1995). Thus, it is not surprising that gifted students often report difficulties creating and maintaining friendship with same-age peers. The potential consequences of these perceived difficulties is significant for individual students; gifted students may withdraw, choosing to work and play independently; seek out older companions whose age corresponds more closely to their mental age; attempt to mask their giftedness in order to conform to the expectations of their peer group; or act in some combination of these reactions. More research is needed to understand gifted students' perceptions of their social and interpersonal relationships and peer acceptance and how these affect their social interactions.

#### About This Study

The present study was designed to examine, with an eye to the role played by variables such as gender, grade, level of giftedness, and educational experiences, how academically gifted students perceive their interpersonal competence, particularly their abilities to interact with other people, including same-age peers, social adjustment, social coping skills and peer relationships. This study also sought to understand the factors related to social competence and specially to predict social competence using variables suggested to impact social competence in previous research. Additionally, we compared students who were more versus less socially capable and students who perceived their peer relationships positively versus negatively on variables such as gender, age, experience with academic acceleration, and participation in and outside of school gifted programs. Specific research questions inquired for this study were as follows:

(1) How do academically gifted students perceive the quality of their relationships with others, particularly peers?

(2) How do gifted students rate their social competence, including initiating relationships, providing emotional support, disclosing themselves or their feelings to other people, managing conflicts with others and popularity with peers, etc.? How do their perceptions compare to those of mixed ability, heterogeneous groups of students?

(3) Which variables (e.g., gender, grade, participation in gifted programs, scores on SAT, ACT, EXPLORE, etc.) predict aspects of students' social competence, including interpersonal ability and peer relationships?

(4) What are the differences between socially capable students and less socially capable students in terms of their participation in gifted programs, experiences with academic acceleration, and demographic characteristics?

## Method

### *Participants*

A total of 1,526 students who had previously participated in the Northwestern University Midwest Academic Talent Search (NUMATS) and/or the Center for Talent Development (CTD) summer programs from 2005 to 2008 were the subjects of this study. The students took off-level tests (EXLORE, SAT or ACT) as 6<sup>th</sup>, 7<sup>th</sup> or 8<sup>th</sup> graders through NUMATS. To participate in NUMATS, students must score in the top 90 to 99<sup>th</sup> percentile on a nationally normed in-grade achievement test or a state achievement test, be nominated by teachers or parents, and/or have qualified for in-school gifted programs. Some of the students had also participated in one or more CTD educational programs (summer, weekend or distance learning). They qualified for the educational programs based on their scores on the off-level tests or via an admission portfolio. On the off-level tests, the cut-off scores for admission to the programs vary by grade level and course (see [www.ctd.northwestern.edu](http://www.ctd.northwestern.edu) for information). Students who do not have the required

test scores submit an admission portfolio consisting of teacher recommendations, any recent score on a nationally normed grade level achievement test, their most recent school report card or transcript and a graded writing assignment for verbal courses.

Among the students who participated in this study, 52.5% were males and 47.5% were females. About two-thirds (63.2%) of the students were in grades 6 to 8, one-third (30.3%) in grades 9 to 12 and 6.5% in grade 5. The majority of the students were Caucasian (85.5%) followed by 8.4% Asian, 2.4% African American, 1.7% Hispanic and 2.0% other ethnicities, and these percentages are comparable to those for NUMATS participants in general<sup>1</sup>. One quarter of the students reported to have participated in gifted programs at school, while a larger proportion had participated in outside-of-school gifted programs, such as summer, weekend, or online programs (42.9%). A variable regarding the level of participation in gifted programs was created by summing each grade (e.g., two years if two grades were chosen) in which the students had participated in a program. Of the students who had participated in in-school gifted programs, most had been in the programs for 3 to 5 years (43.2%), followed by for more than 5 years (33.7%) and for 1 to 2 years (23.2%). The majority of the students who had participated in outside-of-school gifted programs were in the programs for 1 to 2 years (60.0% summer programs, 59.8% weekend programs, 82.4% online programs, 55.6% other types), with distance learning programs being the predominant type. See Table 1 for more information.

[Insert Table 1 about here]

### *Data Collection*

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<sup>1</sup> Over the past 10 years, gender and ethnic proportions of general talent search students at CTD were 52.2% males and 47.8% females; 79.2% Caucasian, 8.3% Asian, 6.9% African American, 1.8% Hispanic and 3.8% multiracial or other ethnicities (see Olszewski-Kubilius & Lee, 2011 for more information).

