

School Functioning and Psychological Well-Being of International Baccalaureate and General Education Students

A Preliminary Examination

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The current study compared the school and psychological functioning of 122 gifted and high-achieving students to that of 176 general education students educated in the same school. Relative to their peers in general education, gifted and high-achieving students served in the school's International Baccalaureate (IB) program reported more positive perceptions of school climate, had higher grade point averages and academic self-efficacy, and reported less externalizing psychopathology and affiliation with negative peers. IB and general education students reported comparable levels of global life satisfaction and internalizing symptoms of psychopathology. The psychosocial adjustment of intellectually gifted students within the IB program was similar to that of their high-achieving IB peers on all indicators except satisfaction with friends. Recommendations for future research and implications for educational policy are presented.

The International Baccalaureate (IB) Diploma Programme is designed to address the cognitive and affective needs of academically and intellectually advanced students. The effect of this educational experience, replete with the pressures of achievement and performance, has not been investigated. Additionally, information is needed about the functioning of specific groups of learners within this setting, including gifted and high-achieving students, which can assist educators, researchers, and school leaders in understanding and addressing the needs of these students.

International Baccalaureate Organization

Overview of the International Baccalaureate Organization

The International Baccalaureate Organization (IBO) is an internationally recognized, not-for-profit educational

curriculum designed to provide Pre-K–12 learners a rigorous international education (IBO, 2005a). Three programs of study are offered through the IBO, including the IB Primary Years Programme (for students ages 3–12), the IB Middle Years Programme (ages 11–16), and the IB Diploma Programme (ages 16–19). All of the programs emphasize learning experiences that foster achievement; curriculum that is thematic, transdisciplinary, and complex; opportunities for affective development; and consideration of multiple perspectives and understandings. Recognized as “representing the highest levels of academic attainment possible for secondary students . . . and thought to provide important stepping stones to successful college work” (VanTassel-Baska, 2003, p. 13), the IBO has garnered praise for its goals, which are also appropriate for educating intellectually gifted learners (Nugent & Karnes, 2002; Poelzer & Feldhusen, 1997; Tooke, 2000).

Currently, more than 1,300 schools in 117 countries have IBO programs, most of which are in public schools in the U.S. (Walker, 2004). The rigorous IB Diploma

Programme is designed to serve “highly motivated” secondary students (IBO, 2005b, ¶ 1). End-of-course exams are required for students to earn the IB Diploma. Many students also take Advanced Placement (AP) Exams because institutions of higher learning generally accept only exam results for the Higher Level (intensive, 2-year) courses for college credit; Standard Level (1-year) courses may not be recognized for college credit by institutions of higher learning (Matthews, 2004). Because the administration of these exams occurs near the end of the academic year—and many students take multiple exams in order to get college credit—test anxiety may be a common occurrence for students in grades 11 and 12.

The IB Diploma Programme addresses cognitive needs of gifted and high-achieving learners through acceleration, in this case allowing students to learn advanced content and skills at an age or grade earlier than expected (Rogers, 2002). Instructional processes the IBO recommends are also often recognized as best practices for teaching the gifted. According to the mission of the IB program, students are engaged in regular discussions about abstract, complex ideas, including reflective thinking about life experiences, critical examination of assumptions about knowledge, appreciation of multiple perspectives, and consideration of bias (IBO, 2005c, ¶ 2–3).

Though each IBO school may develop its own selection criteria, students selected are typically those who score above the 90th percentile on achievement tests (Davis & Rimm, 2004). These students fit the profile of academically gifted students and intellectually gifted learners, representing what Renzulli (1998) describes as *schoolhouse gifted*, or students who demonstrate consistently high performance in test taking and learning in school. Students in these programs appear to self-select participation in IB and have experienced success in school over time (Callahan, Hertberg, & Kyburg, 2005). As such, there is a common profile of students that has been reported in prior studies; IB students are highly self-motivated, adhere to or exceed school expectations, achieve academically, and have a strong desire to succeed (Kyburg, Callahan, & Hertberg Davis, 2005).

One of the perceived benefits of the IB program is that gifted and high-achieving learners have the opportunity to learn with others who have similar abilities and motivations (Tookey, 2000), offering gifted and high-achieving learners the opportunity to feel accepted and to develop positive “feelings of self-worth that accrue from developing good social relationships” (VanTassel-Baska, 2003, p. 97). Rimm (2002) contended that such grouping is a central consideration in the appropriate education of the gifted, and a cohort-type of arrangement can “encourage

high achievement and reinforce the full use of students’ talents” (p. 17). Likewise, research has demonstrated that when gifted students are not grouped with their intellectual peers, they experience a decline in social self-concept and an increase in negative self-criticism (Foster, 1985; Gross, 1989). Social-emotional needs of advanced learners are also addressed through the “Creativity, Action, Service” (CAS) component of the IB curriculum, which aims to develop the whole student (IBO, 2005c, ¶ 4–5; Walker, 2004). Through service, extracurricular activities, creative performances, and team sports, the IB program seeks to develop in its students greater self-awareness, skills in collaboration, and concern for individuals.

