CONCEPTIONS OF GIFTEDNESS

Second Edition

Edited by
Robert J. Sternberg
Janet E. Davidson

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What does it really mean to be gifted and how can schools or other institutions identify, teach, and evaluate the performance of gifted children? Gifted education is a crucial aspect of schooling in the United States and abroad. Most countries around the world have at least some form of gifted education. With the first edition becoming a major work in the field of giftedness, this second edition of *Conceptions of Giftedness* aims to describe the major conceptions of what it means to be gifted and how these conceptions apply to the identification, instruction, and assessment of the gifted. It will provide specialists with a critical evaluation of various theories of giftedness, give practical advice to teachers and administrators on how to put theories of gifted education into practice, and enable the major researchers in the field to compare and contrast the strengths of their theoretical models.

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Preface

Emanuel Feuermann was hired to the faculty of the University of Cologne at the age of 16 to teach the cello to students, all of whom were older than he was. He was a child prodigy who made good and became a superstar as an adult. In contrast, his brother, Sigmund Feuermann, was an even more amazing child prodigy than was Emanuel. But by the age of 31, Sigmund returned to his parents' home in Vienna in semiretirement. His career as a mature violinist had been, to a large extent, a bust. What is it that distinguishes gifted children who later go on to become gifted adults from those who do not? Indeed, what does it even mean to be gifted, and how can schools or other institutions identify, teach, and evaluate the performance of gifted children?

Gifted education is a crucial aspect of schooling in the United States and abroad. Most countries around the world have at least some form of gifted education. To help those with an interest in the field of gifted education, we edited a volume that was published in 1986 by Cambridge University Press, *Conceptions of Giftedness*. However, that book has been out of print for several years. Since the book went out of print, the senior editor of this volume has received many requests for permission to copy material from that book and also for a new edition of the book. This book is that new, second edition.

This book describes the major conceptions of what it means to be gifted and how these conceptions apply to the identification, instruction, and assessment of the gifted.

There are several reasons, we believe, for a book on conceptions of giftedness:

1. *Need for theoretical guidance.* Although there are many gifted programs, the large majority of them continue to be based on no theory in particular. Rather, they use off-the-shelf measures, such as tests of intelligence, creativity, or achievement, without any clear motivation

in the choice of tests. A book such as this one would help specialists in the field of giftedness choose a model with which to work.

2. *Need for translation of conceptions of giftedness into practice.* In retrospect, the first edition of the book probably overemphasized theory at the expense of information regarding how theory can be put into practice. Because the large majority of readers of the book are likely to be teachers, it is important that the book emphasize application in addition to theory. Translation into practice needs to deal with identification procedures, instructional methods, and instruments for assessment of achievement in gifted individuals.
3. *Need for comparison of conceptions.* Theorists often present their own work without giving full consideration to how their work compares with that of others. Yet, in order to evaluate competing conceptions, teachers of the gifted need to know the similarities and differences among the conceptions. They cannot be expected to figure out these similarities and differences on their own.

WHY PUBLISH A SECOND EDITION?

Since 1986, the field has changed, as have some of the major contributors to it. We therefore believe that the time is ripe for this second edition of *Conceptions of Giftedness*, which reflects the current state of the field.

Each author was asked to address the following five questions in his or her chapter, as well as any other questions he or she might wish to entertain:

1. What is giftedness?
2. How does your conception of giftedness compare with other conceptions?
3. How should gifted individuals be identified?
4. How should gifted individuals be instructed in school and elsewhere?
5. How should the achievement of gifted individuals be assessed?

You will find in this volume a wide range of views, from Borland's suggestion that we do not need a conception of giftedness, to Callahan and Miller's view that we need enhanced and more powerful conceptions. You, the reader, may choose, or come up with your own conception!

We have designed this book to be relevant to several potential audiences: students, teachers of the gifted, professors in gifted-education programs, parents of gifted children, and people who themselves have been labeled as gifted or believe they should have been. We hope you all enjoy and learn from our volume.

RJS

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Gifted Education Without Gifted Children

The Case for No Conception of Giftedness

James H. Borland

I am quite confident that the conception of giftedness set forth in this chapter differs significantly from those found in the other chapters of this book in that the conception I advance is no conception at all. By that, I do not mean that I have chosen not to advance a conception of giftedness. Rather, I am actively advancing the idea of no conception of giftedness as a positive development for the field of gifted education.

To be clear about what I am advocating, let me state my position unequivocally. I believe that the concept of the gifted child is logically, pragmatically, and – with respect to the consequences of its application in American education – morally untenable and that the aims of the field of gifted education would have a greater likelihood of being realized if we were to dispense with it altogether.

Because I realize that this is a radical position for a contributor to this book to take, I want to clarify my motivation and my positionality before advancing my argument. I write as one who considers himself to be a scholar in and of the field of gifted education. I have taught in programs for gifted students, and my doctorate is in this field. I believe that there are individual differences in elementary and secondary students' school performance that probably derive from a complex of ability and motivational, social, cultural, sociopolitical, and other factors and that these have important educational implications. In other words, although I believe that all students are equal in their right to and need for an appropriate education, I do not believe that what constitutes an appropriate education is the same for all students born in a given calendar year. Educators must, to be effective and ethical, provide educational experiences that reflect the inescapable fact of individual differences in how and how well school students learn at a given time in a given subject. A one-size-fits-all curriculum makes no more sense to me than would a one-size-fits-all shoe.

Moreover, along with my colleagues in the gifted-education field, I believe that high-achieving or high-ability students are among those who are

the most ill-served when curriculum and instruction are not differentiated. The basic beliefs that undergird the field, such as the conviction that it is wrong to think that bright students can succeed on their own if treated with a policy of benign neglect, are ones that I share. In other words, insofar as advocating for the educational needs of students who have historically been the recipients of services in this field, I think I differ from those who subscribe to the admittedly foundational belief that we cannot have gifted education without gifted children only with respect to means, not ends. That is, whereas we agree that it is essential to provide an appropriate education for students who have traditionally been labeled *gifted*, we disagree as to whether this requires gifted programs or even the concept of gifted children.

I also want to make it clear that my interest in gifted education is focused on educational programs intended to provide differentiated curriculum and instruction, not the development of precocious talent. I concede that there are gifted people, even gifted children, whose abilities in various pursuits clearly merit that label. A 10-year-old violinist who performs Beethoven's *Violin Concerto* with a major orchestra is indisputably a gifted child, as is a child who demonstrates prodigious accomplishment in chess or basketball or any demanding domain. However, these are not the people to whom the term "gifted child" is typically applied. That term is usually used to designate an appreciable number of students in a school with a "gifted program" who have been chosen to fill that program's annual quota. It is in that context, the context of educational policy and practice, that I believe that the concept of giftedness has outlived whatever usefulness it once may have had.

Each contributor to this volume was asked to address a series of five questions. The first, "What is giftedness?" is most central to my thesis, and I devote most of my space to it.

What is giftedness?

My short answer to this question is that giftedness, in the context of the schools, is a chimera. But, because I am an academic, there is a predictably longer answer. I believe that the concept of the gifted student is incoherent and untenable on a number of grounds. The first of these is that the concept of the gifted child in American education is a social construct of questionable validity. The second is that educational practice predicated on the existence of the gifted child has been largely ineffective. The third is that this practice has exacerbated the inequitable allocation of educational resources in this country. I elaborate on each of these assertions in this section of the chapter.

The fourth component of my thesis is that the construct of the gifted child is not necessary for, and perhaps is a barrier to, achieving the goals

that brought this field into existence in the first place. In other words, I argue that we can, and should, have gifted education without gifted children. I discuss this in the following section in responding to another of the questions we were asked to address, "How should gifted individuals be instructed in school and elsewhere?"[1]

THE QUESTIONABLE VALIDITY OF THE CONSTRUCT OF THE GIFTED CHILD

There were no "gifted" children in the 19th century, simply because the construct of the gifted child had not yet been dreamed up. Gifted children began to exist, as far as I can tell, in the second decade of the 20th century as a result of a confluence of sociocultural and sociopolitical factors that made the creation of the construct useful. With the publication of *Classroom Problems in the Education of Gifted Children*. *The Nineteenth Yearbook of the National Society for the Study of Education* (Henry, 1920) at the end of that decade, the educational establishment signaled that it had acceded to the belief that there were, indeed, gifted children in our schools.

By situating the construction of giftedness in a particular place and time, I mean to suggest its historical contingency. That is, giftedness did not happen to be discovered in the second decade of the 20th century and to become progressively better understood in the third decade. Rather, the construct that emerged from that period reflects specific forces that served sociopolitical interests as they played out in the educational system. If the construction of the notion of gifted children was necessary, it was as a result of historical, not empirical, necessity. Giftedness emerged in the manner that it did, and has more or less remained, because it served, and continues to serve, the interests of those in control of the schools and the disciplines that informed and guided American education at that time.