In fall 2008, an email invitation asking for participation in this study was sent to 33,800 students who had participated in the Northwestern University Midwest Academic Talent Search (NUMATS) and/or summer academic programs from 2005 to 2008. This student pool was based on the CTD database that stores students' email addresses. Upon parents' permission, students were allowed to respond to an online survey created by the Center for Talent Development (CTD) research department. The online survey consisted of six sections and included items from four different instruments (i.e., ICQ, SS, SCQ, SPPA), one survey about peer relationships developed by CTD and other gifted institutions, and a section about student demographics. Given that the current study was designed to examine students' social competence with foci on interpersonal competence and peer relationships, the instruments involved in this study were selected based on the content, reported validity, and/or reliability of the scales preceded by a comprehensive review of relevant literature.

First, items of the *Interpersonal Competence Questionnaire-Revised (ICQ-R: Buhrmester et al., 1988)* were included to assess students' interpersonal competence. The ICQ-R consists of five subscales that measure individuals' ability to initiate relationships, provide emotional support, assert influence, disclose feelings or opinions, and resolve conflicts. Each subscale comprises eight items, and all of these subscales were used in this study in consideration of the validity of the measure for interpersonal competence of adolescents (see Buhrmester, 2002). Internal consistency estimates of reliability were computed using Cronbach's alphas. For our sample, values for alpha ranged from .81 to .90 on the subscales (see Table 2), and reported Cronbach's alpha coefficients involving the total items of the scale were .93 for preadolescents and .92 for adolescents (see Buhrmester, 1990 for details). Pearson correlation coefficients confirmed positive relationships among the subscales ( $p < .01$ ). See Table 3. Mean scores of the

subscales were computed using the eight items of each subscale. Higher scores represent a greater likelihood to display each of the variables on the subscales (1 = “poor at this” to 5 = “extremely good at this”).

Second, two subscales of the *Socioemotional Survey* (SS; Buhrmester, 1989) were used for this study. The SS is composed of four subscales: sociability (e.g., working well with other people, getting involved in social relationships), anxiety (e.g., feeling nervous, tense, anxious), hostility (e.g., getting angry, being stubborn, having a hot temper) and depression (e.g., feeling lonely, sad or blue), and each subscale consists of 10 items. In the online survey, two of these four subscales--sociability and depression--were included to measure students' social competence. Across the four subscales, Buhrmester (1990) reported alphas ranging from .72 to .82 for students aged 13 to 16. Our sample yielded a Cronbach's alpha of .89 for sociability and .84 for depression, comparable to those reported by Buhrmester (see Table 2). Similar to the correlation coefficients computed for the Buhrmester sample ( $r = -.27$  between sociability and anxiety/depression subscales), a negative relationship was found between sociability and depression for our sample [ $r(1035) = -.40, p < .01$ ]. Scores for sociability and depression were computed by averaging students' responses across the 10 items of each subscale. Mean scores were based on a five-point response category from “never or not true” (1) to “quite often or very true” (5).

Third, four subscales of the *Self Perception Profile for Adolescents* (SPPA; Harter, 1988) were used to assess students' self-concept associated with their interpersonal ability and peer relationships. The SPPA contains nine domains of self-concept: scholastic competence, social acceptance, athletic competence, physical appearance, job competence, romantic appeal, behavioral conduct, close friendship and global self-worth. Each domain includes five items and

is reported to define its distinct dimension of the self-concept (see Harter, 1988 for details). This study included four domains, two regarding social competence (i.e., social acceptance and close friendship) and two regarding academic competence (i.e., scholastic competence) and general self-concept (i.e., global self-worth). Values for alpha on scholastic competence, social acceptance, close friendship and global self-worth subscales ranged from .98 to .99, which was higher than alphas from a grade equivalent norming sample ( $N = 109$ , 8<sup>th</sup> grade students), which ranged from .79 to .81 (Harter, 1988). Thus, all of these coefficient alphas suggested that each of the subscale scores is reasonably reliable for our gifted sample (see Table 2). Mean scores for the four subscales were computed, preceded by reverse coding for items that were worded in a negative direction. There were five items per subscale, and mean scores ranged from “competent” (4) to “incompetent” (1). Pearson correlation coefficients showed positive relationships among social acceptance, close friendship, scholastic competence and global self-worth self-concepts (see Table 3). All of the correlations among these subscales were statistically significant ( $p < .01$ ).

