# HANDBOOK OF
Giftedness in Children

PSYCHO-EDUCATIONAL THEORY, RESEARCH, AND BEST PRACTICES

EDITED BY

STEVEN I. PFEIFFER

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Psychoeducational Theory, Research, and Best Practices

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Preface

There is growing concern in American society that the gifted are an underserved and even unserved special needs population. The great majority of psychologists and educators—and other professionals who provide educational, psychoeducational, and mental health services to children and youth—remain ill equipped to meet the unique and challenging needs of the gifted and talented.[1] This handbook was written to provide psychologists, psychiatrists, health care professionals, and educators with contemporary, authoritative information so that those of us who work with the gifted and their families can provide quality mental health and psychoeducational services to this unique population. Whether you work in a school, a public agency, or the private sector, this book is designed to provide you with scholarly information and evidence-based strategies that can be applied to your work with gifted children and youth.

The handbook combines the disciplinary perspectives of those on the front lines of research and practice. I approached the leading experts in the field and, with very few exceptions, each agreed enthusiastically to contribute to the handbook. The scholarly work of both psychologists and educators is represented. Each author was issued the challenge of providing a succinct, contemporary, and authoritative summary of their area of expertise. I asked them to highlight how research in their particular area informs practice in work with the gifted.

The handbook has been a joint enterprise that depended on the efforts and cooperation of over thirty experts in the gifted field. I am extremely appreciative of the dedicated endeavors of everyone who worked with me to make this handbook a reality. Chapter authors, recognized authorities in their respective fields and with demanding schedules, were generous in sharing their time, expertise, and knowledge. The editorial staff at Springer Publishers was exceedingly gracious and supportive. Particular thanks go out to Judy Jones and Angela Burke. I would like to thank Florida State University, and specifically the Department of Educational Psychology and Learning Systems, for their encouragement and resources. I also would like to express my appreciation to the Jacqueline Anne Morris Memorial Foundation and the Bruce J. Heim Foundation for their generous support of my work in the gifted field. And to SENG for its commitment to the unique emotional needs of the gifted.

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[1] Pfeiffer, S. I. (2001). Professional psychology and the gifted: Emerging practice opportunities. *Professional Psychology: Research & Practice, 32*, 175–181.

Finally, I would like to acknowledge my family. I extend my gratitude to my spouse, Jan Pfeiffer, for her support and encouragement. Her willingness to sacrifice family time while I worked on the book was a generous gift. I would be remiss if I did not also extend my appreciation to my three children, Leslie, Kevin, and Andrea, who remind me daily that there are many kinds of giftedness and that each child is unique.

Steven I. Pfeiffer

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Psychology, Psychologists, and Gifted Students

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Psychologists show great curiosity about the world and human behavior. They are forever asking Why? Or What? Or How? about various aspects of human behavior. It is no surprise, therefore, that they respond enthusiastically to some of the questions surrounding the behavior of those labeled as gifted and talented in our society. As we shall see in this volume there are more psychologists intrigued by these questions than are actively working on them but that is due to the vagaries of funding, access, and other technical matters. Some of the key questions posed in this handbook are:

- Who are the gifted?
- How do we identify gifted?
- What are the key characteristics of gifted students?
- Where does giftedness emerge from?
- Can we suppress giftedness?
- Can we enhance giftedness?
- Can we design public policy to favor students?

All of these issues will be discussed in greater length in the following chapters but we propose to provide an overview of what is necessary to answer these questions and provide some understanding of why we stand at this point in history.

Who Are the Gifted?

Many observers do not consider this a very difficult question to answer. After all, don't gifted students identify themselves through their behavior? Doesn't a child who is reading well at age three call himself or herself to your attention? Doesn't the eight-year-old playing competitive chess with adults demand notice? Don't early

thrusts into poetry or art far beyond expectations for the age level of the child tag the person as unusual and gifted?

The answer, of course, is yes. And we do use such criteria for our beginning investigations. But we are interested, as well, in those who may have the potential for outstanding contributions to various fields but who have not yet realized that potential. We also want to create educational and personal environments and procedures that will enhance such creative production.

As we delve into these questions we have begun to realize how thoroughly we have been held hostage to our measuring instruments.

Gifted students are those who score high on intelligence tests. Are they not? At one time some states proscribed a Stanford-Binet IQ of 130 or better as the criterion for entrance to educational programs for gifted students.

Lewis Terman (1925), a noted psychologist, was not only the author of the Stanford-Binet IQ test but used this instrument to conduct research on gifted students and their characteristics in one of the longest longitudinal studies of human beings in the United States (Holahan & Sears, 1995; Terman & Oden, 1947). The results of this study were extremely valuable to psychologists but we now realize that these results are constrained by the instrument used and the design of the longitudinal study. The Stanford-Binet was built around the "g" factor, assuming one general factor of intelligence.

Other psychologists such as Thurstone (1938) and H. Gardner (1983) argued for multiple dimensions of intelligence, a concept which was not included in the development of the Stanford-Binet and which, if it was, would have changed our decisions and our definitions about who is gifted and who is not. Still others (Gallagher, 2002; Sternberg, 2003; see chapter by Pfeiffer & Blei) argue that an essential component, the decision-making ability central to the productive thinking of the individual, has been left out of the existing measures of intelligence entirely. The *executive function,* which controls what we pay attention to, what strategies we choose to address our problems, and the choice of how we propose to communicate our thoughts, is left to observation rather than measurement (Gallagher, 2002).

So, when we address the questions of who the gifted are and what they are like, we need to keep in mind the constraints of our instruments that are being used to answer these questions. The design of the Terman study using the Binet test as identifying criteria for gifted students resulted in a sample of largely (90%) Caucasian children from upper-middle-class families. How would the favorable results of this study be modified if we included other racial and income groups in our samples? We are still trying to answer the question, "Who have we left out and how does that change the portrait of giftedness?" (See chapters by Ford & Whiting, Robinson & Clinkenbeard, Piirto, Newman, and Pfeiffer & Blei).

Where Does Giftedness Come from?

This is a question of enormous psychological, social, and biological significance. It is easy enough to identify a genetic component in intellectual development. How else can we explain the emergence of prodigies (children who perform adult actions while still in childhood) (Morelock & Feldman, 2003)? The fields of music and mathematics are particularly rich with examples of prodigies. There is also the

emergence of gifted children from poor environments where one cannot explain talent emergence in any other way but genetic power or influence.

The question is how much can we attribute the emergence of giftedness to genetics and how much to favorable environments? If we hold strongly to the genetic model, we are faced with some socially explosive issues since we have a clear difference in measured ability by race, ethnic background, and social class (Benbow & Lubinski, 1996). Is it really true that some population subgroups are superior to others in intellectual ability?

Some of our new versions of early development counteract that viewpoint by pointing out that the phenotype is controlled by environment—heredity interactions from the earliest moments of life. So there appears to be no such thing as separate heredity and environment forces. It appears to be one complex and successive set of interactions (Plomin & Price, 2003). Such a proposition places even more burden on us to create favorable environments for the development of children from the earliest days. The concept of *multiplier effects* also comes into play (Gottlieb, 1997). That is, earlier developmental trends can end up having huge long-range effects. For example,

- A parent notices a young child looking at picture books.
- The parent begins to read to the child at bedtime.
- The child discovers the relationship between print and words.
- The child is encouraged to read and praised for reading.
- The child goes to preschool programs where reading is a part of the activities.
- The child enters school and does well, praised by teachers.

The end result of this early perception of the parent and the child's initial curiosity can have major long-range effects. If the child has a favorable set of genes, the effect can be even more striking. But what if the parent does not notice the child's interest in picture books or is too busy to care? Does that mean that the child is doomed to never show his/her innate talent? Certainly not, but it does change the probabilities and that is what multiplier effects do, they change the probabilities of future actions.

When we have given up on the proposition that heredity is the sole cause of giftedness, then we have opened the door to the influences of environment, both positive and negative. What happens to potentially gifted and talented children in their early lives can do much to determine their adult productivity. Remember the genetic multiplier effects.

We have observed that subgroups that have been treated poorly have had a diminished prevalence of gifted students (see chapter by Ford & Whiting). In those families where education is highly valued and where resources are available to stimulate the child's ability, the prevalence of giftedness goes up (upper-middle-class Caucasian and Asian families).

It is not difficult to imagine that potentially gifted children living in disruptive neighborhoods and schools spend some of their time worrying about their personal security, never mind wondering about the solar system or the existence of microbes. If we believe, as we should, that the "more time spent on a topic, the more one learns about it," then the distractions faced by these inner-city students can be harmful to their full intellectual development.

Much recent effort has been made to find promising students in unfavorable settings and provide special programming designed to enhance their performances (see chapters by Pfeiffer & Blei, Ford & Whiting, and Rimm). The discovery and

enrichment of the "hidden gifted" is one of the more favorable developments for our society in recent times.

A related topic is those students who have both disabilities and special talents, but who often are passed over because the disabilities hide the special abilities that the children have. Such students are often referred to as "twice exceptional" and are eligible for special funds from the disability part of the term. Youngsters with sensory problems (hearing and vision) often are educated in a disability setting and their special talents overlooked. Children with learning disabilities or with emotional problems, while generally found in the regular classroom, may appear to be average students rather than the outstanding students they could be if their learning disabilities or emotional problems had not gotten in the way. This is particularly true if their disabilities affected their ability to read (see chapters by Neihart, Ford & Whiting, Rimm, and Robinson & Clinkenbeard).

Characteristics of Gifted

As demonstrated by data from longitudinal studies, identified gifted students tend to have more positive physical, social, and personality factors than general population figures and these advantages extend far into adulthood. These data (see chapters by Robinson and Clinkenbeard) tend to contradict earlier suppositions that gifted students were weak, scrawny, and disturbed individuals. One such example should suffice.

The folklore that giftedness is linked to insanity needs some explanation. It is true that our attention is drawn to outstanding individuals who happen to have mental problems in a way that we would not note in ordinary citizens. According to accounts, Richard Wagner was a despicable character with many problems but who surely produced beautiful music. Were his mental problems also the trigger for his creativity? Johann Bach produced some beautiful music as well and he was a faithful and devoted family man.

Wagner's problems and Napoleon's and van Gogh's appear partly because of their fame. The butchers, bakers, and candlestick makers of the time may have had similar mental problems but those were known only to their immediate families. So eminence magnifies the visible problems of the individual.

Public Policy

One of the puzzles faced by parents, observers, and professionals interested in the education of gifted students is the manifest reluctance of the American public to provide any substantial special educational resources for these students. A common theme struck by these advocates is that gifted students represent, in substantial fashion, the future of our society. From their ranks will come future scientists, writers, artists, etc. who will contribute to American society continuing in its world leadership. By refusing to pay attention to such students, we are condemning our future society to a second-class status in the world, particularly since countries such as China and India seem to be recognizing the important role played by gifted and talented youth in their societies (Heller, Mönks, Sternberg, & Subotnik, 2000).

It seems clear that only when American society feels threatened does it turns its attention to the education of these gifted students. The Sputnik challenge posed by Soviet cosmonauts upset many in our society who felt it represented a major challenge to science education in our schools and universities. We responded with major curriculum reform mainly in the secondary schools where such highly funded projects as the Biological Sciences Curriculum Study (BSCS) and the School Mathematics Study Group (SMSG) were initiated to raise the standards of our science programs.

Once every decade or so there seems to be reflection by groups of distinguished Americans on the fate of our education programs for gifted students. In 1972 the Marland report (Marland, 1972) noted that

- Existing services to the gifted do not, in general, reach a large number of students, and significant subpopulations (such as minorities and the disadvantaged) are strikingly underserved.
- Special programming for the gifted is a low priority at all levels of government.
- The federal role in services to the gifted is all but nonexistent.
- Enormous individual and social losses occur because the talents of the gifted are undiscovered and undeveloped.

A decade later, the National Commission on Excellence in Education (J. Gardner, 1983) bemoaned the low standards and performance of all students but particularly those of high ability in the report, *A Nation at Risk*. It created a stir in academia but few practical or systemic advances resulted.

The 1993 report entitled *National Excellence* (Ross, 1993) revealed the problems faced by gifted students in the schools. Some of the points made are as follows:

- Gifted and talented elementary school students have mastered from 35% to 50% of the curriculum before they begin the school year.
- Most regular classroom teachers make few, if any, provisions for gifted and talented students.
- The highest achieving students reported that they studied less than one hour a day.
- Only 2 cents out of every $100 spent on K-12 education in the United States supported special opportunities for talented students.

Why does the general public appear to be acting against their best interests in ignoring this issue? There would seem to be a major and persistent struggle in U.S. education between conflicting values, *equity* and *excellence*.

Gallagher (2002) has pointed out the distinction between cool policy versus hot policy issues. The hot policy issues are those that demand immediate attention from policymakers. Examples of hot policy issues would be violence in the schools, cancer, children with disabilities, etc. Examples of cool policy problems are global warming, pollution, education of gifted students, etc. These are problems that, while well recognized, can be put off to some future time. They are cool in regard to the need for immediate action.

One definition of social policies is that "they are the rules and standards by which we allocate scarce resources to almost unlimited needs" (Gallagher, 1994). Such a definition means that not every desirable outcome in our society will be supported by these scarce public resources. It also tends to mean that those problems causing the

most immediate difficulties are likely to be the ones best supported. Students who are failing or are a danger to themselves or others are more likely to receive the attention and resources. This is despite the long-range benefits of aiding the gifted and talented. Hot problems like delinquency will win preference over cool problems like gifted students, and hot problems such as conflicts between nations will take precedence in public policy over cool problems like global warming (Gallagher, 2002).

But there is another explanation for the lack of special programming for gifted students. It deals with the apparent unfairness of some children "having so much while others have so little" in genetic capabilities. In order to balance the scales of fairness, those who have been given so much in genetic potential should be balanced off with poor physique or mental illness. It only seems fair!

When some observers who value equity find out that gifted students in fact are healthier and more mentally stable than the average student, they become even more outraged and determined that no additional special educational programming is provided to them. To do otherwise would be akin to a policy of "tax breaks for the rich." It violates the sense of equity and seems to be the source for much of the negativity directed to gifted students and their educational needs (Margolin, 1996; Oakes, 1985).

Engines of Change

Various subgroups in U.S. society who have felt that they have not been given appropriate scarce resources to meet the needs of their group have resorted to the use of the *engines of change* to improve their status in society. These engines can be described as *legislation*, *court action*, *administrative rule making*, and *professional and parental initiatives* (Gallagher, 2002).

Those concerned with the education of children with disabilities have used all of these change engines with great effect. Decades of legislation have placed major resources in the hands of special educators. The latest of many legislative initiatives is the Individual Disability Education Act of 2004 (IDEA), which provides a wide variety of services and accompanying resources to state and local systems to help these children (Kirk, Gallagher, Anastasiow, & Coleman, 2006).

There are also several decades of court cases reaffirming the rights of children with disabilities to a free and appropriate public education. These cases make it clear that schools do not have the option of ignoring or putting aside the education of these children with disabilities.

Administrative rule making which elaborates on the legislation passed, is another powerful tool in making policy. When the rules are made for the Individualized Education Program (IEP), they direct and constrain local school systems as to the proper and legal way to respond to this responsibility.

Finally, professional groups can devise professional initiatives such as standards which guide preparation of specialists in these areas and parent groups like the ARC (Association for Retarded Citizens) can monitor local school systems to see that programs are being carried out effectively.

Contrast these actions with those engines of change for the education of gifted students. At the federal level there is one small legislative program, the Javits program that provides small funds for demonstration and research projects but no funds for local schools.

Court cases have been limited to local or state issues except where the Office of Civil Rights looked into the disproportion of minority students in programs for gifted.

Since there is so little legislation, there are few administrative rules written except at the state and local levels. One example is the age at which a child can first enter school.

Professional associations such as the National Association for Gifted Children (NAGC) have made an effort to create professional standards (Landrum, Callahan, & Shaklee, 1999), but organized parental action has been largely absent.

Such a contrast between the education of children with disabilities and children with gifts and talents mirrors in large measure how the U.S. public feels about these issues and their willingness to take action to establish educational priorities in the expenditures of our scarce resources. It points up the special challenge for those interested in providing needed resources for special programming for gifted students.

Another puzzle that should be of interest to many psychologists is, why have gifted students been relatively ignored in educational programs such as No Child Left Behind? This is a critical question since an abundance of our creative development in arts and sciences appears to emerge from such students. This seems to relate to a public policy based on equity (Gallagher, 2002).

An unusual linkage of gifted students with children with disabilities takes place in public policy under the umbrella term *exceptional children*, that is, children who are so different from the average as to require special education. Over twenty states include gifted students in their definition of exceptional children. Such linkage has proven economically favorable for gifted students since exceptional children as a group have been well treated from a budget standpoint, reflecting public concern about children with disabilities (Kirk et al., 2006).

Educational Procedures

Another area of substantial interest to psychologists is the issue of educational acceleration. The increasing available knowledge to mankind has had an inevitable lengthening of the school programs as we attempt to incorporate new knowledge with the past curriculum. It is likely that many gifted and talented students could spend more than a quarter of a century in school (college plus professional or graduate school training) and would not leave school until their late twenties or early thirties. Such a circumstance has renewed interest in acceleration as a way of shortening this lengthy period. There are two types of acceleration: *personal acceleration* in moving the student through the system more rapidly and *content acceleration* in moving the curriculum more rapidly to the student.

One of the foremost psychologists and educators of gifted students, Julian Stanley (2005) has generated a mix of both types of acceleration. In his Talent Development program he has provided gifted students with summer programs that are the equivalent of 1/2- or 1-year traditional programming. He has also supported, for the highly gifted student, *radical acceleration* in which students may enter college in their early teens if they have shown the capability, psychologically and intellectually, of handling college work (Stanley, 1996).

The more typical approach to acceleration is to lop off 1 or 2 years of the program through a variety of methods (early admittance, 3 years in 2, advanced placement, grade skipping, etc.). *A Nation Deceived*, a splendid and comprehensive review

of acceleration as a strategy for coping with gifted student, has been published by Colangelo, Assouline, and Gross (2005). They have concluded that many of the commonly held views by educators of the potential negative effects of acceleration have turned out to be false. There appear to be few psychological problems or social difficulties when the strategy takes into account the social and physical maturity of the student for whom acceleration is considered. The positive side, of course, is that acceleration has saved 1 or 2 years of a person's career to the benefit of the individual and the society who can use the productive contributions of their gifted students.

Can We Suppress Giftedness?

One of the most serious of policy issues is whether we can, without realizing it, suppress the multitude of talents available in America's children? There are a number of threads of evidence that can be brought to bear on this question. Since we now accept that the genetic–environmental interaction begins at birth, if not before, then the kind of environment that the young child experiences becomes very important in the child's development and those environments can be quite diverse.

Unfortunately there appear to be several strong negative factors that are impeding full development of intellectual resources. It has been accepted that the conditions associated with poverty are one such inhibitor.

Hart and Risley (1999) conducted detailed interviews and observations in families of professional, working-class, and welfare backgrounds. They found that the vocabulary of children and verbal interchanges with parents in the professional families were far greater than those of children from working-class or welfare families. If conceptual language is the key to full cognitive development, which many believe, then many of these children in working-class and welfare families have been shortchanged in their early development and may never show their full potential talent.

The lack of parental encouragement and maternal depression appear to be a part of poverty's cost. Since many minority students in our society have grown up with poverty, it is no surprise that the prevalence of giftedness in these minority groups is about one-half that of the general population. Even in these unfavorable circumstances it should be remembered that remarkable talents sometimes emerge.

There is general agreement that there is much hidden talent in these minority or disadvantaged populations and a healthy search for such talent has been initiated, aided by grants from the Javits program (Baldwin, 1994). But there is a significant psychological factor involved here as well that prevents easy discovery of minority gifted and of their staying in gifted programs (Ford & Harris, 1999). Black boys in gifted programs, in particular, appear to be harassed by their peers and accused of behaving like white boys. The term "Oreo" has been applied to such boys. According to Ogbu (1994), these negative psychological and sociological patterns have limited the emergence of talented black students.

Bloom (1985) retrospectively studied world-class swimmers, pianists, mathematicians, and the like to determine if they revealed common characteristics related to their eminence. He found three general characteristics that they seem to share:

- Willingness to do a great amount of work to achieve a high level or standard
- Competitiveness with peers in the area of talent and determination to do the best at all costs

- Ability to rapidly learn new techniques, ideas, or processes in the area of talent

One could conclude that the absence of those characteristics would be a negative sign for talent development and that is why creating an environment of stimulation in family and school becomes so important.

Enhancing Giftedness

Can we enhance giftedness through our instructional and educational planning? There is hardly a teacher or psychologist anywhere who would not answer "Yes" to that query, but do we have solid evidence to that effect?

We do know that we can increase the components of creativity with instruction, that is, fluency, flexibility, and originality. The work of Paul Torrance and his colleagues demonstrates that (Torrace, Goff, & Satterfield, 1998). But do such increases in the components of creativity actually result in increases in creative products? We have the testimony of many noted and famous persons that their lives and careers were heavily influenced by a teacher or professor who they had encountered, and we know that strong programs like Talent Search and Development apparently result in successful students (see chapter by Olszewski-Kubilius).

Yet we lack formal experimental evidence as to these positive results or to determine what instructional methods were most responsible for gains. What do we know through curriculum modifications and talent development procedures are included in the chapters by VanTassel-Baska and Stambaugh and Heller and Schofield. If we are to impact on the general public, we will need stronger and better designed studies than we have produced up to this time.

Another of the favorable trends has been the variety of attempts to provide an enriched experience for those whose talents outstrip their peers and who are often bored by the regular school program. These involve designing a curriculum which stresses advanced conceptual understandings and also designing approaches for gifted students to aid them in the search for new knowledge and for problem solving (see chapters by VanTassel-Baska & Stambaugh, Silverman & Golon, Olszewski-Kubilius, Makel & Plucker).

Final Thoughts

So what is the role of psychologists as we digest the enormous amount and range of information about gifted and talented individuals in this handbook? The author would make a few suggestions:

- A more careful longitudinal study of the early years (ages 2–5) where unusual talent seems to be emerging. What are the multiplier effects that can be observed that enhance the development of such talent in various domains?
- What are the psychological dynamics that drive gifted individuals to seek power and authority over others (leadership) in politics, business, academia, etc.? What is the degree of self-awareness of such individuals as to their own goals and motives?

- Some careful case studies of those individuals who have "no right to be. gifted" but have triumphed over difficult or seemingly impossible circumstances (poverty, abuse, etc.) to become outstanding contributors to society. What are the psychological dynamics that allowed them to reach their current status and what psychological price did they pay?
- Some collaborative work with neurologists to track the brain activity of superior thinkers through MRI investigations. Do superior thinkers use the same brain areas as the rest of us, just more of them? Are there different combinations of brain areas in use? Can we present problems and then follow their neurological paths to solution?

Everyone has their own investigations that they hope they, or someone else, will do. The reader might make his/her own list. Psychology will certainly be one of the key professions to bring greater light and clarity to our understanding of the gifted individuals in our midst.

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History of Giftedness:
Perspectives from the Past Presage
Modern Scholarship*

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Across centuries and cultures, exceptional performances and performers have intrigued scholars, practitioners, and the general public. Whatever the domain, high-level achievements interest people, sometimes as a model to emulate, sometimes as an area of inquiry, sometimes as a curiosity.

Theoretically, the modern study of giftedness is related to the psychology of individual differences. In the nineteenth, twentieth, and twenty-first centuries, the psychological constructs of intelligence, creativity, and motivation provided the foundation for understanding giftedness. There are, however, earlier conceptions of extraordinary people and performances that have influenced our perspectives on giftedness as well. This chapter reviews briefly the historical interest in giftedness to the nineteenth century, shares four biographical summaries that illustrate key issues in the twentieth-century history of gifted education, offers a review of cognitive and affective variables which have historically been used to study giftedness, and concludes with attention to issues of particular interest to psychologists and mental health professionals.

Historical Reviews: A Cross-Century Summary

Several reviews of the history of giftedness and gifted education have appeared in the literature (Gallagher, 1994; Grinder, 1985; Passow, 1988; Resnick & Goodman, 1994; Tannenbaum, 1958, 1979, 1993, 2000). They trace historical and cultural highlights in

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our understanding of giftedness from the conceptualizations of ancient cultures to recent history. While the reviews provide the individual perspectives of their respective authors, there are some recurring themes across the multiple chronicles.

Specifically, the review by Grinder (1985) divides the historical roots of the interest in giftedness into three general epochs: giftedness and divinity, giftedness and neuroses, and giftedness and the rise of mental tests. First, he traces the beliefs of the Greeks and Romans concerning talented individuals or eminent adults as people touched by divinity. For the Western ancients, to be good at something was to be divinely inspired in the tradition of muses. According to Grinder, the second epoch of preoccupation with giftedness is best captured by the connections made between giftedness and neuroses. Fueled by the rise of science and humanism in the Renaissance, thinkers increased their focus on the individual as a subject of inquiry. During this period, the practice of medicine provided a platform for observing the human body and behavior, and ultimately led to the linkage of intellectual prowess with nervous instability. Both Lombroso (1891), a criminologist and professor of psychiatry, and Nisbet (1891), a journalist, are often cited as examples of writers who described genius as a neurotic manifestation. Finally, Grinder's third epoch in the history of giftedness focuses on the importance of mental testing. Citing the rise of compulsory education and the increases in immigrant populations in the United States and Great Britain, Grinder (1985) reviews the early history of intelligence testing and connects mental testing to the study of giftedness.

An early review by Tannenbaum (1958) also notes that the scientific study of giftedness began at about the time of Darwin's and Mendel's work on the variations in species. These Victorian scientists led others (notably Darwin's cousin Francis Galton) to investigate differences among people on a number of measures. Galton has been roundly and soundly pilloried for holding views on class and racial differences distasteful to modern thinkers. Nevertheless, Galton understood the importance of collecting data to investigate his theory of genius—one that assumed a biological and genetic etiology of giftedness (Galton, 1869). To accomplish his ends, Galton collected extensive family pedigrees for British men who achieved eminence in various domains like science, politics, literature, art, and music and then demonstrated that eminence often appeared among individuals who were related. Flush with new knowledge on genetics, Galton concluded that giftedness was inherited. That related individuals also shared similar familial, community, and career opportunities did not shake his faith in the primacy of nature although he acknowledged that circumstances affected eminence and achievement. Through his involvement both in mental testing (albeit operationalized in ways that modern psychometrists would find questionable) and in the biographical studies of eminence, Galton represents two methods for investigating giftedness—prospective and retrospective studies. His focus on scientific inquiry and empiricism sets the stage for a twentieth-century interest in giftedness.

Four Figures in Gifted Education: Illustrations of Recurrent Issues in the Field

To examine key themes in the modern history of giftedness, four influential figures in the psychology and education of talented children and adolescents were selected to illustrate twentieth-century preoccupations of the field and to point the way for

future interests that may affect practices for high-ability learners. The figures, Lewis B. Terman, Leta Stetter Hollingworth, Paul A. Witty, and Martin D. Jenkins, provide both surprising similarities and distinct differences in their approach to giftedness—as scholars and as practitioners. Each of the four can be characterized as productive in both arenas; they were academic psychologists and "school people." Two of the figures—Terman and Hollingworth—are well known to psychologists; in contrast, Witty and Jenkins are not household names. Nevertheless, their work undertaken at Northwestern University as mentor and graduate student, respectively, collectively and individually, touches on key issues important to the future of the field.

Lewis B. Terman (1877–1956)

Principal investigator of one of the most famous longitudinal studies in psychology, the multivolume *Genetic Studies of Genius*, Terman was affected by Galton's ideas. In his remarks at a lecture series 2 years before his death, Terman (1954) recounted his entrance into the areas of research that defined his scholarship.

> I have often been asked how I happened to come interested in mental tests and gifted children. My first introduction to the scientific problems posed by intellectual differences occurred well over a half-century ago when I was a senior in psychology at Indiana University and was asked to prepare two reports for a seminar, one on mental deficiency and one on genius. Up to that time, despite the fact that I had graduated from a normal college as a Bachelor of Pedagogy and had taught school for five years, I had never so much as heard of a mental test. The reading for those two reports opened up a new world to me, the world of Galton, Binet, and their contemporaries. (p. 222)

This graduate school interest blossomed into the massive, longitudinal study of 1500 high-IQ children and adolescents. As an academic at Stanford University, Terman acquired his sample in California school districts by asking teachers to nominate the two brightest children in their current classroom, the youngest child in the class, and the brightest child from their classroom in the previous academic year. These children were tested, and those with IQ scores at or above 140 were included in the sample. Beginning in the early 1920s, Terman and his colleagues collected volumes of data on these individuals over the course of over half a century. He states that the "twofold purpose of the project was, first of all, to find what traits characterize children of high IQ, and secondly, to follow them for as many years as possible to see what kind of adults they might become" (Terman, 1954, p. 223).

His main conclusions are anthologized extensively in numerous secondary sources and texts in psychology and education (Vialle, 1994). Briefly, the conclusions are that children of IQ 140 or higher are healthier, better-adjusted, and higher achievers in school subjects than unselected children. In fact, Terman's children achieved from two to four grades beyond the one in which they were enrolled. He was further gratified that his data did not lead to the conclusion that the gifted were especially neurotic or prone to mental illness and maladjustment. Thus, in the historical context of the interest in giftedness, Terman's work contradicted the earlier epochal beliefs that giftedness and neurosis were inevitably allied.

Leta Stetter Hollingworth (1886–1939)

Nine years younger than Terman and working on the coast opposite to Terman's California, Leta Hollingworth was a psychologist engaged in the schools of New York City. Her earliest published reports in the area of giftedness are an initial case study and its follow-up of a highly gifted boy, E (Garrison, Burke, & Hollingworth, 1917; Hollingworth, Garrison, & Burke, 1922). Her research on children with measured IQ scores of 180 and above documented extraordinary cases of development (Hollingworth, 1942). She is the author of the first textbook on gifted education, *Gifted Children: Their Nature and Nurture* (1926). Hollingworth was fully involved in the practical matters of educating gifted learners, and her work with special schools in New York has been preserved in a series of articles describing the program and curricula designed for them (Hollingworth, 1936a, 1936b, 1938). According to a recent biography, Leta Hollingworth was active in the professionalization of psychology (Klein, 2002). She systematically investigated the differences between subgroups of gifted children and concluded that there were achievement and adjustment patterns that discriminated what she called "very high" and "still higher" levels of intelligence in gifted learners (Hollingworth & Cobb, 1928).

Her research and her clinical observations of highly gifted children led her to the conclusion that the difficulty of social adjustment to one's peers increased as IQ scores increased. In a 1931 publication based on an address to the First International Congress on Mental Hygiene convened in Washington, DC, she stated, "The psychologist who is professionally acquainted with children who test about 130 IQ will be able to formulate clearly certain special problems of adjustment, observed in the case study of these children, which arise primarily from the very fact that they are gifted" (Hollingworth, 1931, p. 5). These problems included finding enough interesting work to do in school, relating to peers with whom one does not necessarily share common interests, learning to identify and develop appealing leisure activities, learning when to conform and when to argue, and being confronted with early awareness of difficult philosophical, religious, and moral issues. In addition, Hollingworth noted that gifted girls were also presented with the problem of balancing their socially circumscribed opportunities with their preferences and interests. With understatement, she summarized the adjustment challenges of the gifted child in the following way: "To have the intelligence of an adult and the emotions of a child combined in a childish body is to encounter certain difficulties" (p. 15).

Paul A. Witty (1898–1976)

Paul Witty hailed from Terre Haute, Indiana, secured master's and doctoral degrees from Columbia University, founded two psychoeducational clinics (one at the University of Kansas and one at Northwestern), and worked with the WLS radio station to establish *The Quiz Kids* show prior to World War II. In addition to his interest in gifted children, Witty was involved in the area of reading for both children and adults. During the war, he developed instructional materials for Army recruits; the materials featured a character, Private Pete, designed to motivate adults with minimal reading skills to learn to read, to write, and to do arithmetic (Sticht, 2005). In his honor, the International Reading Association gives two awards annually—one to the author of an original short story published in a children's periodical and another to

recognize original prose or poetry written by elementary and secondary students. In addition to his own achievements, Witty mentored and collaborated with one of the early African-American figures in the history of gifted education, Martin Jenkins, who will be featured in the final twentieth-century biographical summary in this chapter.

One of Witty's major scholarly achievements was a study of one hundred gifted children. According to the researcher, it partially replicated Terman's longitudinal study (Witty, 1930). He notes that

> Terman expressed the desire that his data and conclusions be put to trial. This study therefore may be considered a fragmentary supplement to Terman's important investigation. The writer started this study shortly before "Genetic Studies of Genius" appeared. He was actuated to study gifted children by the work of Leta S. Hollingworth. (p. 38)

Thus, Witty acknowledges his shared interests in high-ability children with the two twentieth-century leaders who preceded him.

