

Relationship Between Levels of Giftedness and Psychosocial Adjustment

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This study compares two groups of gifted students, highly (N=74) and moderately (N=163) gifted, on a number of scales including self-concept, emotional autonomy, and anxiety. Although a measure of academic ability was used to create distinctive ability groups, the results did not support the hypotheses that highly gifted students would be more likely to display lower self-concepts and more adjustment problems than the moderately gifted group. These findings are examined in light of past research on differences in highly and moderately gifted students.

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The relationship between intellectual ability and psychosocial adjustment has been a source of controversy which has not abated since before Lombroso (1891) published his suppositions that gifted children were puny, unpopular, weak, and disturbed (Janos & Robinson, 1985). Terman (1925; 1959) dispelled Lombroso's assertions in his longitudinal study of children with IQ's of 140 and above, as measured by the Stanford-Binet. He concluded that these bright children were better adjusted than their less-gifted counterparts. In contrast, Hollingworth (1942) found her sample of children with IQ's over 180 "...so far beyond the abilities of their age group that they would have difficulties in making both educational and social adjustments." She suggested that there were problems with which they must learn to deal, among them "to suffer fools gladly, to keep from becoming negativistic toward authority, and to keep from becoming hermits" (p. 299).

More recent research finds the relationship between ability and adjustment

still unclear. Studies comparing self-concept and self-esteem of intellectually gifted and non-gifted students generally report gifted students to be at least as well adjusted as regular students (Coleman & Fults, 1983, 1985; Janos & Robinson, 1985; Karnes & Wherry, 1981). Yet, adjustment problems for some gifted students have been documented in autobiographies, case studies, and research studies of highly gifted or talented individuals (Gallagher, 1958; Gross, 1993; Maas, 1992; Montour, 1976; 1977; Tannenbaum, 1983).

Potential contributors to the seemingly contradictory findings regarding adjustment in gifted children are the definitions and criteria used to identify gifted students. These vary widely from study to study. Some studies fail to state the criteria for giftedness altogether. Furthermore, literature which specifically delineates "moderately gifted" from "highly gifted" students is limited.

It was anticipated that the picture of adjustment in gifted children would become clearer if a distinction were made between studies involving highly gifted and those involving primarily moderately gifted children. For this review, only studies that identified students as scoring two standard deviations or more above the mean on an IQ test or standardized scholastic achievement measure, such as the SAT, were selected as studies of highly gifted students. Studies designated as examining moderately gifted students were those which only selected students based on participation in public school gifted programs. However, it should be noted that some students in gifted programs may be highly gifted or not gifted at all (Ramsay, 1992).

Many parents and educators agree with Hollingworth's (1942) hypothesis that some highly gifted are at risk for serious adjustment problems. Even Terman found that some highly gifted children might be at risk (Terman & Oden, 1947). Selecting a sample of 75 children with IQ's of 170 from their longitudinal study of 1500 gifted children, Terman and Oden did report serious adjustment problems among children in this group.

More recently, in her study of 15 children with IQ's of at least 160, Gross (1993) reported that their scores on the social self-peers subscale of a standard-

ized self-esteem scale were significantly below the mean for their same aged peers. Similarly, Janos, Fung, and Robinson (1985) studied the psychosocial development of 271 high IQ (mean = 139.9 IQ) children. They reported that 88 (37%) children in this group conceptualized themselves as "different" from their peers. Self-esteem scores for the group who saw themselves as "different" were significantly lower than high IQ children who did not see themselves as different.

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 concluded that these highly gifted youths, especially the verbally gifted, may be at greater risk for developing problems in emotional and social adjustment than their less gifted counterparts.

Two literature reviews on gifted children reached similar conclusions. In his literature review on extremely high IQ children, Tannenbaum (1983) concluded that children with IQ's above 145 "showed somewhat greater adjustment than did those slightly below them in intelligence," (p. 102) and that many found it difficult to relate socially to their agemates. Tannenbaum did report many positive personality characteristics of these children, but emphasized their inability to get along with their peers. Similarly, Janos and Robinson (1985) maintained that at least 20 to 25 percent of children with very high ability suffer psychosocial difficulties as compared to five to seven percent of moderately gifted and six to 16 percent of average children.

