A Comparison of Gifted Underachievers and Gifted High Achievers

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Abstract

The purpose of this study was to compare a national sample of gifted underachievers and gifted high achievers on a number of characteristics. Giftedness was measured as a composite score at or above the 95th percentile on the American College Testing Program (ACT). Underachievement was defined as reporting a high school grade-point average of ≤2.25 (on a 4.00 scale), and high achievement was defined as reporting a grade-point average of ≥3.75 (on a 4.00 scale). Participants for this study were 30,604 high school juniors and seniors: gifted underachievers n=257; gifted high achievers n=30,347. The underachievers generally had lower scores on the ACT and less extensive out-of-class accomplishments. Over 90% of the underachievers were Caucasian males. Comparisons are provided on a number of nonacademic variables between underachievers and high achievers.

Gifted underachievers have been a source of controversy for educational researchers and a source of frustration for classroom teachers. Educational researchers disagree about the nature, and even the existence, of gifted underachievers (see Behrens & Vernon, 1978). Anastasi (1976) questioned the legitimacy of underachievement as a category of academic behavior, particularly when discrepancies between intelligence test scores and achievement test scores are the only evidence of underachievement. Most underachievement, according to Anastasi, is simply test error: a statistical artifact of imperfect methods of measurement. Other authors are concerned that too many definitions exist for underachievement (Dowdall & Colangelo, 1982; Lukasic, Gorski, Lea, & Cufross, 1992; Whitmore, 1980). Dowdall and Colangelo (1982) found at least three different categories of definitions in their review of the literature: the difference between two standardized measures, the difference between a standardized measure and performance on some nonstandardized measures, and the difference between two nonstandardized measures. The many definitions of underachievement within these categories led the authors to conclude that the variability of definitions was of a magnitude that made the concept of underachieving gifted almost meaningless.

Nevertheless, most classroom teachers can quickly recall a student whose classroom performance seemed far below the evidence of high ability. The multiplicity of definitions and confusion about the construct of underachievement has done little to dissuade clinicians and researchers from attempting to understand underachieving gifted students, to draw conclusions about their behavior, and to develop remedial interventions (Bricklin & Bricklin, 1967; Fine & Pitts, 1980; Lukasic et al., 1992; Rimm, 1986; Whitmore, 1980). Clear commonalities emerge in the observations of practitioners and the findings of researchers about the characteristics of gifted underachievers. Compared to achievers, gifted underachievers seem to be more socially immature (Hecht, 1975), to have more emotional problems (Pringle, 1970), to engage in more antisocial behavior (Bricklin & Bricklin,

Putting the Research to Use

The findings in this study provide some new perspectives on underachievement. First, gifted underachievers are not necessarily from poverty or at-risk backgrounds. There is a middle class background to our sample. Also, the underachievers in our study did not seem antagonistic toward school. Their evaluation of the school experience was fairly positive and balanced. Our suspicion is that these students may not demonstrate behavior and attitude problems and thus are "overlooked" by educators. It is our recommendation that counselors pay attention to the folders of high-scoring students. If classroom performance is low but standardized test scores are high, there is cause for concern.

The gender imbalance in this study is striking. The males are the underachievers when there is a comparison of classroom performance and standardized test scores. If a school has a number of boys who fit the definition, it may be a good opportunity for group discussions with a counselor. These boys could learn from one another and perhaps gain insight into why classroom performance is low and what effects such performance has on them. A caution needs to be made about girls. The standard for being an underachiever in this study was fairly extreme. We think there may be a considerable number of gifted girls who are performing well below ability in class but who do not cross the line that would get them noticed. We think when it comes to being "invisible" in schools, girls are more adept than boys. Again, it would be important for counselors to check on high-ability girls who perform below expectations in the classroom since their tendency to be cooperative may keep them from receiving the attention they need.

1967), and to have lower social self-concepts (Colangelo & Pfleger, 1979; Whitmore, 1980).

In most ways, gifted underachievers are more similar to low achievers in general than to gifted achievers (see Dowdall & Colangelo, 1982). Arceneaux (1990) found one intriguing difference: gifted underachievers scored high on the need for understanding, a measure of general intellectuality, on the Personality Research Form (Jackson, 1974).