Of the factors that I believe led to the invention of the construct of the gifted child, one, the mental testing movement, which began in the early 20th century, is frequently acknowledged. It is no coincidence that the person regarded as being the "father" of gifted education in this country, Lewis M. Terman, was also the developer of the Stanford–Binet Intelligence Scale and one of those most responsible for the widespread use of mental testing in American schools. The enthusiasm for the use of mental tests, especially IQ tests, at this time is not difficult to understand. These instruments were

[1] Although we were asked to address five questions, I will implicitly respond to three of them in addressing the two I have identified here. The question "How does your conception of giftedness compare with other conceptions?" has been discussed earlier and will be obvious to all but the most somnolent readers. "How should gifted individuals be identified?" and "How should the achievement of gifted individuals be assessed?" should also be obvious from the discussion that follows.

seen as being "scientific" at a time when that term was unambiguously one of approbation. Intelligence, another recently constructed concept, was widely believed to be general and quantitative; it was the same thing for everyone, and everyone had a certain amount of it, as Spearman (e.g., 1927), among others, argued. Mental tests were seen as modern tools that allowed professionals to assess the amount of this universal intelligence a person possessed, regardless of his or her life circumstances.

This modernist view of mental tests may seem quaint and naïve to us today, as so many things do through the lens of history, but the acceptance of these tests as valuable tools of objective science led to their extensive use in the schools to classify, guide, group, and, as some have argued, control children. And control was seen as a desideratum, owing to the increasing diversity of the school population, the second of the major factors that I see as creating the circumstances leading to the construction of the concept of the gifted child.

In the decade before World War I and again in the early 1920s, what is usually described as a "wave" of immigrants came to this country, not from the Western European nations from which most previous new arrivals had hailed, but from countries such as Austria, Hungary, Italy, and Russia. There were many children among these newcomers and many more born after the immigrants settled into their new homes. With respect to language, dress, religious beliefs, and a number of other cultural factors, these children were unlike the children with whom educators were used to dealing. This created a new set of challenges for public school authorities, who responded by making the "Americanization" of these children – that is, the homogenization of the school-age population through a set of common school experiences designed in large part to inculcate cultural norms derived from the Western European heritage of those in power – an explicit goal of American public education.

The diversity of the school population was increasing as a result of other factors as well. For example, greater differences in classroom performance were noted as compulsory education laws were enacted and enforced. One result of such laws was that students who would previously have eschewed school for the factory or the farm remained in school longer, despite having little interest in or apparent aptitude for formal schooling. There was also considerable variance in performance on the aforementioned mental tests, which is not surprising in retrospect, in light of the cultural, linguistic, and socioeconomic heterogeneity of the school population being tested. As testing became more common after the use of the Army Alpha and Army Beta tests in World War I, and as IQs were arrayed on the normal distribution, appreciable and predictable numbers of children fell one, two, three, or more standard deviations above and below the mean of 100.

The advent of widespread mental testing in the schools and a much more diverse student population were factors that nourished each other in

a symbiotic fashion. The more diverse the population, the greater was the need for tools, such as tests, to quantify and control students. And the more students were tested and quantified, the more their linguistic, cultural, and socioeconomic diversity was reflected in variance in test scores, that is, in greater diversity in the school population.

One way to understand how this led to the construction of such concepts as giftedness is by referring to the work of Foucault (e.g., 1995; Gallagher, 1999). Foucault believed that control in modern society is not exerted through raw displays of state power (public executions, regal processions, and so forth) but through knowledge-producing disciplines. For Foucault, knowledge and power are inseparable. He wrote that "power and knowledge directly imply one another; . . . there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations" (1995, p. 27).

Foucault believed that power develops through a number of processes, "small acts of cunning endowed with a great power of diffusion," that satisfy the need for knowledge on which discipline depends: "the success of disciplinary power derives no doubt from the use of simple instruments; hierarchical observation, normalizing judgment and their combination in a procedure that is specific to it, the examination" (1995, p. 170). These are his well-known "technologies of power."

Coming back to our discussion of testing and the growing diversity in the school population in the early 20th century, one can relate Foucault's first technology of power, *hierarchical observation*, to mental testing. Foucault discussed hierarchical observation in reference to the *panopticon*, Jeremy Bentham's plan for an ideal prison, in which each inmate lives, and is aware that he lives, under the ceaseless gaze of an anonymous guard "to induce in the inmate a state of conscious and permanent visibility that assures the automatic functioning of power" (1995, p. 201). By testing students, Foucault would argue, educators do essentially the same thing, reminding students that they are subordinate to adults who have the power to observe them from a position of power. Moreover, students internalize the knowledge that they are constantly being observed, that is, tested, and that the consequences of being observed are quite serious. This awareness is a powerful means of control.

Foucault's second technology of power, *normalizing judgment*, is, I believe, evident in the way educators responded to the growing heterogeneity of the school-age population in the early 20th century, specifically to the heterogeneity in test scores. Normalizing judgment is the process that "measures in quantitative terms and hierarchizes in terms of value the abilities, the level, the 'nature' of individuals . . . [and] traces the limit that will define difference in relation to all other differences, the external frontier of the abnormal" (Foucault, 1995, p. 183).

Normalizing judgment was manifested, first, in the reduction of multidimensional human diversity to a bipolar continuum and, second, in the labeling of certain regions of this continuum as the "normal" range and the rest as the "abnormal." Thus did students whose IQs fell below a certain score become "the subnormal" (Goddard's infamous "idiots," "imbeciles," and "morons," 1919), whereas students whose IQs exceeded a certain threshold (e.g., 140 in Terman's study, 1925/1959) became, in the original terminology, the "supernormal" and then, by the time of the publication of the *Classroom Problems in the Education of Gifted Children* (Henry, 1920), the "gifted."

It is important to stress that the central concept in this process, the *normal*, is, as Foucault demonstrates, an invention, not a discovery. It is imposed as an exercise of disciplinary (in both senses) power, as a way to control, even, to cite Foucault's most influential work, to discipline and punish. Foucault writes of the examination (the third technology of power, hierarchical observation combined with normalizing judgment) that "with it are ritualized those disciplines that may be characterized in a word by saying that they are a modality of power for which *individual difference* is relevant" (1995, p. 192, emphasis added). In other words, the disciplines of psychometrics and education made certain students "normal," "subnormal," and "supernormal" (or gifted).

It is useful to think about the genesis of the concept of giftedness and whether its advent in the field of education was inevitable or necessary (in an educational, psychological, or philosophical sense; a critical theorist might well argue that the creation of giftedness was a historical necessity arising from power relations playing out in an inequitable society). The concept did not arise *ex nihilo*. Clearly there was, and is, a situation in public education that could not be ignored. Children develop at different rates and in different ways, and this affects how and how well they deal with the traditional formal curriculum. To the extent that we are concerned with educational effectiveness and fairness, we need to make appropriate instructional and curricular modifications to respond to individual needs. The question is how to do this.

One possible response is to make curriculum and instruction flexible enough to accommodate the needs of all children, foregoing classification, labeling, and the examination in the Foucaultian sense that incorporates the normalizing gaze. This assumes that human variation is multifaceted, multidimensional – indeed, "normal" – and that the "average child" is different in many ways, some of them educationally significant, from other "average" children. However, the social and political conditions at the time the field of gifted education was created and the ascendant social efficiency movement in American public education (Kliebard, 1995) ensured that technologies of power, rather than more democratic forces, would shape the field.

Thus, the profession's response to the fact that children differ in the ways in which they interact with the school curriculum (or curricula, including the informal curriculum) was to believe that at least some of this difference is the result of the existence of distinct groups of children, including gifted children, who possess characteristics that separate them from the average. Once one accepts that there exist separate, qualitatively different groups, the inevitable next steps are to try to fashion a workable definition of the populations whose existence has been posited, to develop and implement identification procedures to locate these populations, and then to develop and implement separate educational provisions to meet their needs. This is the course of action that was adopted and, I would argue, why we have gifted children today.

There is an inescapable circularity in the reasoning here, especially with respect to giftedness. Sapon-Shevin writes, "Participants agree – sometimes explicitly and sometimes tacitly – to a common definition and then act as though that definition represents an objectifiably identifiable category. In this way, the category assumes a life of its own, and members of the school organization learn common definitions and rules" (1994, p. 121). The category was created in advance of the identification of its members, and the identification of the members of the category both is predicated on the belief that the category exists and serves, tautologically, to confirm the category's existence.

