Nurturing Talent in Gifted Students of Color

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Gifted Black students are a minority within a minority – an anomaly in gifted programs. As a gifted Black student, I walked in two worlds. Teachers had a difficult time understanding me, for I was gifted and Black – it was an oxymoron, just as gifted underachievement appears paradoxical. As a gifted Black student who learned to underachieve, I needed several things to ensure a healthy school experience.

Donna Y. Ford (1996, p. xi)

For many students of color in the United States, the identification, assessment and nurturance of giftedness are complicated by limited opportunities to learn, psychological and social pressures, and racial and ethnic discrimination. One of the most pernicious expressions of these complicating factors is the persistent though unacknowledged notion of intellectual inferiority. Unlike most of their European American and Asian American peers, Black and other ethnic minority gifted youth are confronted with the potential for academic failure that defies predictions based on demonstrated ability and even trumps expectations of high achievement. To the extent that a significant number of students of color in college, particularly Black males, perform well below their tested abilities, as research on the predictive value of the Scholastic Achievement Test (SAT) attests (Bridgeman, McCamley-Jenkins, & Ervin, 2000; Young, 2001), it is incumbent on researchers and practitioners to find effective means to nurture the intellective development of students of color with exceptional academic ability. Further, our traditional indicators of academic giftedness have been drawn so narrowly as to result in the exclusion of many persons in whom the capacity to perform at high academic levels is not recognized, nor is it developed (Borland & Wright, 1994; Donovan & Cross, 2002). Giftedness is generally used to refer to highly developed and specialized abilities and the capability to demonstrate these abilities in academic performance. Perhaps the most widely recognized and acclaimed expressions are in artistic
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and intellective prowess. In some circles, high levels of general adaptive ability, creativity, efficiency, speed, and/or relational skills may be recognized as gifted. Gardner (1999) has identified more than seven dimensions along which one may be said to demonstrate giftedness.

In determining the various ways in which giftedness may be conceptualized and identified, it may be useful to consider taking a second look at a category of persons who show potential for being identified as academically gifted, but who tend not to perform at levels of academic achievement that are sufficiently high to be included in the gifted population. Without changing the criteria by which academic giftedness is judged, we may be able to increase the pool of persons who perform above the 85th percentile by efforts directed at reversing the tendency of some achievement indicators to overpredict the academic performance of some students of color. To that end, this chapter reinforces the importance of nurturing academic ability in gifted students of color by describing the structural supports of an exemplary student academic development program, the Meyerhoff Scholars Program (MSP), at the University of Maryland, Baltimore County. Over a span of 15 years, the MSP has become one of the nation’s leading producers of undergraduate students of color, particularly Blacks, who go on to graduate study and research careers in the sciences, mathematics, and engineering.

In this context, we briefly review several conceptualizations of giftedness; review the scope of the underrepresentation and overprediction phenomenon for gifted students of color; elaborate on some of the causes of this national crisis; provide evidence of how the MSP nurtures the academic excellence of gifted and talented students of color; discuss those theoretical constructs from the social sciences that we believe inform practices having to do with academic attitudinal and behavioral changes; and conclude with a discussion of those aspects of the program that can be transferred in efforts to reduce the overprediction phenomenon and increase the persistence and academic excellence of gifted and talented students of color.

CONCEPTUALIZATIONS OF GIFTEDNESS

In traditional conceptualizations of giftedness, high intelligence was believed to be reflected in high scores on tests of intelligence or academic achievement (Terman, 1925). The association between giftedness and high IQ scores was established at the beginning of the 20th century when tests were developed to measure intelligence and eventually were depended on to identify gifted children. The idea of giftedness as above-average cognitive and academic ability seems to have dictated both the design of these assessment instruments and the characteristics that teachers and counselors use as indicators of giftedness. This conceptualization of giftedness
may have prevented the identification of some gifted students who underachieve on standardized tests or who do not impress their teachers as being smart.

Contemporary theories of giftedness have begun to move beyond a unidimensional view of giftedness to incorporate a complex understanding of abilities and behaviors. Robert Sternberg’s (1985) triarchic theory of human intelligence, for example, consists of the following interacting subtheories: (1) the componential subtheory, which argues for the importance of mechanisms that enable the acquisition of information and knowledge and the performance of metacognitive tasks; (2) the experiential subtheory, which views intelligence as varying with known and unknown phenomena with varying degrees of success; and (3) the contextual subtheory, which proposes that intelligence occurs in sociocultural contexts and necessarily involves adaptation to novel and quotidian circumstances and situations.

Renzulli’s (1986) theory of giftedness makes a distinction between “schoolhouse” giftedness and “creative–productive” giftedness, two types of intelligence that may coexist and interact within the same person. The former is most prevalent in highly able learners who do well on standardized and cognitive ability tests. Programs for the gifted are generally modeled on this type of intelligence and are best suited to serve this type of student. Renzulli suggests, however, that giftedness also includes the ability to develop new products from acquired knowledge and to use and apply “information (content) and thinking processes in an integrated, inductive, and real-problem-oriented manner” (1986, p. 58). Accordingly, this type of giftedness is harder to measure and presents more programming challenges than schoolhouse giftedness. Creative–productive intelligence involves the interaction among three key qualities (Renzulli’s “three-ring conception”): above-average ability, creativity, and commitment to task. These qualities combine to generate inventions, art, scientific discovery, and cultural innovation, all of which depend on “...productive people of the world, the producers rather than the consumers of knowledge” (1986, p. 59). Renzulli suggests that, although above-average ability is associated with this type of giftedness, it is not a necessary trait.