Outcomes of the IB Diploma Programme

Bailey and Karp (2003) challenged the research on the IB program, noting that most studies focus on the opinions of parents or students about the benefits of program participation. For example, Gazda-Grace (2002), an assistant principal in an IB Diploma Programme school, published a personal evaluation of the IB program, calling it “the best kept secret in education” (p. 84). No data on student outcomes were provided to support her contention. However, of the studies that have related participation in the IB program to outcomes other than academic achievement, participation in the IB program appears to be beneficial. For instance, Amuedo-Dorantes, Mach, and Clapp (2004) found a strong, negative correlation between participation in the IB program and tobacco use. However, the correlations between participation in the IB program and alcohol or marijuana use did not reach statistical significance. A study such as this supports the need to more fully investigate the impact participation in the IB program may have on students, using both positive and negative indicators of mental health.

Purpose of the Current Study

The current study aimed to explore the school and psychosocial functioning of students in the IB Diploma Programme. To examine the possible positive and negative correlates of participation in a rigorous curriculum, we utilized Roeser, Eccles, and Sameroff’s (2000) conceptualization of adolescent psychosocial functioning with respect to schooling. Indicators of adolescent functioning are organized in the following three areas: academic functioning (e.g., academic motivational beliefs, academic achievement, in-school conduct), emotional distress (e.g., depression, anxiety, delinquent behavior, impaired peer

relationships), and psychological well-being (e.g., subjective well-being). Notably, the inclusion of indicators of positive functioning (the third area) is consistent with calls to examine psychological wellness as more than the absence of symptoms (Seligman & Csikszentmihalyi, 2000). The current study utilized life satisfaction as the indicator of subjective well-being (also referred to as happiness or perceived quality of life). *Life satisfaction* reflects a cognitive, global appraisal of one's contentment with life as a whole, as well as with specific domains of life such as family, environment, friends, school, and self.

In addition to attention to indicators of academic functioning delineated in the aforementioned model, school functioning was further operationalized as students' perceptions of the climate of their school. *School climate* has been defined as "the quality and consistency of interpersonal interactions within the school community that influence children's cognitive, social, and psychological development; these interactions include those among school staff, between staff and students, among students, and between home and school" (Haynes, Emmons, & Ben-Avie, 1997, p. 322). Recent longitudinal studies have highlighted the impact of school climate on students' psychosocial outcomes. Specifically, high school freshmen's perceptions of student-student relations, student-teacher relations, and order and discipline within a school were found to predict their levels of self-esteem and depression 2 years later (Way & Robinson, 2003). Utilizing a similar definition of school climate in research with middle school students, positive perceptions of school climate were shown to protect students who were at risk for experiencing emotional distress (as assessed via initial levels of self-critical thoughts) from experiencing increases in internalizing or externalizing behavior one year later (Kuperminc, Leadbeater, & Blatt, 2001).

Research with gifted students underscores the importance of school to these adolescents' overall well-being (Ash & Huebner, 1998). In a comparison of the life satisfaction of 61 students served in full-time academically gifted programs to that of 61 general education students matched to the gifted students on gender and ethnicity, gifted students' judgments of the quality of their school experiences (i.e., school satisfaction) accounted for a larger percentage (i.e., 30%, $p < .05$) of the unique variance in their *global* life satisfaction reports than was the case for general education students (i.e., 3%, *ns*), who emphasized satisfaction with a different important domain of life (specifically, self) in formulating their global life satisfaction judgments. Given the centrality of school satisfaction in gifted students' global appraisals of the quality of their lives, this finding led the authors to contend "perhaps edu-

cators of gifted students should lend greater attention to school climate variables when designing optimal educational environments for them" (p. 318).

An investigation of the school and psychosocial functioning of gifted and high-achieving learners, such as those students participating in the IB program, can provide a more complete picture of their adjustment. To accomplish this goal, we surveyed students from an IB program and a control sample of students in general education at the same high school, and compared group mean scores on the indicators of school and psychosocial functioning listed above.

Method

Participants

Participants for this study consisted of students enrolled in an IB program ($n = 122$: gifted $n = 33$, high-achieving $n = 89$) and their general education schoolmates ($n = 179$: no students identified as intellectually gifted chose to participate in this study) in a public high school located in a rural county in the Southeastern United States. Eligibility for the IB program is based on a middle school grade point average (GPA) of 3.0 or higher on a scale of 4.0. Students served in the gifted program met the state identification criteria for intellectually gifted students, which include: (a) referral by parent, teacher, peer, or self; (b) minimum score on a teacher checklist of characteristics of gifted children; and (c) an intelligence quotient of 130 or higher on an individually administered intelligence test. In this investigation, students served in the IB program who were not identified as gifted are described as high-achieving learners.

The school under study houses both an IB high school and a general education high school in a single school building. Each program has its own principal, administrative staff, and faculty (98 general education teachers, 25 IB teachers). In addition to sharing facilities, the students share faculty, as 23 of 25 IB teachers are assigned classes in both curricula. Descriptive statistics of study participants are provided in Table 1. Participants were representative of the school's demographics. Despite identical procedures for recruiting and enrolling participants from both curriculum groups, a higher proportion of IB students in the school (65%) than of the general education students (20%) participated in the study. Although participation among general education students was notably low, the 20% of the student body enrolled in the study was comparable to the entire general education population in terms of ethnic-

Table 1

Age, Gender, and Race Characteristics of Participant Groups

Variable	IB				General education		Total sample	
	Gifted		High-achieving		<i>n</i>	%	<i>n</i>	%
	<i>n</i>	%	<i>n</i>	%				
Gender								
Male	13	39	34	38	48	27	95	32
Female	20	61	55	62	128	73	203	68
Grade								
9	15	45	26	29	61	35	102	34
10	6	18	22	25	67	38	95	32
11	6	18	20	22	21	12	47	16
12	6	18	21	24	27	15	54	18
Ethnicity								
Caucasian	24	73	64	72	124	70	212	71
African American	1	3	1	1	25	14	27	9
Asian	6	18	12	13	2	1	20	7
Hispanic/Latino	0	0	8	9	15	9	23	8
Native American	0	0	0	0	1	<1	1	<1
Other	2	6	4	4	9	5	15	5
Socioeconomic status								
Low	1	3	6	7	52	30	59	20
Average/high	32	97	83	93	123	70	238	80

ity and socioeconomic status (SES); younger students (i.e., freshman and sophomore students) were slightly overrepresented in the study.