Witty secured a sample of 41 children with measured IQ of 140 and above from Kansas City, Missouri; an additional 9 children were located from other Kansas communities. Over the next 4 years, Witty located a second group of 50 children with IQ scores of 140 and above from Lawrence, Kansas, and surrounding towns. In addition, the first 50 gifted children were matched on gender, age, and race with a sample of children ranging in IQ from 90 to 110. Witty noted that this sample provided him with a control group of typical children (Witty, 1930). He gathered aptitude and achievement data as well as school data from records and from teachers. Like Terman and Hollingworth, Witty gathered physical measurements. In addition to these data, Witty was interested in nonintellective variables such as the variability of play interests and home information reported by the parents. These data included parent ratings of their children's "social and moral traits." Witty expressed unhappiness over the instruments to assess social and moral traits since they relied heavily on measures of school honesty. He also wished to investigate specialized aptitudes, but was not impressed by the tools available and had to rely on reports of excellence in school subjects from parents and teachers. His report is sketchy, but he is clearly interested in domain-specific talents and believes it to be "far from rare within this group" (p. 24).

In the follow-up study, Witty returned to the physical development and health measures, school records, and information on social and moral traits, and added school and out-of-school activities, interests, and future plans. Overall, he concluded that his findings corroborated Terman's—not surprising since they both selected on the basis of IQ at 140 or above and tended to examine similar variables.

Witty's perspective on giftedness is balanced by his refusal to be an extreme proponent of either nature or nurture. He was, in fact, critical of extremism from the hereditarian and environmental camps and published accordingly, taking to task both Terman's hereditarian position and J. B. Watson's behaviorist orientation (Witty & Lehman, 1928). He attempts to steer a moderate course in the debate, and while he makes use of intelligence tests in his own research, he clearly believes that giftedness is a broader construct which includes drive and opportunity as well as ability (Witty & Lehman, 1927). He states his position in a section titled, "Speculation Regarding Data," in a published manuscript from his study of 100 gifted children. "There must be, in addition to ability, the desire to achieve and a favorable environment. High I.Q.

does not necessarily mean high creative productivity" (p. 41). Witty's position on the nature and nurture of giftedness in children, including his use of the term *creative productivity,* sounds very modern to the twenty-first-century reader as does his definition of gifted: "to consider any child as 'gifted' whose performance, in a valuable line of human activity is consistently or repeatedly remarkable" (1958, p. 55). His interest in domain-specific talents and the influence of environment and opportunity on their development points forward to current concerns in the field.

He was prescient in other areas as well for he mentored one of the early African-American researchers in the field of gifted education, Martin Jenkins. Witty and Jenkins investigated very high IQ children of color and published work in this area together (Witty & Jenkins, 1934, 1935), separately (Jenkins, 1936, 1943), and with other coauthors (Theman & Witty, 1943). Witty's studies of African-American gifted children are an example of the thread of interest in diversity woven into the history of gifted education in the twentieth century; diversity has become a key area of discussion, scholarship, and practice in the field today.

Martin D. Jenkins (1904–1978)

Martin Jenkins spent much of his career in higher education as an administrator, including stints as a dean, a registrar, and ultimately a college president (Britell, 1978). He was the son of an engineer and received an undergraduate degree in engineering from Howard University, but chose not to follow his father's career path and rather turned to education. He attended Indiana State Teachers College and later began graduate work in education at Northwestern University under the guidance of Paul Witty (Kearney & LeBlanc, 1993). He received his doctorate in 1935 with a dissertation on 103 high-ability African-American children from Chicago's South Side.

Before completing his doctoral studies, Jenkins published an article with his mentor Paul Witty on 26 African-American students in grades three to eight located in a systematic search in seven public schools (Witty & Jenkins, 1934). Their screening methods were similar to those used by Terman, but, of course, in the 1930s, the schools were segregated; thus, the school population was likely to be exclusively African-American. Jenkins and Witty asked teachers to nominate three children from their classroom: the child thought to be most intelligent, the child doing the best class work, and the child underage for grade placement. An aptitude test, the McCall Multi-Mental Scale, was given to all nominees, and to any child whose McCall score was an IQ of 120 or above, the Stanford-Binet was subsequently administered. Children who received a Stanford-Binet score of 140 or above were included in the sample for the study. Witty and Jenkins noted that the schools from which their sample was drawn were attended by children from "somewhat above average" (p. 588) homes in terms of socioeconomic status when compared with other African-American families in Chicago. The children were uniformly high achieving; the "typical child in our group has attained an educational development more than three grades (3.3) in excess of the norms for children of his chronological age" (p. 588).

It was also from this sample that the collaborators found an extraordinarily gifted 9-year-old girl with a reported IQ of 200. The following year, they published a case study, "The Case of 'B'—A Gifted Negro Girl" (Witty & Jenkins, 1935). For Jenkins and for Witty, she was evidence that astonishing gifts existed in children who faced the challenges of racism and whose life experiences were substantially different from

their white counterparts. Both researchers chafed under the wave of comparative studies of black and white children on measures of IQ and stated that "[p]articularly invidious have 'race' comparisons proven, since tests have never sampled adequately common 'functions' from the life experiences of the children in the different 'racial' groups" (p. 117). Nevertheless, B was a remarkable case and was placed in context by the authors who noted that Terman found 15 children of IQ 180 and above and Hollingworth reported on 17 such children. Neither sample contained an African-American child, thus Jenkins and Witty believed that the identification of B was one of the major contributions of their study. B also appeared in Jenkins's larger dissertation study of 103 gifted African-American children of IQ 120 and above. In both manuscripts, he focused on her extraordinary vocabulary and gave examples of her definitions including the phrasing of her oral responses. Her definition of mosaic was "[a] number of brightly colored stones—no, tiles—put together to form a design" (p. 118). In addition to definitions of concrete things, she supplied the definition for treasury as "[p]lace where a cooperating group keeps the money" (p. 119). And, finally, with considerable attention to nuanced differences in concepts, she defined forfeit as "[s]omething given up—not a sacrifice" (p. 119). Thus, B, at the age of 9, had tumbled to understanding that forfeit implied that one deserved one's unfortunate fate in contrast to a sacrifice which did not imply any moral debt or wrongdoing.

B had been double promoted, was fascinated by a miniature chemistry set, did not play with dolls, and began to speak in sentences at 16 months. She was taught to read at age 4. In addition, the only child of a teacher and an electrical engineer, B was exposed to the rich cultural opportunities in Chicago. The researchers noted that B was nominated as the *best student* in the class rather than as the *most intelligent*—an honor that went to a child in the same classroom who was 4 years older than B. From B's case, Jenkins and Witty (1935) again cautioned against extreme views by concluding,

> While both the extreme hereditarian and the environmentalist can find in these data ample support for dogmatizing concerning the importance of heredity or of environment, the writers, after months of study of this child and the social setting, believe that the provenance of this child's rare ability can be traced to a fortunate biological inheritance plus a fairly good opportunity for development. (p. 124)

Working with the Chicago sample, Jenkins's doctoral study focused on the 103 African-American children with Stanford-Binet IQ scores of 120 and above from seven schools. His research focused on the incidence of high-ability African-American children, the age and grade levels of such children, and whether or not these children "conform to the general pattern" when compared to the samples studied by Terman, Hollingworth, and Witty (Jenkins, 1936). He concluded that his sample was very like the samples of gifted children studied by other researchers, that they could be found at every age and in every grade level, and that they were not less well adjusted than a comparison group of randomly selected agemates. He did note that he found greater numbers of girls in his sample. He reported 72 girls and 31 boys which differed from Terman's findings of more boys than girls and from Witty's sample which was almost evenly divided on gender.

Jenkins continued his interest in children with extremely high aptitude and expanded his search geographically to locate several cases of children with IQ scores of 160 and above (Jenkins, 1943). He must have searched purposefully by contacting

other researchers and clinicians he knew to be interested in very high IQ children. The referrals came from Chicago, Washington, DC, New York, and Cincinnati and resulted in 14 cases for whom Jenkins was able to secure data. Two additional children were suggested by Leta Hollingworth, but Jenkins noted that her death prevented him from adding them to his sample. His findings echo those from other studies of this period in history. The children were remarkably advanced, but Jenkins observed that their educational performance lagged behind their mental test performance. For Jenkins, the most important findings from his study were an admixture of method, facts, generalization, and social commentary. He found case study a valuable method for investigating extreme development. He believed that the existence of several highly gifted children of color demonstrated that African Americans were as variable as any other group of individuals. He was concerned that the children in the sample came from metropolitan areas, but that other children like them were left undiscovered elsewhere in the country. And finally, he concluded that highly gifted African-American children could have different reactions to societal limitations. His published words are a window on the twentieth-century perspective of a talented scholar. He states,

> … these cases bring into sharp focus the limitations which our society places on the development of the highly gifted Negro. These children are nurtured in a culture in which racial inferiority of the Negro is a basic assumption. Consequently, they will experience throughout their lives, educational, social and occupational restrictions which must inevitably affect achievement and motivation. Wide individual differences, of course, are to be anticipated in reaction to this condition. Some of these individuals will meet frustration and draw away; others will go on to careers of high usefulness and accomplishment. (p. 165)

Research on Psychological Characteristics of Gifted Children

Recent research on the psychological characteristics of gifted children reflects most of the historical issues in giftedness presented above, although with new perspectives. Regarding the early epochs, few researchers would claim that giftedness is an expression of divinity (although see recent popular media attention to the concept of "indigo children"). There is, however, a growing research literature on spirituality and giftedness, and "spiritual giftedness" in particular (Piechowski, 2003). With respect to neuroses, genius may still be equated with madness (or lesser mental health challenges) in popular culture, but the research on the social-emotional characteristics of gifted individuals is still largely positive as it was in Terman's time. There is an emphasis on factors that might place gifted students uniquely at risk for social-emotional difficulties (Neihart, Reis, Robinson, & Moon, 2002), but as in Hollingworth's research, many of those factors have to do with the mismatch between gifted students and their typical peer and school environments.

Regarding the epoch of mental testing, research on the intellectual characteristics of the gifted still uses IQ test scores, but has also gone beyond IQ to more microscopic investigations of specific skill differences in gifted students. There is also a relatively new and rapidly expanding body of research on the neuropsychology of intelligence and giftedness. Finally, the ghost of Galton is still with us: though no psychological

researcher would say that intelligence is purely nature or purely nurture, the debate still rages as to the relative contribution of genetics and environment to intelligence, and to the implications for education (Gottfredson, 2003).

Research Challenges Related to Definitions

Early twentieth-century research on giftedness used the newly developed tool known as the intelligence quotient, obtained at that time in this country from the Stanford-Binet intelligence test. The use of IQ tests in research on the cognitive characteristics of the gifted has remained common, but their use in identifying students for gifted education programs and services has become controversial due to concerns about test bias. This is in historic contrast to the views of Jenkins, noted above, who found IQ to be a useful tool to locate highly intelligent children of color (see Robinson, Shore, & Enersen (2007) for an extended discussion of the use of multiple criteria in identifying gifted students).

As mentioned, Terman (1925) investigated various characteristics of a high-IQ (over 140) sample, followed from childhood throughout adulthood. He found that members of his sample, who also tended to be above average on socioeconomic and physical characteristics, generally scored at average or somewhat above average levels on a wide variety of psychological characteristics. The fact that socioeconomic status was not controlled for in Terman's studies is one of the biggest hurdles in applying his research to today's gifted students. Current broadened conceptions of giftedness are more valid for the provision of educational services, but they make it more of a challenge to create a coherent picture of the psychological characteristics of the gifted. Recent debates on test bias have centered on verbal versus nonverbal measures of giftedness for the identification of underrepresented groups of gifted children. Lohman (2005), while not specifically recommending IQ tests, argues for using measures of both general reasoning and domain-specific achievement to identify majority and minority students for gifted education services. While he cautions that judgments about intellectual potential should be made taking life situations into account, he feels that sole use of nonverbal tests leaves out important aspects of reasoning.

Definitions of giftedness vary considerably in recent research on psychological characteristics. Researchers in cognitive and metacognitive areas still tend to use a high IQ definition, probably as a way of holding constant at least some general aspects of cognitive functioning within their samples. However, researchers in non-intellective areas are more likely to use whatever definition has been employed to identify gifted students by the participating school systems. There is some validity to this approach. Not only does it mean that a more diverse group of students is being studied, but also it may be that the social and emotional experience of being gifted is due as much to the labeling (however the school identifies giftedness) as to internal psychological factors.

One more complicating factor in studying the psychological characteristics of the gifted is that underachieving gifted students may be quite different from high achievers. Some authors (Ford, 1993; Luthar, Zigler, & Goldstein, 1992) address these differences in their research, but for other studies it is not always clear whether underachieving gifted students are included in the sample. Some underachievement in the gifted may be due to learning disabilities or other exceptionalities; these

"twice-exceptional" students may also be overlooked entirely, as their strengths may mask their weaknesses (Silverman, 2003).

The following overview of research on psychological characteristics of the gifted focuses on the cognitive and metacognitive aspects of intellectual giftedness, but also looks at nonintellective characteristics of the gifted. There is considerable overlap with some of the factors that Witty found so interesting, including intellectual gifts in specific academic domains as well as the social and motivational characteristics of gifted students. The review is limited to research on the intellectually and academically gifted; there is also an extensive literature on creativity and creative giftedness, and a number of researchers work in the areas of leadership giftedness and gifts and talents in the arts.

Cognitive Characteristics

Most research on the cognition of the gifted has investigated the ways in which gifted individuals (usually children) are different from others in the ways they think. While there is some overlap in the literature between cognitive skills and metacognitive skills, the research can be separated into the investigation of simpler individual cognitive skills, and processes that are more complex, strategic, and executive. A new and rapidly expanding version of this research is the neuropsychology of giftedness, which typically involves assessing brain function during performance of various cognitive tasks. For a broad perspective on the structure of cognitive abilities and their relationship to a wide variety of personological variables, see Lubinski (2004).

Cognitive Differences.   In a review of the cognitive differences between intellectually gifted (high IQ) children and others, Rogers (1986) concludes that the gifted are generally different in degree, not kind, of cognition. That is, gifted students tend to acquire and process information and solve problems better, faster, or at earlier ages than other students. However, they are probably not employing qualitatively different, unique thinking abilities, at least in the high-IQ groups reviewed by Rogers. More recently, Shore (2000) notes that there is considerable fuzziness between quantitative and qualitative differences, but that gifted children do not seem to use cognitive strategies that other children never use.

Wilkinson (1993) analyzed the Wechsler Intelligence Scale for Children–Revised (WISC-R) profiles of 456 third-grade students, all of whom had full-scale IQs of 120 or above. Compared to the norm, these students showed greater variability in their profiles. There was a greater frequency of extreme subtest scores, larger verbal-performance discrepancies (in both directions), and more scatter among subtest scores. These students scored highest on subscales reflecting more complex reasoning (for example, similarities and block design) and lowest on scales measuring lower-level thinking skills (coding, digit-span). Butterfield and Feretti (1987) list several kinds of cognitive differences that various authors have shown distinguish between people of like ages but different IQs. Higher IQ persons have been found to: have larger, more efficient memories; have larger and more elaborately organized knowledge bases; and use more, more complex, and more active processing strategies.

Some authors have looked at specific cognitive skills or reasoning in particular domains. For example, van Garderen and Montague (2003) found that gifted students used more visual-spatial representations (as opposed to pictorial representations)

when solving math problems, as compared to average-achieving and learning-disabled children. Davidson (1986) measured the performance of gifted students on mathematical and verbal insight problems. Gifted upper elementary school children not only scored better than others on the insight problems, they were more likely to employ selective encoding, combination, and comparison spontaneously in solving the problems. Other children were more likely to need cues in order to use these processes.

Following in the footsteps of Hollingworth, some authors have investigated the cognition of extremely high IQ children. Lovecky (1994) focused on the cognitive differences between "moderately gifted" (IQ 140–159) and "highly gifted" (170 and above) children. From clinical testing and observation, she concluded that highly gifted children tend to make simple tasks more complex, have a need for extreme precision, understand complex patterns quickly, reason abstractly at an earlier age, and have exceptional memory. Gross (1994) adds to these characteristics of the highly gifted an early ability to transfer knowledge across domains, a verbally sophisticated sense of humor, and intuitive leaps. Silverman (2003) discusses the significant proportion of very high IQ students who may have specific learning disabilities, Asperger's syndrome, or other cognitive processing challenges.

A review by Sternberg and Davidson (1985) lists several cognitive abilities at which the gifted are exceptional: They tend to have both high general intelligence and specific ability in their area of expertise, they capitalize on their patterns of abilities, they shape their environment, they demonstrate problem-finding ability, and they can conceive higher-order relations. Sternberg (2003) has carried these traits and others into a recent theory of "successful intelligence," which discusses the combined contribution of many of these traits to life success.

METACOGNITIVE DIFFERENCES.   Metacognition, or thinking about one's own thinking, may be an important component of giftedness. Shore (2000) reports on a program of research that shows differences between gifted children and others on the types of strategies selected for various problems, and the speed and fluency with which those strategies are employed. Shore also notes that gifted students perform in ways similar to experts when it comes to metacognition, strategy flexibility, and strategy planning. A review of research in this area (Alexander, Carr, & Schwanenflugel, 1995; Carr, Alexander, & Schwanenflugel, 1996) looked at three aspects of metacognition: factual knowledge about thinking strategies, use of strategies, and cognitive monitoring. The authors conclude that gifted students show better performance than other students on only some aspects of metacognition. For instance, gifted children seem to have more factual knowledge about metacognition than other children, and this advantage seems to be present consistently across age levels. They also seem to be better at far transfer, using strategies in contexts far different from that in which strategies were learned. These authors concluded that there was limited support for the idea that gifted students are more spontaneous in their strategy use than other students, although there was some evidence for this in upper elementary age and young adolescent students. Finally, they concluded that there is no evidence that gifted children are better than other children at consistently using better strategy, monitoring their strategy use (evaluating and changing strategies as needed), or in maintenance and near transfer (using strategies in situations similar to those in which the strategy was taught).

Cheng (1993), in addition to reviewing some of the empirical research on met-acognition and the gifted, notes the importance of case studies and naturalistic research in order to see more clearly the developmental path of metacognitive skills in gifted individuals. She speculates that metacognition within a particular talent domain becomes important after the early learning years, after children have learned the basics of their field and become immersed in strategy and self-analysis. Shore, Koller, and Dover (1994) illustrate the complexity of research in this area. In examining the problem-solving results of a group of gifted students, they found that some gifted students made more metacognitive strategy errors than average students, and that they seemed to be drawing on imaginary data to help solve the problem (perhaps making the problems more complex than they were). Shore et al. warn against jumping to conclusions about the overall abilities of individuals who do not perform well on specific tasks, and speculate about the role of motivation and creativity in metacognition, as did Cheng (1993).

THE NEUROPSYCHOLOGY OF GIFTEDNESS.   Cognitive and metacognitive questions about giftedness are now being investigated with the methods and tools of neuroscience. O'Boyle and Gill (1998) discuss their findings of different functional organization of the brain between gifted and average-ability individuals, in which the main characteristic for gifted subjects seemed to be greater involvement of the right hemisphere in solving a variety of problems, including verbal tasks. Jausovec (2000) used EEG measures and found that intellectually gifted subjects, compared to average-ability subjects, showed less overall mental activity and more cooperation between brain areas when solving a "closed" problem. When solving ill-defined problems, however, they showed greater decoupling of brain areas than highly creative subjects. Not all of the neuroscientific research on giftedness involves direct brain pattern assessment, but Geake and Cooper (2003) caution against the oversimplistic adoption of brain research and some of what is presented in "brain-based education"; they recommend the active collaboration of educators with neuroscientists in developing future research agendas in this field.

Social-Emotional Characteristics

While the emphasis of this chapter is the history of investigation of the nature of giftedness and high intelligence and the intellectual characteristics of the gifted, there is also a body of research on the nonintellective characteristics of gifted individuals. Social relationships, emotional and personality characteristics, and motivation have all been studied with respect to gifted individuals. Most of this research agrees with the early findings of Terman and Hollingworth, contradicting the stereotyped view of a maladjusted child with poor social skills. An author and editor of a book on these issues published by the National Association for Gifted Children (NAGC) notes that the book was undertaken "…*not* because these youngsters sustain any inherent vulnerability associated with their giftedness *per se*, but because their needs are so often unrecognized and unmet, with predicable negative consequences" (Robinson, 2003, p. xii). Some of the research on nonintellective characteristics compares gifted and other students; other approaches describe these characteristics in various subgroups of the gifted. In general, the research indicates that the stereotyped view is far from the truth. In an earlier review of the literature on psychosocial development, Janos

and Robinson (1985) conclude that "[b]eing intellectually gifted, at least at moderate levels of ability, is clearly an asset in terms of psychosocial adjustment in most situations" (p. 181).

How do gifted students see their own noncognitive characteristics? Kunkel, Chapa, Patterson, and Walling (1995) used a concept-mapping technique. This involved asking gifted students about their experience of being gifted, developing questionnaire items from the responses, and presenting graphically the main themes that emerged. The strongest noncognitive themes that emerged included receiving respect from others, feeling a sense of social stress, and generally feeling satisfied with themselves. These themes are found in other studies as well.

SOCIAL SKILLS AND RELATIONSHIPS.   How do gifted students get along with their peers? Mayseless (1993) reports on several studies indicating that preadolescent and adolescent gifted students tend to be at least as popular as other students their age, but that gifted adolescents may self-report lower popularity than others. Kline and Short (1991a, 1991b) found that both gifted girls and gifted boys scored very high on a self-report measure of "relationship with peers." However, while girls found relationships to be more important as they developed through the school-age years, boys seemed to value relationships less as they grew older.

What factors serve to assist gifted students in their social relationships? In an investigation of the social support of gifted adolescents (VanTassel-Baska, Olszewski-Kubilius, & Kulieke, 1994), students of higher socioeconomic status reported higher levels of support than students of lower socioeconomic status. There were significant differences between these groups on support from friends, classmates, parents, and teachers. In a factor-analytic study of social coping strategies, Swiatek (1995) found three statistically reliable strategies used by highly gifted adolescents that helped them deal with the social consequences of being gifted: denial of giftedness, popularity/conformity, and peer acceptance. She found no gender differences in the strategies, but did find that the most highly gifted students were those most likely to deny being gifted.

EMOTIONAL CHARACTERISTICS.   Research on the affect of gifted students has investigated finer distinctions within types of variables such as self-concept, and has highlighted some of the gender differences in gifted students with respect to emotion and personality. In a review of the literature on personality and gifted children, Olszewski-Kubilius, Kulieke, and Krasney (1988) found that gifted students were generally at least as well adjusted as norm groups and comparison groups, and possessed more personality characteristics ordinarily considered to be favorable than comparison groups. They also found that gifted children can display personality functioning, in some domains, similar to that of older students. Gifted adolescents scored within normal ranges or higher on almost every scale of major personality inventories. The authors note that the generalization of research comparing gifted and other students is hampered by lack of information on socioeconomic status and other demographic information.

Research on the self-concept and self-esteem of gifted children has presented conflicting results. Some studies using global measures indicate that gifted students score higher than other students, whereas other studies show no difference between groups or, occasionally, that gifted students score lower (Olszewski-Kubilius et al., 1988). Some of these results can be explained by looking at specific domains of self-concept and at

gender differences. Hoge and McSheffrey (1991), using the Self-Perception Profile for Children (Harter, 1985), found that gifted students scored slightly lower than a norm group on perceptions of their social and athletic competence, but higher on scholastic and global self-worth. They also found that academic performance seemed to be a more important factor in global self-worth for girls than for boys. Similarly, Pyryt and Mendaglio (1994) administered a multidimensional self-concept measure and found that gifted students scored higher, on average, than their age peers, with academic self-concept contributing most to the difference. However, the gifted students scored slightly higher on social, athletic, and evaluative subscales as well.

In a study of the psychological adjustment of gifted early adolescents (Luthar et al., 1992), these students were found to be more similar to college students (matched to the gifted students on cognitive maturity) than to students their own chronological age. Measures of cognitive ability, depression, anxiety, locus of control, and real and ideal self-image were administered. Gifted students were generally high on psychological adjustment and had less depression and better self-image than same-age students. The authors speculate that previous inconsistencies in the research on the adjustment of the gifted may be due to differences in achievement: that is, that underachieving gifted students may be less well-adjusted than both achieving gifted students and an unselected group of same-age students.

In contrast to most of the research presented above, Roberts and Lovett (1994) found that after experimentally induced scholastic failure, gifted adolescents demonstrated more negative emotional reactions than did two groups of their age peers: high academic achievers who had not been labeled gifted, and a randomly selected group of students. After failing to solve extremely difficult anagrams, gifted students showed greater irrational beliefs and self-oriented perfectionism, greater negative affect, and more physiological stress than students in the other two groups.

Motivational Characteristics.   Research on the motivational characteristics of the gifted has compared gifted students to the norm on motivation, described motivation patterns of gifted students, and investigated motivational differences between achieving and underachieving gifted students. Siegle and McCoach (2005) focus on four factors from the broader research on motivation in education (task value, self-efficacy, perceptions of the environment, and self-regulation). From their own research and that of others, they offer a number of recommendations for increasing these factors in gifted students and preventing underachievement.

Several researchers have found that gifted students score more "intrinsic" than average on measures of motivation. Olszewski-Kubilius et al. (1988) reviewed several studies showing that gifted students score higher on measures of motivation that reflect intrinsic reasons for learning, including internal locus of control and measures of intrinsic motivation and autonomy. They also found that gifted students are more likely to demonstrate positive attributions for success and failure, for example, attributing success to their own ability and effort, and attributing failure to bad luck or inappropriate strategy choice. Csikszentmihalyi, Rathunde, and Whalen (1993) conducted a longitudinal study of intellectually talented adolescents, and found that when compared with average students, they showed more intrinsic motivation for reading, thinking, and solitude.

Many studies have looked at motivation for achievement and underachievement in gifted students. Benbow, Arjmand, and Walberg (1991) investigated correlates of

educational achievement in a sample of mathematically precocious youth. They found that motivation (as measured by quantity of academic activities and participation in optional contests and exams in high school) was the third most useful predictor of educational achievement and aspiration at age 23, behind quality of instruction and home environment. Ford (1993) found that several motivational factors distinguished between achieving and underachieving gifted black students. Achievers were less concerned with peer pressure and reported high effort and no test anxiety, while underachievers had a more external locus of control, were more ambivalent about trying hard, and reported that they felt test anxiety. Emerick (1992) identified motivational factors that led to the reversal of underachievement in a case study of several gifted adolescents. Factors related to intrinsic motivation included a strong intellectual or creative interest pursued outside of school, classes that allowed for advanced and independent study, and an ability to relate school success to personal goals.

Finally, a unique approach to motivation and giftedness is taken by Gottfried, Gottfried, and Guerin (2006), who are engaged in a longitudinal study of intellectual and motivational giftedness. They have investigated high academic motivation as a form of giftedness in itself, psychometrically distinct from the intrinsic or extrinsic motivation variables investigated in earlier research.

The NAGC book mentioned at the beginning of this section is titled *The Social and Emotional Development of Gifted Children: What Do We Know?* (Neihart, Reis, Robinson, & Moon, 2002). The editors of the volume note that despite a somewhat limited research base, several major conclusions can be drawn from what we know. Among these conclusions are that serious maladjustment appears no more or less often in this group than in the general population (with some exceptions for some highly creative writers and artists), that social-emotional problems are most often due to a mismatch between the individual's intellectual and personal characteristics and their environment, and that there are within-group differences similar to those in the general population related to gender, age, ethnicity, and other variables. A number of recommendations for parents, educators, and mental health professionals are offered, centered on prevention of difficulties through the provision of appropriate educational placements and acceptance of the inherent asynchronous development of gifted children.

Conclusion

In what ways do the history of interest in giftedness and its accompanying research base presage current issues in the field? Some historical preoccupations are constant, but they are generally examined from different perspectives and with more sophisticated methods.

First, the issues of definitions of giftedness or of gifted persons remain questions of central importance to the field (Pfeiffer, 2003). For example, Galton's and Terman's legacies of giftedness as measured high intelligence or as adult eminence are to be found in theoretical positions and in empirical investigations in the current literature. We no longer study finger tapping as a measure of intelligence, but we are increasingly interested in neuropsychological and neuroscientific studies of brain function. We do not pore over histories of eminent British men of science as Galton did, but we do examine through extended case study an eminent individual's thinking about

a crucial scientific theory as an exemplar of creative productivity (see Gruber on Charles Darwin).

Second, our keen interest in the social and emotional lives of gifted children, adolescents, and adults endures. In fact, Hollingworth's insights on social and psychological adjustment from decades ago led to a follow-up study of the original attendees of her school for highly gifted children (White & Renzulli, 1987). Nonintellective variables such as intrinsic motivation, social relationships, and self-esteem appear in the modern literature with regularity. For example, the emerging field of positive psychology which focuses on "well-being, contentment, and satisfaction (past), hope and optimism (future), and flow and happiness (present)" (Seligman & Csikszentmihalyi, 2000) views giftedness as one model for the development of personal excellence.

Finally, the interests of Witty and Jenkins on the discovery and development of talents among African-American children are early expressions of our enduring concern for the under-representation of low-income and ethnic minority children in specialized programs (Pfeiffer, 2003). While most educators are aware of the need to identify and nurture giftedness among members of underrepresented populations, we have begun to focus on the retention of culturally diverse and low-income high-ability learners in rigorous and creative curricular experiences in our schools.

The major historical issues and research presented in this chapter have practical implications for professional psychologists today. With regard to mental testing, psychometrists and school psychologists still need to be able to provide and interpret intellectual assessments for gifted children and their parents, and to weigh the pros and cons of various identification instruments for diverse populations. Psychologists are also needed to provide advice on appropriate educational placements for gifted children, from those whose needs may be met in a regular classroom to those who are so highly gifted that no school placement is ideal. Finally, clinicians and counselors may be able to help gifted children understand their own characteristics, to prevent social and emotional problems due to inappropriate placements, and to intervene effectively when social and emotional difficulties do arise.

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The Social World of Gifted Children and Youth

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Introduction

The young people about whom this book is written share mainly the fact that, in one or more cognitive/academic domains, their development is advanced. Aside from this characteristic, however, they are as diverse as any group one can find—diverse in ethnic and socioeconomic backgrounds and experiences, diverse in family composition and family dynamics, and diverse in aptitudes and creativity. They are just as diverse in motivation, energy, confidence, temperament, and social skills. Finally, they are diverse in the asynchronies they exhibit—some advanced in all cognitive domains (though seldom equally advanced in all) and others in only a few; some exhibiting maturity in social skills and emotional self-regulation at a level commensurate with their mental age and many somewhere between mental age (MA) and chronological age (CA) in this respect; some only age-appropriate in fine and/or gross motor skills; and so on. Complicate this with their degree of advancement or giftedness, gender-related issues, age-related issues, and educational experience as well as peer groups, and it is easy to see that any generalizations about social issues need to be tempered by significant caution!

The focus of this chapter is deliberately limited to the social world of gifted children, that is, their interpersonal relationships. Because other chapters deal with intrapersonal or emotional issues, with family issues, and with specific populations such as females/males, ethnic groups, underserved populations, and the highly gifted, these topics are touched on here only tangentially.

The Social Life of Gifted Children

Social Skills and Maturity of Gifted Students

Despite the diversity mentioned above, there is plentiful and consistent evidence that, *on average*, gifted students are more mature socially than their age peers in spheres such as friendship patterns, play interests, social knowledge and behavior, and personality. While this degree of maturity may not equal their maturity in intellectual domains, gifted children and youth exhibit personal maturity that contradicts the widespread belief that they are "only" gifted and otherwise just like other children their age. Furthermore, in critical areas such as self-concept, gifted children tend to compare favorably with peers (the major exception being adolescence, especially for girls). Reviews of the literature (e.g., Assouline & Colangelo, 2006; Janos & Robinson, 1985; Robinson & Noble, 1991) are consistent on this point: Group differences—when they exist (and they do not always exist)—usually favor the gifted.

Are Gifted Youngsters Inherently More Socially Vulnerable Than Others?

In short, the answer to this question is no. In fact, as a group, they are probably more robust than an unselected group of their agemates. But neither are they immune to the social-emotional issues and disorders that other people endure. According to a task force of the National Association for Gifted Children (Neihart, Reis, Robinson, & Moon, 2002) that recently examined research on a variety of topics related to the social-emotional development of gifted young people,

> High ability students are typically at least as well adjusted as any other group of youngsters. Nevertheless, they face a number of situations that, while not unique to them, constitute sources of risk to their social and emotional development. (p. xiv)

Among these situations are:

- intellectual and often social advancement compared with age peers, so that their social environments are poorly calibrated to their interests, language, and personal maturity
- typically inappropriate school settings that fail to match the level and pace of their learning and understanding
- their own internal developmental unevenness (asynchronies)
- the tensions created by their creativity, energy, intensity, and high aspirations, often far greater than those expected at their age
- at the same time, their wish to be "like everyone else" and therefore the temptation to deny their abilities in the service of finding friends
- local and national milieus that are often anti-intellectual and unsupportive, sometimes frankly negative

All of these issues can be exacerbated, of course, when gifted students are "twice exceptional"—doubly different from the norm by virtue of having a disability, being a member of an ethnic or sexual minority group, or growing up in a dysfunctional family.