On the other hand, some researchers have reported findings that conflict with the idea that highly gifted students may have adjustment problems.

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Haier and Denham (1976) reported that a group of highly gifted 7th, 8th and 9th grade students (74 males and 25 females), who participated in the Study of Mathematically Precocious Youth (SMPY), a highly selective program at Johns Hopkins, were "interpersonally effective and socially mature" (pp. 239). Similarly, Richardson and Benbow (1990) assessed the social development at ages 18 and 23 of 1,247 SMPY participants using two self-report measures. The participants reported themselves to be well adjusted, with high self-esteem, an internal locus of control, and strong self-efficacy.

Finally, Grossberg and Cornell (1988) examined the correlation between IQ and psychological adjustment in a group of 83 seven to 11-year-olds with an average IQ of 139.95. They found no significant positive or negative relationships between IQ and any of their adjustment measures. Even when they limited the range of IQ's to 130-168 and 145-168, no significant relationships to adjustment emerged.

In contrast to the mixed findings regarding the adjustment of highly gifted students, studies of moderately gifted students are relatively consistent. Positive findings have been reported by Holliday, Koller, & Kunce (1996) in gifted high school students; Saylor and Brookshire (1996) in eighth graders; Karnes and Wherry (1981) in 4th - 7th graders; and Lehman and Erdwins (1981) in third grade children. 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, they tend to favor gifted students. However, Gallagher (1990) and Olszewski-Kubilius et al (1988) pointed out that many of these studies did not control for social class, which tends to be higher among gifted students and is often related to positive adjustment. Therefore, these findings may not be as robust as generally believed and should be interpreted with caution.

Only a few studies suggest that moderately gifted students may have adjustment problems. In a qualitative study, Coleman and Cross (1988) explored the question of how 15 gifted adolescents experienced being gifted.

They found that many, but not all, experienced giftedness as a social handicap—being gifted interfered with full social acceptance. Likewise, Cornell (1990) examined self-concept and peer status of a group of high ability youths unpopular with their peers who were attending a highly selective summer program for the gifted. He reported that this group did not differ from other program participants in achievement or ability but had lower academic self-esteem, lower social self-concept, and less prestigious paternal occupations.

Thus, it appears that whereas studies of adjustment in highly gifted students yield mixed results, studies of moderately gifted students are relatively consistent in their finding that these students are at least as well-adjusted emotionally as average students, and, in some cases, better adjusted.

To further investigate these potential differences, this study compares two groups of gifted students, moderately gifted and highly gifted, on a battery of self-concept and adjustment measures. Based on the above literature it is hypothesized that if differences in self-concept and adjustment occur, highly gifted students will display lower self-concept and greater adjustment problems. Exceptions would be expected in the areas of academic self-concept and achievement motivation which the literature suggest are more highly correlated with the more highly gifted group.

METHOD

Subjects

Subjects consisted of attendees of two summer programs for gifted students held at a university in south central United States. To be eligible to attend the first summer program, students must have finished 6th, 7th, or 8th grade, be eligible for gifted services or have an IQ score of at least 125, have scored at or above the 90th percentile on the total battery or at or above the 95th percentile on the total mathematics or language/reading section of a recent achievement test or have scored at or above the proficient level on the state performance assessment measure. Students attending the second summer program were part of the Duke Talent Identification Program, a program in which participants typically take the ACT or SAT during their seventh grade school year. Qualifying ACT scores for math are 18 or

above out of a possible 36, and for English, 25 out of 36; qualifying math or verbal SAT scores are 500 or above.