Procedure

Teachers distributed a parent information letter from the principal investigators to all general education and IB students in the participating school; the letter described the purpose of the study and requested active parent consent for student participation. Assent was then sought from all students who returned signed parent consent forms and were present on data collection dates. Students were called, by grade level, to complete the questionnaires described below in groups of approximately 50–100 students. Prior to the scale measures, participants completed a brief demographic questionnaire about their age, grade, SES, and curriculum (IB/general education). SES was assessed using a single item (“Do you receive free or reduced lunch?”). The sequence of the presented measures was counterbalanced

to guard against ordering effects. Although participants were not paid, several gift certificates were given away at random to the participant pool.

Measures

To assess school functioning, two instruments were utilized: (a) School Climate Scale (SCS; Haynes, Emmons, & Ben-Avie, 2001), and (b) Self-Efficacy Questionnaire for Children (SEQ-C; Muris, 2001). Additionally, indicators of academic functioning were ascertained from archival school records.

School Climate. The SCS (Haynes et al., 2001) is a 42-item scale used to measure students’ feelings and perceptions of their individual school. School perceptions are categorized into six domains, including order and discipline (safety and degree to which rules are followed), student interpersonal relations (students’ behavior and treatment of one another), student-teacher relations (competence and relational ability of teachers), parental

involvement (communication between home and school and frequency of parent visits to the school), sharing of resources (degree to which all students can access school resources and activities equally), and building (appearance and upkeep of school building). Item responses are given on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*), and after reverse scoring negatively phrased items, a mean score for each domain is calculated. With regard to internal consistency, the current study yielded alpha coefficients between .70 (sharing of resources, parent involvement, and building appearance) and .89 (student-teacher relations).

Academic Functioning. The SEQ-C (Muris, 2001) is a 21-item self-report instrument intended to measure adolescents' beliefs about their competencies in three areas: social, academic, and emotional. Only the six items on the academic self-efficacy scale were analyzed in the current study due to the focus on school functioning. Academic self-efficacy pertains to adolescents' perceived capability to manage their own learning behaviors, to master academic material, and to fulfill academic expectations. Response options include a 5-point Likert scale in which 1 = *not at all* and 5 = *very well*. Higher mean scores indicate higher levels of academic self-efficacy. Construct validity of the SEQ-C is evidenced by relationships, in expected directions, between SEQ-C scores and depression (Muris, 2001), and anxiety and neuroticism (Muris, 2002). The current study yielded an alpha coefficient of .86 for the academic self-efficacy scale.

School records were accessed to determine cumulative grade point averages at the end of the semester in which the instruments were administered, as well as in-school conduct (specifically, attendance as defined as hours of school missed during the semester in which the study was conducted, and discipline referrals during the same semester).

To assess psychological well-being, four measures were utilized: (a) Students' Life Satisfaction Scale (SLSS; Huebner, 1991); (b) Multidimensional Students' Life Satisfaction Scale (MSLSS; Huebner, Laughlin, Ash, & Gilman, 1998); (c) The Youth Self-Report of the Child Behavior Checklist (YSR; Achenbach & Rescorla, 2001); and (d) Negative Peer Affiliations (NPA; Heinze, Toro, & Urberg, 2004; Roeser et al., 2000).

Global Life Satisfaction. The SLSS (Huebner, 1991) consists of seven items assessing global life satisfaction in children. Students are instructed to respond to each item using a 6-point response format (1 = *strongly disagree* to 6 = *strongly agree*). After items 3 and 4 are reverse scored, high mean scores on the SLSS represent high life satisfaction. Ample research endorses the SLSS as a reliable and

valid measure with high school students (for a review, see Bender, 1997). A one-year test-retest coefficient of .53 was attained in high school students, providing evidence for stability among older adolescents. Regarding construct validity, convergent validity for the SLSS is supported by its correlations in the expected direction with other measures of self-reported and parent-reported life satisfaction, as well as with self-esteem, locus of control, and extraversion (Dew & Huebner, 1994; Gilman & Huebner, 1997). Evidence for discriminant validity is provided by weak or nonsignificant relationships between the SLSS domains and measures not theoretically related to these subscales, such as academic performance and social desirability. In the current study, coefficient alpha was .87.

Domain-Specific Life Satisfaction. The MSLSS (Huebner et al., 1998), a 40-item Likert scale, assesses life satisfaction in five domains: (a) family, (b) friends, (c) school, (d) living environment, and (e) self. Respondents are asked to indicate on a 6-point scale (1 = *strongly disagree* to 6 = *strongly agree*) the degree to which they endorse statements about their life in each domain. Scaled scores are obtained by reverse coding negatively phrased items, then summing responses and dividing by the number of statements in each domain. Higher scores represent higher levels of life satisfaction. The MSLSS has been used with adolescent populations (e.g., Suldo & Huebner, 2004; Valois, Zullig, Huebner, & Drane, 2004). Test-retest reliability has been reported to range from .70–.80; in this study, coefficient alpha values ranged from .76 (self-satisfaction) to .89 (family satisfaction).