What is interesting about Renzulli’s theory, particularly in relation to the philosophical underpinnings of the MSP, is the equal placement of task commitment, a noncognitive factor, within the three-ring conception of giftedness. Task commitment, from Renzulli’s perspective, is as important as the ability to process information, reason analytically, understand spatial relations, and think conceptually. Task commitment is characterized by perseverance, dedicated practice, endurance, self-confidence, trust, and effort that is guided by concrete, problem-oriented, and creatively guided goals. It can be argued that programs for gifted students, such as the MSP and others, must (1) support and hone rigorous academic discipline; and (2) train students to increase their motivation, persistence, and goal-orientation.
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Both Renzulli’s (1986) and Sternberg’s (1985) perspectives on giftedness incorporate nonacademic and noncognitive components and point to the interaction of extraordinary character traits and the sociocultural adaptive skills that appear to be essential to giftedness. Gordon’s (2001) idea of intellective competence also conceptualizes human intellect along a spectrum of social, psychological, behavioral, and cultural abilities and adaptive competencies. Gordon argues that “it may be more appropriate that we think of developed intellective abilities or intellective competencies as the meta-expressions of a wide range of human learning achievements, some of which are related to what happens in schools. These developed abilities are not so much reflected in the specific discipline-based knowledge a student may have, but in the student’s ability and disposition to adaptively and efficiently use knowledge, technique, and values in mental processes to engage and solve both common and novel problems” (2001, p. 3). For all intents and purposes, the referenced perspectives on giftedness seem not to have influenced the identification and assessment of not only the traditional notions of cognitive knowledge, skills, and dispositions, but also the social, cultural, and motivational dimensions of high levels of human learning and intellect.

We contend that this misalignment between narrow conceptions of giftedness and its identification, assessment, and development may have a role in perpetuating the long-standing gap in academic achievement between Black, Hispanic, and Native American students and their European American and Asian American peers. Although the gap exists at all levels, the serious underrepresentation of students of color among those who perform in the top quartile has received relatively little attention in elementary, secondary, or postsecondary education. Where attention is directed to the academic achievement gap, special efforts are more likely to be seen directed at the generic problems of academic underachievement of students who cluster in the left and middle of the academic achievement distribution. The failure to recognize a broader range of expressions of giftedness and the failure especially to nurture latent expressions of intellective potential in these populations may be contributing to the achievement gap.

UNDERREPRESENTATION AND OVERPREDICTION

The chronic underrepresentation of Blacks, Hispanics, and Native Americans among gifted and talented high-achieving students in the United States led to the formation in 1997 of the College Board’s National Task Force on Minority High Achievement, co-chaired by Professors Edmund W. Gordon and Eugene Cota-Robles. The College Board’s (1999) Task Force Report, “Reaching the Top,” details the fact that, in 1995, these ethnic minority students constituted about 30 percent of the under-18 population, yet received only 13 percent of the bachelor’s degrees, 11 percent of the
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professional degrees, and 6 percent of the doctoral degrees presented by colleges and universities in the United States. It further observed that “Until many more underrepresented minority students from disadvantaged, middle-class, and upper middle-class circumstances are very successful educationally, it will be virtually impossible to integrate our society’s institutions completely, especially at the leadership levels” (p. 2). This observation is reflected in DuBois’ (1940) warning almost 65 years ago against the neglect of gifted and talented minority students.

Current attention, however, is primarily focused on the overrepresentation of minorities on the left end of the academic achievement distribution to the neglect of those problems able and gifted students encounter on the right end. Specifically, the gap in academic achievement is greater between students of high socioeconomic status (SES) students than it is between low-income Black and European American students. The achievement gap is also larger between groups of students whose parents have earned baccalaureate degrees than it is between students whose parents have completed less than 12 years of schooling. Additionally, traditional indicators of academic achievement, such as high scores on standardized achievement tests and strong high school grade-point averages (GPAs), tend to overpredict the subsequent academic achievement of many minority students. This often-ignored finding was first reported by Coleman et al. (1966) in *Equality of Educational Opportunity* and was emphasized again in the 1980s (Durán, 1983; Willingham, 1985), 1990s (Camara & Schmidt, 1999; Ramist, Lewis, & McCamley-Jenkins, 1994), and the early 2000s (Bridgeman et al., 2000; Young, 2001). Ramist et al. (1994) suggest that the overprediction phenomenon is particularly acute in minority students’ freshman year and in gateway courses in the sciences, engineering, and mathematics. This discrepancy between the tested academic ability and college performance of students of color also affects their rate of degree completion (Bowen & Bok, 1998).

Bowen and Bok (1998) discuss the overprediction phenomenon at some length in their book *The Shape of the River*. In their examination of 28 elite colleges and universities, they found the class ranking for Black graduates with mean SAT-I scores of 1,300 and above (the highest category) to be four percentiles lower than White graduates whose mean SAT scores were less than 1,000 (the lowest category). These findings suggest that elite institutions have not succeeded in eliminating the performance gap between Blacks and Whites, even though they may recruit, enroll, and graduate some of the most able and gifted Black students at higher rates than other colleges and universities.

An extensive examination of achievement gaps at all levels of education has resulted in the development of divergent theories. Bowen and Bok (1998) suggest that the achievement gap can be partially explained by inadequacies in high school preparation. Yet, others conclude that the
underrepresentation in the top quartile of students of color is solely due to the behavior and characteristics of the students. The seemingly intractable gap, however, cannot be completely explained by student characteristics or lack of academic preparation. There is evidence of more plausible causal variables. Maton, Hrabowski, and Schmitt (2000) suggest that this persistent underperformance may be attributable to students’ academic and social isolation; lack of exposure to support, motivation, monitoring, and advisement; and, for those who perform below the norm, weaknesses in their knowledge and skill development (Treisman, 1990, 1992).

**CAUSES OF UNDERREPRESENTATION FOR GIFTED STUDENTS OF COLOR**

We have understood for some time now that the sources of disparities in academic achievement affecting racial and ethnic minority groups include low socioeconomic status; a high percentage of parents with little or poor quality formal education; racial and ethnic prejudice and discrimination; cultural attributes of the home, community, and school; and the quality, amount, and uses of school-related resources (College Board, 1999).