Perhaps the most puzzling group of gifted underachievers are those students who have high scores on standardized achievement tests but perform poorly in the classroom. Achievement tests are usually tests of knowledge and are closely tied to curriculum; therefore, the student who receives high scores on achievement tests is likely to possess the precise knowledge that is needed in the classroom. For some reason, the student does not, or will not, display that knowledge. Kerr (1991) proposed three hypotheses to explain this form of underachievement. The first, in keeping with Anastasi's hypothesis, is simply that the test score is wrong and that measurement error is the problem. The second hypothesis is that the student is a "closet learner" who is motivated to learn at home but does not perform within the structure of the school. The third hypothesis is that the student is bored; too angry or depressed about the dullness of repetitive material to perform in class but happy to have an opportunity on a challenging achievement test to show the extent of his or her knowledge.

It may be helpful to explore this type of underachievement further because high performance on achievement tests usually indicates that the student possesses the content knowledge necessary for high academic performance. In addition, it might be useful to study extreme cases, that is, students whose achievement test scores and grades are so discrepant that measurement error is not a likely explanation of the difference.

The purpose of this study was to examine just such a group: students who scored at the 95th percentile and above on the American College Testing Program (ACT) composite score and who obtained a 2.25 grade-point average (GPA) (4.00 scale) or below in their high school coursework. In previous studies of high-ability students, those students scoring at the 95th percentile have been defined as *gifted* (Colangelo & Kerr, 1990; Kerr & Colangelo, 1988). In order better to understand the characteristics of these underachievers, comparisons were made to a group of gifted high achievers. These are students who scored at the 95th percentile and above on the ACT composite and obtained a 3.75 or above GPA (4.00 scale). A profile of these two groups of students may lend insight into the characteristics of talented students who achieve and underachieve.

Method

Participants

The participant pool in this study consisted of 58,180 high school juniors and seniors (n=35,701 males; n=22,479 females) who scored at or above the 95th percentile on the composite score on the American College Testing Program (ACT) in the spring of 1988; this was equivalent to a composite score of >28. The ACT composite ranges from 1 to 35. For the purposes of this study, two groups of students were selected from the participant pool: the gifted underachievers were made up of the entire group of students (n=257) at this percentile level (95th) and above who had achieved a grade point average (GPA) of ≤2.25 (4.00 scale) in high school coursework, and the gifted high achievers (n=30,347) were those at the same percentile level who had achieved a grade-point average >3.75.

Instrument

The American College Testing Program (ACT) (*ACT Technical Manual*, 1988) is the second most widely used college admissions exam in the United States, with more than 1,000,000 students taking the test every year. The ACT has four subtests: English, Mathematics, Social Studies, and Natural Sciences. Scores on each of these subtests are averaged to create the ACT composite score, which can range from 1 to 35 (*ACT Technical Manual*, 1988). Besides the academic tests, all students are administered the Student Profile Section (SPS) of the ACT and an interest inventory, the Unisex Edition of the ACT Interest Inventory (UNIACT). The SPS contains questions on demographics, high school coursework and activities, educational and career plans, needs for services, and questions pertaining to academic attitudes and concerns. Only responses to the SPS were used for the purposes of this study. As part of SPS, students are asked to report their grades received in high school courses. The accuracy with which high school students report courses taken and grades received was studied by Valiga (1987), who reported a correlation of .93 between noncertified self-reported grades and grades from students' transcripts. The GPA for each student was computed from the reported grades.

Procedure

The data tape for this study included the responses to the SPS by all students at the 95th percentile and above who earned high school grade-point averages < 2.25 (4.00 scale) and all students at the 95th percentile and above who achieved grade-point averages ≥3.75 (4.00 scale). Items were selected based on their relevance to generating a useful descriptive profile of high achievers and underachievers. Items selected for analysis included demographics (gender, ethnicity, income, community size, high school size and type); students' attitudes toward their high school (evaluation of instruction, guidance, and overall adequacy of high school education); out of class accomplishments; academic and career plans (major, certainty about major, career choice, confidence about career choice, highest level of intended education, type of institution chosen); needs for services (help with educational and occupational planning, help with personal concerns, study skills, independent study, and honors work).

For the ACT scores and out of class accomplishment scores, t-tests were computed. In order to control for inflated alpha, a

significance level of $p \leq .01$ was used. Differences on all other items were computed by chi square analyses. The percentages for underachievers were compared to those of high achievers for these items and as a decision-rule, differences of 5 percentage points or more were considered of practical importance and worthy of discussion. (Chi-square analyses were computed on the frequencies in the cross tabulation tables. Chi square totals are depicted in the appropriate tables.)

Results

ACT Scores

Although all the students in this study received a composite score of ≥28 on the ACT, there was still a difference by composite with high achievers earning a higher composite (see Table 1). There were significant differences between the groups on three subtests. High achievers scored higher than underachievers on English and Mathematics; surprisingly, underachievers earned a higher score on Natural Sciences. No difference was found on Social Studies . The Mathematics subtest indicated the most disparity between the two groups. It may be that mathematics ability among able students is a key variable between underachievers and high achievers.