Psychopathology. The YSR (Achenbach & Rescorla, 2001) is a 112-item questionnaire designed for use with adolescent populations ranging in age from 11–18. For the purposes of this study, a shortened 85-item version was administered, excluding the items loading on the scales' attention problems and thought problems. Composite scores indexing internalizing (anxious/depressed, withdrawn/depressed, and somatic complaints scales) and externalizing (rule-breaking behavior and aggressive behavior scales) forms of psychopathology were utilized in the current study, as was the social problems scale. YSR items are presented using a 3-point scale (0 = *not true*, 1 = *somewhat or sometimes true*, 2 = *very true or often true*) and respondents are asked to assess how true each item is for them currently (i.e., within the past 6 months). The YSR is useful in identifying children with symptoms of psychopathology. For instance, all items on the YSR have been found to discriminate between clinical populations of adolescents and nonreferred samples (Achenbach & Rescorla). Reliability of this measure is high; the one-week test-retest yields coefficient alphas ranging from .80 to .90. In the

Table 2

Mean Levels of School Climate by Group

School Climate	IB: Gifted (<i>n</i> = 33)	IB: High-achieving (<i>n</i> = 89)	General education (<i>n</i> = 176)	η^2	Cohen's <i>d</i>
Student inter. relations	3.26 _a (.68)	3.13 _a (.70)	2.55 _b (.75)	.15	.42
Student-teacher relations	3.76 _a (.84)	3.80 _a (.58)	3.25 _b (.72)	.13	.39
School building appearance	3.24 (.81)	3.27 (.66)	3.24 (.57)	.00	.02
Parent involvement	2.53 (.72)	2.47 (.65)	2.30 (.73)	.02	.14
Sharing of resources	3.27 _a (.79)	3.31 _a (.68)	2.92 _b (.68)	.07	.27
Order and discipline	3.13 _a (.81)	3.07 _a (.63)	2.60 _b (.59)	.13	.39

Note. Group standard deviations are contained in parentheses. Tukey honestly significant difference (HSD) comparisons were employed to analyze group means in cases of significant F-tests. Significant differences between group means are indicated by different letters. Means having the same subscript are not significantly different. Means not marked by letters are not significantly different from any group means.

current study, alpha coefficients by subscale were as follows: internalizing behavior = .88, externalizing behavior = .90, and social problems = .71.

Problematic Peer Relationships. In addition to the social problems scale of the YSR, we included an 11-item measure of negative peer affiliations; the response format and items included in the current measure were derived from other published self-report instruments (specifically, Heinze et al., 2004; Roeser et al., 2000) that assess the number of an adolescent's friends that exhibit problem behaviors, use substances, or break legal or moral guidelines. Respondents are asked to indicate on a 5-point scale (1 = *none of them*, 3 = *about half of them*, 5 = *all of them*) the proportion of their friends that engage in rule-breaking, substance-using, and delinquent behaviors at and outside of school. Previous validation research with the measures modified for use in the current study demonstrated positive relationships between negative peer affiliations and symptoms of conduct disorder and emotional distress (Heinze et al.; Roeser et al.). Internal consistency for the negative peer affiliations scale was .87 in the current study.

Results

Overview of Analysis Plan

The SAS System (version 9.1) GLM Method I (Type III), which adjusts for unequal sample sizes within cells, was used to calculate all multivariate (MANOVA) and univariate analysis of variance (ANOVA) tests. Four between-subjects MANOVAs were employed to test the overall effect of group membership (IB-gifted, IB-high-achieving, general education) on school climate, academic functioning, life satisfaction, and psychopathology, respectively. Following

a significant multivariate effect, individual ANOVAs (univariate F) were examined. Cohen's (1988) guidelines for the effect size index *d* were employed to interpret effect sizes yielded in the current study; specifically, .10 = small, .25 = medium, and .40 = large effect.

Perceived School Climate

The initial set of analyses involved examining the perceptions of school climate and academic functioning of youth in the three groups of learners (i.e., IB-gifted, IB-high-achieving, general education) to determine if students differ in their perceptions of school climate as a function of their curriculum group. A between-subjects MANOVA tested the main effect of group on perceived school climate. The median correlation between dependent variables included in the MANOVA was .36, and ranged from -.02 (between equitable sharing of resources and parent involvement) to .59 (between student interpersonal relations and order/discipline). With use of Wilks' criterion, the combined dependent variables (order and discipline, sharing of resources, parent involvement, appearance of school building, student interpersonal relations, and student-teacher relations) were significantly affected by group membership, $F(12, 578) = 7.91, p < .001$. Univariate tests for four aspects of school climate reached statistical significance ($p < .05$), indicating that the perceptions of order and discipline, equal sharing of resources, student interpersonal relations, and teacher-student relations differ among groups of learners within the same school. Effect sizes yielded from univariate tests are displayed in Table 2. As shown in the table, the effect of group membership on equal sharing of resources was moderate (Cohen's $d = .27$), while large effect sizes ($d = .39-.42$) were yielded for the remaining three significant aspects of school climate. To