To differentiate between moderately and highly gifted students the Otis-Lennon School Ability Test, Sixth Edition, Forms F and G was administered to all attendees at the two summer programs (N= 375). According to the OLSAT's *Multilevel Norms Booklet* (Otis & Lennon, 1988), only 2% of the national student population obtain School Ability Index scores above 132 (over two standard deviations above the mean), whereas another 14% score 116-132 (between 1 and 2 standard deviations). Those students in this study who scored above 132 were designated the highly gifted group (N=74), whereas the those scoring 116-132 were designated the moderately gifted group (N=163). Interestingly enough, statistical analysis revealed no significant summer program membership differences between the two ability groups.

Instruments

Demographic questionnaires.

Demographic data such as sex, age, race, socioeconomic status (SES), and family structure (parent marital status, siblings, etc.) were collected via parent and student questionnaires. SES was ascertained by using Hollingshead's (1975) standard scales for parental education and occupation. Scores for both education and occupation can range from 1 to 9, with lower scores indicating higher educational and occupational status.

Academic ability. The Otis-Lennon School Ability Test, Sixth Edition, Forms F and G (OLSAT), was administered to all students. This test yields three scores: the School Ability Index Nonverbal (SAI Nonverbal), a measure of pictorial, figural, and mathematical ability, the School Ability Index Verbal (SAI Verbal), and an overall score based on the average of the first two, the School Ability Index (SAI). These are normalized standard scores with a mean of 100 and a standard deviation of 16. Internal consistency reliability estimates on all three scores are in the high .80's and .90's range. Scores for content, criterion-related, and construct related evidences of validity are also high (Anastasi, 1992; Swerdlik, 1992).

Self-concept. Marsh's (1990) Self-Description Questionnaire-II (SDQ-II) was used to measure self-concept. A six-point Likert scale, the SDQ-II provides several measures of academic and non-academic self-concept. This measure

was specifically included because of its breakdown of academic self-concept into three areas: mathematics, verbal, and general-school. Non-academic scales include emotional stability, honesty, parent relations, physical abilities, physical appearance, opposite-sex relations, same-sex relations, and general-self. Four scales, emotional stability, opposite-sex relations, physical abilities, and physical appearance, consist of eight items; all others consist of ten items.

The raw scores range from 8 to 48 on eight item scales and from 10 to 60 on ten item scales. Average scores for each scale range from 1 to 6, with 6 representing the highest self-concept. Although scales can be combined to form general self-concept scores, Marsh (1990) cautions that the individual scales should be the primary focus of research.

Ample research establishing the validity and reliability of the SDQ-II can be found in Marsh (1990) and others (Marsh & Peart, 1988; Marsh, Parker, & Barnes, 1985). Coefficient alphas for the scales range from .83 to .94; test-retest reliability coefficients range from .72 to .88. Factor analysis for construct validity revealed target loadings ranging from .48 to .80, nontarget loadings from -.12 to .27, and correlations among factors ranging from -.03 to .39.

Emotional Autonomy. The Emotional Autonomy Scale (EAS) (Steinberg & Silverberg, 1986) measures the degree of autonomy students have established from parents. Composed of 20 Likert-scale items, the EAS provides four subscale scores, parent deidealization, individuation, nondependency on parents, and perceives parents as people, as well as a total score. Scores range from 1 to 4 with 4 representing high autonomy. Steinberg and Silverberg (1986) report the internal consistency of the EAS, as determined by Cronbach's alpha, to be .75. They also report that factor and internal consistency analyses confirm the validity of the theoretical dimensions used to create the items on the EAS.

Anxiety. To ascertain the relationship between anxiety and level of giftedness, the Revised Children's Manifest Anxiety Scale (RCMAS) (Reynolds & Richmond, 1985) was selected. The RCMAS is a 37-item yes/no questionnaire composed of three subscales that measure facets of anxiety: physiological anxiety, worry/oversensitivity, social concerns/concentration, plus a lie scale that measures subjects' attempts to pre-

sent themselves in a positive light. The first three subscales can be combined for a total anxiety score. High scores on these subscales and on the combined score indicate high anxiety. The psychometric properties of the RCMAS are reported in the test manual (Reynolds & Richmond, 1992). Independent reviews of the reliability and validity of the scale have been positive (Gresham, 1989; Stewart, 1989)

Procedures

As part of the application to attend either summer program, parents were asked to complete a demographic questionnaire and a consent form granting permission for further testing of their child. Because some of the students attending the first summer program chose not to reside on the campus, all testing took place during three separate regularly scheduled class times. Because all students in the second summer program stayed on campus, testing took place during two evening sessions specifically scheduled for testing.