Social Needs Shared with Agemates

The basic social needs of gifted children are no different from those of other children: stability and security in a family and the ability to count on someone's unwavering love

and support; a peer group and close friends with whom there are comfort, acceptance, and shared interests; an educational setting and trajectory that provide both a good match for their pace and level of learning and the sense of strength that comes from mastering the difficult; opportunities to develop their special talents and interests and to share these with peers who are similarly engaged and passionate; rules of daily living and independence calibrated to their competence; and warmly engaged parents and teachers whose expectations are appropriately high—high but not impossible (Csikszentmihalyi, Rathunde, & Whalen, 1993; Neihart et al., 2002).

Social Needs that Are Special (if Not Unique) to This Group

The major problem is, of course, that in an age-stratified society such as ours, gifted children and adolescents are almost always out of step with those groups they encounter in the natural course of events—mostly agemates in school, church, the playground, or the neighborhood. The younger the children are, the more circumscribed is their social radius and the less likely they are to encounter truly compatible friends; the older they are, the more paramount the social agenda becomes. Even within the family, gifted children are sometimes a poor fit if parents and siblings do not share their abilities, interests, and aspirations, and if parents are inexperienced in navigating the educational system.

The school setting is in many ways the most acute problem, since we compel children to attend school 180 days a year, 6 hours or so a day. If the setting is a poor match, the consequences can be nearly unbearable. Children who are otherwise kind, good-hearted, and patient can grow irritable, impatient, negativistic, even arrogant under such circumstances, and alienate potential friends as well as adults who might otherwise pave the way for them. Conversely, gifted youngsters may adopt the goal of "being like everyone else" and purposefully squelch their own curiosity, aspirations, and abilities. The brighter the child is, the more acute the mismatch and its ensuing consequences.

Developmental asynchrony from domain to domain can produce special challenges to social options. By definition, the development of "average" youngsters has a relatively narrow range, exhibiting neither aspects that are exceptionally high (that would qualify as "gifts") nor exceptionally low (that would qualify as "disabilities"). The typical range of a gifted student's development, however, includes some areas that are more-or-less age-appropriate, some exceptionally high, and still others in-between, with none below average unless a disability exists. While, as mentioned, gifted students tend to be more socially and emotionally mature than others of their chronological age (Janos & Robinson, 1985; Robinson & Noble, 1991), emotional regulation, social skills, size and physical maturity, as well as fine and gross motor skills, are seldom the equal of their mental age. These asynchronies place realistic limits on academic solutions that might otherwise be appropriate, such as radical acceleration in grade placement, and on the age-restricted clubs and other groups in which gifted children might seek friends. Although too much is often made of milestone issues such as the age of attaining driving privileges or being invited to the prom, these, too, are not irrelevant.

Interestingly, beginning in infancy (e.g., stranger anxiety) and early childhood (e.g., encounters with death), the advanced cognitive abilities of gifted children cause them to experience fears and concerns like those of older children (Klene, 1988), awareness of world issues such as famines and conflicts (Clark & Hankins, 1985), at

least according to parental report (von Károlyi, 2006), and even concepts like infinity ("What's holding up the universe?"). For the same reason, gifted youngsters are also likely to be more sensitive to issues of social comparison, such as class status and competition, before these concepts mean much to others. Because they do not have the emotional calluses that develop with the experience of living through such episodes, they are vulnerable to worries of which their agemates remain blissfully unaware.

Social Issues that Are More Common in Gifted Students

For the reasons outlined above, a few social issues appear with some regularity among the gifted population. These are, by and large, natural outcomes of the advancement of these youngsters compared with their age peers and school environments. Several of these issues will be dealt with in detail in other chapters, so coverage will be a bit uneven in this chapter, but the following list may give the reader a feel for the kinds of things to expect, primarily when there is a mismatch with peers and school.

- Difficulties meeting compatible peers and aspirations for greater intimacy, loyalty, and stability in their close friendships (Gross, 2001), with consequent loneliness even if casual observers believe this student to be reasonably popular and accepted. This disconnect with peers cannot be stressed too greatly. Gifted children are not just looking for pals who "talk their language" and understand their jokes, but buddies who share their notion of what close friendship entails: sharing feelings, worries, and secrets as well as triumphs; standing up for one another; and staying close friends over time.
- The brighter the children, the more likely are they to report that they seek older friends, have fewer friends than they wish, and see that "being smart" makes it harder to make new friends (Janos, Marwood, & Robinson, 1985). Children who see themselves as "different" are also more likely to report that they have few friends (Janos, Fung, & Robinson, 1985), even when the difference they identify is what most people would consider positive (e.g., "bigger," "draw better," "better at games").
- Withdrawal from an unsatisfying social scene, giving the impression of being unapproachable, "stuck-up."
- Difficulties reconciling achievement/affiliation conflicts that result from membership in conflicting subcultures, an especially acute problem for gifted students who aspire to high academic achievement in school but who come from social or ethnic backgrounds that devalue such aspirations and commitment (Neihart, 2006).
- Suboptimal ways of dealing with school boredom, including daydreaming; impatience and irritability with fellow students who move so slowly or fail to understand the "obvious"; rebellion against homework; "meltdowns" (among the younger students). Sometimes, conversely, gifted students conclude that, because they understand concepts such as multiplication or spelling rules, they needn't practice them and therefore fail to master these to the degree needed to use them efficiently, leading to even more negativity.
- Depression and hopelessness about the future, endless years of the "same old thing" seeming to loom ahead.

Because these issues are not inherent in gifted children but arise from the disconnect between the level and pace of their development, and the environments in which they live, the solution is obvious: Correct the mismatch. To the extent that special school programs are provided to meet the needs of gifted students, and/or they are given opportunities to move into school and social situations with older students, these problems are likely to be minimized or prevented altogether. Of course, no "solution" is without its drawbacks and side effects, but educational approaches that simultaneously provide appropriate challenge and access to compatible peers are effective not just academically, but socially as well (Kulik, 2004; Rinn, 2006; Shaunessy, Suldo, Hardesty, & Shaffer, 2006; Shore, Cornell, Robinson, & Ward, 1991).

The Contribution to Social Issues of Personal Variables that May Differ in Gifted Students

Aside from the cognitive issues like the fears and concerns described above, which are simply a part of being intellectually gifted, there may be inherent personal variables that impinge on the social experience of gifted children. We regard the evidence for these differences as more tenuous, and their generality among gifted children questionable, but present them here for consideration:

- Introversion. A number of authors (e.g., Silverman, 1993) suggest that gifted individuals are more introverted, on average, than nongifted peers, with the result that they may be more independent of and less needy in social relationships than others. Extensive research with the Myers-Briggs inventory (Mills & Parker, 1998; Sak, 2004) confirms this observation. While introverts do not tend to win popularity contests, they may be more comfortable pursuing solitary pursuits (compatible with high achievement) and able to maintain a more even keel than those tossed about by the vicissitudes of turbulent social agendas.
- Sensitivity (sometimes phrased as overexcitability). This notion derives from the theories of the Polish psychologist, Kazimierz Dabrowski (1964), whose most prominent contemporary interpreter is Michael Piechowski (e.g., 1997, 1999). According to Dabrowski's theory, development of gifted individuals consists of a series of stages, each of which is terminated by a process of disintegration and succeeded by more mature adaptation and deepening self-knowledge. The "psychic excitabilities" accompanying development can be seen in psychomotor, sensual, intellectual, imaginational, and emotional domains and inevitably impinge on the relationships individuals have with others. Physical tensions and restlessness may interfere with calm interactions. Moreover, gifted children may be more sensitive to minor slights from others and instances in which they pick up on aspects of unfairness, either in their immediate experience or events in the society or the world at large. Their subsequent crusades for "justice" may not endear them to those they consider the perpetrators.
- Perfectionism (see Chapter 17, this volume). Perfectionism is an exceptionally controversial topic in the field. In part, this stems from differing definitions of the concept, representing for some authors simply high aspirations, interest in doing one's best whenever possible, and commitment to success but comfort with lower standards when appropriate, while others view perfectionism as an inherently neurotic trait, a "compulsive and unrelenting strain toward impossible

goals" (Schuler, 2002, p. 73). Still others view perfectionism as segmented into various components, some of which are more destructive than others. Hewitt and Flett (1991), for example, see the high standards we set for ourselves and for others as sometimes positive and certainly less neurotically debilitating than the feeling that one must live up to the expectations of others. (Insisting on high standards for one's family and friends may, on the other hand, have its downside in those relationships but is not necessarily debilitating.)

Indeed, gifted children who go on to develop their talents do set high goals for themselves, in the context of families who expect them to do their best (Csikszentmihalyi et al., 1993) without which they would not endure the hours and hours of practice (Ericsson, Nandagopal, & Roring, 2005) and single-minded commitment needed for success. In the context of a social setting in which their peers have neither the aspirations nor the commitment they do, however, they may be regarded with some derision and criticism. Despite the obvious positive outcomes of successful talent development (Czikszentmihalyi et al., 1993; Subotnik & Jarvin, 2005; von Rossum & Gagné, 2006), the aspiring student may be isolated from classmates both by being actively excluded from friendships and because of time commitments that interfere with ordinary contacts. The situation is, of course, somewhat different for students whose activities are team related (e.g., tennis or math competitions or participation in an orchestra) versus those that are more solitary (e.g., piano or long-distance running).

- Extreme giftedness. As Hollingworth (1942) noted as a major finding of her study of children with IQs above 180,

… there is a certain … range of intelligence which is most favorable to the development of successful and well-rounded personality in the world as it now exists. This limited range appears to be somewhere between 125 and 155 IQ. Children and adolescents in this area are enough more intelligent than the average to win the confidence of large numbers of their fellows, which brings about leadership, and to manage their own lives with superior efficiency. … But those of 170 IQ and beyond are too intelligent to be understood by the general run of persons with whom they make contact. They are too infrequent to find many congenial companions. They have to contend with loneliness and with personal isolation from their contemporaries throughout the period of immaturity. (pp. 264–265)

Contemporary research (Gross, 1993, 2004; Janos, Marwood, & Robinson, 1985) bears out this astute observation by Hollingworth. Indeed, the child who is so astonishingly variant from expected norms is very difficult to nurture appropriately. Asynchronies in development are even more marked with these children than with those more moderately gifted, so that even when they are placed in school with mental peers, perhaps nearly twice their age, they remain visibly and painfully different. Of a group of children with IQs above 160, Gross (1993) reported that 80% experienced intense social isolation in regular classrooms and carefully monitored their own behavior to conform to the norms of the social group.

There are, of course, very few of these children and many practitioners will not encounter even one in a lifetime of practice. But they do exist and both they and their parents deserve thoughtful support and respect, understanding of the complexity of their situation, and inventive solutions to their needs, if they are going to develop in a healthy way and make anything like the unique contributions of which they are capable.

Enduring Myths Constitute Barriers

Except for the writings of Galton (1869), Lewis Terman was the first—and certainly the most ambitious—investigator to turn attention to the development of gifted individuals. Starting in the 1920s, he identified a group of about 1500 children, almost all in California schools, who scored high on the original, 1916 version of the Stanford-Binet Intelligence Scale (Terman, 1925). These individuals were followed throughout their lifetimes, and research continues on their offspring. Terman was motivated in this undertaking by his conviction that the myths then in vogue—myths such as "early ripe, early rot" and stereotypes of gifted children as weak and awkward—were untrue. He was right, of course, but surprisingly, the myths persist. Here are some:

- "Gifted children are nerds, bookish, socially ill-at-ease, sickly, and clumsy." Even for the exceedingly bright children like those studied by Hollingworth and Gross (whom most people do not encounter but only read about), this stereotype is grossly untrue. In the public mind, there is considerable confusion between giftedness and the characteristics of Asperger disorder (Klin, Volkman, & Sparrow, 2000), among whom of course there are some gifted children but also many nongifted, the average IQ of groups so identified being about 100 (Klin et al., 2000). Terman's own work and the research of many other investigators have demonstrated the fundamental error of this stereotype—it simply does not fit the majority of gifted children and youth.
- "If you're so gifted, why can't you tie your shoes?" The expectation that children who are intellectually gifted will be equally advanced in all domains is also inaccurate, as we have already discussed.
- "You can be anything you want to be." Gifted youth may be advanced in a number of domains (i.e., showing "multipotentiality"), even if not equally so, so that deciding on college majors and careers can be wrenching and even paralyzing. Even among those showing multipotentiality, however, very few in fact show "equipotentiality"—equal potential across domains. Achter, Lubinski, and Benbow (1996), who gave a battery of rigorous adult-level tests to gifted adolescents, found a very small percentage with flat profiles, even using a very generous definition of what constituted a flat profile. Given the usual measures standardized for their age groups, many gifted children do "hit the ceiling" on most if not all of them. It is only when such ceiling effects are removed by above-level measures that true differentiation of talents can be seen. Even though gifted children may have a number of choices, they will profit from appropriate assessment of their talents and guidance in choosing courses of study and ultimate careers.
- "Math nerds are the worst." Contrary to expectation, Dauber and Benbow (1990), following a group of students identified by high SAT scores during early adolescence, found that those with high math scores reported themselves to be more successful in their social relationships than those with high verbal scores. The authors concluded that one can easily hide one's math talents, but that every time high-verbal individuals open their mouths, they inadvertently reveal their "gifts" and suffer the consequences.
- "Skipping a grade ruins you for life." Acceleration in school can take many forms, most of which have been examined carefully (Colangelo, Assouline,

& Gross, 2004). The academic benefits of such options are clear and unmistakable (Rogers, 2004), but many practitioners retain fears about the harmful effects of accelerative options that permit youngsters access to classes for older students (Jackson, Famiglietti, & Robinson, 1981; Southern, Jones, & Fiscus, 1989; Vialle, Ashton, Carlon, & Rankin, 2001).

Indeed, the social benefits are, surprisingly, less clear than we might expect, but study after study finds an absence of harmful effects on social adjustment (Cornell, Callahan, Bassin, & Ramsay, 1991; Robinson, 2004) for groups of students who are accelerated. Most investigators have restricted their research to the effects of acceleration on academic self-concept measures, (e.g., "I'm good at most school subjects,") even though a wide array of measures of personal and social adjustment could potentially have addressed more differentiated questions.

- "Selective schools shatter your self-concept." A 26-country study (Marsh & Hau, 2003) using a few questions tapping academic self-concept, found consistently lower scores for gifted children in academically rigorous and/or accelerated situations than gifted children in regular classrooms (but not lower than those of nongifted students). The meaning of this finding is, however, far from clear (Dai, 2004; Plucker et al., 2004). Do gifted children grasp earlier than others the unwritten modesty code? Do they discover, on entering the more accelerated class, that they are no longer the single star who effortlessly gets every answer right? Do the findings reflect a more accurate sense of what expertise actually requires, once the student is appropriately challenged? Said one, "Now I know that I won't always be the smartest person, but I do know what I can do, and I do know I can do something when I put my mind to it" (Noble, Arndt, Nicholson, Sletten, & Zamora, 1999, p. 80). In contrast, people who are not skilled at something tend to overestimate their own skill levels and to underestimate those of others (Dunning, Johnson, Ehrlinger, & Kruger, 2003). Is being the big fish in a little pond (Marsh, 1987) the road to confidence and success, or is being a medium-size fish in a bigger pond more likely to lead to a feeling of belonging and an invitation to investment in learning? As Gross (1998) expressed it, "The modest academic self-esteem … reflects an acceptance of how far they still have to go if they are to become all they can be" (p. 23).

The essential issue is, of course, the social comparison group. When students enter a class or school better matched to the level and pace of their learning, or when they graduate to a higher group in ballet, skiing, or soccer, their perspective changes—often without their realizing it. Their companions are perhaps older, more skilled, harder working than those they are used to, and their feelings may—especially at first—be ambivalent. (How many readers remember such disconcerting feelings their first week of college?) Adults can be most helpful by reminding students, in preparation for and again after the change, of this shift in the comparison group, acknowledging that it is hard to give up their former status even though the new opportunity has much to offer. They can also encourage what Marsh, Kong, and Hau (2000) have referred to as the "reflected glory effect," consciousness of having been admitted, because of their abilities and skills, to a more selective class/school, with its enhanced opportunities for learning.

Furthermore, as noted, investigators have failed by and large to look at more subtle indicators of adjustment than academic self-concept. Those who have

done so have tended to find trivial effects on personality and adjustment measures (e.g., Kulik, 2004; Robinson & Janos, 1986) when the comparison groups were equally bright, and much more positive reports from students who have experienced the acceleration (e.g., Janos et al., 1988; Noble et al., 1999; Noble & Drummond, 1992; Noble & Smyth, 1995). A typical quote: "[I could] be friends without feeling I had to *be* my friends" (Noble et al., 1999, p. 79).

- Social relationships within the family: "It's a burden to have a gifted sibling." For some time, it was assumed that having a gifted sibling, especially if one was not equally gifted, produced negative effects on self-esteem, achievement, and general well-being. A number of studies seemed to confirm this assumption, all of these based on interviews with siblings and other family members that encouraged the expression of negative feelings. A more objective appraisal of the situation was provided by Chamrad, Robinson, Treder, and Janos (1995), who did not ask the loaded question, but instead administered a battery of questionnaires about sibling characteristics and relationships, as well as behavioral issues, to a large number of mothers and to pairs of siblings, both ages 6 to 12. Initially, the classification of "gifted" was by placement in a special program; this approach yielded not a single significant difference among pairs in which there were 0, 1, or 2 "gifted" members (fewer than expected by chance). Next, we designated "giftedness" by the child's status above or below the median of mothers' appraisals of ability. With this change, a modest number of effects emerged, all indicating positive effects of having a gifted sibling! We believe that the previous studies had exploited the fact that sibling relationships are seldom perfect, finding the scapegoat in giftedness.
- Relationships with parents: "It's more work to have a gifted child." There is evidence that gifted children's parents spend more time with them in activities that are a good cognitive match, such as reading, playing, and going to interesting places (Karnes, Shwedel, & Steinberg, 1984; Thomas, 1984). Child-centered parents can raise gifted children even in poverty (Robinson, Lanzi, Weinberg, Ramey, & Ramey, 2002). Until their child is able to establish satisfying peer friendships, many parents are called on to play the "best friend" role. The situation is sometimes complicated by home schooling, which is on the rise for gifted children.

The Stigma of Being Gifted in an Anti-Intellectual Society

Being labeled as "gifted" in a society that does not value the life of the mind can be as much of a stigma as any other characteristic that sets a person apart from others. Coleman and Cross (2000) describe a stigma-of-giftedness paradigm (Coleman, 1985) as influencing social relationships. Gifted students, like others, want "normal" social interactions and see the label as influencing others to treat them differently. As a result, they manage information about themselves (e.g., information about good grades or awards) to hide their accomplishments (Cross, Coleman, & Stewart, 1993), though some do this more than others (Coleman & Cross, 1988).

Unlike some other stigmatizing features such as race, giftedness can, of course, be hidden, though this is more difficult for some than others. As noted, Dauber and Benbow (1990) found that students who were highly able in math were more successful in their social relationships than those who were highly able verbally, presumably because the latter students found it harder to hide their abilities.

From a surprisingly early age, many—but apparently not all—gifted children sense their difference from others. The differences are almost invariably felt, whether admitted or not, by older students (Rimm, 2002). In a study by Janos, Fung, and Robinson (1985), even at age 6 to 10, more than a third of 271 gifted children said they felt "different" from others. Even when this difference was phrased in a positive way, such as being better at games or sports, these children described more negative views of themselves and their social relationships than those who did not report such feelings. Coleman and Cross (1988) indicated that even if children don't feel themselves to be different, they assume that others look on them in that way and modify their behavior accordingly.

Rimm (2002), surveying the literature on peer pressures and social acceptance of gifted students, found that "…they are generally well liked and sometimes are even more popular than their peers, although, by age 13, that popularity advantage disappears" (p. 13). Rimm points to a study by Schroeder-Davis (1999) in which, responding to a newspaper columnist's question asking whether they would rather be best looking, most athletic, or smartest in their class, over 3500 secondary students actually favored being "most intelligent" (54%), followed by "most athletic" (37%) and "best looking" (only 9%). Even so, their essays revealed considerable sensitivity to experiencing the anti-intellectual stigma of high ability, and almost none suggested that high ability conferred social benefits.

This problem may be felt more acutely by girls than boys (see Chapter 14, this volume). Beginning in early childhood, the social agenda is more important to girls than to boys (Maccoby & Jacklin, 1974), and it gains special significance and power for gifted adolescent girls (Kerr, 1985, 1997; Reis, 2002; Rimm & Rimm-Kaufman, 2000). In fact, gifted boys may be more popular than nongifted girls or boys, with gifted girls tending to be the least popular (Luftig & Nichols, 1990). In line with this finding, Janos, Sanfilippo, and Robinson (1986) found that, among the minority of very young early entrants to college who were underachievers (college GPA below 3.0), the boys' achievement appeared to reflect the issues of disorganization and family conflict found in other groups of underachievers, while the girls appeared to be favoring an attractive social agenda over an academic agenda, with temporary damage to the latter. Indeed, by the time the article was published, the girls' GPAs no longer qualified by the < 3.0 criterion, while the same was not true for the boys. Apparently the girls had learned ways to cope with more than one agenda simultaneously.

Again, the problem lies not within the students who are gifted but in the setting in which they are growing up. Particularly rampant in American life is a spirit of anti-intellectualism (Colangelo, 2002; Hofstadter, 1962), a denigration of the "elite" status of the bright and high-performing (except in sports). Fairness is seen to require equal education (not "appropriate" education) for all, regardless of individual differences (Benbow & Stanley, 1996). Coupled with the demands of the No Child Left Behind Act of 2002 (PL 107-110), which accords struggling students priority in school, little wonder that gifted students feel recognition of their accomplishments to be stigmatizing.

The Expanding Social World of the Child, Adolescent, and College Student

Social issues change in nature and intensity as children grow up, as do potential interventions.

Early Childhood

As gifted children begin to emerge from the family into preschool, play groups, and even visits to the homes of family friends, they are often puzzled by the fact that

their playmates do not enjoy the same complex games, read books, or play board games with complex rules as they do. Gifted preschoolers are more advanced in language and in the use of metacognitive strategies than are nongifted children (Kanevsky, 1992; Moss, 1992). They also show more cooperative play patterns (Barnett & Fiscella, 1985; Lupkowski, 1989) and on average are advanced in what they know about social relationships, even though this knowledge does not always translate into more mature behavior (Roedell, Jackson, & Robinson, 1980).

Even at this age, many activities are organized by age (the "threes" in the day-care center hardly ever play with the "fours," even though no more than a few days may separate the oldest "three" from the youngest "four"). The asynchronies of early childhood compound the situation—issues such as toilet training, naps, and skills with crayons, scissors, and tricycles—and require some flexibility in standard expectations if the child is to join an older group for even part of the day. Smaller preschools sometimes do provide cross-age grouping, and some, such as Montessori programs, encourage children to go at their own pace. In informal groups at neighborhood playgrounds and at family gatherings, often gifted children happily do seek out older children. At this age, parents are well advised either to seek a flexible environment such as a mixed-age preschool, or to seek a variety of settings for their children – for example, a gymnastics or dance class with agemates and a story time at the library for somewhat older children.

Early Elementary School

While kindergartens are generally relatively nonacademic, and therefore not necessarily a negative (though not necessarily an especially positive) experience for bright children, the primary grades can be deadly for a child who enters first grade already reading competently and comfortable with the number system. For bright children with competent motor skills who have already mastered the symbol systems of reading and math at a level advanced for their age, early entrance to kindergarten or first grade, or skipping first or second grade, should be a definite consideration, the research findings being on the whole quite positive and this step one that can be taken quite smoothly because it occurs from the beginning (Colangelo, Assouline, & Lupkowski-Shoplik, 2004). In addition, the three primary grades can be telescoped into two by skipping first or second grade.

Still, it is a decision to be made cautiously, taking into account the personal maturity of the child and remembering that a year at ages 5 to 6 is a larger proportion of a child's life than a year will be later on. Fallout, when it occurs, hardly ever results from academic problems; almost always—when they occur—the issues are social. A recent study by Gagné and Gagnier (2004), for example, suggests that boys who enter school early may be a little more vulnerable than girls. Beware, though, of the extensive literature that shows that *unselected* younger children are, in the early grades, not as mature or successful as their older classmates! Such research is irrelevant.

Elementary Years

Teasing, even overt bullying about being "smart" or getting good grades can begin as early as kindergarten for gifted children, with a peak in sixth grade. About a quarter of gifted children admit to at least one instance of acting as a bully themselves,

however (Peterson & Ray, 2006). A few gifted children (11%) in the Peterson and Ray study admitted to being bothered "a lot" by such events. Classmates' teasing them for being smart is experienced as hurtful and confusing (Ford, 1989) even when it may be meant in a kindly way. As we have mentioned, the sense of difference from others plays a major role in peer relations of gifted preadolescents, even when the differences perceived are in a positive direction and are not particularly intellectual (Janos, Fung, & Robinson, 1985). Many gifted students at this age begin to hide their talents, to do their best "to be like everybody else."

Counseling—preferably in groups, for children who are not seriously debilitated by such conditions—can help gifted children to normalize their feelings and to develop positive ways of coping. Books such as *Gifted Kids Speak Out* (Delisle, 1987) or *The Gifted Kids' Survival Guide for Ages 10 and Under* (Galbraith, Espeland, & Mohar, 1998) are also excellent resources to help children develop insight and coping skills.

Middle-School Years

The issues that began earlier intensify in the early adolescent years—the strong wish to fit in, to belong to a group, and yet a growing sense of difference from same-age classmates (Assouline & Colangelo, 2006). Gifted students who are good at sports are liked better by their peers than those who are not, particularly gifted boys who are not good at sports. Self-concept tends to decline for gifted students more intensely than for others, and a middle-school curriculum that is not rigorous makes the situation even worse. Tedium significantly erodes optimism and coping skills (Hoekman, McCormick, & Barnett, 2005) that in turn relate to intrinsic motivation and commitment to schoolwork.

In a study (Colangelo & Assouline, 1995) of 563 gifted students, grades 3–11, although the overall picture was relatively positive, there was a perceptible decline in self-concept across grade levels. Scores overall were highest in domains of intellectual and school status, and lowest in interpersonal skills and self-satisfaction. A review of the several studies on self-concept of gifted children (Neihart, 1999) found few differences between gifted and nongifted students except that gifted students felt more positive about their academic abilities. (Recall that, at earlier ages, gifted students tended to feel more positive than other students, so no difference represents a shift.) Moreover, gifted students tend to feel that others view them negatively (Kerr, Colangelo, & Gaeth, 1988) and, in fact, this seems to be the case for those who do not know the students well (Monaster, Chan, Walt, & Wiehe, 1994). As with any other group who see themselves as victims, however, it is important to move on from that perception of being the victim, to adopting positive coping skills. (See last section of this chapter.)

Various curricula exist for teaching personal and social talent development (Moon & Ray, 2006), as well as secondary-level affective curriculum and instruction for gifted learners (VanTassel-Baska, 2006). Here again, group experience can shore up a student's feeling of belonging, and devising coping strategies. For gifted teenagers, books such as *The Gifted Kids' Survival Guide: A Teen Handbook* (Galbraith, Delisle, & Espeland, 1996) that address the issues directly, or various novels in which gifted teens are the major characters, can spark effective discussions.

Another approach that works well for gifted students is participation in team competitions, such as debate teams, math team competitions, chess clubs, and the like. When students participate in individual contests such as the National Spelling Bee, they may bring some reflected glory on their school but also risk the negative consequences of putting themselves forward as "the best." Team competitions, on the other hand, can be just as demanding but clearly are identified with the school, encouraging classmates to root for the success of the team, just as they do for football or basketball teams.

The High School Years

Like other adolescents, gifted adolescents face complex and competing developmental tasks during this period of transition to young adulthood. Even though gifted adolescents may traverse these years with competent social skills, there are still built-in pressures to "fit in," and to resist the largely anti-intellectual atmosphere of the high school. Fortunately, especially in the upper grades of high school, peers tend to become less critical of those who are different, exerting less incentive for gifted students—*if* they are still engaged—to "hide."

Moreover, the options for finding and creating a better academic and personal match increase during the high school years. Even though the self-concepts of many gifted students, especially girls, are at a low ebb during the early high school years (Robinson & Noble, 1991), students can often move ahead to more advanced classes and in other ways find a community of like-minded peers (Csikszentmihalyi et al., 1993). Many students in the latter half of high school will be able to enroll in college courses simultaneously or instead of high school courses. As mobility increases through use of public transportation, or even driving a car, it is increasingly feasible for teens to find "homes" in clubs and specialized talent-development groups. It is encouraging to find so few gifted students dropping out of high school (Matthews, 2006), despite the persistence of myths to the contrary.

Even so, gifted adolescents do not all flourish. Piechowski (1989), for example, found that there were two distinct patterns of adaptation in a small group of adolescents. The healthier group was characterized by responsibility, hard work, and altruism, while others were characterized by sensitivity, intensity, and self-criticism.

The interventions suggested earlier, including counseling, particularly group counseling; reading books with gifted individuals as heroes; group participation in competitions; and pursuit of talent-development groups—are all equally valid during this period.

The College Years

Much less is known about gifted students during the college years than grades K–12. We seem to assume that all we have to do is help students survive to college, where they will automatically find Nirvana. Indeed, some thrive in college and others create the environments they need (Hébert, 2006). And yet, colleges differ greatly in the opportunities they offer gifted students, and many offer few opportunities at all (Robinson, 1997; Yoo & Moon, 2006). Students who follow a standard curriculum or fail assertively to find appropriate settings to develop their interests and friendships, may be as unhappy as at any other time. Several longitudinal studies

following highly talented students through the college years (Arnold, 1995; Kerr, 1985; Subotnik & Steiner, 1994) have found a disappointing trajectory. Some of the risk factors include a habit of being at the top of the class with little effort, "culture shock" on encountering classmates of equal or higher accomplishment, coming from a family outside the educational mainstream without the tacit knowledge and skills needed to operate within the complex bureaucracy of higher education, as well as all the hazards other students may face, such as homesickness, depression, financial stresses, the anonymity of large classes, time management, selecting activities and classes judiciously among many tempting alternatives, and so on (Robinson, 1996, 1997; Yoo & Moon, 2006). It is essential to prepare during the high school years, before gifted students sink or swim in the new environment, and to be sure that supports are in place once they reach college to assist with the transition. Otherwise, "Nirvana" may turn out to be "never-never land," where promising children never grow up.

Positive Coping Skills

As we have seen, gifted children and youth face all the situations and dilemmas that other students do, intensified perhaps by their self-awareness and the fact that they often encounter these dilemmas at an earlier-than-average age, before their experience has produced the kinds of emotional "calluses" that enable them to put the issues into perspective. This section will, therefore, focus only on those coping skills that address what we have identified as the relatively unique issues for gifted individuals: (1) finding compatible friends in an incompatible environment and (2) resolving the incompatibility of finding acceptance in a social group and pursuing one's academic talents. (It should be pointed out that students whose talents lie in nonacademic fields often do find compatible peers within that talent area.)

Finding Friends: "That's where the money is!"

The famous remark credited to Willie Sutton when asked why he robbed banks is good advice for gifted youngsters in search of potential friends: Go where they are. Look in places you will find a variety of people whom you find compatible in terms of shared topics of interests and the depth and complexity of their understanding, whatever their ethnicity, age, gender, philosophy, or political views. In school, this certainly means looking for programs for bright students and more advanced classes, as well as multiage or other groups that are open and welcoming even if most of their members are older. Yet, gifted students who are given the opportunity to move into such settings are often reluctant to do so, fearing to lose the few friends they have made already—often at considerable personal cost. Adults sometimes need to insist that students give the new setting a good try, sharing with them their optimism that a person who has in the past made friends under trying circumstances can do so even more readily when the ground is more fertile.

Social Coping Skills

A group of young adolescents queried by Buescher (1989) about their preferred coping strategies yielded a variety of coping approaches, based on their personal experiences. While the specific ranking of the following strategies varied somewhat

from one age to another over the course of 4 years (ages 11 to 15), the list is informative. In order from least preferred to most preferred, they were:

1. Pretending to know less than you do.
2. Acting like a "brain" so friends leave you alone.
3. Change language and behavior to mask your true abilities.
4. Avoid programs designed for gifted students.
5. Engage in community activities where age is unimportant.
6. Develop talents outside of school.
7. Focus on achieving at school in nonacademic areas.
8. Seek adults to relate to.
9. Select programs and classes that are designed for gifted students.
10. Seek friends among other students who have exceptional abilities.
11. Become comfortable with your abilities and use them to help peers.