Table 1
Comparisons Between Gifted Underachievers and Gifted High Achievers on ACT Means

	Underachievers		High Achievers		
ACT Test	**Mean**	***SD***	**Mean**	***SD***	***t***
English	25.837	2.501	26.611	2.579	4.74**
Mathematics	26.949	3.244	29.874	3.354	13.80**
Social Studies	28.961	2.342	28.723	2.389	1.58
Natural Sciences	31.588	1.567	31.268	1.893	2.68**
Composite	28.514	.839	29.276	1.349	8.96**

** $p \leq .01$

Demographics

There were significant gender differences between high achievers and underachievers. Male high achievers (n=16,539) outnumbered female high achievers (n=13,808) (54.5% to 45.5%); however, male underachievers (n=232) outnumbered female underachievers (n=25) by a far greater proportion (90.3% to 9.7%). With regard to ethnicity, there was little difference between high achievers and underachievers in proportions of ethnic groups. There were too few underachievers in any ethnic group other than Caucasian to make generalizations. The population of underachievers was overwhelmingly Caucasian (91.2%), as was the population of high achievers (91%).

Although there was a significant difference by income levels, both underachievers and high achievers came from more affluent families. The majority of underachievers (60.1%) and high achievers (58.2%) came from families with incomes over $36,000 a year, and more than a third in each group came from families with incomes over $50,000.

Table 2
Demographic Characteristics of Gifted Underachievers and Gifted High Achievers

Demographics	**Underachievers Pct.**	**High Achievers Pct.**	**Chi-square Totals**
Gender			
Male	90.3	54.5	
Female	9.7	45.5	131.6500*
Ethnicity			
Black American	1.2	0.6	
American Indian	0.4	0.2	
Caucasian	91.2	91.0	
Mexican American	0.8	0.8	
Asian American	1.2	4.5	
Hispanic American	0.8	0.6	
Other	1.2	0.7	
No Response	3.2	1.6	12.7778
Income Ranges			
$0 - 11,999	8.0	14.2	
$12,000 - 23,999	10.5	13.8	
$24,000 - 35,999	21.4	23.8	
$36,000 - 49,999	23.1	24.8	
$50,000 - 59,999	14.3	12.4	
$60,000 - above	22.7	21.0	16.4890*
Community Size			
Farm open country	7.6	10.7	
less than 500	1.6	2.0	
500-1.999	1.6	6.3	
2,000-9,999	7.6	16.7	
10,000-49.999	30.4	29.4	
50,000-249,999	20.0	18.8	
Over 250,000	31.2	16.2	59.3700*
High School Size			
<25	0.0	2.6	
25-99	9.8	16.1	
100 199	16.7	18.2	
200-399	40.2	33.0	
400-599	22.0	19.4	
600-899	8.9	8.6	
>900	2.4	2.1	11.4352
Type of High School			
Public	84.1	87.4	
Catholic	10.7	7.8	
Private (independent)	3.2	2.3	
Private (denominational)	1.2	2.2	
Military	0.0	0.1	
Other	0.8	0.2	8.9180

* $p \leq .05$

Chi-square analyses indicated significant differences between the two achievement groups by community size. There did

seem to be a tendency for underachievers to reside in urban areas: they were twice as likely as achievers to live in cities over 250,000, and half as likely as achievers to live in towns or suburbs of 2,000 to 9,999 population. Underachievers were also more likely to attend high schools with over 200 students (73.5% vs. 63.1%). There were no differences in type of high school attended, with public schools being the place of learning for 84.1% of underachievers and 87.4% of high achievers. Demographic characteristics of underachievers and high achievers are shown in Table 2.

Table 3
The Attitudes Toward High School Education of Gifted Underachievers and Gifted High Achievers

Rating	Underachievers (pct.)	High Achievers (pct.)	Chi-Square Totals
Evaluation of High School Classroom Instruction			
Satisfied, no change	52.0	68.0	
No feelings in either direction	30.0	20.3	
Dissatisfied, need improvement	17.0	11.5	
No experience with this aspect of school	1.0	0.3	37.9700*
Evaluation of Overall Guidance Services			
Satisfied, no change	44.4	51.5	
No feelings in either direction	25.8	23.7	
Dissatisfied, need improvement	25.8	23.4	
No experience with this aspect of school	4.0	1.4	16.9830*
Evaluation of Adequacy of High School Education			
Excellent	17.0	38.8	
Good	44.5	42.2	
Average	25.1	9.6	
Below average	8.1	1.8	
Very inadequate	5.3	7.6	144.4300*