RESULTS

Relationships among background variables and ability group membership were examined. Variables included age, sex, race, the child's position among siblings in the family, parental marital status, father's educational and occupational status, and mother's educational and occupational status. No differences between ability groups were found in age, sex, race, sibling position, and parental marital status. Father's education was significantly higher for highly gifted students ($\chi^2=10.10, p<.05$). Although not significant, father's occupation followed the same trend. There was a significant relationship between giftedness and mother's occupational status ($\chi^2=17.3, p<.01$) with a trend for mothers of the highly gifted group to hold more prestigious jobs. Similarly, a nonsignificant but positive trend existed between giftedness and mother's education.

Regarding differences in self-concept as measured by Marsh's (1990) SDQ-II, as Table 1 indicates, statistical

Means and Standard Deviations on the SDQ for Highly Gifted (N=71), Moderately Gifted (N=160), and Marsh (1990) Norm Groups

SDQ Scale	Highly		Moderately		Marsh (1990)	
	M	SD	M	SD	M	SD
Mathematics	51.9	9.5	49.7	9.4	37.5	13.0
Verbal	50.9	9.0	49.8	9.6	39.2	11.1
General-School	55.9	5.8	55.5	5.2	43.3	10.5
Emotional Stability	43.7	10.8	42.8	11.7	41.5	9.6
Honesty	50.2	9.4	51.2	7.7	41.8	11.0
Opposite-Sex Relations*	36.0	10.7	38.6	8.9	35.2	9.3
Parent Relations*	39.7	9.0	40.6	7.0	39.1	8.3
Physical Abilities*	34.2	10.5	35.5	10.9	38.0	8.6
Physical Appearance*	35.0	7.5	35.7	7.6	34.2	9.6
Same-Sex Relations	51.4	10.0	53.3	8.7	46.0	8.5
General-Self	54.0	7.7	53.9	8.0	49.1	9.6

*8-item scales.

Table 1

Tests for Significant Sex Differences on Marsh's SDQ Scales

SDQ Scale	Males (N=176)		Females (N=148)		t-value
	M	SD	M	SD	
Honesty-Trustworthiness	49.4	9.1	51.6	8.2	-2.21*
Math	49.9	10.0	46.1	12.4	2.99***a
Opposite-Sex Relations	37.3	10.2	39.3	7.5	-2.10*a
Same-Sex Relations	51.2	10.2	54.6	6.7	-3.61****a
Verbal	47.5	10.5	51.9	8.1	-4.33****a

*p < .05 **p < .01 ***p < .001 *t-values calculated based on inequality of variances.

Table 2

analysis revealed no significant differences between the moderately and highly gifted groups. For both ability groups, averages on the self-concept scales are above the averages of the norms established by Marsh (1990), except for the physical abilities scale which was slightly below average.

For the larger sample of all students, age was significantly related to both the emotional stability scale, $r(321) = -.17, p < .01$, and parent relations scale, $r(312) = -.26, p < .001$, with older students scoring lower than younger students. Likewise, sex was significantly related to the SDQ-II's honesty-trustworthiness, math, opposite-sex relations, same-sex relations, and verbal scales (see Table 2), with girls outscoring boys on all but the math scale.