Table 3

Mean Levels of Academic Functioning by Group

Academic Functioning	IB: Gifted (<i>n</i> = 33)		IB: High-achieving (<i>n</i> = 89)		General education (<i>n</i> = 176)		η^2	Cohen's <i>d</i>
Grade point average	4.19 _a	(.33)	4.15 _a	(.38)	3.00 _b	(.69)	.49	.98
Academic self-efficacy	3.86 _a	(.60)	3.85 _a	(.65)	3.40 _b	(.78)	.09	.31
Discipline referrals	.00 _a	(.00)	.03 _a	(.32)	1.64 _b	(3.03)	.11	.34
Attendance (hours missed)	7.15 _a	(8.49)	8.98 _a	(8.46)	22.02 _b	(21.19)	.13	.39

Note. Group standard deviations are contained in parentheses. Tukey honestly significant difference (HSD) comparisons were employed to analyze group means in cases of significant F-tests. Significant differences between group means are indicated by different letters. Means having the same subscript are not significantly different.

delineate the nature of the group differences on each of the dependent variables, follow-up analyses were conducted using Tukey's HSD test. Table 2 includes results of the Tukey tests, as well as means and standard deviations for each group on each aspect of school climate. Notably, while high-achieving and gifted students within the IB program perceived the climate of their school similarly, both groups of IB students reported more positive perceptions of student-teacher relations and student interpersonal relations than general education students. Additionally, students in general education reported a more negative perception of the manner in which resources were shared in the school (i.e., equal opportunity to participate in school activities, materials, and equipment), as well as the order and discipline within the school (i.e., appropriate student behavior at school). No differences between groups were found with respect to perceived parent involvement in schooling and appearance of the school building. In sum, in four of six aspects of school climate, students in the IB program reported more positive perceptions of crucial aspects of school climate.

Academic Functioning

A second MANOVA tested the main effect of group on students' academic functioning. The median correlation between dependent variables included in the MANOVA was .38, and ranged from -.16 (between discipline referrals and academic self-efficacy) to .52 (between attendance and GPA). The combined dependent variables (GPA, academic self-efficacy, attendance, and discipline referrals) were significantly affected by group membership, $F(8, 578) = 30.09, p < .001$. Univariate tests for each academic functioning variable reached statistical significance, indicating that levels of achievement and school behavior differ among groups. Table 3 presents effect sizes, results of Tukey's HSD test, and group means and stan-

dard deviations on academic functioning variables. Group membership exerted the strongest effect on grade point average—the effect size was very large ($\eta^2 = .49, d = .98$). Both groups of students in the IB program achieved better school grades and felt more confident in their abilities to manage their own learning behaviors, to master academic material, and to fulfill academic expectations than students in general education. With respect to behavioral indicators of school engagement, both gifted and high-achieving students in the IB program had better attendance and received fewer discipline referrals than students in general education. Notably, gifted and high-achieving IB students reported similar levels of performance on each academic functioning variable.

Psychological Well-Being

A third MANOVA tested the main effect of curriculum group on global and domain-specific life satisfaction. The median correlation between dependent variables included in the MANOVA was .36, and ranged from .26 (between satisfaction with friends and satisfaction with family) to .65 (between global life satisfaction and satisfaction with family). The combined dependent variables (global life satisfaction; satisfaction with friends, self, school, living environment, and family) were significantly affected by group membership, $F(12, 580) = 3.18, p < .001$. The univariate test for global life satisfaction failed to reach statistical significance, indicating students from the three groups reported comparable levels of overall happiness with their lives. Regarding satisfaction with important domains of life, groups differ on two domains (satisfaction with friends and satisfaction with living environment). Table 4 presents effect sizes, results of Tukey's HSD test, and group means and standard deviations on dependent life satisfaction variables. All effect sizes were small with the exception of satisfaction with living environment, which yielded a

Table 4

Mean Levels of Psychological Well-Being by Group

	IB: Gifted (<i>n</i> = 33)		IB: High-achieving (<i>n</i> = 89)		General education (<i>n</i> = 176)		η^2	Cohen's <i>d</i>
Life Satisfaction								
Global	4.28	(.74)	4.07	(.92)	3.88	(1.06)	.02	.14
Friend	5.40 _a	(.56)	5.11	(.60)	5.04 _b	(.69)	.03	.17
Self	4.82	(.58)	4.69	(.65)	4.80	(.70)	.01	.07
School	4.08	(.89)	3.93	(.84)	3.80	(.95)	.01	.11
Living environment	4.32 _a	(.83)	4.28 _a	(.80)	3.75 _b	(1.04)	.07	.28
Family	4.53	(.78)	4.40	(1.01)	4.12	(1.12)	.02	.15

Note. Group standard deviations are contained in parentheses. Tukey honestly significant difference (HSD) comparisons were employed to analyze group means in cases of significant F-tests. Significant differences between group means are indicated by different letters. Means having the same subscript are not significantly different. Means not marked by letters are not significantly different from any group means.

Table 5

Mean Levels of Emotional and Social Distress by Group

	IB: Gifted (<i>n</i> = 33)		IB: High-achieving (<i>n</i> = 89)		General education (<i>n</i> = 176)		η^2	Cohen's <i>d</i>
Psychopathology								
Internalizing	12.30	(8.85)	15.41	(8.28)	14.92	(10.43)	.01	.09
Externalizing	10.64 _a	(5.33)	10.34 _a	(5.06)	14.30 _b	(8.83)	.06	.25
Social problems	3.48	(2.67)	3.48	(2.41)	3.67	(3.22)	.00	.03
Negative peer affiliations	14.39 _a	(4.15)	14.05 _a	(3.06)	17.98 _b	(5.92)	.12	.38

Note. Group standard deviations are contained in parentheses. Tukey honestly significant difference (HSD) comparisons were employed to analyze group means in cases of significant F-tests. Significant differences between group means are indicated by different letters. Means having the same subscript are not significantly different. Means not marked by letters are not significantly different from any group means.

medium effect ($d = .28$). Gifted students (enrolled in the IB sample only) reported significantly higher levels of satisfaction with their friendships than their peers in general education. Students in general education reported lower satisfaction with their living environments than both groups of students in the IB program.