Although these institutional, ecological, and personal sources of academic disparities continue to have an impact on the chronic underrepresentation of gifted students of color among high-achieving students, we limit our discussion to an examination of the academic and social isolation of these students and the relationship of such isolation to their mastery of academic knowledge and skills. Academic isolation seems to negatively affect student access to academic support, monitoring, and advisement structures. It also appears that academic and social isolation influence and are influenced by student attitudes and motivation. According to Nettles (1988) and Seymour and Hewitt (1977), students of color who major in the sciences, engineering, and mathematics have a greater likelihood of becoming academically and socially isolated on majority White campuses than do European American or Asian American students. Redmond (1990), Allen (1992), and McHenry (1997) also posit that academic and social isolation occur because students of color are not a critical mass on majority-White campuses, do not have contact with faculty outside of the classroom, nor develop mentoring relationships with faculty (including with minority faculty).

Treisman’s (1990) research explores the relationship of such isolation to students’ mastery of academic knowledge and skills. In this context, Treisman examined why Black and other students of color were not doing as well as their Asian American and European American counterparts in calculus courses. During 1975–76, he examined the academic and social lives of selected Black and Chinese American student populations at the University of California, Berkeley. The Chinese American students were chosen because faculty members and graduate student instructors had
often observed that large numbers of Chinese American students do extremely well in calculus.

One of Treisman’s (1990) findings suggested that the source of Black students’ poor grades in calculus was not the result of the absence of family support, poor motivation, or poor academic preparation (as widely assumed). Rather, the crux of the problem was the social and academic isolation Black students experienced on a predominantly White campus. In comparison with the integration of Chinese American students’ social and academic lives, the Black students’ isolation was striking. Specifically, Treisman (1990) found that Black students studied alone and socialized with a different group of friends from those at college. On the other hand, the Chinese American students studied first by themselves before gathering in groups to collectively review their work. These group meetings often included food, music, and at times, students’ brothers, sisters, cousins, and friends. Steinberg, Dornbusch, and Brown (1992) also observed this tendency in Asian cultures for groups to work and study collaboratively.

Further, “prejudicial beliefs on the part of faculty and other students, exclusionary social practices on the campus, and other factors that make up a ‘chilly’ campus climate” seem to result in underachievement (Gándara, 1999, p. 52). Other variables include motivational and performance vulnerability in the face of negative stereotypes and perceived and actual discrimination (Allen, 1992; Maton et al., 2000; Seymour & Hewitt, 1997; Steele & Aronson, 1995). With respect to the idea of stereotype threat, Steele and Aronson (1995) suggest that when students find themselves in situations (e.g., classes or exams) in which they perceive an external expectation based on their minority status, their anxiety that they may confirm the stereotype can lead to diminished performance. Other explanations include:

- fear of disapproval or rejection by peers, including fears of acting White (Fordham & Ogbu, 1986);
- hostile or unsupportive environments associated with residual racism (Aronson et al., 1999);
- absence of adequate socialization to the attitudinal and behavioral demands of the academy (Ogbu, 2003); and
- limited contact with and exposure to models of academic excellence and exemplars of scholarly practice (Gordon, 2001).

The absence of adequate access to financial aid and other forms of education-related capital (Bourdieu, 1986; Coleman, 1988) and low motivation for academic achievement are also associated with low levels of academic success. The lack of financial capital is one of the barriers Black, Hispanic, and Native American students cite as a barrier in the achievement of their educational and career goals (Miller, 1995). Many of these students also do not have access to the cultural, health, human, institutional, social,
and political capital (Bourdieu, 1986) that are known to facilitate successful movement through educational experiences.

Attitudes and affective states are also involved. These include low faculty and peer expectations for ethnic minority student success, lack of access to academically supportive peer networks, and unawareness of the need for strong study habits and tutoring. These attitudes and affective states are among the variables affecting student agency, motivation, self-regulation, self-efficacy, and collective efficacy. Uneven and inadequate monitoring and advisement may also result in misinformation concerning coursework, students’ preparedness regarding the next level of study, and unawareness of how to prevent or regulate the influence of emerging academic or personal problems (Glennen, Baxley, & Farren, 1985).

Taken together, the referenced theories and empirical research seem to suggest that the structural domains and associated individual correlates (student attitudes and behaviors as evidenced in their sense of agency, self-efficacy, motivation, self-regulation, and collective efficacy) are not inconsistent with the forms of education-relevant capital that Bourdieu (1986) and Coleman (1988) advocate and that Gordon (2001) emphasizes are necessary for gifted students of color to achieve in education. These forms of education-relevant capital include:

- health capital: mental and physical developmental integrity, health, and nutrition (Lee & Lockheed, 1990);
- human capital: intellective and social competence (Gordon, 2001), tacit knowledge, and other education-derived abilities as personal or family assets;
- personal capital: dispositions, attitudes, aspirations, efficacy, and sense of power (Bandura, 1986; Bourdieu, 1986); and
- social capital: social networks and relationships, social norms, cultural styles, and values (Bourdieu, 1986; Coleman, 1988).

Clearly, there seems to be wastage in the supply line with respect to the flow of students of color through systems of education. It is logical to assume that some of this loss is at the high end of the academic achievement distribution. To engage this issue, however, at least three problems must be overcome. There is the obvious problem of better conceptualizing the giftedness phenomenon so as to expand the categories of abilities and behaviors that can be used as indicators. Several of the chapters in this book address that problem. Once we have achieved a more inclusive conceptualization of giftedness and established its relevance for high levels of academic performance, we have the problem of developing the measurable indicators of these dormant, emerging, or developed abilities. At a third level, we face the problem of nurturing these atypical latent or developing characteristics for expression in traditional or emerging academic conditions. Although we would commend successful efforts at solving...
any one or all of these three problems, we propose that greater and more targeted effort be directed at salvaging giftedness in persons who show high levels of ability on traditional indicators of academic ability, but for whom these indicators have traditionally overpredicted their subsequent academic performance.