*$p \leq .05$

Attitudes Toward School

Chi-square analyses indicated significant differences between underachievers and high achievers in their attitudes toward their high school education. Underachievers were less likely to be satisfied with high school class instruction (52% vs. 68%); more likely to have "No feelings in either direction" (30% vs. 20.3%); and more likely to be dissatisfied (17.0% vs. 11.5%). They were less likely to be satisfied with overall guidance services in their schools than high achievers (44.4% vs. 51.5%), although it should perhaps be noted that over half of both groups were less than satisfied with guidance. More than twice as many high achievers as underachievers rated their high school education as excellent (38.8% vs. 17.0%), although a surprisingly large proportion of underachievers rated their high school education as good (44.5%). Table 3 contains information about attitudes toward high school education.

Out-of-Class Accomplishments

The out of class accomplishments provide a ranking of 1-7 on a number of activities outside the classroom. These activities are delineated in Table 4. The rankings 1-7 indicate the extent of involvement and the level of accomplishment related to an activity. The ranking of 1 is the lowest (e.g., participation at an entry level); the ranking of 7 is the highest (e.g., a major award or recognition in the activity). In a *t*-test comparison of means, high achievers had higher rankings in six activities and there were no differences in three activities. The high achievers were more active and accomplished outside the classroom.

Table 4
Comparisons Between Gifted Underachievers and Gifted High Achievers on Out-of-Class Accomplishments

Activity	Underachievers Mean	Underachievers *SD*	High Achievers Mean	High Achievers *SD*	*t*
Leadership	.992	1.237	2.238	1.797	10.98**
Music	1.437	1.904	2.264	2.180	6.00**
Speech	1.060	1.409	1.126	1.421	0.73
Arts	.861	1.250	.854	1.389	0.08
Writing	1.369	1.355	1.621	1.521	2.62**
Science	.655	1.162	1.179	1.504	5.52**
Athletics	2.142	1.853	3.118	1.987	7.77**
Community Service	.857	1.225	1.435	1.499	6.05*
Work Experience	1.964	1.337	1.879	1.370	0.98

** $p \leq .01$

Academic and Career Plans

Chi-square analyses indicated significant differences between underachievers and high achievers in college majors and occupational choice. Differences of approximately 5% emerged in 3 of the 20 possible education majors; these are reported in Table 5. (The category, *Other*, represents the combination of the remaining 14 choices grouped together for chi-square analysis.) High achievers more often chose health professions and engineering than underachievers; underachievers more often chose fine and applied arts, letters, social sciences or undecided. Underachievers were as certain about their chosen majors as high achievers. Occupational choice followed the same patterns as academic majors, and underachievers were as confident in their career choices as high achievers.

There were strong differences in educational aspirations. Almost half of the high achievers aspired to a professional degree (49.4%) whereas only 33.7% of underachievers aspired to such a degree. The proportions of students aspiring to a master's degree, however, were equal (32.9% vs. 32.2%). More underachievers than high achievers planned to stop after a bachelor's degree (30.9% vs. 17.7%). Underachievers also chose public institutions of higher education more often than high achievers, and high achievers chose private institutions more often than underachievers. Academic and career plans are displayed in Table 5.

Table 5
The Academic and Career Plans of Gifted Underachievers and Gifted High Achievers

Response	Under-achievers (pct.)	High Achievers (pct.)	Chi-Square Totals
Education Major			
Engineering	14.6	22.7	
Fine & Applied Arts	8.3	2.7	
Health Professions	5.9	14.2	
Letters	5.1	2.3	
Social Sciences	16.6	10.9	
Undecided	9.1	6.8	
Other	40.4	40.4	67.2120*
Occupational Choice			
Engineering	12.7	21.3	
Fine & Applied Arts	10.0	2.8	
Health Professions	6.4	17.2	
Letters	6.4	1.6	
Social Sciences	12.4	11.3	
Undecided	10.4	7.7	
Other	41.7	38.1	108.2770*
Confidence about Proposed Educational Major			
Very sure	29.6	26.7	
Fairly sure	44.7	47.2	
Not sure	25.7	26.1	1.1682
Confidence about Occupational Choice			
Very sure	25.1	21.0	
Fairly sure	45.8	46.3	
Not sure	29.1	32.7	2.9611
Planned Highest Level of Education			
Two years	1.2	0.3	
Bachelor's Degree	30.9	17.7	
Master's Degree	32.9	32.2	
Professional Degree	33.7	49.4	
Other	1.2	0.4	48.0900*
Choice of Type of Institution			
Public 4	67.5	54.9	
Private 4	27.2	44.2	
Public 2	4.1	0.5	
Private 2	1.2	0.4	90.4610*