This simplistic dichotomization of humanity into two distinct, mutually exclusive groups, the gifted and the rest (the ungifted?), is so contrary to our experience in a variety of other spheres of human endeavor as to cause one to wonder how it has survived so long in this one. Is anything in human life that simple, that easily dichotomized? And are these two groups – the gifted and the rest – the discrete, discontinuous, structured wholes this crude taxonomy implies? That is, is giftedness really its own thing, qualitatively different from normality, making those who possess it markedly different, different in kind, from the rest of humanity? Can such a notion, expressed in those terms at least, really ring true for many people?

However implausible, these beliefs are implicit in the manner in which the word *gifted* is employed in both professional and everyday discourse. We glibly talk about "identifying *the* gifted"; about so-and-so being "truly gifted"; about the "mildly," "moderately," even "severely." In other words, we treat giftedness as a thing, a reality, something people, especially children, either have or do not have, something with an existence of its own, independent of our conceiving or naming of it.

Even a casual examination of the field of gifted education illustrates how difficult this dichotomy is to put into consistent and ultimately defensible practice. I frequently talk to my students about something I facetiously call "geographical giftedness," the not-uncommon phenomenon whereby a gifted child, so labeled by his or her school district, finds himself or herself

no longer gifted after moving to another school system. If we hold on to the notion of two discrete classes of humans, defined by measurable traits into which children can be placed through correct educational assessment, we can explain this child's existential crisis only in terms of measurement error or one school system's adherence to an "incorrect" definition of giftedness.

But what is a "correct" definition of giftedness? Our failure, as a field, to answer that question is reflected in the multiplicity of definitions that have been proposed over the years. No one, to my knowledge, has as yet counted how many there are, but they are not few in number, nor are the differences between them insignificant. Take, for example, traditional psychometric definitions of academic giftedness that result in students with high IQs and reading and mathematics achievement being identified as gifted. Contrast this with Renzulli's (e.g., 1978) highly influential three-ring definition, in which only "above average" ability is required, combined with creativity and task commitment. Were a school district that had relied on a traditional IQ/achievement-test definition to change to Renzulli's definition, and if both old and new identification practices were based faithfully on the different definitions, there would be a pronounced change in the composition of the group of children labeled gifted. Some "gifted students" would stop being gifted, and some "nongifted students" would suddenly find themselves in the gifted category.

Not only do these two definitions of giftedness vary considerably from each other, but there is no empirical basis for choosing one over the other, or over any of the scores of others that have been proposed, because, I maintain, defining giftedness is a matter of values and policy, not empirical research. And in many, if not most, states, definitions are not mandated. The result is that local educators are free, indeed required, to choose, or write, a definition of giftedness for their program for gifted students, one that, to a large extent, determines who will and who will not be gifted. In other words, giftedness in the schools is something we confer, not something we discover. It is a matter of educational policy, not a matter of scientific diagnosis. It is a social construction, not a fact of nature.

All of this strongly suggests that "the gifted" and "the average," rather than being preexisting human genera, are labels for socially constructed groups that are constituted, in both theory and practice, in ways that are far from consistent and, in many cases, anything but logical, systematic, or scientific. Giftedness has become, and probably always was, what Stuart Hall (e.g., 1997), writing about race, calls a "floating signifier," a semiotic term "variously defined as a signifier with a vague, highly variable, unspecifiable or nonexistent signified. Such signifiers mean different things to different people: they may stand for many or even *any* signifieds; they may mean whatever their interpreters want them to mean" (Chandler, 2001, p. 33). Thinking about gifted children in the schools is, therefore, not a mirroring of nature but an invented way of categorizing children who must be

judged on a utilitarian or pragmatic basis. Thus, the basic question to ask about giftedness is not whether giftedness exists but whether the outcomes of the application of the construct, especially in the field of education, are beneficial, innocuous, or harmful.

THE QUESTIONABLE VALUE AND EFFICACY OF GIFTED EDUCATION

Some have responded to the assertion that giftedness is a social construct by arguing that most things can be accurately so designated. James Gallagher (1996) writes,

> We should admit that "gifted" is a constructed concept . . . But "opera singer" is a constructed concept, "shortstop" is a constructed concept, "boss" is a constructed concept; every concept that we use to describe human beings is a constructed concept. Is giftedness an educationally useful construct? That is the important question. (p. 235)

I think Gallagher is right to argue that we should apply utilitarian and pragmatic criteria to the construct rather than ontological ones, but I would argue that the application of these criteria to the constructs he equates with giftedness reveals that, unlike giftedness, they are functional categories of demonstrable necessity. Opera exists; without opera singers, there is no opera. Baseball, thankfully, exists as well, and without a shortstop, there is no baseball team. Schools also exist, but can one reasonably argue that without gifted children there would be no schools?

One central question regarding the utility of the construct of the gifted child concerns the efficacy of gifted programs. I believe there is little evidence that such programs are effective. Most programs for gifted students in this country take the form of part-time "pull-out" programs, in which students spend most of their time in regular heterogeneous classrooms that they leave for a period of time each week to meet with a special teacher and other students identified as gifted to receive some form of enrichment (Shore, Cornell, Robinson, & Ward, 1991). However, according to Slavin (1990), "well-designed studies of programs for the gifted generally find few effects of separate programs for high achievers unless the programs include acceleration" (p. 486). In other words, there is ample evidence that acceleration, as a means of differentiating the curriculum for high-ability students, does what it is intended to do: match content to the instructional needs of advanced students. Similar evidence that enrichment is an effective means of meeting goals, other than the goal of providing enrichment, is exiguous at best (Horowitz & O'Brien, 1986).

Over a decade ago, Shore et al., in their landmark *Recommended Practices in Gifted Education* (1991), wrote that since "Passow (1958) remarked on the dearth of research on enrichment three decades ago, . . . the situation has changed little" (p. 82). In the absence of empirical data, they concluded

that the frequently recommended practice, "Enrichment should be a program component," was not among those supported, wholly or in part, by research but was instead among the practices "applicable to all children" (p. 286).

Not only is evidence supporting the efficacy of pull-out enrichment programs scanty, but what does exist is not very convincing. Two studies stand out as worthy of serious consideration. In a meta-analysis focusing on the effects of pull-out programs, Vaughn, Feldhusen, and Asher (1991) conclude that "pull-out models in gifted education have significant positive effects" (p. 92). However, this meta-analysis drew on only nine studies and examined outcomes related to four dependent variables. Because a maximum of three studies was used to compute effect sizes, there is reason to question the validity, robustness, and replicability of this conclusion.

An admirable attempt to address the problem of lack of efficacy studies was the Learning Outcomes Study (Delcourt, Loyd, Cornell, & Goldberg, 1994). The subjects of this study were 1,010 students from 10 states who were either in gifted programs, including pull-out programs, or in no program at all. Students in the latter group included students identified as gifted, formally and informally, and others nominated by teachers as comparison subjects. The authors concluded that the students in their sample who were in gifted programs academically outperformed both students given special provisions within heterogeneous classrooms and students receiving no provisions at all.

The problem with this conclusion is that the students whose academic performance was superior were formally identified as gifted and placed in special programs. The students with whom they were compared were either students identified as gifted but not placed in programs or students not identified as gifted at all (and thus not in programs). What Campbell and Stanley (1963) call "selection" is, unfortunately, as good an explanation for achievement differences as is program type or presence of a program. That is, there is reason to suspect that the groups were not comparable, that students formally identified and placed in gifted programs were different in nontrivial ways from students who were not in programs and those who were not identified as gifted, and that these differences, as much as anything else, might have affected the outcomes.

In short, there is remarkably little evidence that the most common type of programming for gifted students is effective. However, as Slavin (1990) argues, and as Shore et al. (1991) agree, the efficacy of one approach advocated for gifted students, acceleration, has research support. Does this not suggest that some gifted programs are effective? I believe not. Few programs identified as gifted programs use acceleration as their primary means of meeting the needs of gifted students because, although it is strongly supported by research data, acceleration is controversial, misunderstood, and even feared (e.g., Coleman & Cross, 2001; Southern & Jones, 1991).

Moreover, schools can, and do, employ acceleration without having gifted programs per se. Acceleration does not require identifying students as "gifted," special teachers, pull-outs, or any of the ordinary trappings of traditional gifted programs. If a student can work ahead of his or her age peers in, say, mathematics, he or she can simply be allowed to do so; there is no reason to identify the student as gifted. To sound a theme to which I return later, acceleration is one example of how gifted education can be effected without either gifted programs or gifted students.