Fourth, six items on the peer acceptance subscale of the *Social Coping Questionnaire* (SCQ; Swiatek, 2001), a scale reported to identify and measure gifted adolescents' social coping strategies (Swiatek, 2001; Swiatek & Dorr, 1998), were included. Items on peer acceptance ask about a belief that giftedness does not affect peer relationships, either positively or negatively. Three of the six items were reverse coded so that a higher score (7 = “strongly false” to 1 = “strongly true”) indicated a lower likelihood of feeling peer pressure related to the negative impact of being gifted. The items yielded a Cronbach's alpha of .61 for the subscale, which was low but comparable to previously reported values ( $\alpha = .63$  and .71) for a sample of gifted high

school students (Swiatek, 2001; also see Swiatek & Dorr, 1998) and  $\alpha = .71$  for a sample of gifted junior high school students (Swiatek, 1995)<sup>2</sup>.

Fifth, 12 additional items were used to assess friendships as part of the measures for peer relationships related to giftedness. The items were developed by CTD and several other gifted centers in the U.S. to examine how easily gifted children make and find friends at school. Examples of the items included students' number of friends at school, their satisfaction with overall friendships and perceived difficulty in making friends at school.

Lastly, items regarding student demographics, such as gender, ethnicity, parental education, and parental occupation, were included at the end of the survey. Items also asked about students' experiences with gifted programs in and outside of school and academic acceleration. Parents, not students, were asked to respond to these items and could opt to skip any questions they felt uncomfortable answering.

For respondents, it takes approximately 20 to 25 minutes to complete the entire survey. Following three email reminders after the initial email invitation, a total of 1,526<sup>3</sup> students and their parents responded to the survey from November to December 2008, which yielded a 5.0% response rate of valid cases. This final response rate was much lower than the typical response rate reported for online surveys<sup>4</sup>.

[Insert Table 2 about here]

[Insert Table 3 about here]

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<sup>2</sup> Less stable and weaker reliability coefficients ( $\alpha \geq .27$ ) were also reported on the social acceptance subscale than other subscales of the SCQ for gifted adolescents (see Cross & Swiatek, 2009).

<sup>3</sup>Due to changes in students' email addresses, 10% of the email invitations were sent back to the sender (CTD).

<sup>4</sup>For online surveys, generally, response rates have been reported to be as high as 20% to 30% (see <http://www.zoomerang.com/Response-Rate/>) with a 26.45% median response rate (Hamilton, 2009).



*Data Analysis*

Given the stable reliabilities and high correlations among the items used for this study, two indices were created to measure students' social competence. One, the interpersonal ability index, was computed by including all of the ICQ (Buhrmester et al., 1988) subscales and the sociability subscale of the SS (Buhrmester, 1989), to specifically assess students' perceived competence of their interpersonal ability. The other, the peer relationships index, was created by combining items on the social acceptance and close friendship subscales of the SPPA (Harter, 1988) to measure students' perceptions of their peer relationships. The combined items of the entire ICQ subscales and the sociability subscale of the SS yielded an alpha of .95, and items involving both social acceptance and close friendship subscales of the SPPA yielded a Cronbach alpha of .99. Therefore, each of the combined scales for social competence yielded a high internal consistency reliability coefficient.

Descriptive statistics were computed for each scale included in this study and compared with normative data or samples if reported in the administration manuals or literature. Multiple regression analyses were conducted to examine which sets of variables (i.e., students' demographics, educational experiences, and performances on off-level tests) predict students' social competence using the interpersonal ability and peer relationships indices. Comparisons by students' demographics (e.g., gender, grade) and their experiences with academic acceleration (e.g., gifted programs, whole grade acceleration, subject matter acceleration) on the two indices of social competence were conducted using multivariate analysis of variance (MANOVA).

Students were also grouped by their level of social competence (i.e., highly capable versus less capable), and high versus low groups were compared for their performance on off-level tests (e.g., SAT, ACT, EXPLORE) and the amount of time they participated in in-or

outside-of-school gifted programs, using the MANOVA. In order to control the inflated Type I error, the Bonferroni method was used, thereby dividing .05 by the number of dependent variables or the number of comparisons.

## Results

### *Overall Social Competence*

*Interpersonal competence.* Overall, students' perceptions of their interpersonal competence were above average. On the ICQ-R, means on the subscales ranged from 3.2 to 3.8 out of 5 indicating that students felt fairly comfortable and were able to deal with situations related to initiating relationships with other people by starting up conversations or making good first impressions with new people; asserting themselves or convincing others to agree with them, making decisions, voicing opinions or taking charge; providing emotional support to other people when they are sad or unhappy; disclosing their emotions, feelings, thoughts or opinions; and solving conflicts by resolving disagreements with other people, controlling their temper when having conflicts with others, etc. When the means of these students were compared to those of 8<sup>th</sup> grade students ( $N = 185$ ) in a normative sample, the effect sizes for mean differences between groups were all small or negligible ( $d < .3$ ). This confirmed that the level of interpersonal competence of the students in this study was comparable to that of heterogeneous students in the norming sample (see Table 4).