In this salvage mode, attention is given to identification through the use of traditional indicators, with some possible effort directed at accommodations informed by concern for Steele and Aronson’s (1995) idea of stereotype confirmation. In this mode, emphasis is given to (1) prescriptive assessment and placement; (2) targeted knowledge and skill development to correct for specific challenges and to ensure foundational mastery; (3) academic, cultural, and social integration to reduce the experience of isolation and marginalization; (4) the deliberate shaping of proacademic attitudes, dispositions, and self-regulatory behavior to better support engagement in and effort at relevant learning behaviors; (5) the design and management of cooperative learning situations to take advantage of distributed knowledge; and (6) encouragement of trust in the learning situation, trust of others in the learning community, and trust in oneself as an academic learner (Bryk, 2003; Mendoza-Denton, 2003). The combination of these factors is thought to contribute to the achievement of collective and self-efficacy (Bandura, 1986; Bridglall, 2004).

Although some of the possible solutions to these chronic problems include changing student attitudes and behaviors, they also require changes in institutional interventions. Various programs on the elementary and secondary level that combine rigorous selection criteria with learning environments that are demanding and supportive have been identified. It is in institutions of higher education, however, that we find a few comprehensive efforts designed to develop, nurture, and accelerate the intellective competencies (Gordon, 2001; Bridglall, 2004) of able and gifted ethnic minority students. These include:

- the Emerging Scholars Program;
- the Biomedical Honor Corps at Xavier University;
- the Challenge Program at Georgia Institute of Technology;
- the Minority Access to Research Careers program; and
- Spend a Summer with a Scientist at Rice University.

The best exemplar of programs that strive to reduce the underdevelopment of gifted students of color and the overprediction phenomenon they often face may be the MSP at the University of Maryland, Baltimore County (UMBC). This program was begun by Dr. Freeman Hrabowski in 1988 with the following goals: (1) increasing the number of gifted students of color who could successfully complete a course of study in the science, engineering, and mathematics fields in which they were historically underrepresented; (2) academically and socially preparing these students...
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to pursue PhDs and or MD/PhDs in these fields; (3) reducing the overprediction phenomenon between majority and underrepresented students of color at the right end of the achievement distribution; and (4) increasing the number of ethnic minority professionals in these fields and in the university professorate (thus creating much needed role models for students of color of later generations).

With a focus on academic excellence rather than remediation, Hrabowski and colleagues designed the MSP’s infrastructure to support and foster intellective competencies (Gordon, 2001; Bridglall, 2004) and social responsibility. The conceptual underpinnings of the MSP are thus reflective of the idea that giftedness in students of color is not a guarantee of academic success; rather, achievement ability and motivation must be strengthened by a deliberate and purposeful system of academic, social, and personal support. Although all gifted students may face similar psychological pressures, including isolation, low self-esteem, and low sense of adequacy, gifted students of color are further hindered by racial and identity issues that the MSP appears to successfully anticipate.

THE MSP AT THE UNIVERSITY OF MARYLAND, BALTIMORE COUNTY

The MSP achieves its goals through a deceptively simple group of integrated program components that emphasize (1) the careful selection of students; (2) the provision of merit financial support to reduce concerns about finances; (3) a mandatory summer bridge program to acclimate students to the rigors of freshman year; (4) peer study groups for academic and social support; (5) the responsibility of each Meyerhoff student to each other and to community service; (6) the importance of taking advice; (7) meaningful and sustained interaction with faculty and mentors; (8) the importance of continued family involvement; (9) the centrality of academic excellence and scholarship; and (10) the significance of rigorously and systematically documenting and evaluating program outcomes. The MSP operates on the assumption that every student selected has the ability to excel in engineering and the sciences if they are provided with appropriate challenges, resources, and opportunities.

Several theoretical notions that are associated with the social sciences and have relevance for education were used as lenses through which to better understand the MSP. These notions include (1) structural supports for the nurturance of giftedness; (2) integration into a high-performance learning community; (3) access to development-related capital; and (4) attitudinal and motivational attributes of students.

Structural Supports for the Nurturance of Giftedness

In designing the MSP, Hrabowski’s observation that even gifted students needed a stronger foundation in mathematics and science influenced his
establishment of a first-year algebra minicourse designed to strengthen students’ mathematics skills. He also collaborated with faculty to reconceptualize the content and relevancy of physics, chemistry, biology, and engineering courses, for example. In chemistry, for instance, students are introduced to the faculty’s research interests. In an engineering course, students’ participation in a project for the homeless enables them to gain a realistic perspective concerning how engineers conceptualize and work toward solving certain social problems. This approach relates theoretical concepts to real-world concerns. Students’ courses also include a lesson in which the standards and requirements are made explicit, and students are required to plot the number of hours needed for study in order to get an A in a class.

The expectation that students participate in faculty research and the requirement that they study in groups are other strategies used to increase students’ internalization and understanding of conceptual material. In peer study groups, for example, gaps in students’ mathematical preparation are addressed in situ; that is, the fundamental concepts in algebra or trigonometry are reviewed and mastered within the context of working on demanding calculus problems. This strategy has proved more effective mathematically and psychologically than the alternative strategy of routing students to remedial programs. Given Hrabowski’s emphasis on succeeding at the highest levels, he has integrated exemplary upperclassmen to function as teaching assistants and to counsel new students on what is required for academic excellence. On yet another level, the Meyerhoff scholars have set up a test bank, where they share prior exams and notes to help each other succeed. This emphasis on addressing students’ gaps in ongoing work with faculty is a robust characteristic of the MSP model.