Social and Emotional Distress

A fourth MANOVA tested the main effect of curriculum group on negative indicators of mental health. The median correlation between dependent variables included in the MANOVA was .36, and ranged from .16 (between negative peer affiliations and social problems) to .71 (between social problems and internalizing psychopathology). The combined dependent variables (psychopathology, problematic peer relationships) were significantly affected by group membership, $F(8, 580) = 5.98, p < .001$. Table 5 presents effect sizes, results of Tukey's HSD test, and group means and standard deviations on dependent psychopathology variables. While students in various groups did not report significantly different levels of internalizing

behavior, students in the general education group reported more externalizing symptoms of psychopathology (that is, aggressive and rule-breaking behaviors) than both gifted and high-achieving students in the IB program. The effect size for this difference was moderate ($d = .25$). Regarding peer functioning, the effect of group membership on negative peer affiliations was larger ($d = .38$). Gifted and high-achieving IB students were similar to each other and less likely than students in general education to report affiliating with negative (i.e., rule-breaking) peers. No differences with respect to impaired interpersonal relationships (e.g., symptoms of jealousy, loneliness, teasing, and peer rejection) were found between the groups of learners.

In sum, gifted IB students and high-achieving IB students were remarkably similar on nearly all indicators of school functioning and psychological well-being. These two groups, in turn, differed from general education students in multiple ways. Specifically, eta squared values and the corresponding Cohen's *d* values, the indicators of effect size provided in Tables 2–4, indicate that participation in the IB vs. general education curricula had moderate to strong effects on a variety of school and mental health

outcomes. Objective academic achievement and student interpersonal relations yielded the largest effect sizes. Additionally, several aspects of school climate (perceived teacher-student relations, order and discipline within the school, and equality in sharing of school resources), indicators of academic functioning (attendance, in-school behavior problems, and academic self-efficacy), externalizing behavior problems, affiliation with delinquent peers, and satisfaction with one's living environment yielded medium effects. Effect of group was small (but significant) for satisfaction with friendships.

Discussion

The overarching purpose of this research was to explore the psychosocial functioning of gifted and high-achieving students in an IB program compared to a control sample of teenagers in a general education curriculum. The comprehensive examination of multiple aspect of students' psychosocial adjustment was in line with recommendations to examine a broad array of indicators of school functioning (in this case, school climate, academic achievement, and in-school behavior), psychological distress (in the current study, individual psychopathology and detrimental social relationships), and well-being (i.e., global and domain-specific life satisfaction; Roeser et al., 2000). Taken together, the results of the current study indicate that students participating in an IB program possess similar or superior levels of psychosocial adjustment relative to their general education peers. Moreover, the subgroups of high-achieving and gifted students within the IB program were remarkably similar to one another in terms of school and psychological functioning. Thus, the IB program appears well-suited not only for those students identified as intellectually gifted, but possibly all students who are characterized by high achievement needs and academic values.

A specific goal of the current study was to examine the school functioning of these diverse groups of learners in terms of perceptions of school climate and academic functioning. Regarding school climate, an important predictor of subsequent mental health outcomes, high-achieving and gifted IB students indicated more positive perceptions of the majority of indicators of school climate (e.g., student-teacher relations, student interpersonal relations) than their peers in general education. Although this finding may be interpreted as a byproduct of the well-planned IB program, several alternative explanations, including differences in preexisting student characteristics, teaching behaviors, and teacher expectations, are plausible.

First, students who are highly motivated to achieve may be predisposed to having more positive perceptions of the school environment than their peers who are less motivated, as high-achieving and gifted learners have received positive reinforcement for their participation in school (i.e., grades, selection for the IB program). Second, regarding teacher effects, while most of the teachers of IB students also teach students in the general education program, only a portion of the general education teachers are assigned to teach in the IB program. Because of their required teacher training for the IB curriculum and the positive recognition this school's program has received in local, state, and national media, teachers of IB classes may have higher achievement expectations for IB students than for general education students, which may be reflected in the teaching strategies and in the course objectives for each program.

The current sample of general education students reported more negative perceptions of the manner in which school resources were shared (i.e., equal opportunity to participate in school activities, materials, and equipment). Sports, extracurricular activities, and service-learning clubs are comprised of learners from both curricula. However, according to the school administration, the IB students hold many of the leadership positions within these organizations, which may lead general education students to perceive inequity in school activities. These diminished views of equality within the school may exacerbate negative perceptions of their relationships with teachers.

Given that the IB and general education students in the current study share the same school building, it was somewhat surprising that these groups reported different levels of order and discipline within the school (i.e., appropriate student behavior at school). This finding may be reflective of the actual disparity in school behavior problems in terms of discipline referrals received by members of the two curricula. Despite sharing classrooms and hallways, and interacting with one another during the common lunch and elective periods, apparently the differences in in-class behavior were strong enough to lead the IB students to hold better perceptions of the order and discipline within the school.