Also for all students, several ASDQ-II scales were significantly related to one or both of the SAI Verbal and SAI Nonverbal scales. The math scale was significantly related to both the SAI Verbal scale, $r(317) = .29, p < .001$, and SAI Nonverbal scale, $r(317) = .33, p < .001$. The general school scale was significantly related to both the SAI Verbal scale, $r(317) = .23, p < .001$, and SAI Nonverbal scale, $r(317) = .22, p < .001$. Finally, the SAI Verbal scale was negatively related to the SDQ's opposite sex relations scale, $r(317) = -.14, p < .05$, and the physical ability scale, $r(317) = -.16, p < .01$, and was positively related to the verbal ability scale, $r(317) = .15, p < .01$.

In regards to emotional autonomy, as measured by the EAS, analysis of group differences between the highly gifted and moderately gifted students revealed no significant differences. However, with the sample of all students, age was significantly correlated with the EAS subscales of Parental Deidealization, $r(296) = .25, p < .001$, Individuation, $r(297) = .17, p < .01$, Nondependency on Parents, $r(310) = .22, p < .001$, as well as the Total scale, $r(266) = .18, p < .01$. No significant relationships between either OLSAT and EAS scores were found. Controlling for age, we attempted to verify Steinberg and Silverberg's (1993) findings that girls score significantly higher than boys on the EAS parental deidealization and total scales. Our findings revealed no differences on the total scale but did reveal significant sex differences in parental deidealization, $F(1, 295) = 5.11, p < .05$.

Finally, analysis of differences between the highly and moderately gift-

ed groups on the RCMAS, a measure of manifest anxiety, revealed no differences between the groups on this measure. However, when all students are included, sex differences emerge on two scales, physiological anxiety, $t(290) = -2.37, p < .05$, with girls scoring higher ($M = 2.78, SD = 2.00$) than boys ($M = 2.23, SD = 1.95$), and worry/oversensitivity, $t(292) = -2.59, p < .05$, with girls scoring higher ($M = 3.77, SD = 2.78$) than boys ($M = 2.92, SD = 2.80$). Girls ($M = 8.62, SD = 5.41$) also significantly outscored boys ($M = 6.85, SD = 5.62$) on the total anxiety score, $t(267) = -2.61, p < .05$. Age was significantly related to the physiological anxiety scale, $r(288) = .15, p < .05$. OLSAT scores were not significantly related to any of the RCMAS scales.

Previous research studies on differences among gifted students have proposed that these differences might be affected by one of two variables. First, Grossberg and Cornell (1988) suggested that adjustment problems might be limited to the extremes of giftedness. Thus, evidence of difficulties may only emerge when looking at the very highly gifted. Second, Dauber and Benbow (1990) found that verbally gifted children, as opposed to the mathematically gifted, were more likely to manifest adjustment difficulties. In light of these studies, we conducted two additional sets of analyses.

To address Grossberg and Cornell's (1988) suggestion regarding the extremely gifted, we reanalyzed all of the above findings comparing a more select sample of 33 students with OLSAT scores of 140 and above with the moderately gifted sample. Similar to Grossberg and Cornell (1988), no significant differences emerged.

To test Dauber and Benbow's (1990) findings, we divided our sample into four groups. The highly verbally gifted group ($N=58$) consisted of students scoring above 132 on the SAIV but scoring 132 or below on the SAINV. The highly mathematically gifted group ($N=41$) was composed of students scoring above 132 on the SAINV but scoring 132 or below on the SAIV. The highly gifted group (44) consisted of students scoring above 132 on both sections of the OLSAT. The moderately gifted group ($N=119$) were students scoring between 116 and 132 on either section of the OLSAT. In contrast to Dauber and Benbow (1990), no significant differences emerged among the groups.

DISCUSSION

When comparing highly and moderately gifted students, as measured by the OLSAT, the measures of self-concept and adjustment revealed no significant differences. No SDQ self-concept scale revealed differences between the groups. However, when we analyzed the scores of all students, age correlated with two scales, emotional stability and parent relations. The finding that parent relations scores decrease as age increases is consistent with those reported by Marsh, Parker, and Barnes (1985). However, according to their findings, emotional stability should be increasing rather than decreasing and should actually be curvilinear (1985), a finding that our results did not replicate. Sex differences were also evident on several scales. Girls outscored boys on the SDQ's honesty-trustworthiness, opposite-sex relations, same-sex relations, and verbal scales, whereas boys outscored girls on the math scale. These sex differences are generally supported by research on gifted and general student populations (Dusek & Flaherty, 1981; Maccoby & Jacklin, 1974; Marsh, 1990; Marsh, Parker, & Barnes, 1985).