Integration into a High-Performance Learning Community

Over the course of the program’s implementation, it has become evident that peer study groups serve more than the purpose of helping students master the concepts in their fields; they also enable students to regard themselves as part of a high-performance learning community. Peer study groups promote conversations in which participants have to articulate their own ideas and listen to the ideas of others. Peer study group interactions also ensure that students make their work and thinking public and become more aware of the different perspectives and the knowledge fund of their peers. As a result, students are disabused of the notion that their ability is based on sheer talent. The peer study group setting exposes students to peers who also struggle with various ideas and subject content. The result is that students learn quickly that excelling in a subject does not mean being able to solve problems quickly and easily but rather it means working very hard and persevering.
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This shared process of working in peer study groups seems to also reduce what social psychologist Claude Steele (1997) described as “stereotype threat.” Steele and Aronson’s (1995) work demonstrates that Black students’ scores in mathematics can decline when they are aware that others may judge their performance in terms of their racial background, rather than in terms of their individual background. MSP student participation in peer study groups (where it is expected that everyone must work hard to succeed) may reduce potential threats of stereotyping.

Access to Development-Related Capital

The MSP promotes student academic and social integration through a committed and involved program staff whom we have observed to be remarkably supportive in every aspect of program implementation. As the Meyerhoff scholars adjust to their new environment during the summer bridge orientation process, for example, program staff work tirelessly to help students become academically focused and socially and emotionally comfortable. This strategy is particularly significant given the importance of academic confidence and identification with the university for student persistence, retention, and graduation (White & Sedlacek, 1986).

This orientation process and continuous interaction between program staff and students seems to be essential as minority students manage the social and academic challenges that may emerge in daily interactions with faculty and students of other races. In the process, students learn how to take responsibility for their own behavior, exercise self-regulation, manage their time effectively, and cope with change and related stresses (Ting & Robinson, 1998). In both formal and informal interactions with students, program staff emphasize their expectations concerning respectful behaviors that honor the different ways in which UMBC celebrates student diversity. Program staffs’ effectiveness in helping students to develop a sense of belonging, bond with students from different ethnic groups, and perceive themselves as valuable members of the campus community is reflected in the MSP’s retention rate of 95 percent.

Attitudinal and Motivational Attributes of Students

In support of a high-performance learning community, the MSP provides a family-like social and academic support system for its students. This structure includes opportunities for older students to be supportive of first-year students and for each student to have a designated mentor (who may be a faculty or staff member and who may or may not be different from the student’s academic advisor). The MSP also fully expects that its students will (1) support each other both academically and personally; (2) seek support from a variety of sources; (3) set clear and attainable
academic goals; and (4) examine possible careers related to their intended major. These expectations are made explicit and emphasized as early as selections weekend (a recruitment activity) and are usually internalized by the time students are sophomores and juniors (L. Toliver, personal communication, July 11, 2003). One of the outcomes of the MSP’s sense of community and collective efficacy is reflected in the return of its graduates to assist and inspire freshman students.

RELEVANT THEORIES FROM THE SOCIAL SCIENCES

Understanding of the MSP may be informed by systems of thought advanced by Bandura’s (2001) agentic behavioral perspective. These theoretical constructs are examined for their capacity to contribute to our understanding of the structural and student characteristics that may be necessary to reduce the overprediction phenomenon for gifted and talented students of color. On examination of this exemplary program, it is clear that, in addition to the structural components that are designed to provide support for students’ development, the core of the initiative rests on the attitudes and behaviors of the students served. Bandura’s notion of human agency provides useful leverage.

Bandura (2001) suggests that the core features of human agency include intentionality, forethought, self-reactiveness, and self-reflectiveness. Accordingly, to be an agent is to intentionally make things happen by one’s actions. Agency thus characterizes the “endowments, belief systems, self-regulatory capabilities, and distributed structures and functions through which personal influence is exercised” (Bandura, 2001, p. 2) and through which people can play a role in their own development, adaptation, and renewal. These states of mind or being can be achieved through deliberately accessing information for the purpose of selecting, creating, regulating, or evaluating various courses of action.

Intentionality is not only an expectation of future action but also a representation of a future course of action and a realistic commitment to bringing it about. Bandura (2001) suggests that intentions and actions are different elements of a functional relationship divided in time. Intentions can therefore be thought of as anchored in self-motivators that influence the probability of actions at a later point in time.

Forethought is defined as the setting of goals, the anticipation of the probable consequences of potential actions, and the selection and implementation of courses of action that are likely to produce the preferred outcomes (Bandura, 1991). On a practical level, the exercise of forethought enables people to motivate themselves and to channel their actions in anticipation of future results. This cognitive representation in the present of anticipated events enables behaviors that are both self-motivated and self-regulated (by possible goals and expected outcomes). Bandura (2001) further suggests that when this practice occurs over an extended period of
time on matters of value, “a forethoughtful perspective provides direction, coherence, and meaning to one’s life” (p. 7).

Self-reactiveness is the intentional motivation and regulation of goal implementation. This interdependent web of self-direction functions through self-regulatory processes that relate thought to action. The self-regulation of motivation, affect, and action is managed through self-monitoring of performance, self-guidance through personal standards, and corrective self-reactions (Bandura, 1986, 1991).

The self-monitoring of certain behavior and the associated cognitive and environmental conditions under which it occurs appears to be one of the first steps toward influencing behavior. Personal monitoring also enables the comparison of one’s performance with personal goals and standards that, when anchored in a value system and a sense of personal identity, can give meaning and purpose to activities. The result is that people give direction to their pursuits and maintain their efforts for goal attainment by developing appropriate self-incentives.

General goals such as “do my best” do not increase motivation. Bandura (1986) suggests that it is proximal goals rather than distant goals that result in greater motivation. (Students are motivated by goals that they perceive as challenging but attainable, not by goals that they perceive as too easy or excessively difficult.) Similarly, students who perceive their goal progression as acceptable and anticipate satisfaction from accomplishing their goals feel both efficacious about continuing to improve and motivated to complete the task (Bandura, 1986). Goal properties, such as specificity, proximity, and difficulty level (Bandura, 1988; Locke & Latham, 1990), influence self-efficacy because progress toward a specific goal is measurable. Students’ negative evaluations of their progress do not necessarily decrease their motivation if they believe they are capable of improving by working harder. Alternatively, motivation may not increase if students believe they lack the ability to improve or to succeed (Locke & Latham, 1990).