GIFTED EDUCATION AND SOCIAL AND EDUCATIONAL INEQUITY

From the beginning, gifted education has been criticized for being at odds with education in a democracy and for violating principles of equity that are, or ought to be, paramount in our society. Gifted programs and their proponents have been called "elitist" and worse; advocates of gifted education have been seen as the last-ditch defenders of tracking and other damaging educational practices (Oakes, 1985). Educators in this field have vigorously countered these charges, denying that their goals are anti-egalitarian and that gifted programs are necessarily antidemocratic.

Defenders of the field, of whom I have been one (e.g., Borland, 1989), are, I believe, sincere in advocating gifted programs as a means of helping to realize the goal of an appropriate education for all children. They see gifted education as redressing a wrong, as a way of making the educational system meet the legitimate needs of an underserved minority. Moreover, professionals in gifted education believe that appropriate educational programs for students identified as gifted can be implemented without being elitist, racist, sexist, or blighted by socioeconomic inequities.

If, as I believe, the intentions of educators in the field of gifted education are unexceptionable, I also think that the results of our efforts too often betray the purity of our intentions. Sufficient evidence exists to suggest that the practice of gifted education is rife with inequities that have been extremely difficult to eliminate. Racial inequalities in the identification of gifted students have been a constant throughout our history (see, for example, Borland & Wright, 1994; Ford, 1996; Ford & Harris 1999; Passow, 1989), and they persist today.

With regard to socioeconomic inequity, which, in our society is not unrelated to racial and ethnic inequity, The National Educational Longitudinal Study of eighth-grade programs for gifted students by the U.S. Department of Education (1991) dramatically reveals the extent of the problem. Data from this study indicate that students whose families' socioeconomic status places them in the top quartile of the population are about five times more likely to be in programs for gifted students than are students from families in the bottom quartile. Despite decades of efforts to eliminate racial and socioeconomic imbalances in how gifted students are identified and

educated, gifted programs have continued to serve White middle-class and upper-middle-class children to a degree disproportionate to their numbers in the population while underserving poor children and children of color. It is worth repeating that this has nearly always been seen, within the field, as wrong and remediable. However, the persistence of the problem tempts one to question just how tractable the problem is within the field as it is currently established (see Borland & Wright, 2001, for a pessimistic speculation).

Moreover, there have been instances in which gifted programs have served purposes that few, if any, within the gifted education field could countenance. According to Sapon-Shevin,

> Within large urban districts, particularly those characterized by impoverished, struggling schools and large, ethnically diverse populations, gifted programs (including gifted magnet programs) have served (and sometimes been promoted) as a way of stemming *white flight*; by providing segregated programming for "gifted students," some white parents – whose children are in the gifted program – will remain within the district . . . (1994, p.35)

I think that two things are indisputably true. The first is that professionals in the field of gifted education, no less than any other group of educators, are opposed to racial and other forms of inequity and are committed to fairness in access to education. Indeed, most would argue that educational equity is what brought them to the field in the first place. The second is that, despite the best of intentions, gifted education, as historically and currently practiced, mirrors, and perhaps perpetuates, vicious inequities in our society.

How should gifted individuals be instructed?

Gifted Education Without Gifted Children

If, as I have argued above, (a) the construct of the gifted child, as it is widely understood in American education, is neither required nor supported empirically or logically, (b) the acceptance of this construct has led to practice that fails to satisfy both utilitarian and pragmatic criteria, and (c) the practice of gifted education, contrary to the goals and values of the overwhelming majority of its advocates, has too often had unfortunate social and moral consequences, this should force us to consider alternatives, both to our practice and to our field's foundational axiomatic base.

The alternative I propose is that we try to conceive of gifted education without gifted children. In other words, I am suggesting that we dispense with the concept of giftedness – and such attendant things as definitions, identification procedures, and pull-out programs – and focus instead on the goal of differentiating curricula and instruction for all of the diverse

students in our schools. Curriculum, after all, is the field of gifted education's *raison d'être*. The only justification for gifted programs is a special educational one, grounded in a belief that the regular curriculum designed to meet the needs of most students is inappropriate for some students who, by virtue of disability or ability, are exceptional and will not receive the education to which they are entitled unless the curriculum is modified. Gifted education has as its major goal and justification curriculum differentiation as a way of making education fairer and more effective. If differentiating the curriculum for students traditionally labeled "gifted" is the justification and the goal of the field of gifted education, then such things as defining giftedness, identifying "the gifted," and preparing teachers to work in gifted programs are merely means to this greater end. As such, professionals in the field are subject to questions as to whether they further the end they serve.

So, how best to achieve our goal of providing not only a differentiated curriculum but a *defensible* differentiated curriculum for the students whose needs are our particular focus in this field? Does it make sense to start by positing the existence of a class of individuals called *gifted children* and then to wrestle with the problem of defining giftedness, something on which we have not agreed, and then move to the process of identification, whereby we endeavor to separate "the gifted" from the rest, and finally to proceed to the development of differentiated curricula, reserved exclusively for those identified as gifted? Or does it make more sense to start with the curriculum itself, which, after all, is the goal of our efforts? In suggesting that we consider gifted education without gifted children, I am urging that we direct our efforts toward curriculum differentiation, bypassing the divisive, perhaps intractable, problems of defining and identifying giftedness. Were we to set as our goal the creation of schools in which curricula and instruction mirrored the diversity of the students found in classrooms, and were we to achieve this goal, the only legitimate aim of gifted education would be achieved.

In such schools, the idea of "normal" and "exceptional" children would, for the most part, be abandoned, as would the procrustean core curriculum into which students have to fit or be labeled "exceptional." Curricula and instruction would be predicated on students' current educational needs. For example, our expectations for students' learning in, say, mathematics would be determined by what they now know and what instruction they demonstrably need in that subject, not on whether their ages mark them for the third-grade curriculum, the fourth-grade curriculum, or whatever. For students who are mathematically precocious, the differentiated curriculum would not be what Stanley (see Benbow, 1986) calls "busy work," "cultural enrichment," or "irrelevant academic enrichment," but a mathematics curriculum that is appropriate for these students with respect to its pace and its level of challenge.

Moreover, we would not be in the illogical position in which we now find ourselves, with an educational system predicated on the following beliefs: (a) the majority of students in our schools are unexceptional or normal, and their curricular and instructional needs at any given time are determined by their year of birth; (b) some students have disabilities, and their curricular and instructional needs are determined by the nature of their disabilities; (c) some students are gifted, and their curricular and instructional needs are determined by any one of a number of diverse conceptual rationales and any one of a number of diverse educational models and schemes; and (d) the existence and constitution of the aforementioned groups are determined, in no small part, by race, ethnicity, and socioeconomic status. Thus, not only would making differentiated curricula and instruction the norm for all students go a long way toward meeting the needs of students traditionally labeled "gifted," it would make schooling more effective and humane for many students labeled "disabled" as well as all of those students thrown together in that agglomeration known as the "normal" or "average," a group that, in practice, is largely educationally undifferentiated but that, in reality, is remarkably diverse.

The idea of inclusive schools with heterogeneous classes, no labeling of students, and differentiated, responsive curricula and instruction has been advanced before by, among others, advocates of inclusion in the field of special education (e.g., Stainback & Stainback, 1990) and critics of gifted education (e.g., Sapon-Shevin, 1994, 1996). However, among those within the field of gifted education, this notion has been met either with hostility and suspicion or assertions that it is too idealistic and impractical, given the realities of contemporary American education. Too many, including myself not very long ago (see, for example, Borland, 1996b), react to criticisms of gifted programs as if they were attacks on the idea that high-achieving students require appropriately differentiated curricula, defending the means, not the end, of gifted education and wasting energy trying to preserve gifted programs instead of considering whether there is a better way to achieve our goals (Borland, 1996a). Not only do I think we can remain true to our commitment to capable students by considering, and ultimately adopting, alternatives to gifted programs, but in light of the exiguous evidence for the effectiveness of our traditional practice in this field, I think we can become even more effective advocates for these students by doing so.

With those who argue that it is easier to advocate than it is to create inclusive schools with curricula and instruction that are responsive to the diverse needs of individual students – schools in which the labels "normal," "disabled," and "gifted" not only are eschewed but make no sense – I can only agree. However, if one believes that such a state of affairs would make for a system of education that is not only more effective but more just, one is compelled at least to try to envision what would be required to make it a reality (see Borland, 2003, for some suggestions).