Of course, this list could be extended:

- Take an active problem-solving stance; if your life needs changing, change it. Advocate for yourself if you'd like a modified school option, an alternate assignment, a new friend, or whatever.
- Distinguish between having one or a few close friends and being "popular," the former being much more satisfying than the latter.
- Broaden your horizons—think outside the box. Especially in cities, an extraordinary variety of clubs exists for people with all kinds of interests, and if there isn't one you'd like, start one.
- Join in team competitions.
- Focus on developing one or two areas of special interest and/or talent—avoiding frenetic activity designed just to fill up time and to avoid the realization that your life is boring, boring, boring. The more you invest in a specialized area, the more pleasure you will have, and the more you will encounter others across the age span whose company you enjoy. Try on some career opportunities to see whether they appeal, and whether you feel comfortable with the people who are in those fields, be they young or older.
- Engage in community service projects or political campaigns. Making a contribution to the lives of others enriches you as well as those who can use your help.
- Keep a few projects going at home that you really want to do – alone.

Conclusion

As we have seen, professionals can make a serious error by assuming that poor social skills and social vulnerability are an *inherent* part of being gifted. They are not. [On the other hand, gifted students are not invulnerable, either (Pfeiffer, 2003).] The condition of being gifted does not constitute a liability—rather, in many ways, it is a social asset. The combination of cognitive competence and social maturity is a precious one.

The most important social issues arise when there is a mismatch with the academic and/or social setting in which the student is growing up. Often, there are more options than students or families are aware of. Your professional support can often help the students, and the adults responsible for them, to see matters in a more realistic light, to put things into proportion, and to make effective choices and transitions.

Gifted students have a great deal to offer the world—and you have special skills to help them along the way. Don't overlook the possibilities in this partnership!

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The Role of the Family in Talent Development

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The family has very powerful effects on the developing child, impacting attitudes, beliefs, opportunities, habits, and personality traits. The family plays a critical role in determining who a child becomes and what he or she accomplishes. For a child with talent, the influence of the family can be the determining factor as to whether the ability is developed to a high level or not. We all know individuals who are very accomplished and successful despite less than advantageous family circumstances or even truly awful ones and similarly, individuals with seemingly loving and supportive families who do not live up to their potential. In this chapter, we will explore some of the reasons why these different outcomes occur with a focus on the psychological aspects of family functioning as they affect talent development.

Characteristics of the Child and Family that Affect Talent Development

It is important to realize that it is not just the immediate family that influences the developing child. All families have histories represented by the past accomplishments of previous generations as well as values and messages that are passed down from one generation to the next.

A family's generational history and stability affects the way and the degree to which a family can assist in the development of the talents of children. Family influences can come from the distant past and preceding generations in two ways (Albert, 1994). One is through a history of involvement in a particular domain such as music or politics. There may be a great deal of press for intellectually able children to enter these traditional and highly valued domains or professions and given family histories, the family may be particularly well positioned through social connections to foster achievement in those areas (e.g., politics in the Kennedy family, music in the Jackson family). History of involvement in a particular field also reflects collective family values that are passed on to younger generations (e.g., a shared value of service to one's country) by older family members.

The second way in which families affect opportunities for talent development is through the stability of generations and the accumulation of educational (e.g., knowledge about and experience with higher education), social (e.g., social standing, social connections), and financial resources or assets (Albert, 1994; Bourdieu, 1992). As the number of stable generations increases, so does the ability of the family to garner sufficient degrees of knowledge, skills, experience, and financial resources to develop the abilities of a talented child. Albert, in fact, suggests that three stable generations are needed before the family can move from an exclusive focus on survival and day-to-day needs to a greater focus on the future and developing the special talents of children. Successive stable generations often bring greater amounts of disposable resources that can be put toward talent development types of activities such as special programs and lessons activities (Albert, 1994; Olszewski, Kulieke, & Buescher, 1987). Parents with higher levels of education possess tacit knowledge about such things as educational and career paths that can be shared with children. More resources typically allow for greater support of specialized types of talent development.

Other aspects of families can affect their ability to support a talented child. One of these is marginality or the degree to which the family is dissimilar or isolated from the social context in which it lives or resides, or the extent to which the family perceives itself outside the mainstream cultural group (Albert, 1994). Families may be marginal because of their race, ethnicity, religion, or SES. Marginality can have negative effects on a child because society restricts upward social mobility and opportunities for some groups. It can also have the effect of freeing the family from feeling that they must adhere to societal conventions, particularly regarding traditional paths toward achievement that include long years of training and education. This is especially true of families who are marginalized because of race or ethnicity and also poor. These families may believe that the traditional routes to success such as formal education will not result in the same occupational and financial rewards as for more mainstream and advantaged individuals, and instead push their children along nontraditional paths such as early entry into sports or entertainment fields (Albert, 1994). Minority families may also eschew traditional education as a way of protecting or participating in a subculture with which they identify and from which they receive social support and affirmation of racial identity (Ogbu, 1992). The result may be a strong push on the development of early talent via nontraditional paths, e.g., Michael Jackson (Albert, 1994).

Seemingly superficial characteristics of the talented child, such as birth order and gender, have powerful psychological effects on the talent development process because they can affect the way a child is viewed and socialized by the family and specifically, whether his or her talent is recognized. There is ample documentation in the research literature that intellectually gifted (high IQ) individuals are disproportionately firstborns (Olszewski et al., 1987). This phenomenon is found when researchers look retrospectively at the lives of prominent and eminent people in various fields as well as among groups of adolescents who score well on off-level tests. Various hypotheses have been proposed about why that is the case including that firstborn children experience a more intellectually stimulating environment because they interact primarily with adults while later borns have a diminished intellectual environment because they tend to talk to other children who are poorer role models specifically for language development (Pfouts, 1980; Zajonc, 1976). Another

proposed explanation is that families tend to have psychological niches for children such as "athlete," "scholar," or "free spirit." Parents who are well educated and value achievement may place their first child into the niche of "academic achiever" and hold other niches for later born children (Olszewski et al., 1987).

Albert (1980, 1994) views birth order as an important psychological organizer for a family that affects expectations, resource allocation including parental attention, and status of a child within a family. Albert differentiates between "favored" children who are usually the oldest or youngest children in the family and "special" children who are exceptional because of circumstances, such as the child born after the loss of an older child. According to Albert, favored or special children may be the object of great parental pressures to achieve, particularly in the family profession.

A child's gender also affects socialization practices including parental expectations for levels and areas of achievement and provision of opportunities for talent development (Arnold, Noble, & Subotnik, 1996). Historically, males have been the focus of socialization pressures for high achievement within families although this has changed somewhat and females can occupy a special or favored position within the family in the absence of male children (Albert, 1980).

Disabilities of a child set up family psychological processes that can either hinder or facilitate talent development. A handicap combined with intellectual giftedness may cause a family to be overly protective of a child, which can result in reduced opportunities for talent development or in an exclusive focus on the disability and lack of recognition of the gift (Olszewski-Kubilius, 2000). Alternatively, a disability may result in isolation for a child for varying reasons (e.g., overprotective parents, difficulty finding friends, physical limitations, rejection), fostering an ability to handle solitude and allowing time for practice, wide and voracious reading during this solitude, and other potential talent-promoting activities (Ochse, 1993). Rejection by others due to disabilities or other reasons may be motivating to a child, engendering a desire to achieve "to show them," to gain attention, admiration, and acceptance (Ochse, 1993). Any characteristic of a child that results in rejection by or reduced involvement with parents can also free a child from strong psychological identification with the parent potentially fostering the development of a unique identity and independent thought, important components of the creative personality (Albert, 1994).

In summary, characteristics of families such as marginality and generational history affect the degree to which the family is able to recognize and support the developments of talents in children. Child characteristics determine expectations and family interaction and socialization patterns as well as allocation of family resources.

Values Espoused and Enacted

Parents send many messages to children through words and actions that communicate their beliefs and values. These are critical to children's achievement. Values that families espouse regarding talent and achievement can include:

- The value of hard work, persistence, and high achievement—e.g., effort matters, meaningful work is important, perseverance is the key to success, effort matters more than ability to success, effort makes up for ability.
- The importance of education—e.g., get as much education as you can, education will lead to economic success, education makes you a better person, education is

valuable even if it does not lead to materialistic rewards, education is your ticket to a better life.

- Beliefs about self-efficacy, destiny, and control over events—e.g., you can control your own destiny, you set the course of your life, you can overcome obstacles.
- Beliefs about the importance/value of money, status, social standing, etc.
- Beliefs about the abilities of girls or minority children, opportunities for talent-development, rewards from society for achievement for these groups.
- The importance of being intellectually curious or investigative.
- The importance of being involved in the community, volunteering, doing service, giving back.
- The importance of creativity and creative production.
- The importance of active recreational pursuits—e.g., participating in sports, having hobbies, having a meaningful avocation.

Beliefs and values are translated by parents into supportive actions. These actions reflect values and children receive information about their parents' values and beliefs through both what they say and what they do. It is difficult to say which method is more explicit or direct as it depends on the quality of the message and the nature of the actions. For talent development, supportive actions on the part of parents that represent translations of their values can include:

- Exposing children to a wide variety of cultural enrichment
- Providing special lessons in talent area
- Intervening in school issues
- Providing access to a wide variety of books and other educational materials
- Encouraging hobbies and active recreational pursuits
- Monitoring and assisting with homework, providing tutoring
- Orienting family life around school or lessons
- Modeling independent pursuits, self-study, creative hobbies, reading for pleasure, involvement in the community
- Setting high expectations for grades and achievement
- Providing special educational programs and garnering other services as needed such as evaluation, testing
- Modeling love of and engagement in meaningful work
- Direct teaching

The research evidence regarding verbally espoused and enacted values for gifted children is relatively limited but includes the following: parents of young but renown musicians, artists, scientists, and athletes stressed winning, success, doing one's best, persistence, excellence, and being productive (Bloom, 1985); parents of creative architects emphasized cultural and intellectual pursuits, success, ambition, diligence, development of one's talents (MacKinnon, 1965); parents of high-IQ children stress that achievement comes first even though high levels of achievement have costs (Herskovits, 2000). Parents do back up their verbally espoused values and beliefs with actions and these positively affect achievement. They provide students with materials and support at home for study, encourage independent work in the talent area, assist with homework, limit television viewing, advocate for children at school, and actively seek talent-developing opportunities outside of school, etc. (Albert, 1978, 1980; Bloom, 1985; Corbin & Denicolo,

1998; Freeman, 1979; Getzels & Jackson, 1962; Gottfried, Gottfried, Bathurst, & Guerin, 1994; MacKinnon, 1965; VanTassel-Baska, 1989). Of course, parental actions vary by the needs of the child and the capabilities of the parent. Also, there is a fine line between parental support and overinvolvement; some research suggests that too close monitoring of homework including rules about homework and grades is negatively associated with academic achievement among high achievers (Konstantopolous, Modi, & Hedges, 2001).

A disconnect between verbally espoused values and actions can negatively affect academic achievement. Gifted students who were underachieving were found to have well-educated, professional parents who verbally stressed academic achievement but did not share any of their work life and, in fact, spoke more of the frustrations of their career than the joys or rewards of it to their children (Rimm & Lowe, 1988). Sampson (2002) found a difference in values between African-American families whose children were achieving at high, average, or below-average levels in school (based on grades) and an inconsistency between verbally espoused values and enacted values for low-achieving children. Families of the above and average-achieving children stressed the importance of education and structured their family life around schoolwork and school activities. Parents encouraged participation in extracurricular activities, assuming responsibility at home through babysitting and household chores, and provided a quiet, orderly home environment conducive to study. They communicated to students that they alone were in control of their destinies, that nothing could prevent them from meeting their goals except perhaps money and provided a hopeful and positive view of the future to their child. In contrast, families of low-achieving children communicated different beliefs and values and/or verbally endorsed similar values to families of average- and high-achieving children, but did not follow through with supportive actions. They may have told their children that getting a good education was important to their futures, but then did not provide a home environment conducive to study nor check on their child's schoolwork or even ask about school at home (Sampson, 2002).

How Values Are Communicated to Children

Albert (1994) has identified two different ways in which values from parents and preceding family generations are transmitted to children, intergenerational and transgenerational transfer processes. Intergenerational transfer processes operate horizontally in the present to the near future, and occur in the normal day-to-day interactions that take place between family members including extended family. The substance of these interactions is largely influenced by the family's present social and economic circumstances, e.g., value of a high-paying job. Intergenerational transfers help to maintain family relationships and their effects are direct, immediate, and current. However, depending on characteristics of the child (e.g., gender, birth order), not every child in the family experiences the same family context nor receives the same value-laden messages. The nature of these interactions can also be different because of differences in affection, interdependence, identification, and favoritism between parent and child (Albert, 1994).

In contrast, transgenerational transfers operate from a family's distant past into the family's future, and thus are vertical and longitudinal (Albert, 1994). While the origins of these messages may be vague, they still can be powerful and communicate

expectations for achievement, family traditions including preferred fields of achievement, aspirations, and family norms.

Messages about values within families are a mixture of intergenerational and transgenerational transfers but eminently creative individuals almost always come from families where there are significant transgenerational messages. According to Albert (1994), transgenerational transfers give the talented individual historical continuity and a feeling of connectedness and responsibility to and from one generation to the next, which may have a significant role in creating and sustaining the powerful motivation and persistence to do all the hard work involved in talent development.

Transgenerational and intergenerational messages vary in their content and eventual outcome (Albert, 1994). The messages of intergenerational families are more concerned with the demands of the immediate environment and day-to-day circumstances and pressures rather than the past or the future, and are influenced more by present status and convention than family history. Families that are primarily intergenerational in orientation tend to socialize children more conventionally and toward traditional routes of achievement. In contrast, the messages of transgenerationally oriented families cut across families and generations and can "free them [children] from proximal pressures and narrow perspectives" (Albert, 1994, p. 349). As a result, they are more likely to foster creativity in children than intergenerationally oriented families.

Transgenerational and intergenerational transfers also vary in their frequency and thus effects on children (Albert, 1994). Intergenerational values begin to be communicated early and frequently in a child's life, and therefore, these messages may be easier for a child to abstract from the many day-to-day interactions with family members. Transgenerational transfers or values are far less frequent and because of their content, e.g., family values, occupational preferences, and family traditions, parents do not start delivering them until children are older (Albert, 1994). Thus, they may be more difficult for a child to comprehend and grasp. Additionally, parents vary greatly in their abilities to deliver these transgenerational types of messages in explicit ways. Trangenerational messages may be too few in number or too poorly delivered by parents to have a supportive effect on talent development in many cases.

Another way in which families communicate values and beliefs to children is through the role they play as translator, interpreter, or filter for outside events and circumstances. Csikszentmihalyi and Beattie (1979) assert that families have systems of cognitive coding or patterns of explanations for events that they share with their children. Negative situations or circumstances such as poverty, loss, and marginality are interpreted for children by adult family members, and this interpretation profoundly affects children's world view (e.g., whether they view the world as full of opportunity for them and inviting versus lacking in opportunities), beliefs about themselves, values, and the degree to which they can affect their own success and achievement. These messages determine children's values and choices. For example, two families who are poor may give very different messages to their children regarding how to get out of that situation, e.g., aim high, have high goals, get an education to prepare for the future versus do whatever you can to make money.

In summary, values about achievement come from immediate family contexts and previous generations. The degree to which these messages are future oriented, achievement focused, and emphasize traditional achievement paths or particular fields is a function of family stability, generational history, and family resources.

Culture and Climate in the Homes of Talented Individuals

Previous research suggests that families that produce talented individuals have some common characteristics. One of these has to do with parenting style and specifically the conventionality of parenting, or the degree to which parents socialize their children toward traditional standards of behavior and the conventions of society. Research suggests that parents of creative achievers tend to have parents who were more unconventional in their parenting (Getzels & Jackson, 1962), allowed a great deal of freedom to their child (MacKinnon, 1965), encouraged the development of independent ideas and independent expression (Simonton, 1992), and spent less time teaching children about the routines, traditions, and taboos of society (Albert, 1994; Piirto, 1998; Therival, 1999a). There is some evidence that parents of creative individuals demanded less conformity to parental values (Colangelo & Dettman, 1983; MacKinnon, 1965), whereas parents who stressed high levels of school achievement socialized children more strongly for adherence to their conventional values (Getzels & Jackson, 1962). Being less concerned about societal conventions is also a function of family status; families with ample financial and social resources tend to be less concerned with steering children toward traditional achievement paths and more tolerant of alternate routes, nontraditional interests, and unconventional careers (Albert, 1994).

Another characteristic of families of gifted children is an unusual degree of closeness and cohesiveness among family members, although the research evidence about this is somewhat equivocal. Albert (1978, 1980) has argued that this is because family interaction patterns are different for families of high scholastic achievers versus creative children. Families of high academic achievers are characterized by close relationships between parents and children, strong identification of children with parents, and harmonious family relationships. Families of creative children have tense relationship between family members, what Albert calls "wobble," including competition between parent and child. He (Albert, 1978) found that creative individuals often came from families with an imbalance between mother and father; mother dominated and was very focused on the development of the gifted child while father was more distant. Studies of creative architects (MacKinnon, 1965) and eminent, creative scientists (Roe, 1953) revealed a lack of closeness between parent and child and tense family relationships. Albert suggests that while families of creative individuals are often tense in terms of family relationships, they are secure.

Talented children who do not achieve may come from homes with conflicted family relationships. Rimm and Lowe (1988) found patterns of extreme sibling rivalry and negative, even oppositional, relationships between parents and child among underachieving gifted children. Parenting in these families was liberal toward children's behavior and very child centered when they were young, but then inconsistent as the children got older, with one parent assuming the role of the "task master" and the other the protector and advocate for the child. Family relationships were tense and family life was chaotic and frenzied.

On the other hand, Bloom (1985) found that families of highly gifted individuals in science, math, the arts, and athletics had very child-centered homes with close and warm child–parent relationships. These parents were very involved in their children's lives and directly facilitated their talent development, some even serving as initial teachers. Other studies have also found high levels of child centeredness in the homes of children considered gifted by virtue of high scores (VanTassel-Baska, 1983) on off-

level tests, high-achieving, low-income children (VanTassel-Baska, 1989), linguistically precocious preschoolers (Robinson et al., 2002), and children who have high IQs but low creativity (Getzels & Jackson, 1962).

Csikszentmihalyi, Rathunde, and Whalen (1993) assert that families that provide supportive contexts for talent development are those that are complex, meaning that there is a balanced tension between forces of integration and differentiation. Integration refers to the condition whereby family members feel a sense of support from each other, are connected to one another, and have generally harmonious relationships. Differentiation refers to the encouragement and push by the family of each member to develop his or her individual talents and abilities by seeking appropriate challenges and opportunities. A stable, harmonious family environment enables children to focus their energies on serious work, feel at ease to seek challenges, and become absorbed in what they are doing. A family environment that promotes finding challenging, interesting ways to spend one's time enables children to seek out and invest in activities that promote self-discipline and talent development. These two forces—one pulling family members together and one pushing them away toward growth and change—characterize complex families that can support talent development. "Complex family environments breed complex, autotelic personalities—in other words, individuals who habitually react to a boring situation by seeking stimulation and challenge and to an anxiety-provoking one by increasing skills" (Csikszentmihalyi et al., 1993, p. 157). Adolescents who persisted with their talent development activities tended to have autotelic personalities.

Can family members be too closely connected? Family systems theory predicts that moderate rather than high degrees of family cohesion and adaptability are most conducive to optimal family functioning (Taylor, 1998). However, Taylor found that high levels of family cohesion and adaptability were associated with better coping strategies on the part of children who had both high IQs and high achievement and who attended a summer gifted program. Among these families, extreme levels of cohesion were found but were not judged maladaptive by the researchers; they were viewed as indicative of adolescents' use of their families for support for superior achievement.

In summary, the research evidence is complex but suggests that families of gifted children may be more cohesive and child-centered than other families and family members may be more involved with each other. This may not be maladaptive for these families, particularly if other attributes of family functioning support the development of independence and autonomy of children. Families that are close and supportive enable a talented child to focus energy and attention on and actively seek challenging tasks, thereby promoting the acquisition of skills and knowledge. Parents who expect and promote high levels of achievement may have to also provide unusually high levels of support and involvement in order to help their children cope with pressure and demands of challenging programs of study.

How Family Attributes and Processes Engender Characteristics in Children that Support Talent Development

Identifying characteristics of families of children who are academically or creatively gifted is useful, but the more important question is how these attributes affect the individual to result in high achievement. What are the processes that occur within families that produce children who are motivated to achieve, goal-directed, confident,

persistent, and willing to spend the countless hours studying and practicing skills needed for success in their talent field? One way to understand how the family affects talent development is to connect important personality characteristics or dispositions of successful, gifted adults to values, beliefs, and processes within their families.

It is important to understand that there is great variability within any group of individuals, including gifted ones, in terms of personality characteristics and dispositions. Many prominent researchers in the field of talent development agree, however, that attributes of the individual, specifically personality and motivation, are the most important components of creative achievement and differentiate achievers and producers from others (Csikszentmihalyi, 1985; Ochse, 1993; Simonton, 1984, 1992). Csikszentmihalyi (1985) writes, "The unifying similarity among geniuses and innovators is not cognitive or affective but motivational. What is common among them is the unwillingness to inability to strive for goals everyone else accepts—their refusal to live by a presented life theme" (p. 114). Winner (1996) writes, "After a certain point, levels of ability play a less important role than personality and motivational factors" (p.283). Ochse (1993) states, "However, it is consistently recognized that the creators most salient characteristics is persistent motivation" (p. 133).

A useful perspective is offered by McAdams and Pals (2006) who conceive of personality as an "individual's unique variation on the general evolutionary design for human nature, expressed as a developing pattern of dispositional traits (e.g., extraversion, friendliness, dominance), characteristic adaptations (e.g., goals, strategies, strivings, motives, values, schemas), and self-defining life narratives (individual life stories that unify and create meaning), complexly and differentially situated in culture and social context" (p. 212). This conception of personality provides a broad framework with which to understand and examine the role of family and the family environment in shaping the characteristics of gifted and creative individuals. The question is, how do the motivational patterns, personality dimensions, and dispositions characteristic of high-achieving, creatively producing people come about within the context of the family? How do circumstances within the family interact with individual proclivities to produce characteristics important for the development of talent? The research literature provides some clues as to the family processes that underlie several characteristics of successful, talented, creative people including a preference for time alone, a preference for unconventionality, an ability to cope with stress and tension, a tendency toward perfectionism, and a tendency to express and resolve emotional issues through creative work.

Time Alone. Successful, high-achieving adults have spent inordinate amounts of time acquiring the skills and knowledge needed for high levels of expertise in their talent field. Their physical and psychic energy has necessarily been focused on development within the talent area. Parents clearly play a role in this by providing early exposure to the talent area, often as a part of typical family recreation or interaction, as well as by serving as the first teachers (Bloom, 1985). Parents reorganize family life to make the development of the child's talent the first priority, find appropriate teachers, encourage and supervise practice and talent-developing activities at home, smooth the way for many hours of practice or study by arranging schedules, and generally play a coordinating role so that the child can remain focused on learning and sustain the priority of striving for long-term goals over immediate enjoyment. Parents engineer the environment to support talent development.

Being very focused on the talent field necessarily means having less time for other typical childhood activities. While in many cases this may be driven by the child's desire to master (Winner, 1996), retrospective studies also suggest that many creative producers found themselves somewhat isolated as children and turned to talent development activities to fill up the time alone (Olszewski-Kubilius, 2000). The isolation may have been a result of family circumstances such as poverty, rejection by others due to handicaps, or controlling and restrictive parents.

Time alone is critical to the talent development process. It gives children an opportunity to read, practice, or acquire skills relevant to the talent area (Simonton, 1992; Winner, 1996). Voracious reading in childhood is a hallmark of creative producers and necessary to build the rich background of knowledge that may be the base for interesting cross-disciplinary connections and novel links between disciplines (Simonton, 1994).

A characteristic of creative producers that requires time alone and/or stems from solitary play is a fantasy life. A rich internal fantasy life may have been a coping strategy for a young child with few playmates or opportunities to play with others and those with imaginational capacities (McCurdy, 1983), but it can lead to the use of visualization techniques for solving complex problems. Internal fantasy is also useful as a means to deal with stressful circumstances, traumatic events, and psychological pain and can be a lifelong coping strategy. Many children use fantasy, internalized and externalized through play, to deal with circumstances beyond their control, rewriting real events into scripts that are more palatable such as inventing a caring alternate family or changing the outcomes of a situation (Ochse, 1993).

Csikszentmihalyi et al. (1993) identified the inability to spend time alone as a major obstacle to talent development among gifted adolescents. In their research, talented teens who could cope with the anxiety and loneliness of time alone were able to persist during adolescence with practice and other talent-developing activities. Ochse (1993) postulates that having to spend time alone as children and learning to cope with solitude enables individuals to not only tolerate it but to embrace it and develop a preference for time alone: "Aloneness is not merely the effect of circumstances in the lives of creators. It is often part of their personality for the creator is often apart and withdrawn even in the presence of others and often makes a deliberate attempt to seek solitude" (Ochse, p. 169). Similarly, Csikszentmihalyi et al. found that talented teens learned to enjoy solitary activities and kept connected while alone by talking on the phone and writing letters to friends, something today's teens do with email, text- and instant-messaging.

For some children, solitary activities may provide a welcome respite from difficult circumstances in their lives such as parental loss, parental rejection, harsh discipline, poverty, loss of a sibling, rejection by peers, or parental conflict (Ochse, 1993). These children retreat into solitude and to the solitary intellectual activities that give them relief and enjoyment and also further develop their abilities. Solitary intellectual activities such as reading or practice may feel like more controllable situations to children, ones that are more appropriately matched to their capabilities and skill, compared to stressful interpersonal interactions with parents or other family members (Ochse, 1993).

Spending too much time alone is not healthy for developing children. Friendships and support from others are critical to psychological health. While there may be positive outcomes of a lonely childhood such as investment in talent-developing activities,

not all children who experience such circumstances may be able to use the time alone productively. It is unknown what enables one child to turn to learning and reading when isolated or lonely versus less productive kinds of activities. Clearly, opportunities to engage in talent activities because books, art materials, or musical instruments are available in the home are one factor. Modeling by parents of productive use of alone time is likely another. In less benign circumstances, parents want to encourage children to develop the ability to spend time alone usefully engaged by modeling that themselves and structuring opportunities (e.g., a space at home to do one's art, or a quiet place to read) for it in the home. Developing imaginational skills is facilitated by exposure to imaginative activities and fantasy through books, theater, and other media and cultural activities and the encouragement of play.

Coping with Stress or Tension. Another characteristic of creative producers is an ability to tolerate high levels of a quality that has been variously referred to by researchers as marginality (Gardner, 1994; Simonton, 1994), asynchrony (Gardner, 1994), risk-taking (Garner, 1994; Simonton, 1992), or discordance (Feldman, 1994). All of these terms refer to an ability to deal with situations that are ambiguous, ill-defined, and anxiety or tension producing. The states of tension may arise from some of the following situations: marginality of the person with respect to a referent social group as a result of race, religion, gender, socioeconomic status, or field of work; asynchrony within the individual due to disparities between abilities in different areas such as being highly gifted in one area and learning disabled or average in another; discordances that result from great talent and far from optimal talent-developing conditions or environments; marginality because one is working at the edges of a field or fields or within two seemingly disparate fields; risk-taking that is required when one puts new work forward for review and analysis by the recognized experts in a field; and tension that results from working on highly complex, extremely ill-defined, yet important problems (Olszewski-Kubilius, 2000). According to Gardner (1994), creative people prefer to live at a high level of tension and anxiety. They turn comfortable synchrony into uncomfortable asynchrony and/or "up the ante" when there is too little marginality in their lives. So, for example, when an artist's work is finally receiving recognition and critical acclaim from the gatekeepers and experts in the field, he or she will go in a new direction to increase tension and marginality, never satisfied to remain complacent. Ochse (1993) postulates that creative individuals prefer neither a tensionless state nor a tension-filled state. What they seek are activities that allow them to experience the pleasure that results from tension reduction or anticipated reduction of tension. Challenging problems have greater potential for greater tension reduction and as one gains maturity and expertise in a chosen field, more and more difficult and complex problems must be tackled to get the same tension reduction effect (Ochse, 1993), thus resulting in a lust for challenge and the development of higher and higher levels of expertise.

What family conditions in childhood or what kinds of parenting enable children to develop a high tolerance for tension, intellectual or otherwise, a preference for intellectual risk-taking, or discordance? Children who experience tension-filled childhoods may develop coping skills at an early age to deal with it. The tension can be a result of high expectations on the part of parents for achievement and performance, parental or family discord, family dysfunction, instability due to poverty, loss of a parent or sibling, or neglect, or any number of circumstances. No one would promote tension-filled family environments for children as a way to advance

talent development. However, the findings above suggest that an ability to cope with challenge may give some individuals an advantage over others in terms of reaching their full potential. Csikszentmihalyi et al. (1993) assert that a balance of support and tension within the family is optimal in terms of talent development. They believe that previous studies have lacked a nuanced conceptual classification for balanced families and have tended to focus on extreme types and very dysfunctional families, especially retrospective accounts of the early environments of highly creative, histori- cally recognized people. An overemphasis on integration over differentiation would likely result in individuals who are well-adjusted and competent but not necessarily highly talented or creative. An overemphasis on differentiation over integration would support the development of high levels of talent and creativity, but possibly at the expense of good mental health and adjustment. Emotional and instrumental support from parents along with high expectations that challenge children to develop their abilities is optimal. According to Csikszentmihalyi et al., inborn talent or the desire to overcome personal tragedy and disability might explain the development of the highly creative productive individual with less-than-supportive families. It may be that the development of very high levels of talents, eminent levels, requires a motivation resulting from childhood tragedy and unmet or compelling psychological needs, while other, more typical levels of talent and achievement result from a more balanced blend of tension and support within families.

Similarly, Therival (1999a) believes that family discord or tragedy is not essential to the development of creative productivity. According to Therival, creativity can develop in individuals who experience tension-filled, stressful family environments as long as there are also what he calls great assistances present. Therival distinguishes between creators who were dedicated (i.e., had many assistances, high ability, and no major family misfortunes) and those who are challenged (e.g., have high ability, some assistances, and some misfortunes). Both types produce creative work but challenged personalities are more overtly driven to prove themselves and receive recognition (Therival, 1999b). Therival also asserts that the nature of the family misfortune is important. Some misfortunes such as parental conflict or loss of a parent create chal- lenging environments but are ones that elicit coping skills on the part of the child. Other misfortunes, such as psychological or physical abuse, cause antagonism and result in rejection of adults and authority figures in general and creativity that often is funneled into lifestyle and mannerisms (i.e. eccentric behavior) and not substantive work (Therival, 1999b). Thus, the source, nature, and intensity of the family tension or challenging circumstances matter and affect the degree to which creativity and a taste for intellectual tensions are fostered at the expense of good mental and psycho- logical health.

Tendency to Be Unconventional. Another characteristic of creative producers is the tendency to be unconventional, to reject societal traditions, to feel freer to follow one's own path and inner voice, and to pursue unconventional occupations and interests (Olszewski-Kubilius, 2000). Creative producers are particularly mistake tolerant and open to new ideas and nontraditional paths. Some are interested in shaking up the status quo.

Being less concerned with societal conventions can be related to several fam- ily factors. As stated earlier, families that are well-established, with several genera- tions, and have ample resources, will be less concerned about promoting traditional achievement paths and socializing children toward conventional, high-paying jobs

and are likely to tolerate and even support nontraditional interests and careers financially. Alternatively, families with few resources may similarly steer their children away from nontraditional careers or educational and career paths in lieu of those they think may pay off quicker such as music or sports (Albert, 1994).

Any event or circumstance in childhood that affects parents' abilities to teach children about society's codes, rules, and traditions can produce individuals who are less conventional. This could include loss of a parent, parental dysfunction due to physical or mental illness, parents who are less available due to their own work, or even parents who themselves are less conventional. These circumstances simply result in less teaching by parents; they spend less time schooling their children in these traditions either because they are unable to do so or choose not to. When parents are unable or unwilling to teach children about the routines, traditions, or taboos of society, what Therival (1999a) calls "scripts," individuals will create their own. Having to build one's own scripts can result in creative insights and different points of view. "In this optic, creative insights come from the clash of quality individual scripts with the scripts of the majority, from a constructive resolution of both sets of scripts that are 'rotated' around a key common point or set of points" (Therival, 1999a, p.49).

Albert (1978) proposed that the patterns of difference he observed between families of creative children versus scholastic achievers fostered different kinds of motivations in children regarding achievement. According to Albert, the parenting of creative children was more unconventional and this combined with other characteristics (tense family relationships) fostered a desire for power and influence over others on the part of children. In contrast, the conventional and traditional parenting and socialization practices of the families of scholastic achievers, along with other characteristics (e.g., close, cohesive family relationship) resulted in a motivation to excel in traditional ways. Less conventional socialization on the part of parents can include an emphasis on early self-sufficiency and independent action and thought (Albert, 1978).