Self-regulation, within the context of agency and social cognitive learning theory (Bandura, 1986; 2001), includes the cognitive and behavioral processes that are concerned with initiating, adapting, modifying, or changing a person’s physiological responses, emotions, thoughts, behaviors, or environment (Carver & Scheier, 1998; Compas, Connor, Saltzman, Thomsen, & Wadsworth, 1999; Eisenberg, Fabes, & Guthrie, 1997). These cognitive and behavioral self-regulatory processes have implications for the interaction between personal, social, and environmental factors during the teaching and learning process.

In an effort to implement the idea of self-regulation, Zimmerman (1998) adapted Bandura’s notions of agency to create a three-phase self-regulation model: (1) forethought, (2) performance (volitional) control, and (3) self-reflection. Zimmerman and Schunk (2001) suggest that self-regulation refers to the self-directive processes through which students translate their
intentions into task-related academic competencies. As a proactive activity, self-regulated learning does not occur in isolation from the social forms of learning (i.e., modeling, guidance, and feedback from peers, staff, and faculty). Self-regulated learning is evidenced by students’ personal initiative, perseverance, and adaptive abilities within a social context. Students’ use of various processes to regulate their learning and their perceptions of themselves as learners seem to significantly influence their levels of academic achievement (Zimmerman, 1986).

Zimmerman’s (1986) perspective regarding self-regulated learning has instructional and structural implications, respectively, for how teachers teach and how schools are organized. In the social cognitive theoretical framework, self-regulation is not a general trait or a particular level of development but considered to be largely context dependent. Although some self-regulatory processes such as goal-setting may generalize across situations, students need to learn how to adapt to certain contexts and feel efficacious about doing so. Zimmerman (1986) suggests that self-regulation becomes possible when students have some options in their academic and social environments and in how they manage their time, for example.

**Self-regulated learning and motivation.** Self-regulated learners are considered to be autonomous, reflective, and efficient learners who use certain cognitive strategies; act on certain motivational beliefs and attitudes; and engage in metacognition to understand, monitor, and direct their own learning (Boekaerts, Pintrich, & Zeidner, 2000; Schunk & Zimmerman, 1994). Self-regulated learners also seem to be motivated by certain adaptive beliefs and attitudes that influence their willingness to engage in and persist at academic tasks. These students appear to be highly self-efficacious in their efforts at increasing their level of mastery. They are found to perceive the material they are learning in school as valuable, interesting, and useful to know (Pintrich, 2000; Schunk & Ertmer, 2000; Wigfield, 1994).

Self-reflectiveness includes the self-assessment of behaviors and attitudes. In the context of motivation, self-regulated students use self-assessments of their behaviors and attitudes to influence their motivation and actual progress. Self-evaluation seems to be most valuable when it focuses on the particular conditions under which a behavior occurs and on whether change is needed. For example, students who observe that their time is used less effectively when they study with a friend than when they are alone may increasingly study by themselves. Students who monitor how they actually spend their time are surprised to learn how much time they waste on nonacademic activities. For these students to alter their study habits, they need to believe that changing their habits will enable them to accomplish more (outcome expectation) and that they actually will be able to change those habits (self-efficacy) (Bandura, 1986; Wolters, 2003). Thus, behavior change may be influenced through self-reflectiveness.
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Social Cognitive Theory: Self-Efficacy

Within the framework of social cognitive learning theory, Bandura (1986) suggests that human functioning involves reciprocal interactions between cognitions, behaviors, and environmental factors. This reciprocity is illustrated with an important construct in Bandura’s theory: perceived self-efficacy, or beliefs about one’s capacity to learn particular behaviors and perform them at certain levels. A growing body of research demonstrates that students’ self-efficacy beliefs influence their choice of tasks, effort, persistence, and achievement (Schunk, 1995). Students’ sense of efficacy is validated as they engage in tasks, observe and monitor their progress, and are appropriately rewarded. When rewards are not linked to performance, students may conclude that they do not have the necessary ability and are not expected to excel.

Enactive Learning. Learning is defined as a change in behavior or behavioral potential (Schunk, 2001) produced by progressively rigorous formal courses (Gordon, 2001) and supplementary education experiences (Gordon, Bridgall, & Meroe, 2004). From the perspective of cognitive social learning theory, learning by doing, or enactive learning, seems to rely on successfully reinforced activities and tasks (Bandura, 2001). The mastery of complex skills typically involves some form of enactive learning. In many cases, however, students learn some components of a complex skill and not others. The challenge for teachers is to provide corrective feedback and instruction that is systematic.

What differentiates social cognitive theory from earlier reinforcement theories is not the belief that students learn by doing but rather its explanation for why this is so. Skinner (1953) suggested that (1) competent performances are gradually achieved through reinforcement of successive approximations to the target behavior, a process known as shaping; and (2) that cognitions may accompany behavioral change, but they do not influence it. Alternatively, social cognitive theory argues that behavioral outcomes serve as sources of information and motivation rather than as response strengtheners (Bandura, 1986). For example, students selectively engage in cognitive activities that assist learning and are motivated to persist in those tasks they believe are significant and rewarding.

Vicarious learning, in addition to learning by doing, occurs by observing others, by reading, and by exposure to the media, for example. Academic knowledge and skill development often combine enactive and vicarious learning. In mathematics, for example, students (1) learn operations by observing how teachers apply them; and (2) improve their skills through targeted feedback and practice. This form of modeling may motivate students to believe that learning mathematical operations is worthwhile.