*Sociability and depression.* Students' ratings of their sociability on the SS indicated positive self-perceptions. Students responded that they are generally good at interacting and having good relationships with other people including peers ( $Mean = 3.9$ ). Over 75% of the students responded either "generally true" or "very true" on the items that other people have fun with them (84.5%) or like to be with them (82.4%) and that they are especially nice to other

people (76.4%) and say things that make other people laugh (75.9%). In contrast, they perceived their level of depression to be fairly low ( $Mean = 2.0$ ). For example, a very small percentage of students responded that they “often” or “very often” feel worthless about life (2.8%), have no interest in things (3.9%), are hopeless about the future (5.3%), are sad or blue (5.7%).

*Peer relationships.* Overwhelmingly, students responded that they are happy with the number of friends they have (90.6%) and their relationships with their friends (94.0%). They reported that they have many friends at school (82.5%) and do not have difficulty finding friends at school (82.2%). Most of the students chose similar interests or activities (93.8%) as the most important factor to look for in a friend, while only 4.2% referred to age and grade. For these students, giftedness was not perceived as a negative factor in terms of making or finding friends. Overwhelmingly, they disagreed that being smart or good at school made it harder to make friends (88.2%) and that they hid their high academic ability at school because they are concerned that others will not like them because of it (77.7%).

*Social coping.* Students' responses to items regarding peer pressure on the SCQ showed that they generally did not perceive giftedness as a factor leading to negative peer pressure ( $Mean = 5.22$  of 7 “strong false”). Specifically, approximately two-thirds of the students moderately or strongly denied that being gifted hurt their popularity (67%), that they would fit in better at school if they were not gifted (66.4%), or that they are liked more or less by other students because they are gifted (65.2%). The majority of the students also responded that they do not try to hide their giftedness from other students (61.9%).

*Self-concept.* Overall, students perceived themselves to be fairly competent socially and scholastically. The mean scores of students' perceptions of their social acceptance, close friendships, scholastic competence and general self-worth ranged from 3.2 to 3.5, which were

close to the highest (score = 4) score possible. A considerable proportion of students had the highest score for all five items of each subscale (*Mean* = 4); 26.0% for close friendship, 25.2% for global self-worth, 16.6% for scholastic competence and 15.3% for social acceptance. When compared to a heterogeneous group of students ( $N = 109$ )<sup>5</sup> in the norming sample, mean differences between the two groups resulted in small effect sizes ( $d < .2$ ) for the social acceptance and close friendship subscales. These results confirmed that our sample of gifted students and the heterogeneous students were not noticeably different in terms of their perceived self-competence in interacting with other people, their popularity and their ability to make friends and form close friendships. However, a large effect size ( $d = .91$ ) was found in scholastic competence and a medium effect size ( $d = .60$ ) was found in global self-worth, favoring the gifted students over heterogeneous students. Therefore, the students in this study had more positive self-concepts overall and higher academic self-concepts than the 8<sup>th</sup> grade students in the comparison group.

The differences between students' subtest scores were generally small ( $.2 < d < .5$ ) or negligible ( $d < .2$ ). However, a medium effect size ( $d = .53$ ) was found for the difference between students' scholastic competence and their social acceptance, favoring scholastic competence, and a small but close to a medium effect size ( $d = .41$ ) was found for the difference between students' general self-worth and social acceptance, favoring general self-worth. These differences suggested that academically gifted students perceive a significantly higher level of scholastic competence than social acceptance, which contributes to an overall higher level of

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<sup>5</sup> This sample consisted of 8<sup>th</sup> grade students who were mostly Caucasian (approximately 90%) and came from lower middle to upper middle class families in the state of Colorado (see Harter, 1988 for more information).

global self-worth, yet even their relatively lower levels of social acceptance are comparable to those of heterogeneous groups of students.

[Insert Table 4 about here]

### *Predicting Social Competence*

A multiple regression analysis was conducted to examine variables predicting students' social competence. Students' demographics, such as gender and grade level; educational experiences consisting of the level of participation in in-school and/or outside-of-school gifted programs (i.e., the number of times/years of participation), whether having whole grade and/or subject area acceleration in school; and performances on the reading and math subtests of the SAT, ACT and EXPLORE were included as independent predictor variables of students' social competence. Two indices--the interpersonal ability index and the peer relationships index--were the dependent variables comprising social competence.