Any circumstance that loosens affectionate bonds or disrupts the normal process of identification that occurs during adolescence between parent and child is likely to result in individuals who are more independent in their thinking, who reject the accepted answers, and who go their own way. These children will not assume the values of their parents because they do not identify with nor necessarily have great affection for the individuals conveying them. Reduced affiliations between parent and child may result in a "cognitive freeing" that gives the child greater latitude to follow his or her own destiny, create an identity different from the parents, and pursue novel and unconventional paths (Albert, 1994; Winner, 1996).

Also, unconventional parents often foster a home environment where free and open expression of independent ideas is encouraged and promoted. These parents are less concerned about socializing children to have values and beliefs similar to their own. Individuals who are less accepting of society's conventions may be more androgynous and open to fields not considered typical for their gender (Ochse, 1993).

Some individuals go beyond being unconventional and actually desire to stir up the status quo within a domain. They reject or do not have reverence for the existing structures and traditions of a field. They are rebellious and reject outside influences (Helson, 1996). This may be due to the combination of a desire and lust for tension (working on the margins of a field, pushing the cutting edge) and viewing things

very differently as a result of very unconventional parenting and socialization. Ochse (1993) suggests that desiring to shake up a field may also be a rebellious reaction to stern, authoritarian, and controlling parenting in childhood. Thus, multiple childhood circumstances can result in a freedom from conventionality.

A family environment that fosters free and independent thinking and is unconventional may not in itself result in creative potential or achievement. Simonton (1992) notes that "[d]isruptions to socialization will not do a child any good unless the freedom gained is maximally exploited—the time and energy that would have been spent on learning societal norms can be diverted to the acquisition of creative potential" (p. 286).

Talent Activities Fulfill an Emotional Need. A characteristic of creative individuals is that their intellectual and creative activities often fulfill a basic emotional need, which is why they are so highly motivated to pursue them. The emotional need typically stems from events and circumstances in their childhood. Piirto (1992) asserts that childhood traumas provide the grist of novels, poetry, and artistic expressions. VanTassel-Baska (1996) studied several renowned female writers, including Charlotte Bronte and Virginia Wolfe, and found recurring themes, such as loss of mother or siblings and disappointments in love across their various works. Through a creative outlet, the individual finds expression for intense emotion, solace, and relief. Getting comfort and reworking difficult issues so as to achieve understanding, closure, or solutions are the basis for the strong motivation to persist and achieve.

Achievement in the talent area may be a palliative avoidance response (Ochse, 1993) in which the individual seeks refuge in practice or engaging in the activities of the domain to avoid or cope with difficult or stressful circumstances in their life, including family issues or rejection by peers. Engagement in the talent development activities is emotionally soothing to the individual in part because it places them in safe, controllable circumstances, ones that they can manage, which may be different than the ones they are experiencing in their lives (Ochse, 1993).

Simonton (1994) asserts that achievement may be a way for an individual to compensate for loss or rejection in childhood. Success brings respect from and potentially power over others. Ochse (1993) writes, "If naturally unattractive, they must be urged to produce something of beauty as an extension of themselves—to attract love. In other words, creating beauty not only serves the purpose of reducing intellectual tensions but also arouses feeling of attraction (sexual tension and promise of tension reduction) in others" (p. 157). Horney (1937) suggested that several different coping strategies are possible when children experience a loss of security due to some disruption in the parent–child relationship. To deal with the anxiety that results, children may turn toward people and seek their love and affection, turn away from people and seek self-sufficiency and independence, or turn against people and seek power, control, and domination. Creative producers will try to fulfill these motives, acquired through experiences in childhood, in their work, which will affect their level of commitment, drive, and perseverance.

Individuals may turn a loss or disillusionment or some other childhood event into a life theme. That is, children experience some significant event in their family, which is reinterpreted by parents or other family members as a broader, existential problem that the child then decides to dedicate himself to through his life work (Csikszentmihalyi, 1990). An example of this is transformational coping (Csikszentmihalyi & Beattie,

1979), which involves an individual using his or her work to right a social injustice experienced in childhood. For example, a child who is poor and whose family suffers as a result of lack of medical care or adequate housing may in adulthood become a physician who establishes clinic for low-income families or works as a government official to obtain health care for the poor. What is critical to this occurring is the interpretation of the event by the individual and significant others. According to Csikszentmihalyi and Beattie (1979), transformational coping involves three main components, a belief in one's self-efficacy and that fate and destiny are within one's control, a focus outside oneself, and the ability to find new solutions by finding new goals and removing obstacles. These beliefs are engendered from early experiences within the family and messages received from family members. While tragedies or events in childhood get translated into symbolic forms or existential problems, Csikszentmihalyi and Beattie say that eventually the individual's career becomes separated from the original problem and the motivation to succeed, produce, and achieve eventually becomes the challenging questions and medium of the talent field itself. Rhodes (1997) says something similar when she distinguishes between D-creativity and B-creativity. D-creativity is creativity that results from deficiencies in acceptance, love, and respect. B-creativity is creativity resulting from intrinsic motivation. D-creativity can turn into B-creativity, particularly as emotional needs are met, healing occurs, and "control of both the environment and the symbol systems used for expression" (p. 253) within the talent area are acquired. An unanswered question, however, is whether D-creativity must always precede B-creativity.

Thus, achievement can be an important outlet for emotions and can be bound up with emotional needs of the individual. Whether this is healthy or detrimental to the individual psychologically and in terms of his or her talent development depends on many factors. Suffice it to say that the tremendous motivation and persistence required for the development of abilities to a very high level will undoubtedly have some emotional component to it and this could be a very positive and healthy situation for an individual.

Perfectionism. Another characteristic of many talented individuals is perfectionism. There is currently a debate about whether there is any healthy form (e.g., striving for excellence) of perfectionism but for our purposes we are talking about perfectionism that involves the desire to be perfect, the fear of not being perfect, and the belief that one's acceptance as a person is dependent on being perfect (Greenspon, 2006). Perfectionism is not a psychological disorder but a personality constellation or a collection of behaviors, thoughts, and feelings according to Greenspon. At the root of perfectionism is a self-esteem issue that originates in relationships within the family. Perfectionists believe that being perfect is the only way to gain acceptance and emotional connection to others, particularly important family members. According to Greenspon, the nature of children's relational environments is the cause of perfectionism. Specifically, environments that are hypercritical and in which the child hears lots of criticism of himself or others, environments in which there is a great deal of anxiety expressed among family members about doing things the right way, environments in which the message is that even though a grade or performance is good, it could always be better, environments in which relationships are distant rather than warm and nurturing, and environments that are dysfunctional and chaotic are all more likely to engender perfectionism in children. While

gifted children are not inherently more prone to perfectionism than nongifted children, aspects of their environments, such as high expectations from parents and the rewarding of perfect scores or marks by schools, are more likely to contain conditions that encourage perfectionism (Greenspon, 2006). Family environments that foster acceptance irrespective of performance or achievement are less likely to result in perfectionism.

Summary

What can we conclude from the research on the families of gifted and creative individuals? Parenting styles that help a child find his or her own identity rather than prescribing it, encourage independent thought and expression, and reduce parent–child identification but not affiliation or affection will foster creativity, talent development, and mental health. Parents need to establish and maintain strong emotional bonds with children and support children in their achievements but also allow them psychological space to be their own person and develop their own unique identity. Parents need to maintain closeness with children while simultaneously pushing them to seek out activities that match their individual abilities and interests. Parents need to set expectations that children will use recreational time productively and that hobbies, avocations, pursuit of interests, and the development of abilities are important. Parents should encourage children and help them to develop the ability to work alone by modeling such behavior and showing them how to be alone and productive yet connected to others. Parents should set high expectations for children, particularly if high levels of talent are present. But, at the same time, parents must be careful not to communicate that their love for their child is contingent on achievement or success and must not be overly critical of their children's performances. Parents must be careful not to live out their dreams through their children but must work to find appropriate fields of study and activities based on the unique profiles of abilities and interests of their child.

Parents can also foster talent development by encouraging children to seek out challenging learning experiences whether in school or outside of school and simultaneously providing emotional and psychological support to children as they cope with high demands and possibly failure. Children need to experience the tensions and stresses that arise from high expectations, big ideas, challenging courses, and competition with equally able peers so that they can develop coping skills for stress, such as the use of internal fantasy and outlets for emotional expression in their creative work. Parents can model effective coping strategies and encourage children to find healthy, creative outlets for emotions and stress including internal fantasy. Finally, parents need to help children develop an open and welcoming attitude toward the world and positive beliefs about their ability to succeed, overcome obstacles, and successfully negotiate risks and challenges.

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Conceptions of Giftedness

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Johnny, a 9-year-old elementary school student, has an IQ of 140, which would qualify him as "gifted" by virtually any IQ-based definition of giftedness anyone might use. Johnny has few friends, in large part because he has very poor social skills. Johnny has no hobbies to speak of, and is unengaged in significant extra-curricular activities outside of school. And despite his IQ, Johnny is a good, but not great, student.

Davy is also 9 and is in the same school as Johnny. He has an IQ of 120, which would quality him as "gifted" by some, but not other IQ-based definitions of giftedness. Davy is very active in sports and is the best soccer player of any age in his school. He also is a highly talented trombonist, and is first trombone in the elementary-school orchestra. His teacher believes he has the potential for a career in musical performance, should he wish to follow that path. Davy is very popular and is one of the top three academic performers in his class.

Who is gifted? Johnny? Davy? Both? Or neither? In answering this question, four things must be kept in mind.

First, "giftedness" is a label—nothing more. We are frequently asked whether such-and-such or so-and-so child is gifted. The answer depends on the criteria one sets. But there is no one absolute or "correct" set of criteria. Criteria for such labeling are a matter of opinion, nothing more, and there are many disagreements as to how the label should be applied.

Second, the label can be applied in either a more general or a more specific way. The more general way implies that giftedness is relatively general across many domains—that is, someone is either gifted or not. On this view, someone who is gifted is gifted very broadly. The more specific way implies that giftedness is something that is potentially limited to one or several narrow domains—for example, verbal skills; or within the verbal domain, writing skills; or within the writing domain, fiction-writing skills. Indeed, relatively few successful fiction writers are also successful nonfiction writers, and vice versa.

Third, conceptions of giftedness can and do change over time and place. At times in the past, a child's ability rapidly to learn classical Greek and Latin might be viewed as an important sign of giftedness. Today, such an ability generally would be relatively less valued. Similarly, the skills that lead a child to be labeled as gifted might be different in a hunting and gathering village in rural Tanzania than in urban Los Angeles.

Fourth, conceptions of giftedness can be based on either explicit theories or implicit theories of giftedness. An explicit theory is one proposed by a scientist or educator who has studied giftedness and has arrived at a conception of giftedness that has been subject to some kind of empirical test. An implicit theory is simply a layperson's conception of a phenomenon. It has no explicit scientific basis. It might be looked at as a "pragmatic" conception rather than as one based on rigorous research.

As we review conceptions of giftedness, keep in mind the four constraints above. The chapter does not provide final "answers," because there are no such answers. Rather, each reader will have to decide for him- or herself which conception or conceptions he or she finds to be compelling.

First Wave: Domain-General Models

Many of the earliest giftedness researchers investigated the scientific basis of giftedness from a domain-general perspective, using the words "gifted," "genius," and "talented" almost interchangeably. It is completely reasonable to begin a scientific investigation of a topic in this manner, and the work of these "first wave" pioneers laid an important foundation for future research on the nature of giftedness and talent.

Francis Galton's book *Hereditary Genius* (1869) was one of the first public outlets to present a theory of genius. Galton conceptualized genius as "an ability that was exceptionally high and at the same time inborn" (Galton, 1892, p. viii). He garnered support for his theory by analyzing the family lineage of distinguished European men. He found that genius ran in families, and concluded from this that genius must be genetically inherited, in much the same way as physical attractiveness. Galton's *estimation* (as opposed to measurement) of genius was ostensibly subjective, using indices such as enduring reputation. Galton's technique had limited effectiveness for an understanding of giftedness in young people (in part because he focused on genius-level individuals), but he nonetheless set the gears in motion for the scientific study of giftedness.

At the turn of the twentieth century, English psychologist Charles Spearman (1904) noticed that a wide variety of cognitive tests tend to positively correlate with each other. Using his newly developed statistical technique of factor analysis, he determined that there is a significant amount of common variance across all of the tests, with some variance specific to each test. He called the pervasive ability *g*, or general intelligence, and each of the specific abilities *s*. Spearman viewed *g* as general and innate (i.e., as having a strong physical substrate), much in line with Galton's view on the hereditary basis of genius. He later proposed that the general factor was a result of "mental energy" (Spearman, 1927).

Around the same time Spearman discovered the *g* factor, Alfred Binet and Theodore Simon (1916) were developing a mental scale to identify students in need

of alternative education. The scale comprised a variety of tasks that were thought to be representative of a typical child's ability at various ages (Siegler, 1992). Binet and Simon's scale was one of the first tests to include an assessment of higherlevel cognitive skills. Galton thought the best way to measure intelligence was through sensory-discrimination tasks, and indeed many of the tests that Spearman first put into his factor analysis were tests that could hardly be considered higher-level cognition. Such tests included keenness of sight and hearing, color sense, breathing power, strength of pull and of squeeze, force of blow, span of arms, height, and weight (Galton, 1908).

Lewis Terman adapted Binet's scale and created the Stanford-Binet Intelligence Scale, one of the first intelligence tests used to identify gifted schoolchildren (Terman, 1916). Even though Terman adapted Binet's test, he also adapted Galton's theory of the nature of genius, and viewed giftedness as a single entity, equating giftedness with a high IQ. He created a classification scheme in the schools (which is sometimes still used today) in which a student with an IQ score above 135 is described as "moderately gifted" (Terman, 1925), above 150 as "exceptionally gifted," and above 180 as "severely and/or profoundly gifted" (Webb, Meckstroth, & Tolan, 1982). As for how these tests would be used, he suggested that:

> Teachers should be better trained in detecting the signs of superior ability. Every child who consistently gets high marks in his school work with apparent ease should be given a mental examination, and if his intelligence level warrants it he should either be given extra promotions, or placed in a special class for superior children where faster progress can be made. The latter is the better plan, because it obviates the necessity of skipping grades; it permits rapid but continuous progress (Terman, 1916, p. 14).

The nature of general intelligence is still a highly researched area (Detterman, 2002; Gottfredson, 2002; Jensen, 1998; Kyllonen, 2002; Petrill, 2002). In addition, a few giftedness researchers today do still equate general intelligence with giftedness (e.g., Gallagher & Courtright, 1986), and many identification procedures in the United States rely heavily on full-scale IQ scores (see Implications for Education section).

Second Wave: Domain-Specific Models

Not everyone was content with equating high general intelligence with giftedness. One of the earliest researchers to emphasize the variety of ways an individual can be gifted was Louis Thurstone (1938). Using a different method of factor analysis than Spearman, he identified seven primary mental abilities that he claimed were statistically independent of each other: (a) Verbal comprehension (involved in the ability to understand verbal material), (b) Verbal fluency (involved in the ability to rapidly generate a large number of words or concepts with specific characteristics), (c) Number (involved in rapid arithmetic computation), (d) Perceptual speed (involved in rapid recognition of symbols), (e) Inductive reasoning (involved in reasoning from the specific to the general), (f) Spatial visualization (involved in mentally visualizing and rotating objects), and (g) Memory (involved in remembering information).

The debate between Spearman and Thurstone could not be reconciled on purely theoretical grounds, but accumulating evidence supported hierarchical factor models of intelligence, with general ability at the very top, more nearly general intellectual

abilities near the top, and various more specific forms of intelligence further down in the hierarchy. Two hierarchical theories that have had considerable influence on modern intelligence tests are the theory of fluid and crystallized general intelligences (Horn & Cattell, 1966) and Carroll's (1993) three-stratum theory of cognitive abilities.

In early versions of their model, Horn and Cattell (1966) proposed that general intelligence consists of two major parts: fluid intelligence (g_f) and crystallized intelligence (g_c). Fluid intelligence is thought to be dependent on the efficient functioning of the central nervous system, rather than on prior experience and cultural context. Crystallized intelligence, on the other hand, is thought to be more dependent on experience and cultural context.

The more recent model and the one that has arguably gained the widest acceptance in the psychometric community is Carroll's (1993) three-stratum theory. Carroll proposed this model after an extensive analysis of more than 460 data sets from the psychometric literature. In Carroll's model, Stratum I reflects highly specialized skills, some of which represent Thurstone's primary mental abilities. Stratum II reflects somewhat specialized abilities that occur in broad domains of intelligent behavior. They include (in order of decreasing relatedness to g): fluid intelligence, crystallized intelligence, general memory and learning, broad visual perception, broad auditory perception, broad retrieval ability, broad cognitive speediness, and processing speed. Stratum III has only one ability, the g factor, which allegedly underlies all aspects of intellectual activity.

Recently, Carroll's model and the Horn–Cattell model have been synthesized into the Cattell–Horn–Carroll (CHC) theory (Flanagan & Harrison, 2005). Even though the CHC model still incorporates a g factor, its main emphasis is on the measurement of middle-stratum factors. The CHC theory has been influential in the development of a variety of IQ tests, including the fifth edition of the Stanford-Binet (Roid & Barram, 2004), the second edition of the Kaufman Assessment Battery for Children (KABC-II; Kaufman, Lichtenberger, Fletcher-Janzen, & Kaufman, 2005), and the third edition of the Woodcock-Johnson Cognitive Abilities Assessment (WJ III; Mather, Wendling, & Woodcock, 2001).

Hierarchical psychometric definitions of intelligence have deepened our understanding of a statistically derived structure of human abilities. Such theories are not theories of giftedness per se, but have played an important role in our understanding of giftedness by suggesting that beneath g, there are hierarchically related abilities that contribute to intellectual gifts.

This idea was expanded upon and brought to public attention when Howard Gardner (1983) published his first edition of *Frames of Mind*. This and subsequent editions of his book (Gardner, 1983, 1993, 1999) described the Multiple Intelligences model of intellectual ability, which stresses the need for educators and psychologists to broaden their definitions of human intelligence. In this model, multiple intelligences are not static abilities hierarchically nested under a general factor, but rather are each an independent cognitive system in its own right.

Gardner defined intelligence as "an ability or set of abilities that permit an individual to solve problems or fashion products that are of consequence in a particular cultural setting" (Ramos-Ford & Gardner, 1997). Instead of solely relying on factor analysis, Gardner based his conclusions on a selective analysis of the research literature using eight criteria, namely, (a) potential isolation by brain damage, (b) the existence of idiot

savants, prodigies, and other exceptional individuals, (c) an identifiable core operation or set of operations, (d) a distinctive development history, (e) an evolutionary history and evolutionary plausibility, (f) support from experimental psychological tasks, (g) support from psychometric findings, and (h) susceptibility to encoding in a symbol system, and concluded that there were eight separate intelligences. The eight intelligences he has proposed are linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, and naturalist. Additional intelligences are currently being considered, such as existential intelligence.

Although Gardner's theory has had an important influence in the broadening of educators' views of intelligence, various criticisms have been proposed. First, there currently exists no published empirical test of the theory as a whole. Second, the intelligences that Gardner proposes are based on a somewhat selective review of the literature that largely supports his theory. Also, the literature he used is distinctly different from the conventional psychometric literature, much of which has been used to support the theory of general intelligence (e.g., Jensen, 1998). Third, even though assessments exist to test the various intelligences (e.g., Gardner, Feldman, & Krechevsky, 1998), they have not been proven to be of adequate psychometric validity. The ones that have been tested (with the exception of kinesthetic intelligence) all show a strong influence of the g factor (Visser, Ashton, & Vernon, 2006). There is some evidence to suggest, however, that they are of acceptable reliability (Plucker, Callahan, & Tomchin, 1996). Without demonstrably valid tests, however, it is difficult to evaluate the success of interventions.

Gardner is not the only researcher to have considered abilities in a more domain-specific way. Julian Stanley's experiences with precocious youth also led him to develop a domain-specific conception of giftedness. In fact, Stanley chose to avoid the word "gifted" in favor of "precocious" (Brody & Stanley, 2005), to emphasize that giftedness is not domain general, but instead is precocity demonstrated in a specific domain.

Stanley established tthe Study of Mathematically Precocious Youth (SMPY) at Johns Hopkins University in 1971 with the purpose of identifying youths with precocious specific abilities, especially in mathematics, and of supplying them with the educational resources they need to achieve their full potential. So far, SMPY has primarily focused on the identification and nurturance of students who exhibit exceptional verbal, spatial, mechanical, and mathematical abilities (McGin, 1976; Shea, Lubinski, & Benbow, 2001; Stanley, 1994). This has taken the form of challenging summer courses and distance learning (see Linking Theory to Practice section).

Third Wave: Systems Models

Researchers holding a domain-specific conception of giftedness emphasize specific areas of aptitude, and focus on the needs of those who are precocious in those areas to receive the acceleration or enrichment they need to progress at the appropriate skill level. Therefore, the focus is on acquiring a knowledge base and the development of intellectual abilities in a specific domain. The domain-specific modelers often do not include additional psychological processes in their model of giftedness, nor do they see them as necessary (Brody & Stanley, 2005; VanTassel-Baska, 2005). In their view, other psychological variables such as creativity are an output of giftedness,

not an input, and can only come about after a significant amount of content has been mastered (VanTassel-Baska, 2005).

"Third Wave" giftedness researchers view giftedness as a system—the total operation which is dependent on a confluence of psychological processes operating together. This tight network of interacting psychological variables is posited to play a role across a wide range of creative behavior, but these conceptions do not exclude the importance of domain-specific abilities.

Joseph Renzulli's (1978, 2005) Three-Ring Definition views giftedness as the inter-action of three characteristics: well-above-average ability, creativity, and task com-mitment. According to Renzulli, each characteristic plays an important role in the development of gifted behavior. Well-above-average ability is defined by Renzulli as either general ability that can be applied across all domains and/or specific ability, which consists of the ability to perform at a high level within a specific domain. Renzulli defines well-above-average ability as that possessed by those individuals performing in the top 15–20% of any domain. This view differs from the traditional view of giftedness as comprising those scoring in the top 3–5% on a standardized measure of intelligence (i.e., Marland, 1972).

Renzulli also has made a major impact on the field of giftedness by proposing that there are two types of giftedness: "schoolhouse giftedness" and "creative-productive giftedness." Schoolhouse giftedness is test-taking or lesson-learning giftedness, and is the form of giftedness most often emphasized in school. Creative-productive gift-edness differs from schoolhouse giftedness: Those who display creative-productive giftedness are excellent producers of knowledge, whereas those high in schoolhouse giftedness are superior consumers of knowledge. According to Renzulli:

> History tells us it has been the creative and productive people of the world, the pro-ducers rather than consumers of knowledge, the reconstructionists of thought in all areas of human endeavor, who have become recognized as 'truly gifted' individuals. History does not remember persons who merely scored well on IQ tests… (Renzulli, 2005, p. 256)

There is research evidence supporting the components of Renzulli's model. Delisle and Renzulli (1982) found that nonintellective factors are just as important for creative production as are intellectual factors. The model is also supported by the work of Gubbins (1982), who showed through stepwise multiple regression that above-average ability is a necessary but not sufficient condition for high-level creative productivity. Also of importance are factors such as task commitment, time commitment, as well as student interest, which are factors that are directly related to Renzulli's model.

Renzulli's model benefits from its inclusion of multiple interacting factors and the broadening of the criteria used in selection of gifted students. However, the model does have its criticisms. Renzulli first proposed the three aspects of giftedness based on data from accomplished adults (Renzulli, 1978). Renzulli has been criticized for not demonstrating correlations between these later-life achievements and the traits or experiences of children with various levels of IQ (Delisle, 2003). Another criticism of the model, coming from those supporting the domain-specific view, is that motivation, task commitment, and creativity should be secondary considerations, because they are not part of giftedness, but rather are born out of the talent-development process (VanTassel-Baska, 2005). Renzulli has made an attempt to respond to various criticisms, by emphasizing the need to develop creative productive skills in addition to knowledge

acquisition, and presenting evidence that his broadened identification procedures do indeed reduce inequalities such as a disproportionate representation of minorities in gifted education programs and gender equity (Renzulli, 1999).

Another important systems model of giftedness is Sternberg's WICS model of giftedness, in which giftedness is conceptualized as a synthesis of wisdom, intelligence, and creativity (Sternberg, 2003, 2005).

The basic idea of the WICS model is that, in life, people need creative skills and attitudes to produce new and original ideas; analytical skills and attitudes (academic intelligence) to evaluate the quality of these ideas; practical skills and attitudes (practical intelligence) to execute ideas and to persuade others of their value; and wisdom-related skills and attitudes in order to ensure that one's ideas help to foster a common good, rather than only the good of oneself and those closely associated with oneself. Gifted people, in this view, are not necessarily extremely strong in all of these aspects. Rather, they recognize and capitalize on their strengths, and recognize and compensate for or correct their weaknesses, in order to adapt to, shape, and select real-world environments. Evidence in support of this view is summarized in Sternberg (2003). There is also some evidence for cross-cultural generalization of at least parts of the theory (Sternberg, 2004a).

The WICS model has also received various criticisms [see Sternberg (2004b) for a response to these criticisms]. One criticism is that the WICS model does not address the relationship between creativity and psychiatric disorders (Dai, 2003; Kaufman & Baer, 2003). Another criticism is that the WICS model does not specify prediction of all aspects of all kinds of giftedness, such as elite athleticism (Baker & Cote, 2003). Another criticism is that the WICS model does not provide a readily purchasable detailed assessment procedure for identifying or instructing gifted children (Feldhusen, 2003; Heller, 2003). To be sure, though, these three criticisms could be applied to many of the conceptions of giftedness reviewed in this chapter. Lastly, the construct of wisdom has been called "overloaded" and "heterogeneously operationalized" (Heller, 2003).

Fourth Wave: Developmental Models

Developmental models were formulated in response to overemphasis on the genetic determinants of giftedness. Indeed, the word "giftedness" does imply that someone was bestowed with a special "gift" that must be harnessed for the good of humankind, although, at least in theory, the gift need not be genetic. Developmental theories of giftedness emphasize the constantly changing nature of these so-called "gifts," and broaden the net even wider than the systems model by including various *external* factors that might interact with the *internal* factors of the individual to produce gifted behavior.

One of the first steps to include the environment in a model of giftedness was taken by Mönks (1992), who modified Renzulli's three-ring model to come up with the Multifactor model of giftedness. He essentially took Renzulli's model, and added environmental factors such as the school, family, and peers to the three psychological variables (motivation, creativity, and exceptional abilities) already posited by Renzulli.

Françoys Gagné (2005) proposed a theory of giftedness that emphasizes the talent-development process. He noted that the words "gifted" and "talented"

are often used interchangeably in the field of gifted education; he proposed the Differentiated Model of Gifted and Talented (DMGT) to highlight the difference in these terms. The major aim of Gagné's model is to uncover the important environmental influences (home, school, parents, activities, encounters, etc.), nonintellective variables (motivation, temperament), and learning, training, and practicing, that transform basic, genetically determined "gifts" (intellectual, creative, sensorimotor, etc.) into specific talents (language, science, mathematics, art, music, leadership, etc.) in everyday life.

Abraham Tannenbaum (1986) proposed a related theoretical model that also attempts to delineate the contributing factors linking gifted potential to talent fulfillment. He suggested five psychological and social linkages between promise and fulfilment: (a) superior intelligence, (b) exceptional special aptitude, (c) nonintellective facilitators, (d) environmental influences, and (e) chance, or luck. These five factors are thought to interact to produce high levels of productivity, and are all necessary to become a "gifted" individual. Whereas Gagné uses the word "giftedness" as a potential, Tannenbaum uses the word as an outcome.

Through his studies of prodigies, David Henry Feldman, another developmental theorist, proposed a model of how talent grows or develops in young people (Feldman, 1992, 2000). According to Feldman, seven dimensions of development are particularly important for the development of giftedness: (a) cognitive processes, (b) social/emotional processes, (c) family aspects (i.e., birth order and gender within the family), (d) education and preparation (informal and formal), (e) characteristics of the domain and field, (f) social/cultural contextual aspects, and (g) historical forces, events, and trends.

John Feldhusen further formulated a developmental model of giftedness based on talent development that attempts to synthesize the various models of giftedness presented in this chapter (Feldhusen, 1998). For instance, he incorporated domain-specific abilities (Carroll, 1993; Gardner, 1983) with the idea that these basic abilities are in part genetically determined (Galton, Gagné), while also acknowledging that specific abilities emerge and develop through facilitating experiences, and within a particular sociocultural context (Csikszentmihalyi, Rathunde, & Whalen, 1993). Like other "Fourth Wave" researchers, Feldhusen attempted to elucidate the transition from genetically determined abilities to the display of specific talents.

At the base of his model are "genetically determined abilities" that predetermine the nature and rate of intellectual, physical, and emotional development. When the child enters preschool and then primary school, stimulating conditions that foster intellectual, physical, and emotional growth are important, such as peers and teachers. With instruction, there may emerge rapid growth of knowledge and evidence of precocity. The next stage is elementary school, where precocious children may start to display evidence of their special talent. The next stage (ages 12 to 16) involves the learning of knowledge and skills under the tutelage of excellent teachers. During this stage, a range of personality factors also become important, including internal locus of control, intrinsic motivation, and a sense of self-efficacy. Also during this stage, both commitment to talent development and career goals start to emerge, and personal interests become more clear. The final stage involves integration through appropriate educational experiences, such as profiting from high-powered and highly able mentors, resisting peer pressure to be normal, and finding the career opportunities that open doors to high-level and creative achievement.

Common and Uncommon Ground: The Evolution of Conceptions of Giftedness

It should be evident by this point that there are numerous and diverse conceptions of giftedness available (for even more conceptions see Stenberg & Davidson, 2005). It may seem overwhelming sifting through them all. If the fine details are ignored temporarily, a big picture does emerge. Modern conceptions of giftedness are a result of an evolution of ideas. Each generation of giftedness theories is built on earlier ones, incorporating the previous generation's ideas and adding extra components that reflect the current state of research.

First-wave researchers laid the foundation by asking the question, "what is giftedness?" in the first place, and introducing intelligence tests to measure it. Second-wave researchers built on the foundation of intelligence theory by discovering multiple, distinct ways to be gifted. Third-wave researchers recognized the importance of both domain-general and domain-specific proclivities, but also added other psychological variables they felt were important components of giftedness. Fourth-wave researchers widened the lens even more, taking many of the ideas of the first three generations of giftedness researchers, but placing talent within a developmental context that includes variables external to the individual such as the environment.

Looking at the big picture, it is clear that modern giftedness researchers share the same goal: the identification and nurturance of specific talents. No serious giftedness researcher today believes that general intelligence is the whole picture, or believes that gifted abilities are solely the result of innate, genetic endowment. If anything, the trend over the past 20 years has been to emphasize external factors over internal factors. There seems to be a shift toward *explaining* the talent-development process (fourth wave) instead of merely listing static traits that are important to achieve giftedness (third wave).

When the fine details *are not* ignored, however, differences between the various conceptions of giftedness do emerge. Three main areas of contention include the importance of nonintellective abilities, the role of creativity in giftedness, and whether giftedness is a potential or an achievement. Domain-specific researchers such as Julian Stanley have tended to argue that precocious students need to build up their base of expertise in a particular domain. As a result, they view giftedness as, in large part, an achievement. They downplay the importance of nonintellective abilities and view creativity as part of the end product instead of part of the process. Systems researchers such as Renzulli and Sternberg place creativity on equal footing with intelligence, and emphasize the need to teach creativity-based skills in addition to critical-thinking skills. Indeed, Renzulli has downplayed the role of conventional intellectual abilities, proposing less stringent criteria for scores on standardized measures of intelligence for inclusion of children in gifted programs. Systems researchers agree with the domain-specific researchers, however, that giftedness is achievement. Developmental theorists such as Gagné view giftedness as potential, and talent as the end product. In addition, developmental theorists emphasize, to a large extent, the role of nonintellective abilities and creativity for talent to emerge. For both systems and developmental giftedness theorists, intelligence and expertise are important, but are one piece of a large network of interconnected elements.

Implications for Education

The particular conception of giftedness that is adopted has important implications for educational practice. First we look at implications for the identification of gifted students, and then we look at some examples of actual programs based on modern conceptions of giftedness.

Identification of Gifted Students

Each conception of giftedness brings with it its own set of implications for education. Those still working within the domain-general framework set up by Terman will be advocates of using a global IQ score as a cutoff for identification. Those adopting a domain-specific perspective will be advocates of using the results of the group factor scores on intelligence tests, as well as other demonstrations of high achievement in a specific domain. Those adopting a systems view believe in identifying students through a combination of assessments of analytical, creative, wisdom, and task-commitment skills in a specific domain or across the board. These researchers emphasize alternative assessments that do not rely solely on intelligence tests. Lastly, those adopting a developmental view emphasize the malleability of giftedness, and its constantly changing nature. Therefore, they argue for different types of assessments at different ages, starting with intelligence tests at a very early age, and ending up focusing on achievement at the later stages of talent development.