The concepts of learning, performance, and modeling are distinguished in social cognitive theory. For example, students can acquire declarative
knowledge (facts), procedural knowledge (concepts, rules, algorithms),
and conditional knowledge (when and why it is important to use declara-
tive and procedural knowledge) (Paris, Lipson, & Wixson, 1983) by mon-
itoring and observing models (Schunk, 1987). They may not demonstrate
this knowledge at the time of learning.

Collective Efficacy: Community, Social Cohesion, and Social Capital

Kawachi and Kennedy (1997) suggest that social integration can be per-
ceived as both an individual and a societal characteristic. A socially in-
tegrated individual has social connections in the form of intimate social
contacts (i.e., spouse, relatives, and friends) and more extended connec-
tions (i.e., membership in religious groups, various professional and social
institutions, and other voluntary associations). At the group level, a socially
cohesive high-performance learning community has what Bourdieu (1999)
and Coleman (1988) call social capital, which includes moral resources such
as trust among students, faculty, and staff and norms of reciprocity.

There are several ways in which social cohesion influences academic
achievement (Kawachi & Berkman, 2000). At the interpersonal level, the
engagement in academically related behaviors is a function of the access
to and participation in the social supports that is characteristic of socially
cohesive communities of high achievers. Students in these communities
take responsibility for themselves as well as their peers (Hrabowski, 2002).
There are, however, successful academic communities that are not cohe-
sive or supportive but competitive and cutthroat. Both communities and
individuals perform successfully. Somehow, in both types of learning com-
munities, self- and collective efficacy are enabled. At the environmental
level, differences in available community resources may explain the coun-
terintuitive finding that students with few social ties but access to socially
cohesive communities do not appear to perform less well academically
when compared with socially isolated students in less cohesive communi-
ties (Sampson, Raudenbush, & Earls, 1997; Kawachi & Berkman, 2000).

Although the referenced theoretical constructs (agency, social capital,
self-efficacy, and collective efficacy) were discussed in a relatively discrete
and uncomplicated manner, the reality is that they are deeply complex
in how, why, and under what conditions they interact and influence each
other.

Toward the Nurturance of Talent and the Development
of Academic Ability for Gifted Students of Color

The persistent problem of underachievement of gifted students of color
can be examined from several perspectives, including (1) the underdevel-
opment of academic ability of students who cluster on the low end of the
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achievement distribution; and (2) the underdevelopment of talent and the tendency of standardized tests scores and strong high school GPAs to over-predict subsequent academic achievement for high-achieving students of color. The MSP is a good illustration of an integrated approach that emphasizes the nurturance of giftedness and the reduction of the overprediction phenomenon. The MSP’s inputs, processes, and contexts seem to produce high-achieving students who (1) are academically and socially integrated; and (2) have developed appropriate knowledge and skills at very high levels as a result of targeted support, motivation, monitoring, and student advisement.

As a strengths-based, theoretically driven model for the nurturance of giftedness, the developers of the MSP have culled from the research literature (Allen, 1981, 1992; Fullilove & Treisman, 1990; Treisman, 1990, 1992; Tinto, 1993) to create the following practices to deliberately and systematically craft a student academic development model that privileges:

• the creation of a critical mass of academically able and motivated students of color;
• the use of a summer bridge pre-freshman program to provide academic socialization, diagnostic assessment, and community building;
• making explicit the conceptual, procedural, and tacit demands of a rigorous curriculum;
• ensuring solid mastery of foundational subject matter through the assignment of the most effective faculty members to teach freshman courses, and through the requirement that this coursework be passed with a grade of B or higher;
• providing institutional structural support for cumulative knowledge and skill development;
• constructing supportive groups at varying levels for students’ academic and social lives;
• providing comprehensive financial support;
• providing culturally relevant experiences; and
• comprehensively monitoring, mentoring, and advising students throughout their undergraduate careers rather than emphasizing only the freshman year.

1. Creating a critical mass of academically motivated students of color

The research suggests that being one of a few students of color on a campus or in a program can be psychologically, academically, and socially isolating (Allen, 1981; Gándara, 1999; Gordon, 1986). The absence of academically and socially supportive peers with whom a student can (1) share his or her self-doubts and/or (2) seek academic help without fear of reinforcing extant stereotypes about ethnic inferiority places students at risk of marginalization. Extant evidence suggests that these students are
much more likely to underachieve academically or leave the university system (Allen, 1981, 1992; Miller, 1995). The systematic and deliberate creation of a critical mass of academically motivated ethnic minority students who have (1) access to and substantive contact with faculty outside of the classroom; and (2) mentoring relationships with faculty (including with minority faculty) seems to increase the likelihood of persistence, retention, and academic excellence (Maton et al., 2000).

2. Requiring a pre-freshman summer bridge program

Attending a required pre-freshman summer bridge program is one of the venues for socializing students to the explicit and tacit academic and social expectations of the university (Maton et al., 2000). In addition to some emphasis on content mastery, the summer bridge component gives special attention to the development of teamwork and the cultivation of trust between and among peers. This component also enables students to forge positive relationships with faculty and program staff and seems to encourage students to develop attitudes and behaviors (such as agency, motivation, self-regulation, self-reflectiveness, self-efficacy, and collective efficacy) that appear to influence increasing levels of academic excellence.

3. Making the rigor of the curriculum explicit

The curriculum to which MSP students are exposed is quite rigorous. The curriculum’s specific requirements are made clear to students early and constantly. Faculty and more advanced students share examples of exemplary work – a test bank of former exams and essays are available to students, for example. Additionally, students who earn a grade of C or below in any foundation course are required to retake the course and earn at least a grade of B. The MSP has and continues to be engaged in internal evaluation of its science, mathematics, and engineering curricula in focused attempts to identify (1) any weaknesses; (2) whether and how it should be taught differentially; and (3) what aspects require more time and concentrated study to internalize. Additionally, the teaching and learning of the curriculum is supplemented with peer study groups and tutoring to ensure that difficult concepts are conceptually mastered and practically applied. A recent report, Parsing the Achievement Gap by the Educational Testing Service (2003), found that the rigor of the curriculum and its implementation is one of the correlates of academic achievement for ethnic minority students.