### *Interpersonal Ability*

Three single sets of multiple regressions were conducted to predict students' interpersonal ability. First, students' gender and grade were entered as predictors of the interpersonal ability index. The regression equation with these two variables was significant,  $R^2 = .03$ , adjusted  $R^2 = .03$ ,  $F(2, 602) = 8.62$ ,  $p < .001$ , demonstrating that the linear combination of students' demographic measures (i.e., gender and grade) was significantly related to their interpersonal ability. The sample multiple correlation coefficient was .17 and thus about 3% of the variance of the interpersonal ability index was likely to be accounted for by the linear combination of students' gender and grade level. Both of the regression coefficients (B) were negative, indicating that the gender and grade predictors were negatively related to the interpersonal ability index. The partial correlations between these two predictors and the

dependent variable were also negative with a statistically significant relationship only between gender and interpersonal ability ( $r = -.16, p < .05$ ). The t-test for gender reached statistical significance,  $t(602) = -3.94, p < .001$ , confirming that the obtained regression coefficient for the gender variable, but not the grade variable, differed from zero. Therefore, it appeared that gender was a contributing predictor of interpersonal ability, accounting for 2.6% of 3% of the variance of the interpersonal ability index, with higher interpersonal ability for females than males.

The second set of predictors were students' educational experiences, such as having whole grade acceleration or subject area acceleration, and years of participation in in-school and/or outside-of-school gifted programs. The regression equation was not significant,  $R^2 = .04$ , adjusted  $R^2 = .03, F(3, 171) = 2.57, p = .06$ , that the linear combination of the educational experience variable was not significantly related to the interpersonal ability index.

Third, students' performances on the reading and math subtests of the SAT, ACT and EXPLORE tests were included as the predicting variables. For our sample of gifted students, the regression equation yielded no significant relationship between these off-level test scores and the interpersonal ability index,  $R^2 = .10$ , adjusted  $R^2 = .03, F(6, 75) = 1.41, p = .22$ .

### *Peer Relationships*

Multiple regression analyses were conducted to examine significant predictors of students' peer relationships. The first regression equation involving students' gender and grade as predictors of peer relationships showed that the combination of these two independent variables were significantly related to the peer relationships index,  $R^2 = .04$ , adjusted  $R^2 = .04, F(2, 695) = 13.88, p < .001$  and that both gender and grade variables accounted for about 4% of the variance of the peer relationships index. The regression coefficient (B) was negative for the gender variable, and partial correlations between gender and peer relationships, but not between

grade and peer relationships, were statistically significant ( $p < .05$ ) and negative ( $r = -.2$ ). Thus, gender alone accounted for most (4%) of the variance of the peer relationships index and that female students tended to perceive their peer relationships more positively than male students. Results of the t-tests confirmed that the regression coefficient for the gender predictor differed from zero,  $t(695) = -5.27, p < .001$ , and thus, gender contributed the most to the prediction of peer relationships ( $p < .05$ ) for our sample of gifted students, while the contribution of students' grade level was no more than we would expect by chance ( $p > .05$ ).

Second, the linear combination of students' educational experiences was significantly related to their peer relationships,  $R^2 = .07$ , adjusted  $R^2 = .05$ ,  $F(3, 172) = 4.16, p = .01$ , indicating that about 7% of the variance of students' peer relationships was accounted for by their experiences with whole grade acceleration, subject area acceleration, and/or years of participation in gifted programs in and outside of school. Of these three predicting variables, the bivariate correlations between whole grade acceleration and peer relationships ( $r = -.20$ ), and between subject area acceleration and peer relationships ( $r = -.23$ ) were negative and statistically significant ( $p < .05$ ). Yet, none of the partial correlations between these measures and the peer relationships index was significant ( $p > .05$ ) and t-tests results confirmed that all the obtained regression coefficients did not differ from zero ( $p > .05$ ). Thus, it appeared that students with experiences with whole grade acceleration or subject matter acceleration tended to perceive their peer relationships more negatively than students without such accelerated experiences though these did not significantly contribute to the prediction of students' peer relationships.

Third, students' scores on the reading and math subtests of the SAT, ACT and EXPLORE tests did not yield a statistically significant regression equation,  $R^2 = .11$ , adjusted  $R^2 = .05$ ,  $F(6, 91) = 1.78, p = .11$ . Thus, for our sample of gifted students, the overall relationship

between test scores and the peer relationship index was not statistically significant, and students' performances on off-level tests had little predictive power for their peer relationships.