WHAT IS THE DOMINANT MODEL IN THE UNITED STATES TODAY?   When all is said and done, what conception of giftedness is the dominant model in practice in the United States? First-wave giftedness researchers have had, to date, the most enduring impact on modern-day education. Modern conceptions of giftedness receive little attention in the typical school setting. In the United States, a global IQ score is still the dominant criterion used for acceptance into gifted programs at the grade-school level (Abeel, Callahan, & Hunsaker, 1994; Feldhusen & Jarwan, 2000; Tannenbaum, 1986). In fact, several states still prescribe a minimum score on an intelligence test in order for a gifted program to be eligible for funding (U.S. Department of Education, 1993). This is curious, because modern giftedness researchers emphasize domain-specific notions of giftedness.

There are at least two probable reasons why educators still rely so heavily on measures of IQ. The first is simply a matter of availability. Educators want to use a test that is cheap, reliable, and valid. Most IQ tests meet these criteria (Gottfredson, 1997; Jensen, 1998; Walberg, 1984). Furthermore, IQ tests are often grounded in CHC theory, which has gained wide acceptance by psychometrically oriented intelligence researchers. No modern theory of giftedness has received such widespread acceptance among intelligence researchers, or has produced a test that is as quick, reliable, and valid as the IQ test. Because modern conceptions of giftedness go way beyond intelligence, they have likewise (and rightfully so) insisted on going beyond quick simple tests to measure giftedness (see Linking Theory to Practice section). This poses a problem, because most schools still operate on the first wave model initiated by Terman, which equates giftedness with general intelligence. Until educators enter the twenty-first century of theories of giftedness, they will stay in the intelligence testing frame of mind and modern theories of giftedness will not be widely adopted.

The second probable reason why educators still rely so heavily on the IQ measure is because IQ tests actually do match the generality of most gifted education programs. The identification procedure should match the intervention program, and in many schools, that i s what IQ tests do. IQ tests are moderately effective predictors of academic achievement *in general*. In addition, most gifted-education programs take students who are achieving at a high level in general, and put them all in the same room, where they teach the students general critical-thinking skills. Luckily, modern conceptions of giftedness are starting to link their conceptions to practice, and are implementing programs to do so. Hopefully educators will start to see which of these programs are most successful, and will start to switch over from general gifted programs to specific programs that identify and nurture specific abilities.

There are new assessments on the horizon that may eventually change the assessments we use (e.g., Sternberg & the Rainbow Project Collaborators, 2006). One new test, the Rainbow assessment, has been found roughly to double prediction of SAT for freshman college grades in a diverse sample of students, and substantially to reduce ethnic-group differences in test scores. The assessment measures creative and practical in addition to analytical skills. The creative measures were the most useful in increasing prediction.

In the next section, we review examples of some of these "new wave" programs, both in the United States and abroad (for a more complete listing see VanTassel-Baska & Stambaugh, this volume).

Linking Theory to Practice

PROGRAMS BASED ON THE THEORY OF SUCCESSFUL INTELLIGENCE.   To validate the relevance of the theory of successful intelligence (the WICS theory without the wisdom component) in the classroom, we have carried out a number of instructional studies. In one study (Sternberg, Ferrari, Clinkenbeard, & Grigorenko, 1996; Sternberg, Grigorenko, Ferrari, & Clinkenbeard, 1999), we used the Sternberg Triarchic Abilities Test. The test was administered to 326 children around the United States and in some other countries who were identified by their schools as gifted by any standard whatsoever. Children were selected for a summer program in (college-level) psychology if they fell into one of five ability groupings: high analytical, high creative, high practical, high balanced (high in all three abilities), or low balanced (low in all three abilities). Students who came to Yale were then divided into four instructional groups. Students in all four instructional groups used the same introductory-psychology textbook [a preliminary version of Sternberg (1995)] and listened to the same psychology lectures. What differed among them was the type of afternoon discussion section to which they were assigned. They were assigned to an instructional condition that emphasized either memory, analytical, creative, or practical instruction. For example, in the memory condition, they might be asked to describe the main tenets of a major theory of depression. In the analytical condition, they might be asked to compare and contrast two theories of depression. In the creative condition, they might be asked to formulate their own theory of depression. In the practical condition, they might be asked how they could use what they had learned about depression to help a friend who was depressed.

Students in all four instructional conditions were evaluated in terms of their performance on homework, a midterm exam, a final exam, and an independent

project. Each type of work was evaluated for memory, analytical, creative, and practical quality. Thus, all students were evaluated in exactly the same way.

Several relevant results came out of this study. First, we observed that when the students arrived at Yale, the students in the high creative and high practical groups were much more diverse in terms of racial, ethnic, socioeconomic, and educational backgrounds than were the students in the high analytical group, suggesting that correlations of measured intelligence with status variables such as these may be reduced by using a broader conception of intelligence.

Second, all three ability tests significantly predicted course performance. Also, students who were placed into an instructional condition that matched their pattern of successful intelligence abilities performed better than those who were poorly matched. In other words, when students are taught in a way that fits how they think, they do better in school. Children with creative and practical abilities, who are almost never taught or assessed in a way that matches their pattern of abilities, may be at a disadvantage in course after course, year after year.

A follow-up study (Sternberg, Torff, & Grigorenko, 1998) examined learning of social studies and science by third graders and eighth graders. The 225 third graders were students in a very-low-income neighborhood in Raleigh, North Carolina. The 142 eighth graders were students who were largely middle to upper middle class studying in Baltimore, Maryland, and Fresno, California. In this study, students were assigned to one of three instructional conditions. In the first condition, they were taught the course that basically they would have learned had there been no intervention. The emphasis in the course was on memory. In a second condition, students were taught in a way that emphasized critical (analytical) thinking. In the third condition, they were taught in a way that emphasized analytical, creative, and practical thinking. All students' performance was assessed for memory learning (through multiple-choice assessments) as well as for analytical, creative, and practical learning (through performance assessments).

As expected, students in the successful-intelligence (analytical, creative, practical) condition outperformed the other students in terms of the performance assessments. One could argue that this result merely reflected the way they were taught. Nevertheless, the result suggested that teaching for these kinds of thinking succeeded. More important, however, was the result that children in the successful-intelligence condition outperformed the other children even on the multiple-choice memory tests. In other words, to the extent that one's goal is just to maximize children's memory for information, teaching for successful intelligence is still superior. It enables children to capitalize on their strengths and to correct or to compensate for their weaknesses, and it allows children to encode material in a variety of interesting ways.

We have now extended these results to reading curricula at the middle-school and the high-school level. In a study of 871 middle-school students and 432 high-school students, we taught reading either triarchically or through the regular curriculum. At the middle-school level, reading was taught explicitly. At the high-school level, reading was infused into instruction in mathematics, physical sciences, social sciences, English, history, foreign languages, and the arts. In all settings, students who were taught triarchically substantially outperformed students who were taught in standard ways (Grigorenko, Jarvin, & Sternberg, 2002).

Thus, the results of these studies suggest that the theory of successful intelligence is valid as a whole. Moreover, the results suggest that the theory can make a difference

not only in laboratory tests, but in school classrooms and even the everyday life of adults as well.

Programs Based on the Three-Ring Model

Renzulli's Three-Ring conception of giftedness has served as the basis for a series of practical models [see Renzulli & Reis (1994) for a full description of the models as well as their research findings]. First, Renzulli (1977) proposed the Enrichment Triad programming model and then the revolving door identification model (Renzulli, Reis, & Smith, 1981).

The Enrichment Triad offers three types of enrichment experiences for students. Type I Enrichment involves general exploratory experiences for students, such as field trips and guest speakers. Type II Enrichment includes instructional methods and materials designed to promote the development of thinking, feeling, research, communication, and methodological processes. Type III Enrichment is the most advanced level and allows the students to participate in investigative activities and artistic production. Type III was designed to allow gifted students to work at as advanced a professional level as possible.

Using a population of 1162 students in grades 1–6 in 11 school districts, Reis and Renzulli (1982) examined several variables related to an identification process based on the Enrichment Triad programming model and the revolving door identification model. Above-average-ability students at each grade level were divided into two groups. Group A consisted of students scoring in the top 5% of standardized tests of intelligence and achievement. Group B consisted of students who scored from 10 to 15 points below the top 5% on a standardized intelligence test or were rated highly by teachers using the Scales for Rating the Behavioral Characteristics of Superior Students (Renzulli, Smith, White, Callahan, & Hartman, 1976; Renzulli, Smith, White, Callahan, Hartman, & Westberg, 2002). Both groups participated in all program activities.

The Student Product Assessment Form (SPAF) was used to compare the quality of products from each group. The instrument provided ratings for eight characteristics of product quality and seven factors relating to overall quality. There was no significant difference between the two groups with respect to the quality of students' products. The results from this study supported the effectiveness of a model that focuses on creative productivity, in addition to lending support to the Three Ring Conception of giftedness as comprising students who represent larger proportions and different populations than the traditional top-5% approach.

In addition, questionnaires and an interview were administered to assess feelings about the program. Many classroom teachers reported that high involvement in the program influenced their teaching practices in a positive way. Also, the opinions of the parents of children who were placed into gifted programs based on traditional criteria did not differ from the opinions of parents of children who were selected under the expanded Three Ring criteria. Finally, special-education teachers indicated their preference for the expanded talent pool approach compared to the strict reliance on IQ scores.

Most recently, Renzulli combined the Enrichment Triad Model and the Revolving Door Identification Model with the Schoolwide Enrichment Triad Model (SEM; Renzulli & Reis, 1985, 1997). A central aim of the SEM model is to apply the general enrichment techniques that were used in the Triad/Revolving Door Identification Model to help *all* students, not just those identified as gifted.

The SEM model offers educators three service-delivery components (Renzulli & Reis, 1994). The first component is the Total Talent Portfolio (TTP), which is used as a way of gathering and recording students' abilities, interests, and learning style preferences. The second component involves a series of Curriculum-Modification Techniques that are designed to (a) assess each student's mastery of material, (b) adjust the pace and level of required material to accommodate variations in learning, and (c) provide enrichment and acceleration alternatives for students who master material at a faster rate. The third component involves a set of strategies designed to promote active engagement in learning.

The SEM model has been implemented in several hundred school districts across the United States (Burns, 1998), and has demonstrated effectiveness under widely differing socioeconomic levels and program organization patterns (Olenchak, 1988; Olenchak & Renzulli, 1989). In addition, over 600 educators are trained on the model each summer at the University of Connecticut.

SMPY Program

The SMPY program uses content-specific criterion-reference measures for identification instead of standardized measures of intelligence that measure general reasoning abilities. The main emphasis is on an optimal match between a student's particular cognitive abilities and the educational program.

The SMPY program has developed the Diagnostic Testing-Prescriptive Instruction Model, which gives high-achieving students pretests that diagnose specific content that has not yet been mastered, and structures a program to teach only that content (Stanley, 2000). SMPY then counsels students to help develop challenging individualized programs. This approach, which is part of CTY's Study of Exceptional Talent Program, helps students before the age of 13 with high math or verbal ability to find opportunities to accelerate and/or supplement their regular school programs (Brody, 2004; Brody & Blackburn, 1996). Interventions have taken the form of academic summer programs, distance education, and extracurricular opportunities. A series of longitudinal studies have been implemented to test the effectiveness of Stanley's model. Based on the results of these studies, Swiatek (1993) concluded that acceleration is an educational option that is inexpensive to implement, requires little specialized training for teachers, and can be used in most educational settings to meet the learning needs of many gifted students. In addition, it was concluded that acceleration does little harm to willing students academically or psychosocially, and may help gifted individuals establish a foundation for advanced learning, maintain interest and involvement in academic activities, and earn extra time that can be used for the development of a career.

In addition, a 50-year follow-up study (1972–2022) is in progress at Iowa State University and includes over 6000 students (Lubinski & Benbow, 1994). It is hoped that the results of the longitudinal study will not only help to validate Stanley's model, but also will increase our understanding of the talent-development process.

Russian Programs

In Russia, Olympiads are a time-honored tradition for showcasing gifted youth (Jeltova & Grigorenko, 2005). Olympiads are a series of festivals related to various

scholastic disciplines that involve competitions allowing children to show their creativity and talent. Selection into the Olympiads is a statewide process that involves multiple levels. At each level, at the same time, students take the same written assignments, which are then scored by a panel of judges. Finalists participate in a national competition, and winners of that round represent Russia in the international Olympics (Karp, 2003).

While the Olympiads tend to focus more scholastic abilities, the annual Festival *Isskustvo i Deti* ("Art and Children") is geared toward young musicians, artists, poets, and other artistic children. Other festivals include the Odarennye Deli ("Gifted Children") program (Bogoyavlenskaya & Shadrikov, 2000) that is geared toward gifted computer scientists, engineers, and architects. Such festivals allow children to share their achievements with others who share their gifts and interests. They also allow the children an opportunity for networking (Jeltova & Grigorenko, 2005).

In addition to these festivals, there are also a number of specialized schools set up to develop talent in children. At the secondary level (age 12 and up), there are various boarding schools for scholastic disciplines where students essentially are working from 7:30 a.m. to 11 p.m. (Evered & Nayer, 2000). These programs follow an acceleration model, and in addition to a compensatory core group of classes, students must attend special seminars in their major. These students are expected to participate in Olympiads specific to their area of giftedness (Jeltova & Grigorenko, 2005). As a result of their hard work, they typically enter very prestigious schools in Russia.

In addition to Olympiads and specialized schools, there are also multidisciplinary educational programs for children between the ages of 4 and 15. Moscow School 1624, *Sozvezdie*, has a different model than the acceleration model. Instead, it is an interdisciplinary program based on a systems conception of giftedness. The curriculum focuses on major philosophical themes, each theme defined in broad terms. Through the learning of these themes, the program hopes to instill in children skills that they can independently use within a given subject area outside of learning situations (Repkin & Repkina, 1997). General thinking skills are taught across a variety of subject matters, along with strategies for creative thinking. Students are expected to combine a variety of strategies when discussing interdisciplinary generalizations (Jeltova & Grigorenko, 2005).

So far, *Sozvezdie* has been a success. All children identified as gifted in the program increased their levels of intellectual performance, whereas only 30% of gifted students in an acceleration program model showed a decrease in their intellectual performance (Jeltova & Grigorenko, 2005). *Sozvezdie* is still an experimental program, however, so long-term outcomes have yet to be determined.

German Programs

There was a time when German researchers were weary of identifying students for special gifted programs (Bartenwerfer, 1978). Gradually, they saw a need for identification and today a variety of programs are being implemented in Germany to identify and nurture talent. In 1988, the Center for the Study of Giftedness was established. It adopted the Multifactor Model of giftedness (Mönks, 1992), based on the notion that giftedness is not identical to high IQ. The Center agreed to exclude any mention of a student's IQ in reports to parents and teachers.

A model that has been adopted widely in Germany for identifying giftedness is the ENTER model (Ziegler & Stoeger, 2003). The ENTER model not only assesses the current state of the child (e.g., IQ score), but also incorporates developmental issues into the identifying process. ENTER stands for five stages: explore, narrow, test, evaluate, and review. In the first three stages, a variety of data are collected on the child. In addition to tests of ability, information such as family life, early development, school experiences, leisure-time activities, and friends are collected. During the first three steps, objectives are narrowed.

The collected information and test results guide the evaluation stage, during which a decision is made as to the appropriate provisions. The review phase monitors the child continuously to determine the reasons for the initial identification and to make sure there is a good fit between the model of giftedness that was used for identification and the practical recommendation that was made in the evaluation phase.

Jena Plan Schools are a significant way to promote giftedness in Germany and across Europe. The schools were founded by the German educator and scientist Peter Peterson. His original intention was to establish a school not just for gifted students, but for children with all levels of ability (Mönks & Katzko, 2005). The schools were established with six basic principles in mind. First, the schools are integrated into the social environment, and do not solely focus on the development of intellectual abilities. Second, the age-graded class was replaced by a family structure with three different levels: lower, middle, and upper. Each level comprises three different age groups. Third, pull-out instruction groups are based on the ability and level of the child. Fourth, students are grouped around tables, with four to six children in a group. The purpose of these small groups is to facilitate social and cooperative learning and teamwork. The teacher can bring together both good and slow learners for a given group. Fifth, the school reflects natural learning situations in everyday life as much as possible. The weekly curriculum is organized around conversation, play, work, and celebration. Sixth, social learning is emphasized. Students work and play with one another. The Jena Plan Schools are an excellent example of modern conceptions of giftedness being translated into educational practice.

The Future of "Giftedness"

What does the future hold for the giftedness construct, and what will future conceptions of giftedness be like? Based on the current trends, the sociocultural approach to giftedness is probably not going away anytime soon. As more and more factors are taken into account in models of giftedness, one has to ask at some point: which models are not only theoretically sound, but can be practically implemented in the school system? As the lineup of conceptions of giftedness expands, the field needs to become both scientific and practical at the same time. Richard Mayer suggests that, in order to do this, the giftedness construct needs to be precisely defined and measured, theories should be clear and testable, conclusions on how to identify and nurture gifted students should be based on solid research findings, research methods that generate valid and reliable data should be used, and gifted programs based on a particular conception of giftedness should be evaluated in controlled experimental trials (Mayer, 2005).

This all is a tall order indeed. Nonetheless, the need for a more scientific approach to the study of giftedness reflects the fact that there are many conceptions available, and a number of programs are succeeding in identifying and nurturing youth. This is an exciting time for the field of gifted education, with more options available for children than at any other point in history. The particular conception of giftedness that is adopted is important and will become increasingly more important in the future, and will have strong implications for the development of talent. Yes, the future of gifted education looks bright and gifted indeed.

Conclusion

There is something profoundly unsatisfying about a chapter that reviews a number of diverse theories and ends with a statement that there is some merit to all, and it is up to the reader to find those merits and decide what he or she likes best. Rather than arguing for any particular point of view, we will conclude by mentioning three characteristics that we consider to be requisite for a model to be useful.

First, the model should use multiple and varied assessments. All instruments used to assess children have error of measurement. Different kinds of instruments have different kinds of error. IQ tests, for example, tend to be more reliable than many of their competitors, but they are also narrower, and are easier for children from certain cultural backgrounds than for those from others. By having multiple, diverse assessments, educators can guard against the errors of measurement inherent in any one technique.

Second, the model should take into account nonintellective personal variables. If one looks at people who succeed in their professions and in their life, it would be fair to say that *none* of them has succeeded on the basis of intellect alone, or at least, intellect narrowly defined. Motivation, creativity, wisdom, initiative, courage, stamina, and many other variables help differentiate those who have an impact on the world from those who do not. Merely looking at intellective variables will leave one with an incomplete model, no matter how many measures one employs.

Third, the model should take into account contextual variables, such as enculturation and socialization. Children brought up with English as a second language, or brought up in a home that emphasizes obedience above all else, will come to school with a pattern of skills different from children coming from homes that encourage, say, critical and creative thinking. Heath (1983) showed how intelligence can be socialized in different ways in different groups (see also Sternberg & Suben, 1986). In assessing children, their backgrounds should be taken into account.

In sum, there probably is no unique right way to identify children as gifted. There are multiple ways. But good identification procedures take into account the three principles above. Some procedures actually follow none of these principles, assigning children to gifted classes on the basis of a single test, such as an IQ test. We can do better, and given the current state of our knowledge, we must do better if we want to do justice to our children, our schools, and our societies.

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Identification and Nurturing the Gifted from an International Perspective

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Introduction

The necessity for the identification and education of gifted and talented students is often the subject of controversial discussion. With respect to *identification*, the following questions provoke varying opinions from experts and laypersons alike:

- *What* is to be identified? Questions concerning the relevant diagnostic variables arise, that are additional to conceptual problems.
- *Why* or for what purposes is the identification attempted? In the literature, a substantial differentiation between *talent searches* (for special gifted programs or educational measures) and single case diagnostics (e.g., in the school counseling context and/or for intervention purposes) has been made. In both cases, benefits and dangers of identification procedures must be weighed.
- *How* can gifted and talented students be identified? This question is directed at sources of diagnostic information and measurement instruments as well as at information processing and decision strategies concerning being gifted or not, the fit between individual (learning) needs and social (instructional) conditions of gifted education, etc. Identification and program evaluation aspects also are included in this section.
- *When*, or more precisely at what point in time or at what developmental stage, should gifted children and talented youth be identified? Should single attempts or continuous diagnostic approaches be used? Voluntary or obligatory participation in talent searches? These and other questions must be answered, especially with regard to the second question posed above.

Analogously, the following questions with respect to *nurturing* gifts and talents are discussed:

- What roles do both teachers and parents play in the nurturing of gifted children? How are these roles different?
- Do gifted children have particular emotional needs that are different from those of nongifted children?
- Is there a difference between nurturing the child per se and nurturing the gift that they possess?
- What happens to the gifted child if they are left unsupported in their educational environment?
- Will gifted children always remain gifted irrespective of the support provided, and if they will, why bother to provide that support?

After a brief overview of recent research paradigms in the field of giftedness and talent, this chapter centers on the following main topics:

1. Multidimensional conceptions of giftedness as theoretical basis and preconditions of suitable identification procedures and educational measurements.
2. Functions and benefits versus dangers of identification measures as well as of gifted education and programming versus omission of them.
3. Methodological problems of identification, e.g., for educational programs (talent search), early identification and nurturing, dynamic assessment and nurturing at-risk groups (gifted underachievers, gifted females, etc.) or prediction of excellence in school, higher education, and work.
4. Programs and strategies for nurturing intelligence, creativity, social competence, etc., including cross-cultural studies in gifted education.
5. Counseling aspects of gifted education as tasks of school psychologists, e.g., career counseling with gifted, counseling with families (parents), school counseling programs for gifted students.
6. Practical recommendations for (school) psychologists who are responsible for identifying and nurturing gifted students.

The state of the art from an international perspective will be presented including cross-cultural studies in the field. The basic rationale for gifted education is reexamined from the view that gifted education is only justified when it is conceived as a development of expertise and where there is a reasonable expectation that such education will lead to the development of gifted adults, who will then, in turn, be able to utilize their adult-status expertise for the benefit of society as a whole.

In the final section, an alternative model of school structure is presented which moves past the age/grade lockstep system, unchanged since the nineteenth century, and which is currently in operation throughout much of the world.

Multidimensional Conceptions of Giftedness and Talent as Preconditions of Suitable Identifying Procedures

Our knowledge regarding giftedness and talent—both terms are used synonymously according to the recent literature (see Heller, Mönks, Sternberg, & Subotnik, 2000/2002; Sternberg & Davidson, 2005)—is supplied by different research paradigms. Approaches that are particularly relevant to the identification of gifted or highly gifted students are based on the psychometric versus the expert-novice

paradigm. Whereas the *psychometric* so-called status-diagnostic versus dynamic or process-oriented models are focused on the individual potential which should be identified for diagnostic or prognostic purposes, the *expert-novice* paradigm focuses more or less on personality (motivational and learning) and social-cultural conditions in which giftedness (intelligence) plays only a slight role. However, recent attempts have been made to combine both research paradigms in order to optimize the amount of insight into what we call giftedness or talent (e.g., Heller, Perleth, & Lim, 2005). Other—synthetic—approaches stem from Sternberg (2000, 2003) or Ziegler and Stoeger (2004).

For practical diagnostic and prognostic purposes, psychometric (multidimensional) giftedness models are still considered by many as indispensable (Lubinski, 2004). As an example, the Munich Model of Giftedness (MMG) is presented in Figure 6.1. Here giftedness is conceptualized as a *multifactorized ability construct* within a network of noncognitive (e.g., motivation, interests, self-concept, control expectations) and social moderators which are related to the giftedness factors (predictors) and the exceptional performance areas (criterion variables). For diagnostic or prognostic purposes, the differentiation between the three kinds of variables—predictors, moderators (or catalysts sensu Gagné, 2000), and criteria—is of particular interest.

Furthermore, the MMG represents a *typological* model of giftedness or talent. In Figure 6.1, seven types or forms of gifts/talents are listed in the left row. Although these forms of giftedness are the most cited in the current literature, they do not represent all kinds of giftedness or talent. For a meta-theoretical overview, see Ziegler and Heller (2000). In the last decade, the MMG has been validated in several longitudinal and cross-cultural studies (see Heller, 2001, 2002; Heller & Perleth, 2004; Heller et al., 2005; Perleth, 2001a, 2001b; Perleth & Heller, 1994).

Functions and Benefits versus Dangers of Identification Measures

The identification depends not only on the theoretical basis of the definition of giftedness/talent, but also on the purpose of this definition. Two main functions of identification could be differentiated: the talent search and the single case analysis in the diagnosis of giftedness.

The *talent search* focuses on the fit between the individual prerequisites for special gifted programs or educational measures and curriculum or instructional demands such as task difficulties and complexity of the learning subjects, available learning time, etc. The talent search is legitimized through the right of every individual to receive optimal nurturance of his/her talent development and the social demand on each individual to make an appropriate contribution to the society. Hence, a comprehensive and differentiated approach is an indispensable component for talent search.

Single case analysis in the diagnosis of giftedness, as the basis for (school) counseling and educational treatments, serves the purpose of providing information about prevention or intervention in individual behavior and performance problems, social conflicts, educational and social problems insofar as giftedness can—directly or indirectly—be made responsible for them. Corresponding assumptions are to be confirmed diagnostically or repudiated before the planning and realization of rationally founded educational-psychological decisions, counseling, or intervention
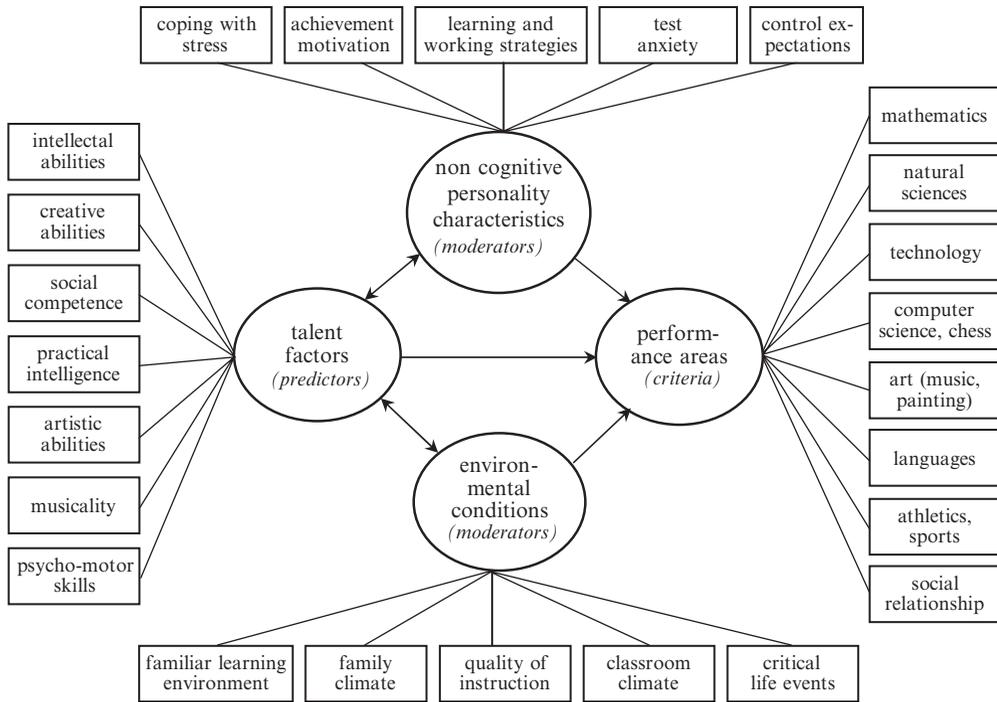
Figure 6.1. The Munich Model of Giftedness (MMG) as an example of multidimensional, typological conceptions (according to Heller, 2001).

Talent factors (predictors)
– intelligence (language, mathematical,
  technical abilities, etc.)
– creativity (language, mathematical, technical, artistic, etc.)
– social competence
– musicality
– artistic abilities
– psychomotor skills
– practical intelligence
(Noncognitive) Personality characteristics (moderators)
– achievement motivation
– hope for success versus fear of failure
– control expectations
– thirst for knowledge
– ability to deal well with stress (coping with stress)
– self-concept (general, scholastic, of talent, etc.)
Environmental conditions (moderators)
– home environmental stimulation
  ("creative" environment)

– educational style
– parental educational level
– demands on performance made at home
– social reactions to success and failure
– number of siblings and sibling position
– family climate
– quality of instruction
– school climate
– critical life events
– differentiated learning and instruction
Performance areas (criteria variables)
– mathematics, computer science, etc.
– natural sciences
– technology, handicraft, trade, etc.
– languages
– music (musical-artistic area)
– social activities, leadership, etc.
– athletics/sports

measures take place. It has been adequately proved that a continual lack of challenge (due to giftedness not having been recognized), pressure to conformity (e.g., based on the fear of negative labeling effects), insecurity of adults in connection with their dealing with exceptionally gifted children and youth, and feelings of threat and envy could lead to behavior problems and conflicts between gifted individuals and their social environment.

It is frequently possible that ignorance of gifted individuals is more to blame than "evil" intentions. If expert estimations are correct that 20–30% or more of the gifted individuals are not recognized as gifted, then it is easy to judge which omissions—at least in relation to an individually appropriate nurturance of development—are caused by doing without identification of giftedness. This fear is especially valid for members of so-called high-risk groups mentioned below.

Even when one considers the methods of critical analyses (e.g., Czeschlik & Rost, 1988; Rost, 1993, 2000) in the research literature available on psychosocial adaptation problems, it is impossible to overlook the numerous counseling situations that have to do with the development of giftedness and corresponding socialization problems (see Colangelo & Assouline, 2000; Feger & Prado, 1986; Freeman, 2000; Heller, 2005; Mönks, 1987; Silverman, 1993, 1997; Stapf, 2003; Webb, Meckstroth, & Tolan, 2002).

With regard to the postulate of equal opportunity and the (justified) demand for individualized education, several problems concerning identification exist. Highly gifted students cannot—in contrast to some beliefs—always be easily identified. However, the number of unrecognized gifted students cannot be justified in our political or education systems. If one assumes the good will and intentions of all those involved in identifying gifted and talented students, the following circumstances should be considered to make identification difficult:

- Perceptual distortions due to false assumptions and prejudices, observational errors, or even the lack of knowledge about how giftedness appears and the developmental conditions.
- Recognition of "high-risk groups," e.g., highly gifted students with behavior problems, gifted handicapped children and adolescents, highly gifted girls (especially in math, natural sciences, and technology), *gifted underachievers* (gifted students with low school performances; see Butler-Por, 1993; Peters, Grager-Loidl, & Supplee, 2000; Ziegler, Dresel, & Schober, 2000; Ziegler & Stoeger, 2003), economically disadvantaged and minority gifted learners or gifted immigrant children and youth (see VanTassel-Baska & Stambaugh's contribution to this handbook and/or VanTassel-Baska, Feng, Quek, & Struck, 2004).
- Unfavorable family and school socialization settings for the concerned students so that an identification attempt focused on achievement or product criteria has to fail, i.e., that the chances are extremely limited for recognizing special talents in any one area.

This list is by no means exhaustive. Consequently, it is apparent that it is more important to realize the weight of these arguments rather than to have a complete list of these many proven factors. This does not mean that special rights are called for, but rather there is a need for equal rights for everyone, including gifted and talented persons.

What about the suspected *dangers* and disadvantages in connection with the identification of giftedness and talent? In this area there are many more

uncontrolled results and unconfirmed hypotheses than there are confirmed recognitions. For example, the *labeling problem* is continually mentioned. Empirical studies (e.g., Robinson, 1986, 1993; Robinson & Clinkenbeard, 1998) have only reported the feared negative effects in a small number of cases which could have to do with identification. Interestingly enough, according to questionnaire findings, the greatest reservations about identification attempts are not heard from the gifted or their parents, but rather much more so from psychologists and counselors and—in part—from nongifted siblings. Most of the classmates reacted as did the parents, positively to the label "gifted." Although the opinions from German and American teachers questioned differed from one another, both tended to be positive.

The following dangers are usually associated with labeling problems: social isolation, development of egocentric attitudes and behaviors, endangering or disturbing the personality development and self-concept through extreme achievement pressures or too much responsibility, etc. Certainly, these dangers must be kept in mind during the identification process and, if necessary, be accompanied by counseling measures. If one is aware of the consequences of making no identification attempts, then almost everything is in favor of identifying the gifted and talented children and youth as completely as possible so that assistance in their education and upbringing is available at the same time. (See also Schofield & Hotulainen, 2004.)