It is important to stress the direct and reciprocal linkage between heterogeneous classes in which diverse groups of children without labels learn together happily and effectively and the practice of differentiating curricula and instruction. Educationally inclusive diversity demands differentiation. The alternative is not to respect the difference and uniqueness of each child and to force individual children to conform to a one-size-fits-all curriculum, which inevitably, I believe, leads us to such concepts as "the normal" and "the abnormal," and subjects the inescapable and delightful variegation that is humanity to Foucault's normalizing judgment.

A Paradigm Shift in Gifted Education

Changing practice within a well-established field is difficult. Convincing professionals in that field to abandon what most of them would view as its defining construct is more difficult yet. I have suggested that we try conceiving of gifted education without gifted children. I hope the foregoing discussion has helped some readers view conceiving of the field in that way as a possibility, and perhaps this could be a prelude to real change. As Susan Gallagher writes, for change to take place, "we need to recognize how our taken-for-granted way of thinking from within the discipline's meaning-making system impacts the educational process in perhaps unintended ways" (1999, p. 69).

Actually to abandon the construct of the gifted child and to proceed accordingly would truly constitute a paradigm shift, to borrow an overused and frequently misused term from Thomas Kuhn's *The Structure of Scientific Revolutions* (1962/1996). In this landmark work of intellectual history, Kuhn attempts to explain how "normal science," which he defines as "research firmly based on one or more past scientific achievements, achievements that some particular scientific community acknowledges for a time as supplying the foundation for its further practice" (p. 10), changes over time. Why, Kuhn asks, do scientists working today believe different things, ask different questions, proceed in methodologically different ways from their colleagues in, say, the early 19th century?

Kuhn's explanation relies on the concept of the "paradigm," which Phillips defines as "a theoretical framework . . . that determines the problems that are regarded as crucial, the ways these problems are to be conceptualized, the appropriate methods of inquiry, the relevant standards of judgment, etc." (1987, p. 205). A paradigm is the complex of theories and practices that constitutes the prevailing world view and the accepted *modus operandi* of scientists, and, as such, it is often what is distilled in textbooks as scientific truth and scientific method. A paradigm allows normal science to proceed; indeed, Kuhn argues, a paradigm is necessary for scientific inquiry. Inevitably, however, inquiry yields empirical data that are inconsistent with the prevailing paradigm. Often this leads to modifications of

principles and theories that alter, but do not undermine, the paradigm. However, sooner or later, the reigning paradigm cannot accommodate the increasing accumulation of data unpredicted by and contrary to its fundamental bases. At that point, the paradigm has to give way to a new one that can account for and explain new knowledge.

If what I am proposing, gifted education without gifted children, is ever to evolve beyond the level of a thought experiment, something equivalent to a paradigm shift in gifted education will be required. I do not underestimate either the difficulty that would entail or the resistance it would engender. Our equivalent to normal science, which one could call *normal practice*, is, to quote Kuhn with multiple elisions, "firmly based upon . . . past . . . achievements . . . that . . . supply . . . the foundation for . . . further practice" (1962/1996, p. 10). These are the achievements of such pioneers as Terman (1925/1959) and Hollingworth, who gave the field its start and its professional respectability in the first half of the 20th century, and those of a host of leaders who reestablished gifted education as an integral aspect of American education during the last quarter of that century.

If something as radical as a paradigm shift in gifted education appears unlikely, the same might be said of maintaining the status quo. Normal practice in the field of gifted education – sorting students on the basis of being identified, or not identified, as gifted and then temporarily removing those identified from their heterogeneous classes to receive curricular enrichment and then return to join their nonidentified peers – has held sway in this field since the publication of the landmark Marland Report (Marland, 1972) almost 30 years ago. The model has come under criticism from many outside the field (e.g., Margolin, 1994, 1996; Oakes, 1985; Sapon-Shevin, 1994, 1996) and, increasingly, from some within. Moreover, it has produced very little with respect to demonstrable positive educational results.

There appear to be three possible courses of action for the field of gifted education with respect to the traditional paradigm. One is to cling to it steadfastly, ignoring or deflecting criticism and hoping for a return of more congenial *zeitgeist*. I think this is unrealistic and ignores substantive changes in how educators think about diversity, grouping, exceptionality, and related issues. For example, the notion of exceptionalities, such as giftedness, being rooted in medical or psychometric necessity instead of reflecting historical and sociocultural forces, is increasingly under attack (see, for example, Franklin, 1987; Sleeter, 1987). It would require an unusually struthious stance on our part to believe that all of this will simply go away and we can return to the halcyon days of proliferating pull-out programs.

A second possibility when a paradigm is threatened by discrepant findings is to modify, but not to abandon, the paradigm to accommodate the

data that do not fit it. This strategy can be seen in some recent writing in the field, including some of mine (e.g., Borland & Wright, 1994), in which proposals to remedy some of the field's more egregious failings, such as the chronic underrepresentation of poor children and children of color in gifted programs, have been advanced. However, the problems persist, and in a recent paper (Borland & Wright, 2001), we contemplate the possibility, rooted in Isaiah Berlin's notion of *value pluralism* (see Berlin, 1990; Gray, 1996), that there is no attainable reality in which we can effect the reconciliation of such indisputable goods as educational equity and such putative goods as differentiated programs for students labeled gifted. In other words, there may be no way to tinker with the paradigm, and its derivative normal practice, so that such things as effective education and equitable education can coexist with gifted education.

The third possibility is the fundamental change whose consideration I have been urging throughout this chapter. As radical as this may seem to some, it may be the only choice facing the field if, as I suspect, the prevailing paradigm comes to be seen either as something held on to by a progressively smaller band of retrograde gifted education stalwarts or as a framework in which indispensable educational, social, and moral goods cannot coexist. If that were to become the case, we might be faced with the paradox of viewing the gifted education without gifted children as the only way to ensure the field's viability.

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2

Youths Who Reason Exceptionally Well Mathematically and/or Verbally

Using the MVT:D⁴ Model to Develop Their Talents

Linda E. Brody and Julian C. Stanley

The Study of Mathematically Precocious Youth (SMPY) was established at Johns Hopkins University in 1971 by Professor Julian Stanley to help youths who reason extremely well mathematically find the educational resources they need to achieve their full potential (Benbow & Stanley, 1983; Keating, 1976; Stanley, 1977; Stanley, Keating, & Fox, 1974). After administering above-grade-level tests to identify students with advanced mathematical reasoning abilities, SMPY provided counseling and created programs to meet their academic needs. Eventually, university-based talent centers were established around the country to continue the practices SMPY pioneered. Because SMPY's methods for developing talent evolved over time in a very pragmatic way, that is, in response to the needs of individual students, the psychological and conceptual bases for this approach have not been especially emphasized in the literature.

In the first edition of this book, for example, Stanley and Benbow (1986) suggested that SMPY was "not concerned much with conceptualizing giftedness" and had "not spent much time contemplating the psychological underpinnings of giftedness" (p. 361). However, Duke University psychologist Michael Wallach, in a review of one of SMPY's early books (Stanley, George, & Solano, 1977), observed that:

> What is particularly striking here is how little that is distinctly psychological seems involved in SMPY, and yet how very fruitful SMPY appears to be. It is as if trying to be psychological throws us off the course and into a mire of abstract dispositions that help little in facilitating students' demonstrable talents. What seems most successful for helping students is what stays closest to the competencies one directly cares about: in the case of SMPY, for example, finding students who are very good at math and arranging the environment to help them learn it as well as possible. One would expect analogous prescriptions to be of benefit for fostering talent at writing, music, art, and any other competencies that can be specified in product or performance terms. But all this in fact is not unpsychological; it is simply different psychology (Wallach, 1978, p. 617).

There was always a strong rationale behind the choices and decisions that were made by SMPY (Stanley, 1977). Three principles from developmental psychology, in particular, have contributed to the programmatic recommendations that were adopted. These principles are that learning is sequential and developmental (Hilgard & Bower, 1974), that children learn at different rates (Bayley, 1955, 1970; George, Cohn, & Stanley, 1979; Keating, 1976; Keating & Stanley, 1972; Robinson & Robinson, 1982), and that effective teaching involves a "match" between the child's readiness to learn and the level of content presented (Hunt, 1961; Robinson & Robinson, 1982). The implication of these principles, as delineated by Robinson (1983), Robinson & Robinson (1982), (Stanley, 1997), and Stanley and Benbow (1986), is that the level and pace of educational programs must be adapted to the capacities and knowledge of individual children. The pioneering work of Hollingworth (1942), who used above-grade-level tests to measure students' precocity (see Stanley, 1990), and of Terman (1925), who was among the first to systematically identify and study gifted students, also profoundly influenced the direction of SMPY.