Analysis of the relation between academic ability and self-concept for all students revealed math (SDQ-M) and general school (SDQ-SC) self-concept to be significantly related to all three measures of academic ability—the SAI verbal, nonverbal, and total scores. These findings are consistent with studies of gifted and general student populations (Marsh, Parker, & Barnes, 1985; Marsh & Peart, 1988). Interestingly enough, verbal self-concept was not significantly related to the OLSAT's verbal scale.

No group differences between highly gifted and moderately gifted students were found in emotional autonomy. However, analysis of all students reveal significant correlations between age and the three EAS scales, consistent with Steinberg and Silverberg's (1993) research on the general student population. Like their findings, little relationship was found between age and the "perceives parents as people" scale. Similarly, our analysis verified their findings that girls score higher on parental deidealization.

Our findings of no differences in gifted groups on the RCMAS and no relationship between OLSAT scales and the RCMAS are consistent with Reynolds and Scholwinski's (1985) work

with the general student population. Similarly, when looking at all students, the emergence of sex differences, with girls displaying more anxiety than boys, is consistent with Reynolds and Richmond's (1992) general student study. The significant relationship between age and physiological anxiety is not readily interpretable because Reynolds and Richmond's (1992) work has either shown no relationship or a negative relationship between age and anxiety.

In conclusion, our findings did not support the differences between moderately and highly gifted students that we hypothesized. However, some recent studies have found that some highly gifted students do struggle with adjustment issues (Dauber & Benbow, 1990; Gross, 1993; Maas, 1992). Thus, it behooves us to continue to search for means to identify these students and to develop preventative and/or ameliorative strategies for them. Finally, as our review of the literature suggests, and as Hoge and Renzulli (1993) assert, the study of giftedness would greatly benefit from the development of a clearer definition of giftedness, from clearer delineation of types of giftedness, and from future studies that provide clearer descriptions of those identified as gifted and, when possible, delineate between highly and moderately gifted groups.

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• ANNOUNCEMENTS •

New England Conference on Gifted and Talented Education "Developing America's Talent: Building Connections"

October 15-16, 1999
Killington Grand Hotel
Contact: 802-485-7491

Ohio Association for Gifted Children

October 21-23, 1999
Columbus, OH
Contact: Judy Chaffins
ac_chaffins@noacsc.ohio.gov

8th Virginia Association for the Gifted Conference

October 28-29, 1999
Richmond, VA
Contact: Elissa Brown, Conference Chair
PO Box 26212
Richmond, VA 23260-6212

National Association for Gifted Children

November 3-7, 1999
Albuquerque, NM
Contact: Sally Reis 202 285-4268
<http://www.nagc.org>

TAG-TENN

November 18-20, 1999
Gatlinburg, TN
Contact: Marie Peine 423 428-0538

Roeper Review

November 19-20, 1999
Bloomfield Hills and Birmingham, MI
Contact: Vicki Rossbach 248 203-7321
<http://www.roeperreview.org>

European Council for the Highly Able

August 19-22, 2000
Debrecen, Hungary
Contact: Fax 52-431-216

Texas Association for Gifted and Talented

December 1-3, 1999
Houston, TX
Contact: 512 499-8248
<http://www.tenet.cc.utexas.edu/tagt/>

Australian Association for the Education of the Gifted and Talented (AAEGT)

July 2-5, 2000
Brisbane, Australia

World Council for Gifted and Talented Children

August 2001
Barcelona, Spain
Contact: Dr. Juan Alonso
Telephone/Fax: 34-983-3413-82