Even if not all gifted students will need such help, it is nevertheless irresponsible to leave the estimated half of the especially gifted—including their parents and teachers—alone with their personal and social problems. The palette of counseling and problem cases reaches from asynchrony between acceleration of the intelligence development and "immature" (appropriate to the chronological age) feelings, behavior problems due to permanent lack of challenge, social isolation resulting from lack of contact possibilities with gifted peers and problems specific to gifted girls (especially in math and the sciences) due to role expectations and educational attitudes, indifferent or even rejecting behaviors by parents or siblings and teachers, up to psychiatric risks, e.g., anorexia nervosa (see Baldwin, Vialle, & Clarke, 2000; Detzner & Schmidt, 1986; Heller & Ziegler, 1996; Kaufmann & Castellanos, 2000; Terrassier, 1985; Yewchuk & Lupart, 2000). A directed talent nurturance is in many cases hardly possible without identification, which provides definite fundamental diagnostic information about the specific problem. For greater detail see Heller (2005).

All in all, the weightier arguments are clearly on the side of diagnosing/identifying giftedness and talent during childhood and adolescence. However, prophylactic measures for the prevention of undesirable or even harmful side effects should be considered as well as the different cognitive and social/emotional needs of gifted students (see Adams-Byers, Whitsell, & Moon, 2004).

Methodological Problems of Identification

Questions of methodology concerning identification include various aspects, such as problems with the definition of relevant indicators, sources of diagnostic information, or measurement problems. Furthermore, diagnostic decision strategies with respect to specific sources of error, the effectiveness and economy of the selection of talented students for appropriate gifted programs, the decision to use so-called static diagnostic approaches versus dynamic or process diagnostic approaches, etc., are also included. For greater detail see Heller (1989, 2000, 2004).

According to the currently more favored multidimensional concepts of giftedness and talent, the following behavioral characteristics are considered to be *indicators* of a special talent in childhood and adolescence: cognitive aptitudes like intellectual precocity, quick comprehension and high speed of learning, being quick to pick up concepts, often ahead of the usual time (needed by one's agemates), distinct curiosity, a large vocabulary for one's age, creative (original) ideas and methods to solve complex problems, the individual challenging tasks or questions, eminent cognitive abilities to think convergently (as indicators of intelligence) and divergently (as indicators of creativity), sensitivity for problems, spontaneous inclination toward challenging and difficult tasks and thought problems, distinctive meta-cognitive competencies, etc. With respect to the MMG (see Figure 6.1), these cognitive variables serve as *predictors*.

In the procedure of assessing the influence of noncognitive personality factors, as well as sociocultural conditions of the individual's environment, the following items should be considered as *moderators*: intrinsic achievement motivation and striving for success, willingness to take risks or persistence and striving for perfection, preference for independent learning style, coping with stress, test anxiety, or control expectations, along with socioemotional climate in the family and at school, educating and instructional styles, reactions of peers, siblings, parents, and teachers to success and failure of gifted students, quality of stimulation and expectation pressure of the social environment, etc.

In addition, according to the type of giftedness, achievement variables related to more or less specific areas like mathematics, natural sciences, technology or computer science, languages, music, arts, etc., are termed *criteria* in the diagnosis-prognosis paradigm.

Sources of diagnostic information include *l*ife, *q*uestionnaire, and *t*est data (according to Cattell, 1965); hence, diagnostic variables and their operationalization, i.e., the measurement instruments, behavioral observations, and observational techniques, respectively (*l*-data), diagnostic interviews and questionnaires including self-, parent-, and teacher-nominations or checklists (*q*-data) as well as standardized tests (*t*-data). If necessary, the named instruments can be supplemented by *biographical* analyses or something similar. For the identification of gifted youth within the talent search and single case diagnosis, one usually not only needs an adequately differentiated set of appropriate instruments, but also has to consider the level of the scale niveau and the test quality characteristics, such as objectivity, reliability, and validity. *Ceiling effects* have to be dealt with when one employs normed tests, especially in highly gifted populations. This means that the concerned test does not differentiate adequately in the extreme upper region of the scale. Therefore, special test scales for the identification of highly gifted—especially the ablest—students are needed; see, for example, the Triarchic Abilities Test (Level H) by Sternberg (1993) or the Munich High Ability Test Battery (MHBT) by Heller and Perleth (2007).

A further methodological problem is the *breadth-fidelity dilemma* encountered in personnel decisions (see Cronbach & Gleser, 1965). To cope with this dilemma, the identification procedure involves several steps. First, a general screening takes place. This means that a less exact, but wider, range of factors and instruments is included, e.g., checklists—often in combination with rating scales (e.g., Neber, 2004). Tables 6.1 and 6.2 give examples of such checklists with respect to intellectual giftedness and creative talent from the MHBT. For further checklists, assessing such aspects as social competence, musicality, and psychomotor skills, refer to the MHBT by Heller

Table 6.1. Teacher's checklist: Intellectual giftedness

ID or Name	Ratings		
1	1	2	3
2	1	2	3
3	1	2	3
4	1	2	3
5	1	2	3
6	1	2	3
7	1	2	3
8	1	2	3
9	1	2	3
10	1	2	3
11	1	2	3
12	1	2	3
13	1	2	3
14	1	2	3
15	1	2	3
16	1	2	3
17	1	2	3
18	1	2	3
19	1	2	3
20	1	2	3
21	1	2	3
22	1	2	3
23	1	2	3
24	1	2	3
25	1	2	3
26	1	2	3
27	1	2	3
28	1	2	3
29	1	2	3
30	1	2	3

To assess this type of giftedness, you may refer to the following dimensions (all need not be present; it is sufficient if the student excels in some of them):

- Logical/analytical thinking
- Abstract thinking
- Mathematical thinking
- Scientific/technical thinking
- Language skills (rich vocabulary, fluency of expression, talent for foreign languages)
- Learning ability (quick understanding, retentive memory, accurate reproduction, active learning)
- Powers of deduction, combination, etc.
- Broad knowledge
- Consolidated special knowledge in one or more domains

Please consider now which of the students in your class apply here, and cross the appropriate code next to their class numbers (ID)!

Scoring system:
1 = top 10%
2 = top 20%
3 = below top 20%

and Perleth (2007). With their aid, teachers or educators nominate a certain number of children or youth who fit the listed talent characteristics. In the next step, more precise tests are employed for the determination of the individual talent dimensions. Finally, individual and social moderator variables are collected which are relevant to the training gifted program or special educational measures; see the *sequential strategy model* in Figure 6.2 on page 102. The final selection is thus more accurate than the screening which helps to reduce the danger of not recognizing talents.

Such selection decisions generally include risks. The risk of type I or *alpha error* consists of a person being identified as (highly) gifted when he or she is, in fact, not (highly) gifted. The risk of type II or *beta error* is manifested when a person who is (highly) gifted is not identified as such. The first type of error can be reduced by increasing, the second by decreasing values, e.g., IQ or T cutoffs (threshold model). Unfortunately, it is not possible to reduce the risk of both types of errors at the same time. Institutional (e.g., capacity of the gifted program) "interests" usually dictate the reduction of the alpha error's risk. However, it is in the individual's best "interests" to minimize the beta error's risk. Hence, this strategy ought to be favored in

Table 6.2. Teacher's checklist: Creative giftedness

ID or Name	Ratings		
1	1	2	3
2	1	2	3
3	1	2	3
4	1	2	3
5	1	2	3
6	1	2	3
7	1	2	3
8	1	2	3
9	1	2	3
10	1	2	3
11	1	2	3
12	1	2	3
13	1	2	3
14	1	2	3
15	1	2	3
16	1	2	3
17	1	2	3
18	1	2	3
19	1	2	3
20	1	2	3
21	1	2	3
22	1	2	3
23	1	2	3
24	1	2	3
25	1	2	3
26	1	2	3
27	1	2	3
28	1	2	3
29	1	2	3
30	1	2	3

To assess this type of giftedness, you may refer to the following dimensions (all need not be present; it is sufficient if the student excels in some of them):

- Curiosity, quest for knowledge
- Imagination, ability to think in alternatives
- Creative and inventive thinking
- Originality, search for extraordinary problem/task solutions
- Flexible thinking, spiritual agility, ability to consider a problem from various points of view
- Self-sufficiency, independence of thinking and opinion
- Interest-oriented, independent solving of problems
- Multiplicity of interests
- Stability of interests

Please consider now which of the students in your class apply here, and cross the appropriate code next to their class numbers (ID)!

Scoring system:
1 = top 10%
2 = top 20%
3 = below top 20%

the identification (talent search), whereby one can employ *valid* instruments and the described *successive* decision procedure to further reduce beta errors. Regarding this topic further, see Feldhusen (2005), Hany (1993, 2001), or Ziegler and Stoeger (2004).

In an analogous way, a sequential decision strategy could be used in *case studies*, e.g., for counseling purposes (gifted individuals), and/or in the identification of gifted underachievers, etc. Gifted underachievers are students who achieve at a lower level than that commensurate with their high (intellectual) potential. See Figure 6.3 for such sequential strategies in the context of gifted counseling and education.

The quality of the selection strategy mentioned above is related to its effectiveness and economy or efficiency. The *effectiveness* can be defined here as the percentage of the (truly) gifted already identified in the screening phase (exhausting quota according to Pegnato & Birch, 1959; see also Pyryt, 2004). It is more important in terms of the mentioned criteria to identify as many of the gifted as possible. The *efficiency* (economy) is determined by the percentage of the actual gifted in the screening quota. This criterion is thus a measure of the effort necessary for the total identification process. When trying to find all (highly) gifted persons, it is best to set one's priorities on the first criterion (effectiveness).
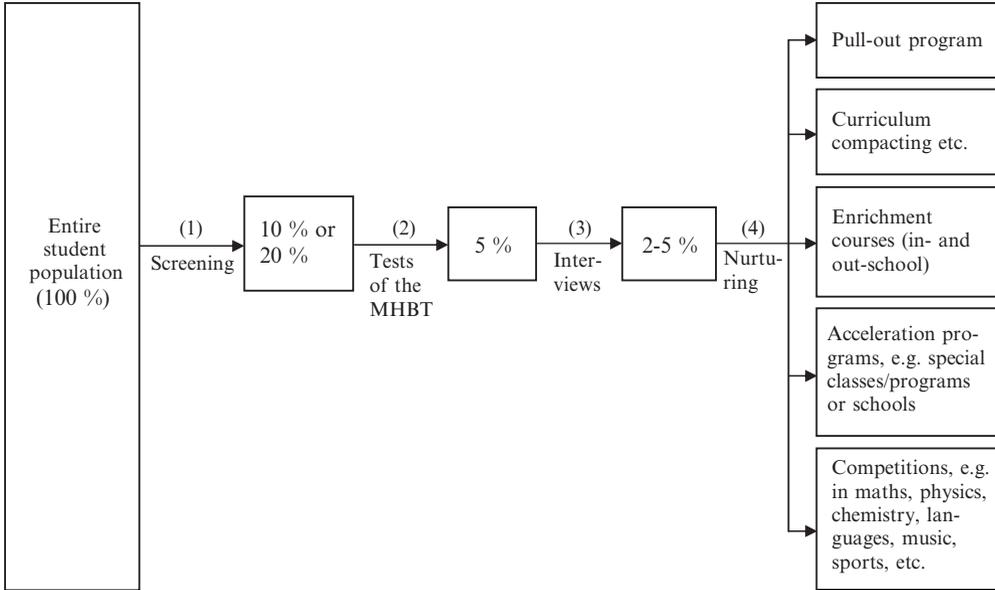
Figure 6.2. A sequential strategy model for the identification of exceptionally gifted students at school level according to Heller (2000, p. 252).

(1) = Nomination of the 10–20% class leaders with respect to the different dimensions of giftedness, e.g., through teacher checklists; see Table 6.1 and/or Table 6.2 above.

(2) = (Field-specific) tests of giftedness for the selected 10% or 20% and/or differentiated teacher ratings (cf. checklists).

(3) = If necessary, selection interviews for further selection.

(4) = Assignment to various nurturing programs, e.g., curriculum compacting, pull-out program, enrichment courses, special classes or special schools for highly gifted and talented students in math and/or sciences, etc.

Special questions arising in the identification of gifted children and adolescents from so-called high-risk groups as well as further methodological problems are discussed by Feldhusen and Jarwan (2000), Hany (1987, 1993, 2001), Kanevsky (2000), and Sternberg and Subotnik (2000). For identifying (very) young gifted children, see Perleth, Schatz, and Mönks (2000) and Schofield and Hotulainen (2004).

While traditional *psychometric* (trait-oriented or so-called status test) diagnostics are indispensable in the identification of worthy or needy gifted children and youth, in the *process-oriented* or dynamic testing approaches one hopes for important discoveries about the type of learning and thought processes used by (highly) gifted students. Corresponding models primarily aim at proving surmised qualitative differences between gifted and nongifted groups, especially with regard to information processing during the solving of difficult, complex problems. In contrast to the restrictive problem-solving situation of many skill-based tests (in the psychometric paradigm) which is seen as disadvantageous, open and less structured tasks are attempted. Such tasks, especially when they are reproduced in the experimental design, not only should allow for product analyses (as is customary in the psy-
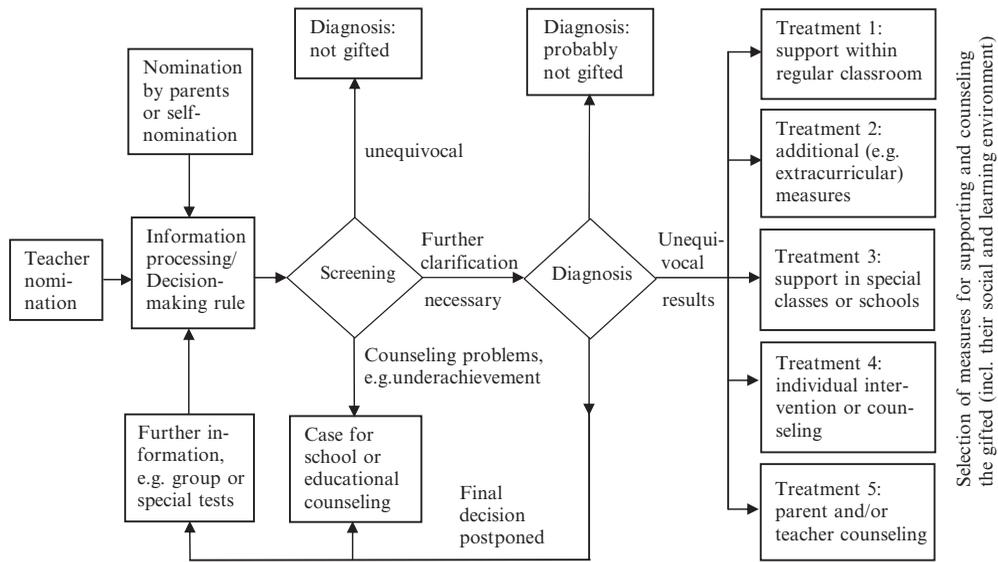
Figure 6.3. Model of Sequential Strategy in the Diagnosis of Giftedness according to Heller (2000, p. 253).

chometric tradition), but also should make process and causal analyses possible. Undoubtedly, this is a desideratum regarding—for example—the measurement of *creative production* (see Urban, 2004). Beyond this, one hopes for insights into those learning and thought processes that are responsible for the development of expertise, beneficial versus inhibiting conditions in the development and socialization of gifted and talented students. Also information about provisions necessary for the furtherance of development of the gifted could be expected from dynamic assessments (see Facaoaru & Bittner, 1987; Kanevsky, 2000; Klix, 1983; Waldmann & Weinert, 1990; Weinert & Waldmann, 1985).

However, one should not overlook a limitation of this new test diagnostic procedure: its validation, which is not yet sufficient in most cases. It is possible to research without empirical proof of validity, though not in the practice of gifted identification. This is the most important methodological postulate (Jäger, 1986).

When should (highly) gifted children be identified? This question includes two aspects which are expressed in the following alternatives: (1) Identification at the preschool or elementary school age, i.e., identification as early as possible? (2) Sporadic or continual identification? Another question closely tied to these is (3) whether the identification should proceed in a voluntary or obligatory fashion (through the education system).

Considerations which are directed at optimizing individual socialization and education processes speak for the earliest possible identification (Feger & Prado, 1998; Lewis & Louis, 1991; Robinson, 1993; Schofield & Hotulainen, 2004; Stapf, 2003). This affects not only cognitive, but also motivational and social-emotional areas of personality development. Correspondingly, Lehwald (1986), who emphasizes early identification, stated: "The most important thing here is a certain decision, so that the child's optimal nurturance and development can take place. The nurturance of giftedness in a larger sense without adequate diagnostic information about the status

and prognosis of personality development is not possible. Process-diagnostically determined biographical data opens the way for determining the individual developmental course of gifted children and deciding upon concrete educational measures for the individual case. Early prognoses aid not only the child psychologist but are also indispensible to the early childhood educator" (1986, p. 161; translated by the authors). In recent years, neurobiologists have also pleaded for early identification (e.g. Singer, 1999).

Other educational and developmental psychologists (e.g., Weinert, 1992) are more skeptical and stress that all preschool children and students at the primary (and secondary) school level must be optimally nurtured, i.e., provided with a rich, stimulating learning environment in the family and school settings, just as the (highly) gifted. In our opinion, this postulate is true, but does it exclude the arguments for early identification? For an overview see Perleth et al. (2000).

In the discussion about early identification, methodological problems must also be considered. Difficulties in early identification stem from the lack of reliable and practical (for parents as well as teachers) criteria for the identification of highly gifted children. Also, inadequate knowledge about the problem-solving processes and their development, as they are specific to the gifted, is often an obstacle. The improvement of this background knowledge is an essential prerequisite for the construction of better diagnostic instruments, or more complete "intelligence diagnosis" on the experimental design (see Klix, 1983). The process diagnostic approaches discussed above are attempts in this direction, as are sequential decision strategies. Above and beyond this, such diagnostic instruments need to measure not only *inter*individual differences, but also *intra*individual progress regarding formal problem-solving and learning competencies.

Objections which are directed at the limited reliability of intelligence tests in preschool or early school groups are less sound. According to Casey and Quisenberry (1982)—also see Perleth et al. (2000), Robinson and Robinson (1992), or Stapf (2003)—the results in the upper areas of intelligence tests are already relatively reliable in preschool ages so that an early identification of giftedness could provide important information for individual nurturance of the gifted (if ceiling effects can be avoided). More serious are the reservations of many educators and preschool pedagogues about the realization chances of early diagnostic measures. Sometimes, however, the unprejudiced observer's suspicions that are raised, those ideological motives and not factually grounded arguments, are guiding the discussion. How else can one explain that parents of gifted children often present quite different problems, e.g., danger of lack of challenge, helplessness, regarding possibilities for appropriate stimulation and challenge? Yet this points out even more that for directed aid or prophylactic measures the available knowledge about positive and negative developmental conditions of gifted children and adolescents is often inadequate.

The question of when identification attempts should begin loses its force when one decides on *continual* diagnosis/prognosis which accompanies personality development. This would be better for the diagnosis of chronological developmental advances *and* for identifying individual uniqueness. At the same time, this makes the nurturance of giftedness and talent or—more inclusively—personality in the sense of formative evaluation possible. One important educational goal in the nurturance of giftedness is the development of a realistic self-concept. In this way, misdiagnoses of giftedness can be recognized early so that a continuous adjustment to the individual's

needs of practical support measures is possible. It can be a disadvantage to have to go to so much effort; this must be kept in reasonable relation to the gain in information for the nurturance of the gifted children.

At the same time, each individual's right to free choice, including that of the gifted person, must be respected. The principle of voluntary participation, i.e., the individual decision about taking advantage of identification measures available to the gifted, cannot be allowed to deteriorate into an individual incapacitation. There seems to be, at least in Western democracies, general consensus on this point. A limitation of this right can only be derived from the educational responsibility for individually optimal socialization chances—true for *all* young people. In this light, the question of the individual's right to free choice is not a problem specific to the gifted children and youth.

Gifted Education and Counseling

In a similar vein, the very nature of gifted education and the philosophy behind it need to be considered. On the one hand, the rights of every child (including the gifted child) to the very best education that society can provide is fundamental. On the other hand, it could well be argued that the reason behind the importance of such education is simply to benefit society as a whole through the best possible contribution of educated adults. Indeed, at a time when there are now as many people suffering from obesity as there are people suffering from malnutrition, the stark reality of global inequality is even more apparent and the need for some solution to this is even more essential. One source of a possible solution is in tapping the creativity and social conscience of an educated adult society. Consequently, it could be argued that the role of education generally, and, more particularly, the education of the gifted, is to provide society with the best possible chance to remedy these inequalities. In other words, the education of gifted children per se is of little value unless it is directed at producing gifted adults with adult expertise (see Heller et al., 2005) who can enrich the fabric of an evolving society. Viewed in that light, the best possible education for the gifted is crucial, because it is likely that it will be from these creative minds that society will benefit. Gifted education must then not be for the creation of a privileged, exploitative elite. If we are to develop innovative and creative solutions, which also maintain the pace of world growth in a humane and responsible environment, then our society must increasingly develop those persons who possess exceptional ability, regardless of background, to the limit of their potential. With these thoughts in mind, the next paragraph will consider some of those issues associated with nurturing the gifted child.

The two most important groups of adults in the life of any gifted child are parents and teachers, and although these two groups share many similarities in their roles, they also have fundamental differences and responsibilities. It is also to these two groups that the school counselor must inevitably turn for support in implementing any necessary intervention. The most basic similarity is that both groups have a responsibility for nurturing both the child and their "gift," but it is in how this is likely to occur that the differences emerge. It is essential for the counselor to work constructively with the parents and, indeed, the whole family (Colangelo &

Assouline, 2000; Freeman, 2000). There is evidence that the change in family relation-ships when one child is identified as gifted can have a negative impact on siblings who are not so identified (Colangelo & Brower, 1987; Grenier, 1985). It is important to remember that teachers will often only have close contact with a child for one year whereas the parents have watched the development of their child since birth, have chosen the educational path for the child, and will continue to be crucial in major educational and lifestyle decisions until the child is genuinely capable of making their own decisions. However, parents may well lack the interactional skills to work effectively with school personnel which, in turn, limits their ability to be successful advocates for their child. They may also actually resent the added challenge that a gifted child represents and certainly do not always know what is best for their child (Colangelo, 2001).

Career counseling is another area in which the counselor will interact significantly with the gifted child. While some gifted children will have very clear career aspirations from an early age, this is by no means universal and there is no evidence to suggest that there is any difference between early or late selection (Rysiew, Shore, & Carson, 1994). Career selection is often difficult for gifted children since they are frequently multitalented and they may well be pressured by parents and society at large to choose high-status, high-paying careers (Rysiew, Shore, & Leeb, 1998). While parents inevitably want the best for their child, their motivation is sometimes less than altruistic. In their review of the career development literature for gifted children, Rysiew et al. (1998) make a number of recommendations for counselors (see also Heller, 2005):

1. Remind students that they are not limited to just one career for life.
2. Focus on personal development through leisure activities as an alternative to career development.
3. Stress the importance of interacting with peers of similar abilities and interests so as to overcome feelings of isolation.
4. Use career counseling as an opportunity for exploring a range of life satisfaction issues.

Summarizing Conclusions

There are a number of problems intertwined with the identification and education of giftedness and talent, e.g., questions concerning the conceptualization of high ability or giftedness constructs, methodological problems of identification like measurement and procedural questions, decision paradigms, validation, and, last but not least, gifted program evaluation problems. In order to solve them, not only is differential and diagnostic psychology called upon, but one also expects important contributions from the fields of developmental and educational psychology, social and clinical psychology, and (empirical) education sciences. Without claiming to be a complete list, the necessity of an interdisciplinary cooperative problem-oriented effort should be emphasized. From this we can expect decisive progress to be made in the near future. The following *research tasks* seem to be the most pressing:

1. The elaboration and increased precision of differential diagnostic instruments for determining various forms of giftedness and talent. This should include

both psychometric (skill-/trait-based) and cognitive psychological approaches (e.g., from experimental diagnostics). The argument of whether the support of giftedness should be more related to general cognitive competencies and general thought processes or to specific skills and abilities (knowledge competencies) naturally influences the operationalism of the giftedness/talent constructs. If one concurs with the investment theory of Cattell (1971), according to which Cattell's (1963) "crystallized" intelligence (in this instance, knowledge acquisition) benefits from Cattell's "fluid" intelligence (in this instance, general thought potential) or is—partially—dependent on it, the solution of this gifted education problem is only to be found in the inclusion of *both* approaches; for greater detail see Heller (1999) and Heller and Hany (1996).

2. With regard to optimal identification results, one should give preference to process diagnostic over so-called status diagnostic methods. Naturally, one is confronted with the previously discussed unsolved problem of actually obtaining process analyses and not only product analysis results. The process-oriented giftedness diagnosis is in an analogous—and just as often dissatisfying—situation as learning or dynamic test diagnostics (see Guthke, 1992; Kanevsky, 2000; Sternberg & Grigorenko, 2002). Developmental diagnostics are no less deficient (see Stapf, 2003).

3. Since gifted individuals exhibit various characteristics both in the developmental process and in their achievement behavior, these must all be considered in the identification of gifted children and youth. Multivariate classificatory approaches to the determination of specific configurations of giftedness and talent (using *test profiles*, etc.) are supplemented by idiographic methods, e.g., biographical analyses (see Bloom, 1985). A systematic determination of counseling needs specific to the gifted as a basis for prevention and intervention is just as desirable as the development and evaluation of appropriate psychoeducational measures for counselors and school psychologists. The greatest challenge probably lies in the establishment of *interaction diagnostics* and its validation (see Mönks, 1992). In connection with this, additional evaluation problems and—indirectly—conceptualizing problems are virulent. It would appear that the topic of giftedness or talent is being rediscovered as a research task (see Sternberg, 2000, 2003; Ziegler & Heller, 2000).

4. Despite Terman's initial studies, one area of continuing deficiency in the literature is the dearth of longitudinal studies of gifted children. Consequently, much of the heat in the debate about whether specific support for gifted children is necessary has been based on anecdotal evidence and post-hoc data. One continuing argument against support has been that gifted children will excel academically irrespective of whether they receive support or not. In a 10-year longitudinal study in Finnish schools, Schofield and Hotulainen (2004) found that potentially gifted students who were identified at preschool and who received no specific support throughout their school life, did in fact have marginally higher academic results than their nongifted peers. However, they were also at a very great risk of dropping out of formal education since they were very dismissive of their academic abilities. This was particularly the case for boys. In other words, without specific support there is a very real risk that gifted children, and in particular boys, will mask their abilities in the quest for social acceptance to such an extent that they drop out of formal education

altogether. Other at-risk groups are highly gifted girls (e.g., Detzner & Schmidt, 1986). Especially with respect to gifted females in the area of mathematics, sciences, and technology, see Heller and Lengfelder (2006), Heller and Ziegler (1996), or Ziegler et al. (2006).

Practical Recommendations

Despite conceptual and methodological problems that are as yet unresolved, a few recommendations for the better practice of identification and gifted education may be formulated here. Not only is the utility aspect to be included in the following discussion, but also the possible disadvantages and consequences of doing without diagnostic and education aids.

1. In single-case diagnoses as well as talent searches, a *step-by-step* procedure is most effective. This best meets (highly) gifted individuals' needs. A sequential decision strategy reduces the danger of incorrect identification outcomes by minimizing the bandwidth fidelity dilemma. Since the most recent theories of giftedness and talent have almost always evolved from complex or hier-archical constructs, *multidimensional* measurement methods and *classificatory* approaches (to data analysis) are to be recommended over traditional one-dimensional (e.g., IQ cutoff scores) methods. For that purpose, elaborated test profiles of (various groups of) gifted and talented students are needed (e.g., as provided by the MHBT by Heller & Perleth, 2007). Another example is the Revolving Door Identification Model (RDIM) by Renzulli (2005). To develop a talent pool, Renzulli offers a six-step model for identifying and nurturing gifted students. The gifted students can then be supported individually, based on needs and wants, in voluntary work or study groups (see also MacRae & Lupart, 1991). In a similar way, Ziegler and Stoeger (2004) developed the five-step model ENTER for the identification. Besides these status-diagnostic (psychometric) approaches following the learn-test or dynamic test paradigm, one proceeds later in a more process-diagnostic manner (see Kanevsky, 2000; Sternberg & Grigorenko, 2002). Analogously, one would attempt a step-by-step confirmation of the identification results in the single-case evaluation, whereby the uniqueness of the individual must be the center of the identi-fication process. Therefore, detailed *biographical analysis* should always be included.

Despite their measurement inadequacies, one would not want to do without informal diagnostic instruments such as parent and teacher nominations or check-lists (see Neber, 2004), observational techniques, or diagnostic interviews (see Heller, 2000). In individual cases, self-nominations and contests can play a further impor-tant part with older adolescents, although the self-selection limits many diagnostic procedures (see Gagné, 1989; Gagné, Bégin, & Talbot, 1993). But combined with for-mal methods, e.g., cognitive ability tests, they can provide important supplementary diagnostic information (see Campbell, Wagner, & Walberg, 2000).

One must be careful during the selection of ability and—generally—of achieve-ment *normed* tests that they do not produce ceiling effects, i.e., failing to sufficiently differentiate adequately in the upper ranges of the concerned scales. Multifactorized

tests are usually more appropriate for the identification of (highly) gifted and talented students than tests of general intelligence.

2. If one contrasts the advantages of gifted identification with the possible disadvantages, then the advantages clearly outweigh the disadvantages. Neither the feared labeling effects (Endepohls-Ulpe, 2004; Perleth et al., 2000; Robinson, 1986, 1993) nor unusual personality or social conflicts from gifted identification measures have been proven. The fact that such undesirable effects can occasionally occur should lead to their being dealt with by accompanying counseling measures, and not by doing without (useful) diagnostic information (see also Lehwald, 1986, 1987).

One also finds the results of *identification omissions* on the education and upbringing or personality development of the gifted children and youth in the literature, which are felt to be much more serious. Gifted identification is frequently an essential element of individual development chances. Borland and Wright (2000), Mönks (1987, 1992), or Stapf (2003) suspect that many gifted children are presently not being recognized. Primarily these are the so-called high-risk groups mentioned above. Thus, in many instances, a continual identification or diagnostic process which begins at an early age is essential as a prophylactic measure (see Perleth et al., 2000).

3. The success of such identification attempts depends on *general conditions and educational provisions*. The preparedness of parents and teachers, school counselors and psychologists, to deal with the tasks of identifying and nurturing the gifted without fear or prejudice, is a main concern. This challenge can be everything except easy. The identification or diagnosis of giftedness and talent fulfills not only an important function with regard to optimal personality development of gifted and talent youth in social (family and school) settings. It also serves as a prevention and intervention measure in crisis situations.

4. A final alternative strikes at the very heart of the traditional age/grade lock-step system whereby children move through grades largely on the basis of age, and differing levels of performance within those grades are accommodated through within-grade streaming. Such a system has barely changed since the introduction of compulsory education in the Western world in the late nineteenth century and is largely based on outdated developmental models of child psychology. Indeed, in a recent analysis of the impact of differing school structures on performance outcomes, J. Comer (in *APA Monitor on Psychology, 35*(8), p. 67) argued that "while the rationale behind the traditional comprehensive school system might represent good social policy, it was not good educational policy." Rather, an argument can be mounted that we need to change some of our school structures to reflect the fact that children are dramatically different in their abilities and that age is only one component of their physical and emotional development. Consequently, a system in which the basic core of the curriculum is taught in ability-based groups, should be seriously considered. If such a system were implemented, much of the debate about gifted education would disappear as ability cohorts rather than age cohorts would be the norm. There would be no need to discuss acceleration or even enrichment, as both would already be integral aspects of the organizational structure. Such systems already exist in elementary schools (at least in

Australia) where there is a considerable degree of flexibility in school structure and organization, but they fall down in the transition to secondary school, not for philosophical reasons, but mainly because of timetabling. There is also the problem of specialist subject teachers guarding their subject domain, but the advent of middle schools with a single teacher teaching all the main subjects, suggests that this territorial argument lacks substance. However, such radical changes are unlikely to be quick or easy, but at least the arguments should be raised and such mundane issues as ease of timetabling should not be allowed to dictate educational policy.

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Identifying and Providing Services to Twice Exceptional Children

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Introduction

Twice exceptional children are those whose demonstrated performance falls in both directions of the learning spectrum. They demonstrate superior ability in one or more areas, and also have one or more disabilities. They may be gifted with serious emotional difficulties, gifted Asperger children, gifted children with attention-deficit hyperactivity disorder, learning-disabled (LD) gifted children, gifted children with physical handicaps, etc. Psychologists are typically called on to assist families or schools with two tasks: to determine whether or not an identifiable disability is present in a gifted child who is having trouble learning, and to make recommendations for educational interventions. Less often, parents of identified disabled children will seek the help of a psychologist to determine whether or not their child is gifted.

The goal of this chapter is to assist the psychologist in these tasks by highlighting the major findings from the empirical literature on twice exceptional children and by exploring their implications for psychological practice. In particular, the chapter aims to answer six questions: Who are twice exceptional children? What distinguishes them from other populations? How might they be effectively identified? What issues, if any, are unique to this population? What interventions have been demonstrated to be most effective in enhancing their achievement and social-emotional adjustment? How should educational placement decisions be made?