All of SMPY's work was very much research-based, as the principal investigators sought validation of their hypotheses and evaluated the effectiveness of various intervention strategies. Today, longitudinal studies of early SMPY participants are still being conducted by David Lubinski and Camilla Benbow at Vanderbilt University (e.g., Benbow, Lubinski, Shea, & Eftekhari-Sanjani, 2000; Lubinski, Benbow, Shea, Eftekhari-Sanjani, & Halvorson, 2001; Lubinski, Webb, Morelock, & Benbow, 2001), and the university-based talent search programs that have adopted SMPY's principles and practices also engage in ongoing research related to the students they serve. Consequently, there exists a large body of published empirical evidence in support of this approach to talent identification and development, something many theories lack.

In this chapter, the conceptual and operational components of this model are summarized. It is meant to help youths who reason extremely well mathematically and/or verbally develop their talents. We begin with the history of SMPY.

Background and History of SMPY

It was in the summer of 1968 that Julian Stanley was told about Joe, a 12-year-old who was doing some amazing work in a computer science course for middle school students at Johns Hopkins University. Eager to know more about the extent of Joe's abilities, Stanley arranged that fall to have this eighth-grader (unfortunately, without practicing beforehand) take the College Board Scholastic Aptitude Test (SAT), a test designed for college-bound high school seniors. Joe scored 669 on SAT-Mathematical Reasoning (SAT-M), higher than the average student entering Johns

Hopkins as a freshman. He also scored 590 on SAT-Verbal Reasoning (SAT-V), 772 on SAT-II (achievement test) Math, and 752 on SAT-II Physics, all exceptional scores for college-bound students and especially for a 13-year-old student who had not yet entered high school.

When local high schools, both public and private, proved unwilling to adjust their programs to accommodate his advanced educational needs, this 13-year-old entered Johns Hopkins University as a regular, full-time freshman. He did well, earning good grades and obtaining both his undergraduate and master's degrees in computer science by age 17. Then, a year after Joe was tested, another 13-year-old eighth-grader emerged, who also scored exceptionally well on SAT aptitude and high school achievement tests and who, with Stanley's help, also entered Johns Hopkins in lieu of going to high school. Finally, within a short time, a third accelerant enrolled at Hopkins after the 10th grade under Stanley's guidance. (For more information about these early radical accelerants, see Stanley, 1974.)

SMPY's experience with these exceptional youths suggested that the SAT-M, administered above grade level, was an effective means of identifying students who reasoned extremely well mathematically at a young age and who were capable of learning advanced subject matter in mathematics and science. The SAT offered many advantages over other assessment measures. Most importantly, it provided adequate ceiling to discriminate among students, all of whom might score well on in-grade-level tests. It also offered national above-grade-level norms for comparison purposes, and the test was secure, in that students could not get access to the questions in advance.

Because few seventh- and eighth-graders have formally studied the mathematical content that high school students have, the SAT appeared to be more of a reasoning test for seventh- and eighth-graders than for high school juniors and seniors. Presumably, students who score well on this difficult test without exposure to its content do so by using extraordinary reasoning abilities at the "analysis" level of Bloom's (1956) taxonomy. The predictive validity of the SAT for later high achievement among talent search participants has been documented (Benbow, 1992; Benbow & Stanley, 1983). SMPY also found that further assessment of a student's verbal reasoning and achievement levels, as well as other attributes, was valuable and important for guiding educational decisions.

SMPY began to launch systematic talent searches in an effort to find other students who exhibited advanced mathematical reasoning abilities similar to Joe and the other accelerants. It was expected that only a few such students would be found and that accommodations to meet their needs could be made on an individual basis. The first SMPY talent search took place in March 1972 on the Johns Hopkins campus for 450 seventh-, eighth-, and accelerated ninth-graders. They took advanced

tests in math and/or science. Many more of the participants scored at higher levels than the researchers expected; for example, of the 396 who took the SAT-M, 13 percent scored 600 or more. Achievement levels were also surprisingly high among these students, who had had little formal exposure to the subject matter tested. The number of students found with exceptional abilities documented the need to search for such students on a regular basis and to find ways to meet their academic needs (Stanley et al., 1974).

Other talent searches and extensive experimentation with accelerated courses for the high scorers followed in 1973, 1974, 1976, 1978, and 1979 (Benbow & Stanley, 1983; Keating, 1976; Stanley, 1996). Finally, in late 1979, the entity that is now the Center for Talented Youth (CTY) at Johns Hopkins was established to expand the talent searches greatly, including emphasis on SAT-V scores, and to provide residential academic programs, while SMPY continued under Stanley's direction to focus on research and counseling extremely mathematically precocious students.

People often ask why SMPY itself chose to focus exclusively on mathematical reasoning ability. With a small staff and little funding to pursue the initial work, limited resources are part of the answer as to why not all talent areas were pursued. However, scientific knowledge was also a focus in the first (1972) talent search, and for a short time the project was called the Study of Mathematically and Scientifically Precocious Youth. Because quite a few of the high scorers on the college-level test of scientific knowledge did not score exceptionally well on SAT-M, it was decided early to drop the science test from the talent search and, instead, administer it later only to those examinees scoring well on SAT-M.

Because the purpose was to help gifted youths supplement their school-based education, it seemed sensible to focus on an ability closely related to several major subjects in the academic curricula of schools in the United States. Moreover, to capitalize on the precocious development of this ability by greatly accelerating students' progress in the subject matter concerned, it was necessary to choose school subjects more highly dependent on manifest intellectual talent for their mastery than on chronological age and associated life experiences. The published literature supported the choice of mathematics in that such writers as Cox (1926), Bell (1937), Gustin (1985a, 1985b), Roe (1951), Lehman (1953), Kramer (1974), Weiner (1953), and Zuckerman (1977) have documented the existence of great precocity in mathematics and the physical sciences. Concern about meeting the needs of verbally talented students in the talent searches did lead quickly to the establishment of a separate Study of Verbally Gifted Youth (SVGY) (McGinn, 1976). Coexisting with SMPY at Johns Hopkins from 1972–1977, it was the predecessor of CTY's dual emphasis on mathematical and verbal reasoning. Its writing instructor is still a member of the CTY staff.

From the beginning, SMPY's goal was not just to identify precocious students but also to help them develop their exceptional abilities. The researchers assumed not only that many students with advanced mathematical reasoning abilities can learn precalculus mathematics and related subjects far more quickly than schools ordinarily permit, but also that motivation to learn may suffer appreciably when the pace of instruction is too slow and unchallenging (Stanley & Benbow, 1986). With few alternative programs available in those days, SMPY emphasized acceleration but, never intending that radical early entrance to college should be the only or the main option even for the most gifted students, the researchers identified and developed numerous forms of acceleration and curricular flexibility. In an effort to match the level and pace of instruction to the abilities and needs of the students, Stanley and colleagues experimented with a variety of strategies to speed up the learning of math, biology, chemistry, and physics (Benbow & Stanley, 1983; Fox, 1974; George et al., 1979; George & Denham, 1976; Stanley, 1976, 1993; Stanley & Benbow, 1986; Stanley & Stanley, 1986).

Evaluation of these strategies was ongoing, and research results supported the value of accelerated instruction for mathematically precocious students (see Benbow & Stanley, 1983). In addition to ability, motivation and interest were found to be crucial components to successful learning in accelerated environments. Thus, the researchers preferred to work directly with the youths themselves, rather than their parents, to ensure that they were eager to embark on any accelerative path they chose (Stanley & Benbow, 1986). Consideration of a broad "smorgasbord of educationally accelerative options" (Stanley, 1979, p. 174) came to be recommended when counseling gifted students about their educational needs, from which students could pick those that best served them as individuals.

EXPANDING THE SEARCH

The decision in 1979 to create CTY at Johns Hopkins to run the talent search was intended to allow for its expansion. Until then, all of the testing and scoring and many of the programs (all commuting, none residential) had been held on the Hopkins campus. The success of SMPY's efforts was creating a huge demand from parents to have their children participate. Many were driving long distances for testing and programmatic opportunities. The time had come to expand the search geographically, establish residential summer programs so that students would not have to commute such a long way, and address the needs of students with high verbal scores because SVGY was no longer in existence. Once CTY was established, SAT testing was offered to seventh-graders (and later expanded to serve other age groups) through regular Educational Testing Service testing nationwide. The first residential program was held in southern Maryland in

the summer of 1980, featuring courses in the humanities as well as math and science. Since then, some courses in the social sciences have also been added.