In addition to holding more desirable perceptions of school climate, students in the IB program achieved to a higher level, as indicated by higher grade point averages, and reported more confidence in their academic abilities. Furthermore, students in the IB program evidenced behavior patterns predictive of continued school success (i.e., good attendance and the virtual absence of in-school behavior problems).

Findings in the current study that support the superior school functioning of IB students are certainly in line with expectations for this group of high-ability and high-achieving students. However, results relevant to the psychological well-being of these students are perhaps less intuitive due to the academic and time demands inherent to the IB curriculum. Although there is a dearth of research on the effects of chronic school-related stressors (e.g., time-intensive curricula, pressure to achieve) on children's psychosocial adjustment, the larger body of research on perceived stress related to other sources of strain (e.g., health problems, exposure to community violence, economic hardship) confirms positive relationships between perceived stress and psychopathology (Galaif, Sussman, Chou, & Wills, 2003; Schmeelk-Cone & Zimmerman, 2003). Despite participation in a rigorous curriculum, IB students in the current study did *not* manifest higher levels of internalizing problems (e.g., anxiety, depression, somatic symptoms) than general education students. Moreover, both gifted and high-achieving learners in the IB program reported *fewer* externalizing symptoms (e.g., delinquent and aggressive behavior) of psychopathology than general education peers.

Given documented relationships between teacher-student relations and students' psychological adjustment, including self-esteem and levels of depression and anger (Reddy, Rhodes, & Mulhall, 2003; Roeser & Eccles, 1998), it is plausible that the positive school climate within the IB program served to offset effects of school-related stress on students' levels of psychopathology. Alternately, the match between the academic demands and these students' abilities may have facilitated psychological wellness (Reis & Renzulli, 2004). In any event, the relative lack of psychopathology among the IB students in the current study is consistent with a recent examination of the psychological characteristics of academically gifted students in a residential academy described as a "highly challenging academic environment," in which gifted adolescents did not develop clinical levels of psychopathology during the 2-year duration of the study (Cross, Adams, Dixon, & Holland, 2004, p. 178).

Participation in the IB program may also contribute to superior social functioning. While both general education and IB students reported similarly low levels of social problems, students in the IB program reported significantly fewer affiliations with negative peers. The reduced presence of rule-breaking peers is important due to the link between association with deviant peers in adolescence and important psychosocial outcomes in young adulthood, such as substance use and criminal behavior (Fergusson, Swain-Campbell, & Horwood, 2002).

The current study's attention to students' subjective well-being is unique in that it afforded an examination of optimal functioning among the curricular groups, as opposed to merely equating the absence of psychopathology with psychological well-being. As argued by the positive psychology movement, sole focus on pathology can mask differences in the children's flourishing—positive outcomes in youth that represent optimal functioning in multiple domains of development. Life satisfaction has been recognized as one such indicator of children's flourishing and positive development (Moore & Lippman, 2005). The finding in the present study that the high-ability and high-achieving students' levels of global life satisfaction were comparable to that of their general education counterparts is consistent with previous research that has failed to document a relationship between intelligence and/or academic achievement and students' life satisfaction (Ash & Huebner, 1998; Huebner, 1991; Huebner & Alderman, 1993). Given the negative relationship between stressful life events and life satisfaction (McKnight, Huebner, & Suldo, 2002), as well as research in the United Kingdom that found diminished life satisfaction among students in a school with relatively high academic achievement (Marks, Shah, & Westall, 2004), it is reassuring that the global life satisfaction of students in a rigorous IB program was not diminished relative to students who participate in general education.

Attention to positive indicators of well-being afforded the identification of the sole aspect of psychosocial functioning in which students identified as intellectually gifted were unique. Specifically, gifted learners reported the highest levels of happiness with their friendships. While the average rating of satisfaction with friendships within each group of learners was in the positive range, the average score of the gifted learners (specifically, a 5.4 on a scale of 1–6) was reliably higher than the average score of students in general education (mean = 5.0). This finding is consistent with Hollingworth's (1926, 1942) prior research of intellectually gifted children within the IQ range of 125–155, whom she found to have positive social relationships with peers. The grouping of gifted students with other high-achieving and high-ability students in the IB program may be a factor in the positive perceptions of peer relationships among the gifted IB students. This intellectually stimulating environment provides gifted learners the opportunity to receive peer validation for their feelings about being different and to strengthen interpersonal bonds with classmates who share similar motivations, interests, and feelings about their abilities (Foster, 1985; Gross, 1989; Rimm, 2002; VanTassel-Baska, 2003). Because such peers are so unique and rare, the gifted may be more appreciative of

these friendships, which are often difficult to find and sustain. Previous investigations have documented that gifted learners feel different from their same-age peers (Manor-Bullock, Look, & Dixon, 1995; Swiatek & Dorr, 1998) or feel they are perceived by others as different from students who are not identified as gifted (Coleman & Cross, 1988). However, these findings should be interpreted with caution, as the current investigation did not address whether peer relationships were with classmates or with friends who are not served in the IB or general education setting.