*Comparisons by Student Demographics and Educational Experiences*

*Demographics*

*Gender.* Results of the multivariate tests showed that Wilk's Lambda of .95 was significant,  $F(4, 1810) = 11.01, p = .000$ , but the  $\eta^2$  of .02 indicated that only a small portion (2%) of multivariate variance of the dependent variables (interpersonal ability and peer relationships) was related to gender. The univariate ANOVAs were statistically significant for the interpersonal ability index,  $F(2, 906) = 10.22, p = .000$  and the peer relationships index,  $F(2, 906) = 14.59, p = .000$  with higher means for females than males. However, effect sizes for the mean differences were small for both indices ( $d = .30$  for interpersonal ability and peer relationships, respectively).

*Grade.* Male and female students were not different by grade in their perceptions of their interpersonal ability and peer relationships; Wilks' Lambda of .99 was not statistically significant at the level of .025. Tests of between-subjects effects confirmed no statistically significant differences in students' scores on the interpersonal ability and peer relationships indices by grade level ( $p > .025$ ).

*Educational Experiences*

Students' participation in gifted programs, either in or outside of school, and experience with whole grade acceleration in school were not associated with differences in their social competence. Results of the multivariate tests were not statistically significant for the number of years that students participated in within school or outside-of-school gifted programs or for their experience with whole grade acceleration at school; Wilks' Lambdas for each were above the



significant level of .025. The univariate ANOVAs confirmed that there were no significant differences for the interpersonal ability scores and the peer relationships scores ( $p > .025$ ).

Multivariate tests did not yield a significant difference in social competence as a function of being grade accelerated in school ( $p > .025$ ). However, the univariate ANOVA showed a significant difference for the interpersonal ability score,  $F(1, 586) = 5.32, p = .02$ , indicating that students who had been grade accelerated had higher means than students who had not been accelerated.

#### *Comparisons Between Higher Versus Lower Social Competence Groups*

High and low social competence groups were identified using the interpersonal ability index and the peer relationships index. Students who ranked in the top 25 percentile were identified as the members of the high group for each index, while students who ranked in the lowest 25 percentile were identified as the low group for each index. As a result, a total of 234 and 308 students were grouped into the high interpersonal ability group and the high peer relationships group, respectively, and a total of 234 and 274 students were selected for the low interpersonal ability group and the low peer relationships group, respectively. For students in the high group, their scores were about one standard deviation (.74 for interpersonal ability and 1.0 for peer relationships) above the mean of the total sample, while students in the low group had scores that were 1.4 (for peer relationships) and 1.6 (for interpersonal ability) standard deviations below the means of the total sample in this study.

[Insert Table 5 about here]

Students' scores on the reading and math subtests of the off level tests (e.g., SAT, ACT, EXPLORE) were compared between the high and low social competence groups (see Table 4 for descriptive statistics). On the SAT, multivariate tests yielded a significant difference between the

high and low interpersonal ability groups, Wilk's Lambda = .95,  $F(2, 213) = 5.89$ ,  $p = .003$ , but not for students in the high versus low peer relationships groups ( $p > .025$ ). Tests of between-subject effects demonstrated differences both on the reading,  $F(1, 214) = 11.66$ ,  $p = .001$ , and math,  $F(1, 214) = 5.29$ ,  $p = .022$ , subtests of the SAT between the students of high versus low interpersonal ability, favoring the low group on both subtests. Effect sizes were medium ( $d = .46$ ) for the reading subtest and small ( $d = .32$ ) for the math subtest. As for peer relationships, a higher mean was found for students in the low group than in the high group on the SAT-Reading  $F(1, 271) = 5.26$ ,  $p = .023$  with a small effect size ( $d = .28$ ) for the difference. No difference was found on the SAT-Math ( $p > .025$ ).

On the ACT, Wilks' Lambdas were significant for both high and low interpersonal ability groups, Wilk's Lambda = .96,  $F(2, 233) = 4.42$ ,  $p = .013$ , and high and low peer relationships groups, Wilk's Lambda = .97,  $F(2, 285) = 4.83$ ,  $p = .009$ . Specifically, students' performances on the reading subtest (but not on the math subtest) were different between the high and low interpersonal ability groups,  $F(1, 234) = 8.80$ ,  $p = .003$ , and between the high and low peer relationships groups,  $F(1, 286) = 9.68$ ,  $p = .002$ , all favoring students in the low groups. Effect sizes were small for these differences ( $d = .39$  for interpersonal ability and  $d = .37$  for peer relationships).