CTY's talent search and programmatic offerings have grown rapidly from 1980 to the present. Today, approximately 85,000 second- through eighth-grade students from any of 19 states, the District of Columbia, and countries throughout the world participate in the annual talent search (Barnett & Juhasz, 2001). In recognition of the increasing importance of spatial reasoning in today's world, CTY developed a Spatial Test Battery to supplement assessment of mathematical and verbal reasoning (Stumpf & Mills, 1997). The summer program has also expanded, with approximately 10,000 students currently taking courses each year at 23 sites throughout the United States, and distance education courses help meet students' academic needs throughout the year (Brody, 2001). In addition, CTY's international efforts have led to the establishment of programs in Ireland, England, Spain, and elsewhere (e.g., see Gilheany, 2001; Touron, 2001). A strong research department, diagnostic and counseling center, and family academic conferences supplement CTY's many programmatic offerings. CTY's Study of Exceptional Talent (SET) continues SMPY's emphasis on serving the highest scorers by providing them with individualized counseling and other resources.

Soon after CTY was created, regional talent searches based on the Johns Hopkins model were established at Duke University, Northwestern University, and the University of Denver. Programs utilizing SMPY's talent search approach were also established at California State University-Sacramento, Arizona State University, Iowa State University, the University of Iowa, Carnegie Mellon University, and elsewhere. Collectively, these programs identify and serve several hundred thousand students each year who score well on above-grade-level mathematical or verbal aptitude tests (Lupkowski-Shoplik, Benbow, Assouline, & Brody, 2003; Olszewski-Kubilius, 2004; Stanley & Brody, 2001).

Numerous other initiatives across the country have also been influenced by research disseminated by SMPY, especially with regard to utilizing accelerative strategies and providing special supplemental opportunities to serve students with advanced cognitive abilities. For example, when SMPY began in 1971, very few academic summer programs for precollege students existed, whereas today many colleges and universities offer accelerative or enriching courses for gifted middle and high school students. Early college entrance programs have also been established at selected colleges and universities, many with Stanley's help, to allow young college entrants to enroll as a cohort and receive more academic and emotional support than is typically provided to regular-age college students (Brody, Muratori, & Stanley, 2004; Muratori, Colangelo, & Assouline, 2003; Sethna, Wickstrom, Boothe, & Stanley, 2001; Stanley, 1991).

The MVT:D^4 Model

The first book-length report of SMPY's initial work was titled *Mathematical Talent: Discovery, Description, and Development* (Stanley et al., 1974). The three "D" words indicate the steps utilized by SMPY to find and serve talented youths. As a way to emphasize these steps, as well as the mathematical reasoning ability that the early talent searches involved, the book's title and this model of talent development was sometimes abbreviated to MT:D^3. Later, a fourth D was added in acknowledgment of an increasingly important dimension: *Dissemination* of its principles, practices, and procedures (Benbow, Lubinski, & Suchy, 1996; Stanley, 1980).

These four steps continue today as the model utilized by the talent searches and other programs that have adopted these principles. Because programs have also been established for students who exhibit exceptional verbal abilities, it is appropriate to add a "V," for verbal talent, to the acronym. The MVT:D^4 Model, therefore, stands for building on Mathematical and/or Verbal Talent through Discovery, Description, Development, and Dissemination.

The first step, *discovery*, refers to the systematic identification of talent. Through annual talent searches, large numbers of students are found whose exceptional mathematical and/or verbal reasoning abilities may have been largely unnoticed prior to this testing. Even among students who may have been labeled "gifted and talented" by their schools, parents and educators are often surprised to discover the level of their precocity after they take above-level tests through the talent searches. Other examinees who score very high wonder why they are not in their school's gifted-child program. Multiple criteria, some of them not related to ability, may have excluded them. Thus, relying on parents, teachers, or in-grade assessments to recognize giftedness is inadequate. Systematic talent identification programs utilizing above-grade-level assessments are sorely needed. The talent searches provide this.

Description refers to the assessment of students' characteristics in addition to the primary talent area, as well as to the research that helps evaluate various programmatic interventions. Individual differences in students' cognitive strengths and weaknesses, personality characteristics, motivation, learning styles, and content knowledge need to be considered when determining the strategies that will help maximize talent development. In addition, both short-term and longitudinal research studies are important to program evaluation. Through many years of research, SMPY and the talent searches have made consistent and important contributions to what is known about the characteristics and needs of gifted students and have validated numerous intervention strategies.

Development refers to providing gifted students with the challenging educational programs they need to develop their talents as fully as possible.

Through a variety of accelerative strategies, the pace and level of content can be adjusted to meet their needs. Special programs designed for advanced students serve to augment the typical school curriculum in important ways. SMPY and the talent searches have developed numerous programs that they offer directly to academically advanced students, often via summer courses or distance learning via computer, in addition to working to enhance the level of challenge available to academically talented students in their schools.

Finally, *dissemination* refers to sharing these principles, practices, and research results with educators, policy-makers, parents, and other researchers. Books, articles, and other publications; presentations at conferences; consultations with schools; and e-mail correspondence are all intended to further this goal. Over the last three decades, Stanley and colleagues have worked hard to disseminate their ideas.

Conceptualizing Giftedness

This volume depicts a variety of conceptions of giftedness, each distinguishable in some way. Although other theorists are likely to identify with the four steps of discovery, description, development, and dissemination previously described as they seek to identify and serve gifted students, the focus on precocity within specific areas of aptitude and the accompanying need to serve these students through accelerating the learning of subject matter make the SMPY and talent search model nearly unique within the field of gifted education (e.g., see Renzulli & Reis, 2004, for a somewhat different approach).

What Is Giftedness? The strategies embraced by SMPY and the talent searches are very much grounded in a belief in the psychology of individual differences. Although this view strongly endorses the importance of quality education for all, it is not assumed that everyone in society will achieve equally in all areas, even if they are given equal opportunities. Some individuals do have special talents, and recognizing and nurturing these talents is crucial not only for the individual but also for the future of society, as these individuals have the potential to be our future problem solvers. This view does not require students to be advanced in all areas to be considered "gifted." Rather, individuals vary considerably in their cognitive profiles, in their specific strengths and weaknesses. A given individual can be strong in one area but not in another (e.g., strong in math reasoning but weak in verbal, such as the student who, at age 12, recently scored 800 on the SAT-M but 340 on the SAT-V).

In defining giftedness, we are concerned therefore with those who exhibit exceptional reasoning ability in a specific area of aptitude, primarily math or verbal reasoning, but also spatial, mechanical, and other

specific abilities (e.g., see Shea, Lubinski, & Benbow, 2001; Stanley, 1994). An important component of this view is the concept of precocity (e.g., gifted students are those who, because they learn at a faster rate and can comprehend more advanced ideas at younger ages, can reason much like older students). This equates giftedness with advanced mental age in specific areas, not just with being a good learner among age peers.

Talent development is important to achieving one's full potential, however. Although the talent searches identify advanced reasoning abilities that are already evident rather than potential that might be hidden at that point, the assumption is that ongoing educational support will be crucial to developing that gift. Thus, the talent search programs stress the development of challenging programmatic options to foster the development of talent.

How Does this Conception Compare with Other Conceptions of Giftedness? Although the emphasis that Terman (1925), Hollingworth (1942), and others placed on general IQ has diminished somewhat over time, there are still many educators who equate giftedness with high general ability. Sometimes this means it can be difficult to comprehend that a highly gifted student with exceptional mathematical reasoning ability can also be average in some content areas or even have a learning disability (Brody & Mills, 1997). Although the SMPY view does not deny the existence of a general intelligence factor (*g*) as some do, the measurement of specific aptitude has been found to be much more useful educationally than general IQ for identifying precocity. We have found boys and girls with *extremely* high IQs, even 212, who were asymmetrical with respect to V versus M, that is, far better on M than V, or on V than M.

Because the focus described here is on specific areas of aptitude, some may conclude that this view overlaps with those who propose multiple intelligences as a conception of giftedness, and to some extent it does. However, we would hesitate to use the word "intelligence" to describe mathematical or verbal reasoning ability and would also hesitate to apply equal weight to some of the areas that have been labeled intelligences. In addition, some schools that have adopted the multiple intelligence model fail to address students' primary talent areas to the extent we would recommend (Kornhaber, 2004; Stanley, 1997).

Some theorists include such affective traits as motivation and self-concept in their definitions of giftedness. SMPY's research on values, interests, and aspirations clearly shows the importance of these characteristics in predicting achievement (e.g., see Achter, Lubinski, Benbow, & Eftekhari-Sanjani, 1999). However, many affective characteristics can be altered by interventions; therefore, it seems unwise to include them as defining characteristics of giftedness.

Other gifted-child specialists stress creativity either as a separate area of giftedness or as a key component to identifying gifted individuals. SMPY's philosophy is that creativity needs to be embedded in content areas. True creative production can come only once a significant amount of content has been mastered (an argument for acceleration of subject-matter acquisition and allowing gifted individuals to enter into a creative phase at a younger age).