The current study is one of the first empirical examinations of the psychosocial adjustment of students in a rigorous curriculum, namely the International Baccalaureate Programme. Because of the lack of previous research in this area, the current study should be viewed as a pilot, exploratory investigation; a convenience sample was utilized and a broad net cast in terms of psychosocial outcomes. Although all students in the current study were drawn from the same rural school district, the subsamples differed in key demographics, including race and SES. The higher SES of the IB students may have contributed to these students' greater satisfaction with their living environments. Future studies may wish to utilize samples matched on demographics to further isolate the effect of curriculum, as well as include students from multiple schools in diverse geographic regions in order to increase the populations to which results generalize. Additionally, future studies may benefit from increased focus on specific domains of psychosocial functioning. For example, given the differences in emotional distress identified in the current study, future research may involve a closer examination of differences in specific forms of psychopathology (e.g., aggressive behavior, substance use, anxiety). Similarly, the positive profile of the IB students in the current study supports the value of follow-up studies focusing on the coping strategies employed by these students who are succeeding in a potentially stressful school environment.

Other limitations of the current study include the relatively small size of the gifted sample, the low rate of participation from general education students, and the cross-sectional design. First, although all gifted students in the current study met the state's criteria for intellectual giftedness, the result was a relatively small pool of potential participants. The small sample size necessitated rather large differences in group means in order to achieve confidence in the reliability of the differences (i.e., statistical significance). Future research should purposefully and aggressively recruit gifted students for participation, particularly gifted learners who did not select to participate in the IB program. While a comparison of gifted to non-gifted learners in the general education curriculum would

have strengthened the conclusions of the current study, such analyses were prohibited because no gifted students from the general education program elected to participate in this investigation. Regarding the low return rate of the comparison sample of students from general education, the greater expressed interest in the current study on behalf of the leadership of the IB program may have contributed to the higher participation rate of IB students. It is possible that the relatively small sample of general education students that self-selected to participate in the current study and obtained active parental consent is unique in some unknown way (e.g., higher academic achievement, more economically affluent, greater dependability, etc.). In future investigations, researchers would be wise to secure the interest of key stakeholders from all curriculum groups, and then employ creative recruitment strategies in order to increase participation from students in those curriculum groups with initially low response rates. Finally, the current study did not control for differences that may have existed between the groups prior to exposure to their respective curricula; future studies should adopt a prospective design in order to afford examinations of students' baseline levels of psychosocial functioning.

Implications for Educational Policy

Based on this investigation, the authors recommend several considerations for educational policy relevant to the IB program. First, the current study supports the notion that participating in this rigorous curriculum is not *harmful* with respect to school and psychosocial functioning. With these preliminary data in hand, parents, guidance counselors, and administrators may feel more comfortable recommending this curriculum to students who meet the traditional academic profile espoused by the IB program.

Second, the most visible accountability for the success of the IB program is currently end-of-course exam scores. Although the IBO's mission is to educate the whole child, little is known about whether the program achieves this goal, particularly with respect to creativity, action, and service. Assessment of these student outcomes may provide further evidence that the IB program is appropriate for the cognitive *and* affective development of advanced learners. Additionally, the IBO and individual schools that offer the IB program are encouraged to collect data that demonstrates the IB program yields outcomes that are *superior* to that of academically and intellectually gifted and high-achieving learners in other curricula (e.g., AP coursework, dual enrollment programs, general education). The current study established that the social-emotional functioning of

IB students is commensurate to that of the general education students with only one notable exception—externalizing behavior. Given the broad net cast in the current study, a more comprehensive examination of IB learners is needed to discern their specific affective needs.

Third, as noted in the investigation by Callahan et al. (2005), and reaffirmed in this study, students in the IB program present a homogenous socioeconomic, academic, and achievement profile. The IBO and individual schools that offer the IB program are encouraged to collect data that demonstrates the IB program is also appropriate for learners with diverse needs and those from diverse backgrounds. Specifically, Callahan and colleagues examined IB and AP teachers' implementation of curriculum and the learning environment in these classrooms and whether such programs meet the needs of creatively gifted learners and gifted students from underserved populations. Their findings indicate that (a) a lecture-style instructional format is the norm, (b) teachers are not consistently trained in educating the gifted, and (c) teachers provide little if any modification to courses based on students' individual cognitive and affective needs. Learners from underserved groups may respond differently to these instructional practices and, compared to the traditional IB student, may present unique social-emotional needs that warrant further modifications.

Personnel preparation at the secondary level for teachers, administrators, and guidance counselors should include information and strategies to support the emotional and cognitive development of intellectually and academically gifted and high-achieving students. Currently, the IB program provides training for teachers in content-area test preparation and related exams (IBO, 2006), but training should be expanded to include the affective needs of gifted and high-ability students. Although the state in which the study was conducted requires licensure for teachers of the gifted, current implementation of the policy does not often extend to secondary education personnel because most public schools in the state do not offer special academic courses for gifted learners at the high school level. However, the five-course Gifted Endorsement required by the state includes one class devoted to the affective needs of the gifted. Requiring IB teachers, administrators, and guidance counselors to complete this training (in addition to the other four courses) may (a) increase awareness of the cognitive and affective needs of gifted and high-ability students, (b) provide IB learners more guidance, and (c) affect the manner in which the social-emotional needs of intellectually and academically gifted students are addressed in the school environment.

Finally, leaders in gifted education have called for joint efforts between gifted education and those conducting research in the emerging field of positive psychology to examine the positive experiences of students, including those in gifted education (Reis & Renzulli, 2004; Robinson, Reis, Neihart, & Moon, 2002). This paper answers that call through consideration of school functioning and psychological well-being, including an indicator of optimal functioning (i.e., life satisfaction). Further investigations are needed to determine if gifted and high-achieving learners in other IB Diploma Programmes report similar perceptions.

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