4. Assigning the best faculty to teach freshman courses

The attrition of underrepresented minority students between the freshman and sophomore years suggested to the MSP’s developers that these students are more sensitive to teaching quality than majority students from more advantaged backgrounds. As a result, freshman students (both...
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Meyerhoff and non-Meyerhoff) at UMBC are taught by tenure-track faculty who are considered effective; who interact substantively with students; and who can play vitally important roles in engaging, encouraging, and guiding students in identifying and making use of supportive resources on the university and department level.

5. Providing institutional structural support for cumulative knowledge and skill development

The MSP operates on the assumption that its students are intellectually competent (Gordon, 2001); motivated, and self-confident. However, the MSP also recognizes that some of these high-achieving students may not have adequate or the requisite preparation for success in technical courses. Correcting for these gaps in knowledge or understanding becomes the focus of both peer and tutorial interventions, for instance. Bridglall’s (2001) qualitative analysis of the MSP suggests that the program is systematic in its approach to helping students to identify where they have knowledge gaps, providing faculty who can reinforce fundamental concepts, and exposing students to rigorous, challenging material.

6. Constructing supportive groups at varying levels for students’ academic and social lives

Peer study groups and tutors provide academic and social support that is integrated into students’ entire undergraduate lives in the MSP. It appears that the institutionalization of rigorous courses and faculty, mentors, upperclassmen, and peers as consistent structural supports has contributed to the MSP’s effectiveness in increasing the pool of high-achieving minority students in the sciences, engineering, and mathematics.

7. Providing comprehensive financial support

In a deliberate attempt to increase student persistence and to reduce the negative impact that inadequate finances have on underrepresented students’ academic achievement and completion of rigorous study in the sciences and engineering, MSP students are provided with full or partial scholarships that are contingent on consistently high GPAs.

8. Providing culturally relevant experiences

Given the MSP’s emphasis on minority high achievement in the sciences, mathematics, and engineering, various aspects of these students’ cultures are incorporated into the program. For example, students attend church with the president and are active in church choirs. Our conversations with program staff suggest that this approach also serves to socially and academically integrate students. Additionally, regular meetings with the president in which students discuss issues such as racism, for instance,
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seems to help students to put these issues into perspective and persist (L. Toliver, personal communication, July 11, 2003).

9. Comprehensively monitoring, mentoring, and advising students throughout their undergraduate career rather than emphasizing only the freshman year.

The MSP does not focus exclusively on freshman students, but rather, provides continuous and institutionalized monitoring and other services to students throughout their undergraduate careers in the program. The overarching assumption is that given the referenced support and resources, competitively selected underrepresented minority students are capable of succeeding in the sciences, engineering and mathematics.

CONCLUSION

At this point in the 21st century, we seem to know a great deal concerning the nurturance of giftedness and intellective talent in able and gifted minority students. This is evidenced by the commitment and success of the talent development programs at UMBC, Georgia Institute of Technology, California Institute of Technology, Washington University at St. Louis, and Xavier University in Louisiana. It may be worth developing a consortium among these institutions to share lessons learned, further refine practical knowledge, and codify best practices for others to emulate. The unwaivering commitment of UMBC’s leadership, faculty, and staff to minority student academic excellence and achievement prompts them to consistently consider how they can enable their students to (1) become more competitive on traditional academic measures (i.e., grades, standardized test scores, and represented in gifted and talented classes); (2) compete successfully for admission to college; (3) prepare for productive careers; and (4) develop and implement strategies to increase the presence of minorities as research scientists and university professors. This commitment is especially significant and relevant given the moderate success of various programs at increasing minority science, engineering, and mathematics achievement at the undergraduate level and relatively little success at the graduate level. Hrabowski (2002) believes that only by creating and supporting a larger pool of high-achieving minority students can we ultimately increase the number of faculty of color in the nation’s colleges and universities and the number who become leading professionals.

It seems that a research agenda that is committed to the bidirectional nature of theory and praxis is in order. Such an effort would involve the serious examination and application of relevant theoretical constructs and the systematic mining of practices utilized in these exemplars. Gordon (1976) believes that we have developed sufficient models and practices to begin controlled comparative studies to determine
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empirically those practices that produce specifiable results. Such studies could help us to identify patterns of intervention as the treatments of choice for specific developmental ends. The range of achievements in these high-achieving minority students is quite broad. The study of outliers in this population, that is, highly successful persons, could contribute to our understanding of personal, process, and situational correlates of success and failure for minorities in the sciences, engineering, and mathematics.

The MSP is one of a few isolated efforts at bridging curriculum and teaching, social science, and cognitive science to more effectively apply this knowledge to the problems of nurturing talent in underrepresented students. Such work should be encouraged and could contribute to the scientific basis for pedagogy, just as comparable expansions in our knowledge of the biological and social sciences, the physical sciences, and public health were integrated to form the scientific basis for medicine. Conceptual studies that build on the exciting empirical findings from neuroscience and cognitive science may inform the next generation of interventions in the educational development of populations at risk of underdevelopment. There is a host of smaller ideas and practical studies that should be undertaken. Examples to consider include differential approaches to tutoring; application of instrumental intellectual enhancement strategies; peer tutoring and team learning; instruction through computer simulation; and computer-managed adaptive and interactive instruction. The list is almost endless, but an experimental approach to work at increasing the pool of gifted students will require that we draw on the expertise of scholars from other disciplines.

Collectively, educators, policymakers, parents, and students can begin to make progress in reducing the loss to our society that is reflected in the underachievement of certain populations and the schools that serve them. Tests of academic ability certainly can underpredict achievement, but it is with the complicity of educators and educational institutions that these tests overpredict. If students can demonstrate high levels of academic ability on our tests, we have a moral responsibility to nurture their potential and enable the realization of academic excellence and achievement.

References


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