Finally, some theorists suggest that giftedness can be recognized only in adult achievement. This seems valid, which may be one reason the early writings of SMPY avoided using the word "gifted" in favor of descriptors like "precocious" and "exceptional." High-scoring young students have the potential to excel, but the true test of excellence must come after content has been mastered and original work or activities can be pursued. Early identification of this potential, however, is important so that students receive the educational opportunities that will allow this potential to be fulfilled.

How Should Gifted Individuals Be Identified? Identification strategies should match the program. Thus, one might use general IQ for a general enrichment program, but exceptional mathematical reasoning ability is crucial for an accelerated mathematics program in which the outcome knowledge is evaluated carefully. Because our concern has been with students who are unchallenged by age-in-grade instructional programs, finding those whose abilities are far above grade level is important. The SAT administered above grade level has proven valid and useful for the purpose of identifying students with exceptional mathematical or verbal reasoning abilities.

Whichever test is used for identifying talented students should have adequate ceiling to determine the full extent of the student's abilities. In CTY's talent search, for example, participants, all of whom have scored at or above the 97th percentile on the mathematics, verbal, or total score of an in-grade achievement test, can (and some do) score anywhere between 200 and 800 on the above-their-level SAT. This distinguishes the students who are bright and learn well but are not ready for more advanced work from those who are truly exceptional and need a differentiated educational program.

We also recommend using aptitude tests in specific academic areas to identify students in need of advancement in those areas. Although tests of general IQ can be useful for many purposes, IQ is a global composite of different cognitive abilities. As previously noted, we have not found IQ to be very useful for identifying students who are brilliant in a specific academic area (e.g., mathematics or science).

SMPY followed up their testing on the SAT with assessment of numerous other traits, for example, achievement in math and science, spatial

and mechanical aptitude, values, and career interests (Stanley et al., 1974; Stanley, 1979; Keating, 1976). A full assessment of a variety of factors can be important in determining appropriate intervention strategies to meet a student's needs.

How Should Gifted Individuals Be Instructed in School and Elsewhere? The typical school program is designed for students with average abilities. Students whose abilities are advanced in particular areas need advanced work in those fields, and the more talented the student, the greater the need for a differentiated curriculum. Typically, this means accessing content designed for older students, or acceleration. Unfortunately, many people think of acceleration only in terms of skipping grades. In fact, there is an educational "smorgasbord" of at least 20 ways to accelerate a student in subject matter or grade placement (Southern, Jones, & Stanley, 1993).

When designing a program for a gifted student, the goal is to achieve an "optimal match" (Robinson & Robinson, 1982; see also Durden & Tangherlini, 1993; Lubinski & Benbow, 2000) between a student's cognitive and other characteristics and his or her educational program. An individualized program utilizing curricular flexibility is needed (Brody, 2004). This requires willingness, when appropriate, to adjust the level and pace of instruction, to place advanced students in classes with older students, and/or to allow them to do independent work (Benbow & Stanley, 1996). Effective articulation at the next stage to assure continuation of the advanced curriculum is also a key component of interventions recommended by SMPY (Stanley, 2000).

A "bridging" strategy developed by SMPY is the Diagnostic Testing – Prescriptive Instruction model (Stanley, 2000). Basically, this refers to pretesting, diagnosing specific content that has not been mastered, and structuring an academic program to teach only the new content. Long used in special education for students with academic deficits, this approach is too rarely used with students with advanced academic skills and knowledge. SMPY's application of it was to mathematics, but it can be adjusted for other subjects, such as English grammar.

Supplemental educational programs are also important and valuable. Although schools can attempt to address the needs of advanced students through curricular flexibility, the fact that they may have few truly exceptional students in the school population limits programmatic options. Today, there is an abundance of academic summer programs, dual enrollment programs in cooperation with universities, and distance education that can provide access to a broad array of subjects not offered in school. Extracurricular activities can also enhance learning and develop leadership in a field. Academic competitions such as the Intel (formerly Westinghouse) Science Talent Search and the International Mathematical Olympiad

can be particularly challenging for even the most advanced high school students.

SMPY's counseling efforts encouraged students to develop challenging individualized programs. This approach is now used in CTY's SET program, which helps students who score at least 700 on SAT-I M or SAT-I V before age 13 find opportunities to accelerate and/or supplement their school programs (Brody, 2004; Brody & Blackburn, 1996). SET encourages students to consider a variety of options to supplement and/or accelerate school programs. Academic summer programs, distance education, and challenging extracurricular options are considered important components of most students' programs. Attention is also given to helping students find ways to interact with intellectual peers. Whether through school-based classes, out-of-school programs, or participation in activities or competitions, the opportunity for advanced students to interact with peers who share their abilities and interests can be critical to social and emotional development, areas of growth often overlooked by educators in favor of only academic development.

How Should the Achievement of Gifted Individuals Be Assessed? Assessing students' content knowledge is critical to meeting their educational needs. In particular, students with advanced cognitive abilities tend to pick up much information from their environment, so pretesting before offering instruction will help define what they already know so they can be taught only what they don't yet know (Stanley, 2000). Additional assessment after instruction is completed will also affirm mastery of content at that level and help students gain credit (or, at least, appropriate placement) for accelerated work.

Both criterion-referenced measures and standardized tests with norms are important in assessing gifted students' performance. Because in-grade standardized tests often do not measure the advanced content that is appropriate for students with exceptionally high cognitive abilities, content-specific criterion-referenced measures are needed. At the same time, the normative comparisons provided by standardized tests can be useful when evaluating learning compared with age-mates. When learning is accelerated, above-grade-level achievement tests should be used in lieu of in-grade tests, which usually lack adequate ceiling.

In some areas, a portfolio of products and accomplishments, such as written reports, artwork, science projects, and performance in academic competitions, can be valuable measures of student achievement. Certainly, winning a top prize ($100,000 for the top contestant) in the Intel Science Talent Search or qualifying to represent the United States in an international competition is a clear testimony to a student's learning and stellar achievement.

CONCLUSION

Many persons seem hostile toward intellectually talented youths, though perhaps a little less so toward those splendid in mathematics than toward the verbally precocious. This attitude contrasts sharply with the American public's generally favorable feelings about prodigies in music and athletics. Friedenberg (1966) and Stanley (1974), among others, have discussed how deep-seated this prejudice is. Expressions such as the following abound in literature back to Shakespeare's time: "Early ripe, early rot," "So wise so young, they say, do never live long," "For precocity some great price is always demanded sooner or later in life," and "Their productions . . . bear the marks of precocity and premature delay" (Stanley, 1974, pp. 1–2).

There is also a prevailing assumption that intellectually talented students do not need any special help, that they will make it on their own. In fact, some seemingly do well, earning top grades in grade-level courses and entering selective colleges, but their goals and aspirations may be less than they might have been with greater challenge. Of more concern are the ones who become underachievers. Never having had to study to learn something, they fail to develop the study habits necessary even to achieve well compared with their age-mates. These students are at great risk of being "turned off" to anything academic and to developing social and emotional difficulties as well.

Another misconception is that gifted students, to be truly exceptional, must be achieving at the level of the great thinkers of the world, such as Gauss, Euler, Fermat, Bertrand Russell, Mozart, Galois, Pascal, Newton, Sweitzer, or (especially) Einstein. Terman encountered a great deal of this, with critics noting that among the 1,528 boys and girls to whom he administered an individual intelligence test in California in the early 1920s, he did not discover anyone who became a worthy successor to the greatest musicians, artists, and writers of all time. It was not enough that, for example, he found a youth who became a great, highly cited psychometrician and president of at least three very important national professional societies. Some insight into problems of defining and predicting genius may be obtained from Albert (1975), Bell (1937), and Simonton (1994).

In describing the work of SMPY, Stanley has often paraphrased Browning's "A man's reach should exceed his grasp, or what's a heaven for?" as "A mathematically precocious youth's reach should exceed his or her grasp, or what's an educational system for?" The goal is to extend the reach and the grasp of students with exceptional gifts, so that they dream bigger dreams, aspire to greater accomplishments, learn more at younger ages, and ultimately achieve higher levels. We do not guarantee identifying future Nobel laureates, Pulitzer Prize winners, U.S. poet laureates, or Fields Medalists through our talent searches, much less Einsteins!

But we are finding youths with exceptional reasoning abilities and helping them achieve far beyond what they would probably have done without intervention. And, as they become future scientists and mathematicians, physicians and entrepreneurs, politicians and teachers, and humanists, our society will benefit from their enhanced abilities to solve problems and contribute to progress.

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