*$p \leq .05$

Needs for Services

As Table 6 indicates, the needs for services between high achievers and underachievers are significantly different. Underachievers claimed less of a need for help with educational plans than high achievers (46.6% vs. 54.1%), although they claimed slightly more need for help with personal concerns (12.3% vs.7.7%). The differences were much more extreme when asked about the need for study skills: 60.9% of underachievers felt the need for study skills; only 14.8% of high achievers indicated this need. Many more high achievers desired honors courses (80.7% vs 36.2%) and independent study (69.3% vs. 51.2%) than underachievers.

Table 6
The Needs for Services of Gifted Underachievers and Gifted High Achievers

Response	Under-achievers (pct.)	High Achievers (pct.)	Chi-Square Totals
Need for Help with Educational Plans			
Yes	46.6	54.1	
No	53.4	45.9	5.5960*
Need for Help with Personal Concerns			
Yes	12.3	7.7	
No	87.7	92.3	7.5190*
Need to Improve Study Skills			
Yes	60.9	14.8	
No	39.1	85.2	414.8700*
Interest in Freshman Honors Courses			
Yes	36.2	80.7	
No	63.8	19.3	308.6040*
Interest in Independent Study			
Yes	51.2	69.3	
No	48.8	30.7	37.8240*

*$p \leq .05$

Discussion

The picture of the typical gifted underachiever that emerges from this study is a Caucasian male from a moderately affluent family. He lives in an urban area and attends a large public high school. Unlike many gifted males, math is not his strongest area of achievement (although his scores are still quite high). His major and career choices are likely to be somewhat less traditional than those of high-achieving males. It is difficult to make generalizations about the gifted underachiever's attitude toward school because the data are conflicted (as perhaps are the underachievers). On the one hand, many underachievers think their school is good; however, they are less likely than high achievers to be satisfied with their classroom instruction and the guidance they have received. Underachievers display

a certain amount of realism in their educational aspirations and choices: they seem to be aware that private colleges may be out of their reach; the doctorate may also seem unattainable given their low performance. However, the vast majority seem to expect to go to college somewhere, and many expect to earn a master's degree.

Underachievers also have some notion of the kind of help they need. Surprisingly, they are fairly confident about educational plans and resist the idea of help. It is as though they have determined what kind of major and college is within their grasp or appropriate to their needs and do not wish to discuss it. They do not wish to be involved in honors or independent study, an unusual stance for gifted students. Only in the area of study skills do they wish to have help. The gifted female underachiever seems to differ little from her male counterpart on any of these items; but the fact that she is female in a predominantly male group sets her apart as worthy of further study.

In many ways, this was an unusual study with puzzling findings. We chose an extreme group, a group of young people whose classroom performance was extraordinarily discrepant with their ability and acquired knowledge as measured by a standardized achievement test. However, after considering the results, we believe that they have much in common with the gifted underachievers who exist in almost every classroom and who have been described in the literature. Like the underachievers described in some literature (e.g., Rimm, 1986; Whitmore, 1980), they are, for the most part, white, male, middle-class young people with some dissatisfactions about their school and some concerns about their own behavior. Unlike the underachievers in the literature who are portrayed as rebellious and antisocial (e.g., Bricklin & Bricklin, 1967), these students do not seem to be rebelling in any typical way; they do not seem to blame the system, and they are making educational and occupational plans that conform to the usual model of anticipating college and career entry of other middle-class young people. They may not be aware of the fact that their performance is closing doors.

Counselors and teachers working with underachievers may draw some implications from this study. Although these students probably need personal counseling and career planning, they are most willing to accept help with study skills; therefore, concrete help must be offered for low grades, perhaps combined with individual counseling. Although they eschew honors and independent study, there is clinical evidence that more rigorous academic challenge may actually have a positive impact on underachievement (Kerr, 1991; Whitmore, 1980). Therefore, the evidence of high standardized achievement scores may need to be used to persuade the student of his or her capability to do more difficult rather than less difficult work.

It may be difficult for educators and counselors to work up concern for this group. As white, middle-class males of high ability, they fit none of the categories considered to be at risk. Nevertheless, we and they may be losing the opportunity to see the fulfillment of their potential, and further work seems warranted to understand the nature and needs of the gifted underachiever.

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