The results of multivariate tests found no significant differences on the reading and math subtests of the EXPLORE test between students of high versus low interpersonal ability and between students in high versus low peer relationships groups ( $p > .025$ ). The univariate ANOVAs confirmed no significant differences for both groups of students ( $p > .025$ ).

*Experience with Specialized Gifted Programs*

MANOVAs found no significant differences between the students in the high versus low interpersonal ability groups, Wilk's Lambda = .99,  $F(2, 465) = .97$ ,  $p = .38$ , and in the high versus low peer relationships groups, Wilk's Lambda = 1.00,  $F(2, 579) = .09$ ,  $p = .91$ , in terms of their participation in gifted programs of any type. Tests of between-subject effects confirmed no statistically significant differences between the high and low groups in their participation in in-school gifted programs,  $F(1, 466) = 1.23$ ,  $p = .27$  (for interpersonal ability),  $F(1, 580) = .06$ ,  $p = .81$  (for peer relationships), or outside-of-school gifted programs,  $F(1, 466) = 1.33$ ,  $p = .25$  (for interpersonal ability),  $F(1, 580) = .06$ ,  $p = .81$  (for peer relationships).

### Summary and Discussion

The results of this study replicated several findings from previous studies. First, our sample of gifted students had generally positive perceptions of their social competence and demonstrated levels of interpersonal ability, comparable to that of grade equivalent students in the norming group. Like mixed ability, heterogeneous students of the same grade, our students rated themselves as fairly competent in initiating, forming and maintaining relationships with other people, including their peers, and believed that they are liked by others. They were hopeful about their future and had a positive overall self-image with low levels of depression. The students in this study were very satisfied with their peer relationships at school and in general. Similar to the previous study (e.g., Adams-Byers et al., 2004), apparently for our students, being labeled as gifted did not bring any negative effects in forming friendships, which is somewhat different from what some researchers had previously reported, including a sense of being different and a perceived lack of peer support (Coleman & Cross, 1988; Delisle, 1984; Janos, Fung, & Robinson, 1985; Rimm, Rimm-Kaufman, & Rimm, 1999; Swiatek & Dorr, 1998).

Our gifted students perceived their social competence as positively as the normative sample on the one hand, they rated their academic self-concept and global self-concept significantly higher than their social self-concept (e.g., Olszewski, Kulieke, & Willis, 1987) on the other hand. Given that our sample consisted of academically gifted students, there was an expectation of higher academic self-concept for these students over the students in the norming group. However, differences within domains of self-concept, particularly a lower social self-concept compared to academic and global self-concepts imply that these gifted students perceived themselves less socially competent than academically competent and that their exceptional academic capability boosts their overall self-image. This may be another manifestation of previously documented asynchrony among academically gifted students. Our sample of gifted students showed a potential discrepancy between their chronological (i.e., social competence) and intellectual (i.e., academic competence) ages, a phenomenon often found for many gifted students (Robinson, 2002).

This study supported the common belief and previous research revealing gender differences, favoring girls over boys in interpersonal ability (Lee & Olszewski-Kubilius, 2006; Rudasill & Callahan, 2008). For example, Lee and Olszewski-Kubilius (2006) found that gifted female students had a significantly higher score than gifted male students on the interpersonal ability subscale of the youth version of the *Bar-On Emotional Quotient Inventory* (Bar-On & Parker, 2000). We are not sure if our result reiterates gifted females' strong desire for social acceptance (Stormont, Stebbins, & Holliday, 2001), however, it corroborates that as many other females, our sample of gifted females tend to be more sensitive to and better at building relationships and interacting with other people including peers and perceive their social skills more positively than their gifted counterparts.

Another interesting finding in this study was differences in interpersonal ability as a function of whether a student had experienced subject acceleration in school. Students who were grade accelerated in a subject in school showed higher interpersonal ability than students who were not. Yet, it is not clear whether having better interpersonal skills contributed to a student being a good candidate for subject acceleration by school officials or whether this was an effect of the acceleration. One of the major benefits of acceleration is to have advanced academic coursework with peers of high ability with whom students have their common interests and talents. Through subject area acceleration in school, our gifted students were able to interact with older students who may have helped them advance their social and interpersonal skills. We did not obtain the same finding for students who had full grade acceleration or participated in special gifted programs; their interpersonal ability was comparable to the level of students who had not experienced whole grade acceleration or gifted programs of any type. This suggests that improved interpersonal skills might be an outcome rather than a precursor of subject acceleration but more research needs to be conducted to reassure this speculation.

It was not surprising that only 10% of our sample had accelerated a whole grade. However, the fact that over 40% of the students had participated in outside-of-school gifted programs was noteworthy given that fewer (25%) students had participated in in-school gifted programs. There are numerous methods of grouping and gifted program models available and used in schools. A study involving a wide array of grouping strategies and program types would better assess which types of acceleration and program components promote or hinder the development of interpersonal ability and peer relationships of gifted students.

For our gifted students, off-level tests were not only a useful method for placement into specialized gifted programs but also for the identification of students at risk for poor social

competence, particularly peer relationships. Particularly, the reading subtests of the SAT and ACT tests were good predictors of these teenagers' peer relationships, thereby indicating that students with higher scores in the verbal area were more negative about their ability to build and maintain close friendships. While scores on the reading subtests differentiated middle school students (based on SAT and ACT) of high versus low interpersonal ability but it was not true for elementary school aged children. Unlike the SAT and ACT reading subtests, no significant differences were found on EXPLORE-Reading between the high versus low interpersonal ability and peer relationships groups. Consistently though our results substantiated that verbally talented students may be more vulnerable socially than mathematically talented students (Brody & Benbow, 1986; Dauber & Benbow, 1990; Ferguson & Maccoby, 1966). Although gifted students are generally competent in making friends and maintaining good relationships with their friends, those who are talented in verbal areas over other areas are apt to face more difficulties with peer relationships. Verbal giftedness is typically associated with advanced vocabularies and perhaps sophisticated forms of expression which make students' giftedness obvious and do little to increase their acceptance by or popularity with peers. Anything that separates students from others or makes them different may put them at risk for isolation. Verbally gifted students who dumb down their language or vocabulary or verbal humor may put themselves psychologically at risk as they struggle to both fit in and remain true to themselves. Our research suggests that the stereotypical "math nerd" is not as vulnerable for social isolation as one thought and verbally gifted students may actually need support to deal with feelings of difference and isolation or rejection. It would be interesting to compare gifted students across different talent areas (e.g., language versus math, music versus art) and in broader age groups, including high school and college levels, in order to find differences within gifted populations.

### Limitations and Future Research

Results of this study relied on a self-reported measure, mainly based on students' own perceptions, which might lead to more positive than negative responses. However, our sample size was large by involving more than 1,500 students, and the responses were consistent across different questionnaires measuring similar concepts of social competence. Adding ratings from other parties, such as teachers, parents, and peers, and qualitative measures, such as observation, and interviews would strengthen our results, however.

Despite the large sample size, a low response rate (approximately 5.0%) for the online survey is another limitation of the current study. This might also have an influence on the positive results we found throughout the study. Maybe, students who had perceived positively about the CTD educational programs or were happy with their peer relationships might feel more comfortable revealing their peer relationships, and thus, were more willing to respond to the survey than those with negative and unhappy experiences with CTD and their peer relationships. Our email invitation was sent to parents (either fathers or mothers) of the students since CTD has collected parents' emails as students' primary contact addresses. Given that not all email addresses are valid (we had 10% return emails due to incorrect or unused accounts) and that parents may not be able to check their emails as often as students, we did not receive as many responses as we hoped although we solicited for responses via several follow up emails. Large email invitation lists are reported to be associated with lower response rates (Hamilton, 2009). Using a focused and accurate email list is suggested to increase responses for online studies.

Some, but not all, of our data were compared with normative data if available and reported in the administration manuals or literature. Because we included the questionnaires that have been widely used for students in general, we were not able to compare our sample of gifted

students with other gifted samples. Also, some of the comparative data we referred to were based on a small sample size. Inclusion of a comparable group, such as gifted students who have never participated in outside- of-school gifted programs or have only participated in in-school gifted programs would enrich our understanding of the interpersonal competence and peer relationships of the gifted.

The participants of this study were students who were identified as academically gifted and qualified for gifted academic programs outside of school. Gifted students are variable as a group by their level of giftedness (e.g., moderately, highly, profoundly, etc.) and talent area (e.g., music, art, math, reading, leadership, etc.). In addition, compared to academically gifted students like our sample, creatively gifted students are more vulnerable to behavioral and adjustment problems, peer rejection, and bullying due to the characteristics (e.g., impulsive, argumentative, rebellious, stubborn, demanding, indifferent/nonconforming to conventions or courtesies, etc.) generally regarded as negative traits (see Reis & Housand, 2008; Reis & Small, 2005 for summary). The inclusion of various different subpopulations of gifted students is recommended for future research as well.



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