As schools across the nation increase their capacity to provide differentiated services for children, psychologists are increasingly called on to assess strengths and weaknesses in twice exceptional children and to make recommendations for interventions and supports. We can be more effective in addressing the needs of twice exceptional students when we understand the factors that contribute to their accurate identification and timely success.

Background

The concept of twice exceptional children is relatively new. The large literature base we have now was birthed in the early 1980s when new theories of intelligence and assessment were proposed (Detterman, 1987; Gardner, 1983; Sternberg, 1997; Wagner & Sternberg, 1986). These new concepts challenged traditional ideas that all kinds of intelligence could be measured with a test score and that only children who earned good grades in school could be gifted.

Most of the empirical literature on twice exceptional children is descriptive, identifying patterns of behaviors, social and emotional characteristics, and coping strategies among various types of gifted children with learning problems. The largest literature is on gifted students with specific learning disabilities (Baum & Owen, 1988; Coleman, 1992, 1994; Cooper, Ness, & Smith, 2004; Ferri, Gregg, & Heggoy, 1997; Fox, Brody, & Tobin, 1983; Gerber & Ginsberg, 1990; Hansford, 1987; Moon & Reis, 2004; Nielsen, 2002; Nielsen, Higgins, Wilkinson, & Webb, 1994; Reis, McGuire, & Neu, 2000; Shaywitz, Holahan, Freudenheim, Fletcher, Makuch, & Shaywitz, 2001; Vespi & Yewchuck, 1992; Whitmore, 1981; Whitmore & Maker, 1985). The research on gifted children with emotional disorders or physical handicaps is very limited and often dated (Baker, 1995; Eason, Smith, & Steen, 1978; Gamble, 1985; Gust-Brey & Cross, 1999; Jackson, 1998; Morrison, 2001; Neihart, 1998,1999, 2002; Paskewicz, 1986; Whitmore, 1981; Willard-Holdt, 1998). In recent years there has been more interest in gifted children with behavior disorders, especially ADHD and Asperger's syndrome (Baum, Olenchak, & Owen, 1998; Cash, 1999a, 1999b; Cramond, 1995; Kalbfleisch, 2000; Kaufmann & Castellanos, 2000; Kaufmann, Kalbfleisch, & Castellanos, 2000; Moon, 2002; Moon, Zentall, Grskovic, Hall, & Stormont, 2001; Morrison, 2001; Neihart, 2000, 2001, 2003; Zentall, Moon, Hall, & Grskovic, 2001).

There is also a substantial literature that evaluates approaches to identification of twice exceptional children and explores the effectiveness and utility of various identification strategies (Bray, Kehle, & Hintze, 1998; McCoach, Kehle, Bray, & Siegle, 2001; Osborne & Byrnes, 1990; Schiff, Kaufman, & Kaufman, 1981; Sweetland, Reina, & Tatti, 2006; Wilkinson, 1993). In addition, theoretical and practical issues relevant to this population are discussed in numerous articles, chapters, and books. The recommendations offered in these publications are based on perceived effectiveness in the classroom or in clinical practice rather than on demonstrated effectiveness in empirical studies (Kranowitz, 1998; Kurcinka, 1998; Murray, 2002, 2003; Neihart, 2000, 2001, 2002; Olenchak, 1994; Silverman, 2002; Stewart, 2002; Webb, Amend, Webb, Goerss, Beljan, & Olenchak, 2005). There are, as yet, no studies that compare the effectiveness of different intervention strategies with twice exceptional children.

Characteristics of Twice Exceptional Children

There are gifted learners in every population of children except those who are severely developmentally disordered. The number of twice exceptional children in the United States is estimated at approximately 300,000 (Baum & Owen, 2004; Clark, 2006). Gifted children can have autism spectrum disorders, be severely emotionally disturbed or behaviorally disordered, and have physical handicaps or specific learning disabilities (Baum, 1994; Fox et al., 1983; Moon & Reis, 2004).

The literature points to three groups of twice exceptional children, each group presenting its own identification and intervention challenges. In the first group are those whose strong language skills enable them to earn good achievement scores during their elementary years, but whose achievement levels begin to drop as curricular demands rise, especially in their area of disability. It is often not until they reach junior high, high school, or even college, when the curricular or organizational demands outstrip their ability to compensate, that their deficits become more evident to them and to their teachers.

In the second group are children whose learning difficulties are identified early, but whose giftedness goes unnoticed because their difficulties mask it. These children are referred for special educational services, but not for advanced learning opportunities. They receive instruction in remediation and compensation strategies, but have little or no access to other gifted children, nor are they provided with accelerated learning opportunities in their areas of strength.

In the last group are those students who seem to be average, neither gifted nor learning disabled, because their disabilities mask their superior talent and their talents mask their difficulties.

Twice exceptional children do not usually exhibit the kinds of behaviors that many teachers and parents equate with giftedness—good academic performance, self-control, advanced social skills, good study habits, compliance with rules and social norms, etc. Instead, they exhibit behaviors that get them referred for special educational services or counseling—resistance to schoolwork, disruptive behavior in class, hyperactivity, asking off-the-wall questions, negativity about school, and poor performance in writing, reading, or math. By definition, the LD child is performing below expectations (APA, 2000). They may be clumsy or uncoordinated, and oppositional toward physical activities. They often have organizational difficulties and are known for their propensity to lose everything, or to be distractible (Baum & Owen, 2004; Fox et al., 1983).

Table 7.1 lists those characteristics that have been identified in various studies of twice exceptional children (Baum & Owen, 1988; Baum, Owen, & Dixon, 1991; Cooper et al., 2004; Hansford, 1987; Moon & Reis, 2004; Olenchak & Reis, 2002; Reis, Neu, & McGuire, 1997; Shaywitz et al., 2001; Vespi & Yewchuck, 1992; Whitmore & Maker, 1985; Willard-Holdt, 1998). As noted in Table 7.1, twice exceptional children are similar to gifted children in some ways and they are similar to LD children in other ways. In one of the first empirical studies of twice exceptional children, Baum and Owen (1988) examined 112 gifted, LD elementary children and concluded that the characteristic which set them apart from other gifted children and from other LD children was their perception that they frequently failed in school.

Social and Emotional Traits

Several studies suggest that twice exceptional children's characteristics contribute to feelings of low academic self-concept, depression, or anxiety, and to behavioral difficulties, particularly acting out behaviors (Baum, Cooper, & Neu, 2001; Baum & Owen, 1988; Baum, Owen, & Dixon, 1991; Cooper et al., 2004; Moon & Reis, 2004; Reis, Neu, & McGuire, 1997; Vespi & Yewchuck, 1992). Reis, Neu & McGuire (1997) found that half the subjects in their study of college-level twice exceptional students had sought counseling for social or emotional difficulties. Schiff et al. (1981) observed

Table 7.1.   Characteristics found in various studies of twice exceptional children

Like other gifted children	Like other learning-disabled children
• Strong conceptual thinkers	• Disruptive in class
• Good problem-solving skills	• Difficulty with tasks stressing memory or perceptual abilities
• Prefer novelty and complexity	• Careless or messy
• Advanced in abstract reasoning ability	• Poor academic self-concepts
• Perfectionism – high expectations of self and others	• Difficulties with emotional regulation
	• Social immaturity
• Intense curiosity	• Difficulty with automatic skills like sequencing, organization, and writing speed
• Seeks information, good knowledge base	
• High levels of energy and alertness	
• Creative thinking	
• Unusual levels of sensitivity	
• Sees patterns and connections in ideas, events, and objects	
• Keen sense of humors	
• Superior critical thinking skills	

that the 30 GLD students they interviewed were more emotionally distressed than expected.

As a result of their frustrations and the school's failure to recognize and address their strengths, twice exceptional children are vulnerable to discouragement, depression, anxiety, withdrawal, and underachievement. Emotionally, these children are often described as angry, disinterested, or upset about school. In short, the incidence of problems with social or emotional adjustment appears to be much higher among twice exceptional adolescents and young adults than among other gifted individuals, among whom rates of depression, anxiety, suicide, and behavior problems are similar to those of the general population of children and adolescents (Neihart, 1999, 2002; Neihart, Reis, Robinson, & Moon, 2002). The implication is that twice exceptional children should always be monitored for the development of affective disorders and be provided with targeted interventions for their emotional or interpersonal issues.

Identification

Aside from descriptions of twice exceptional children, discussions in the literature on twice exceptional children often focus on the issue of identification, asking:

- What is the most accurate method of identifying learning disabilities in gifted children?
- What are accurate indicators of giftedness in children with learning problems?

Clinically and legally, the definition of learning disability requires an unexpectedly low level of achievement relative to ability that cannot be explained by lack of educational opportunity. The diagnostic criteria listed in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (APA, 2000) requires:

- achievement that is "below that expected given the person's chronological age, measured intelligence, and age appropriate education" and
- disturbance that "significantly interferes with academic achievement or activities of daily living"

Note that the clinical definition examines achievement *relative to ability* as well as to age. In contrast, the Americans with Disabilities Act (ADA) qualifies individuals as disabled only if they demonstrate "substantial impairment in a major life activity." Consequently, case law usually defines "substantial" as relative to the ability of *most average people*, not to a particular cohort (Gordon & Keiser, 1998). In other words, gifted children have historically not qualified for special education services unless the discrepancy between their ability and their demonstrated achievement falls below that *of the average person*. Clinicians and education researchers are challenging this notion, arguing that in some exceptionally bright individuals, learning disabilities may exist, even if the ability/achievement discrepancy does not fall below an average performance (S.G. Assouline, personal communication, June 2006; Baum & Owen, 2004; Webb et al., 2005).

Resource restrictions in many school districts, however, prompt educators to limit referrals to children whose achievement falls significantly below what is expected for their age, rather than for their ability. As a result, even when they are struggling, many gifted children with learning problems are not referred for assessment until they reach at least junior high, and sometimes not at all, because they are able to achieve at grade level. Frustrated parents will seek professional help for their child outside the school system if they have the means to do so. This means that twice exceptional children are often identified later than other children with learning problems, and often after emotional or behavioral reactions have become entrenched, compounding their difficulties.

Identifying Disabilities in Gifted Children

The traditional approaches to the identification of learning disabilities, aptitude-achievement discrepancy, and intraindividual differences models have been roundly criticized because they have been demonstrated to have serious psychometric and theoretical flaws (Bray et al., 1998; Fletcher et al., 2005; Kavale & Forness, 1984; McCoach et al., 2001; Patchett & Stansfield, 1992; Sweetland et al., 2006; Vellutino, Scanlon, & Lyon, 2000). Several authorities have argued against the discrepancy model on theoretical and practical grounds as well (Gordon, Lewandowski, & Keiser, 1999). Further, neuropsychological approaches have not proven effective (Fletcher et al., 2005). In a recent comprehensive review of the empirical literature on the identification of learning disabilities in children, Fletcher et al. (2005) said, "We find little value in the idea of evaluating a child in a single assessment and concluding that the child has LD based on an IQ-achievement discrepancy, or profiles on neuropsychological tests, largely because such assessments are not directly related to treatment and the diagnosis itself is not reliable" (p. 519).

In spite of the consensus that test profile analysis is not an accurate method of identifying learning disabilities in gifted children, several gifted education experts continue to support it (Baum & Owen, 2004). Numerous studies have pointed to the limitations and ineffectiveness of this method.

First, no consistent IQ profiles have discriminated between LD and non-LD learners. For instance, Waldron and Saphire (1990) compared WISC-R profiles of 24 gifted LD children with a control group matched for FIQ and found that Verbal/Performance IQ discrepancies did not effectively discriminate between gifted students with and without learning disabilities. Mueller, Dash, Matheson, and Short (1984) compared WISC-R profiles of average, above average, and below average ability children and observed that variability in subtest scores increased with FIQ.

Second, studies indicate that gifted children test a bit differently than do average ability children, so relying on test manuals for interpretation of test data can lead to misleading conclusions (Detterman & Daniel, 1989; Kaufman, 1992; Sweetland et al., 2006; Wilkinson, 1993). For example, Verbal/Performance WISC discrepancies are larger and more common among gifted grade school children. Sweetland et al. (2006) observed that among a sample of 161 gifted grade school children (mean Verbal IQ 136), a V/P discrepancy of 13 points occurred in 68.9 % (compared to 31.7% of the standardization sample) and a discrepancy of 18 points occurred in 54.7% (compared to 17% of the standardization sample). They concluded that "very large discrepancies are typical for this population" (p. 7). Similarly, Wilkinson (1993) reported that intraindividual discrepancies are normal for gifted children, as she found considerable variability among the WISC-R profiles of 456 gifted (FIQ >120) third graders. About half her subjects earned average scores on subtests involving auditory sequential memory, visual sequential reasoning, and visual-motor coordination. "It appears that with higher overall IQs, there is a higher frequency of extreme scores and a greater range in the subtest scatter" (p. 89). Wilkinson stated that subtest variability is more common than uncommon among gifted children, and that below-average scores are not always associated with learning or behavior problems. Relying on profile analysis to identify learning disabilities in gifted children will result in inflated numbers of twice exceptional children.

Third, numerous writers identified serious psychometric problems when identification of learning disabilities is based on subtest profile analyses (Kavale & Forness, 1984; Kramer, Henning-Stout, Ulman & Schellenberg, 1987; McDermott, Glutting, Jones, Watkins, & Kush, 1989; Sattler, 1992; Truscott, Narrett, & Smith, 1993). Jensen (1992) and Watkins and Kush (1994), for example, stated that profile analysis relies on ipsative scores which lower the reliabilities of individual subtests. Bray et al. (1998) noted that statistically significant differences among subtests is quite common, even at the 0.01 level of significance, and added that "individual subtests are not as reliable as deviation IQ's and/or factor scores as indicated by their corresponding reliability and stability coefficients, standard error of measurement (SEM), and confidence intervals" (p. 211). They further pointed out that significant differences at the 0.05 level between Verbal and Performance IQ scores occur in 40.5% of the standardization sample on the WISC III (Wechsler, 1991). McCoach et al. (2001) said that the statistical problems with profile analyses are exacerbated among gifted students because subtest scatter tends to increase as the full scale score increases (Patchett & Stansfield, 1992) and as the value of the highest subtest score increases (Schinka, Vanderploeg, & Curtiss, 1997). Finally, Ysseldyke, Algozzine, and Epps (1983) determined that as many as one-fourth of children with grade level achievement would be identified as LD when discrepancy formulas are used.

In sum, the case against the use of profile analysis of subtest scores to identify learning disabilities is based on the following four points:

- Statistically significant differences among subtests are quite common.
- Verbal/Performance IQ discrepancies do not effectively discriminate between gifted students with and without learning disabilities.
- An intraindividual differences model relies on ipsative scores which lower the reliabilities of individual subtests.
- Among gifted students, subtest scatter tends to increase as the full scale score increases and as the value of the highest subtest score increases.

In an effort to provide practical guidelines for identifying learning disabilities in gifted children, McCoach and her colleagues (2001) examined the controversial issues surrounding the identification of twice exceptional children and proposed that when assessing gifted children for learning disabilities, psychologists:

- Follow state and federal special education guidelines
- Use multiple measures of achievement
- Obtain a measure of the child's current classroom functioning as well as achievement test scores
- Use curriculum-based assessment, especially domain- or task-specific assessments like reading inventories, reviews of a student's work, etc.
- Examine performance over time, and
- Look for a pattern of declining performance paired with evidence of superior ability

"Screening students who exhibit declining achievement test scores over the first 3 to 5 years of formal schooling may be an effective way to identify students with above average to superior cognitive abilities who also exhibit learning disabilities. Any children who appear to exhibit patterns of declining achievement would be referred for further assessment" (p. 408). A large unexpected decline in performance is always a cause for concern, but should not be automatically interpreted as indicative of a learning disability.

Accurate identification of twice exceptional children, then, is controversial on several points. The practical question becomes how to catch twice exceptional children early enough before years of struggle take their toll without casting the net so wide that we waste resources on numerous false-positive referrals. Effective discrimination of truly twice exceptional students from gifted children with normal variations in intellectual ability or from unmotivated gifted children will remain a challenge for future research. It is possible that Response to Intervention (RTI) is an approach that could remedy some of the aforementioned difficulties. This approach will be discussed later in this section.

Identifying Giftedness in Children with Learning Problems

Some children seem obviously gifted and learning disabled. They are advanced in mathematics, for instance, but cannot read. Or, they exhibit superior language skills and are autistic. But the giftedness in an LD child often goes unnoticed. "The prevalence of potential giftedness among this population is higher than you might expect …" (Baum & Owen, 2004, p. 32).

Individual measures of intelligence are still the best predictors of expected level of achievement, with WISC-R and WISC-IV scores predicting 52% of the variability

in achievement (S.G. Assouline, personal communication, June 2006; Sattler, 1992). IQ is a valid and reliable indicator of giftedness, and children with learning problems whose VIQ, PIQ, or FIQ falls in the superior range should be considered gifted and referred for gifted educational services. In addition, children who earn superior scores on several subtests on the WISC-IV (Wechsler, 2003) should be considered at least potentially gifted and referred for advanced learning opportunities (Baum & Owen, 2004; Brody & Mills, 1997; Cooper et al., 2004; Fox et al., 1983).

It is easy to recognize superior ability in children whose Verbal, Performance, or Full Scale IQ falls around or above 130, but the deficits many twice exceptional children have depress test scores, making their gifts less obvious (Moon, 2002; Moon et al., 2001; Neihart, 2003; Nielsen, 2002). What are some effective ways of identifying giftedness when a child's attention, processing, or verbal abilities prevent them from earning high scores on standardized measures of ability or achievement? Several studies have examined this issue and the emerging consensus points to two strategies for finding evidence of superior aptitude or ability (Baum & Owen, 1988; Cooper et al., 2004).

Examining patterns of test scores, especially looking for WISC-IV factor scores that are well above what is expected for the child's age, or for high scores on out-of-level achievement tests like the SAT, is one strategy. Group achievement tests should not be the sole measure of achievement because they have too low a ceiling. Gifted students' scores often cluster at the top, and it is difficult to distinguish them from students who have good academic aptitude, but are not gifted (Fox et al., 1983). Look for evidence of specific academic achievement as indicated by either standardized assessments or experts' judgments about their work. Seek recommendations from teachers.

Many children, especially those from socioeconomically disadvantaged backgrounds, some minority children, and children with severe emotional or verbal language disabilities will not perform well on standardized tests. In these cases, other kinds of evidence of superior ability or potential for superior achievement are needed. Several options are discussed below.

The Raven's Progressive Matrices (Raven, Court, & Raven, 1977) is an alternative assessment tool with adequate reliability and validity that has been demonstrated to be useful in identifying potential giftedness in students whose language skills interfere with their performance on traditional aptitude measures (Mills, Ablard, & Brody, 1993; Mills & Tissot, 1995; Pearce, 1983). It is the oldest measure of nonverbal intelligence and is widely used as an additional measure in gifted programs in the United States, especially in districts with high minority or low socioeconomic populations. The Raven's Matrices is a test of nonverbal reasoning ability based on figural reasoning. It requires individuals to choose one of eight patterns that best solves a matrix. It includes 36 items which get progressively more complex and difficult to solve. Correlations with intelligence tests range from the 50s to 80s (Pearce, 1983; Sattler, 1992). Performance on the Raven's is not likely to correlate with school success, but it does offer a measure of nonverbal intelligence, and can be useful as an indicator of potential. It can be used to screen students who could benefit from advanced learning opportunities, but should be used in that way only if such opportunities are matched with the child's strengths.

The Naglieri Nonverbal Ability Test (NNAT; Naglieri, 1997) is another nonverbal measure of intelligence that does not require children to answer verbal or quantitative questions. The Naglieri has several advantages over the Raven's.

It has been standardized on a sample of more than 89,000 K-12 children, and its psychometric properties are well documented. It has also been shown to correlate with achievement as measured by the Stanford Achievement Test. Similar percentages (about 2.5%) of white, black, and Hispanic children earn scores in the 98th percentile (Naglieri & Ford, 2003; Sattler, 1992).

There has been heated debate in the gifted education literature over the wisdom of and theoretical soundness of using nonverbal measures of ability to identify children for gifted programs (Lohman, 2005a, 2005b; Naglieri & Ford, 2003, 2005; see Chapter 10 by Pfeiffer & Blei). Consensus seems to be that these tools should not be used as the primary measure of aptitude, but may be useful as supplemental tools to identify a child's areas of strength and potential to learn.

A reliable and valid method of identifying all kinds of giftedness in children whose characteristics keep them from performing well on traditional, static measures is dynamic assessment (Bolig & Day, 1993; Kirschenbaum, 1998; VanTassel-Baska, Johnson, & Avery, 2002). Dynamic assessment is a diagnostic procedure that examines a child's ability to learn from experience. Lidz (1991) defined it as a "test-intervene-retest format" that provides a profile of abilities and deficits. It is a curriculum-based approach to identification that has been the focus of federal grants (Baum, Cooper & Owen, 1997; Nielsen, 2002). In his description, Kirschenbaum said, "In dynamic assessment, the examiner provides scaffolded instruction that is either based on a standardized, hierarchic sequence of hints and prompts, or is more individualized, helping the student to complete the presented task, then records the effect of the assistance" (1998, p. 142). In contrast to static assessment's goal of a highly reliable, quantitative measure of abilities, the goal of dynamic assessment is to provide a qualitative picture of abilities and deficits and the effects of instruction. Dynamic assessment is not a substitute for static assessment, but it can be a very useful supplemental measure when trying to validate superior ability in children with learning problems. Dynamic assessment requires more collaboration between teachers and psychologists than most psychologists are accustomed to, but seems to be the approach that will be most supported in the years to come as RTI is essentially dynamic assessment over an extended time frame.

In summary, we can say that multiple screening methods are particularly important with twice exceptional children. The most common recommendation in the literature and one that is given broad support by gifted education experts is to provide the bright, LD child with a learning environment that optimizes ability and allows his or her latent giftedness to emerge.

Improving Identification of Twice Exceptional Children with Response to Intervention

Response to Intervention (RTI) is a model of dynamic assessment that improves the reliability of evaluation by using brief measures of target achievement skills to increase the number of times a child is assessed. This approach is implemented by the teacher who measures the student's knowledge and skills in specific academic domains. By pairing these multiple assessments with the teacher's targeted interventions, a child's underachievement can be operationalized as nonresponsiveness to instruction that most children respond to (Gresham, 2002).

RTI appears to address many of the issues that recur in relation to the assessment of different problems in children and adolescents (Achenbach, 2005). It provides for multiple stages of assessment, and allows for developmental differences, continuities. and discontinuities. Children can be screened for characteristics associated with giftedness and for those associated with learning disabilities. RTI may be beneficial because it inhibits the premature diagnostic labeling for children's learning problems (Achenbach, 2005), and it promotes the integration of multisource data. Where risk for underachievement or potential for giftedness is identified, relevant interventions can be applied and progress monitored. Children are not formally identified as gifted, LD, or both, until the final stages of the process.

RTI is not without its drawbacks, however. It requires high levels of collaboration for psychologists in nonschool settings, for example. And, since the marker for RTI is low achievement, the same problem that schools and families face now with getting a referral for a bright student whose achievement is grade level may persist. It remains to be seen how easy it will be for gifted children with learning disabilities to be referred for intervention before they reach college.

What RTI might mean for the identification of twice exceptional children will vary greatly from one school to another as each determines the markers for referral for intervention and as each operationalizes "nonresponsiveness to intervention." Compton (2006) stated that it is going to be important to operationalize who gets intervention, when they should get it, and for how long. "What do we mean by 'unresponsiveness?' Who decides? When? And How? Like other current efforts on raising achievement at present, the focus is on 'a reasonable passing rate'" (p. 171). A number of experts in various content domains are weighing in with their views on what the benchmarks should be for referral for intervention, and for what constitutes "risk" (see Compton, 2006, for a review).

If, as happens now, schools refuse to refer for intervention students whose achievement falls in the average range but below what is expected for their ability level, then RTI will have little to no impact on improving accuracy of identification. However, given that RTI should free up resources, schools may be more willing to refer for intervention children whose achievement falls within the average range, but below what would be expected given their level of ability. Further, we may see more schools using the RTI model to refer children for advanced learning opportunities when there is indication that they may be gifted, especially in states where gifted education falls under special education law.

In conclusion, RTI models are favored over traditional approaches because:

- They have the best validity, reliability, and the strongest evidence base.
- They do not require the use of exclusionary criteria (especially emotional disturbance).
- They operationalize the concept of opportunity to learn.
- They tie the concept of LD to intervention.

Will RTI help shift the emphasis from remediation to talent development? Will it promote a strengths-based approach over a deficit model? That remains to be seen. If the RTI model continues the emphasis on grade-level achievement rather than potential ability as a marker for learning problems, many twice exceptional children will continue to go unidentified and underserved.

Gifted Children with Emotional or Behavioral Disabilities

Most of the literature on twice exceptional children focuses on gifted children with specific learning disabilities. Other exceptionalities are less investigated and most studies focus on prevalence issues (Gallucci, Middleton, & Kline, 1999; Gath & Tennet, 1972; Seeley, 1984). The consensus from the empirical literature is that rates of mood and behavior disorders are similar among high-IQ children (for reviews, see Neihart, 1998, 1999, 2002a, 2002b).

The focus of studies on emotional problems in gifted children has primarily been on depression and suicide, although a few studies have also looked at anxiety. The broad consensus is that rates of depression, anxiety, and suicide are no higher for gifted children as a group with the possible exception of young, creatively gifted writers and visual artists, who may evidence some psychological vulnerability to affective difficulties (Baker, 1995; Dixon & Shekel, 1996; Gust-Brey & Cross, 1999; Jackson, 1998; Kaiser & Berndt, 1985; Metha & McWhirter, 1997; Neihart, 1998, 1999, 2002). Given the high rates of comorbidity for mood disorders among children with learning problems generally (Fletcher et al., 2005), the frequent observation that twice exceptional children are more emotionally upset than expected, and the finding from Reis et al. (2000) that half of their sample of twice exceptional college students sought counseling for emotional problems, we should expect to see a higher incidence of emotional difficulties among twice exceptional children, and assess and monitor accordingly.

Morrison (2001) developed a profile of gifted students with emotional or behavioral disabilities based on clinical experience and the literature. In lieu of standardized measures of achievement, he recommended multiple criteria assessment including teacher recommendations, portfolio reviews, and observations to identify giftedness in this population. Osborne and Byrnes (1990) identified 8% of the students at an alternative school as gifted based on this method. Morrison suggested that Functional Behavioral assessment and Epstein's (1999) Behavioral and Emotional Rating Scale: A Strength Based Approach to Assessment may be useful because they are comprehensive.

Gifted ADHD Children

ADHD has been the focus of several empirical studies on behavior disorders in gifted children (Chae, Kim, & Noh, 2003; Kalbfleisch, 2000; Kaufmann & Castellanos, 2000; Kaufmann et al., 2000; Moon, 2002; Moon et al., 2001). Three questions are addressed in these studies. In what ways are gifted ADHD children different from gifted children without the disorder and from other ADHD children? Are gifted children overdiagnosed with ADHD? Does the research suggest any differences in intervention? These studies should be interpreted cautiously because their sample numbers are very small.

Stressing the difficulties that can arise in differentiating true attention deficits from the range of typical behaviors in gifted children, whose drive, intensity, and perfectionism may be interpreted as pathology, several authors have suggested that ADHD may be overidentified in gifted children (Baum et al. 1998; Chae et al., 2003; Cramond, 1995; Webb et al., 2005). However, there are as yet no data to support this speculation. Moreover, findings from national studies on ADHD suggest that the disorder is undertreated more often than overtreated in children nationally (National Institutes of Health, 1998). In their comparison of gifted Korean children with and without the

disorder, Chae et al. (2003) suggested that gifted children may be rated inattentive and impulsive more often by parents and teachers because they are underchallenged in the classroom and do not focus as well on tasks that are too easy, and because adults have unrealistic expectations for their behavior based on the advanced verbal abilities. Similarly, Cramond (1995) explained how the behavioral characteristics of high creatives are similar to those of ADHD and may be misinterpreted in gifted children.

Preliminary findings from empirical studies with very small numbers tentatively suggest that gifted ADHD children may be more impaired than other ADHD children (Kaufmann & Castellanos, 2000; Kaufmann et al.,2000), implying that we may be missing gifted children with mild expressions of the disorder. Giftedness seems to mask ADHD in children and ADHD seems to mask giftedness because impulsivity and attention deficits lower test scores and interfere with academic performance. Baum et al. (1998) and Moon (2002) recommended that children who failed to meet test score criteria for giftedness who were later identified as ADHD be retested. Since comorbidity is more often the norm than the exception with ADHD children (Pelham, Fabiano, & Massetti, 2005), twice exceptional children with the disorder should also always be monitored for the development of additional behavioral or affective disorders.

There is some indication in the research that not all interventions recommended for ADHD children will be appropriate for gifted ADHD children. For instance, because gifted children prefer complexity, the common recommendation to shorten and simplify tasks and assignments may increase frustration and resistance in gifted ADHD children rather than decrease them. Also, decreasing stimulation may be counterproductive because gifted children as a group tend to prefer higher levels of stimulation. Parents may be resistive to medication for their twice exceptional child when they perceive that the child's high ability and the classroom setting have not been taken into consideration in the evaluation. Therefore, psychologists should be careful to ask about the child's educational placement and the level of challenge in the curriculum when conducting diagnostic evaluations.

Determining the best classroom fit can be a challenge for gifted children with moderate to severe levels of ADHD because they are socially and emotionally immature relative to their agemates while typical gifted children exhibit advanced maturity (Moon et al., 2001; Neihart, 2003; Neihart et al., 2002). Gifted children need to learn with others with similar interests, abilities, and drive, but gifted children as a group tend to be more similar to children 2 to 4 years older than they are to agemates (Gross, 1994, 2004; Neihart et al., 2002). When placed with other gifted children, ADHD children may find themselves ill prepared for the social sophistication of their intellectual peers. Moreover, gifted children without ADHD may have little patience for the bright, immature child. Therefore, the gifted classroom may not be the best fit for every gifted ADHD child, but a challenging curriculum and access to intellectual peers must be provided for them to promote good achievement and adjustment.

Educational Placement

A controversial issue for many families and schools is where to place twice exceptional children. What is the best accommodation in the least restrictive environment? On hearing that their children are gifted, parents may press for placement in their school's gifted program, but many gifted programs are ill prepared to accommodate

a child with moderate to severe learning or behavior problems. Resource room or remedial classes may provide the compensation strategies the child needs, but typically do not offer the advanced content the gifted child requires.

Perhaps the most common problem for twice exceptional children is that they are denied advanced learning options because of their limitations (Baum & Owen, 2004; Moon & Reis, 2004). Many school personnel make the child's learning problems the primary focus and assume that the child cannot do challenging work. The lack of challenge in the curriculum then contributes to a range of emotional and social problems for the child, further complicating their adjustment and academic success (Gross, 2004; Moon, 2002; Neihart et al., 2002). Psychologists must be prepared to assess the child's current placement and to make recommendations that provide the child with the best fit.

Several studies indicate that a shift in thinking about intervention is what is required to promote the optimal adjustment and performance of twice exceptional children. The emphasis needs to be on developing the child's talents while attending to the disability (Baum et al., 1997, 2001; Moon & Reis, 2004; Nielsen, 2002; Nielsen et al., 1994; Olenchak, 1994; Reis & Neu, 1994; Reis et al., 1997, 2000). This is a paradigm change for which many educators are not well prepared.

The first line of intervention should provide a level of challenge appropriate to the child's areas of strengths and interests, while secondary lines of intervention provide remediation of deficits and training in compensation strategies. It is beyond the scope of this chapter to recommend specific curricular strategies for twice exceptional children, but interested readers are referred to several excellent resources for more information (Baum & Owen, 2004; Nielsen et al., 1994; Stewart, 2002; Weinfeld, Barnes-Robinson, Jeweler, & Shevitz, 2002).

Given the high percentage of twice exceptional students with emotional or behavioral concerns in some studies (Reis & Neu, 1994; Reis et al., 2000), as well as the high comorbidity rates among children with learning problems generally (Fletcher et al., 2005), supportive interventions must also be provided to assist twice exceptional children with their emotional and behavioral concerns, regardless of their placement. The nature and effectiveness of various supports will naturally vary with the type of disorder the child is experiencing. Gifted children with Asperger's syndrome, for instance, and gifted children with ADHD, both need assistance developing age-appropriate social skills (Moon, 2002; Moon et al., 2001; Neihart, 2000, 2001; Pelham et al., 2005), but they learn social skills in very different ways (Gray & Garand, 1993; Klin & Volkmar, 2000; Stewart, 2002).

Studies that have looked at twice exceptional individuals who succeed in college (Moon & Reis, 2004; Reis & Neu, 1994; Reis et al., 1997, 2000) also point to the importance of developing social and emotional tools. Their findings indicate that social and emotional competencies are the factors most strongly associated with achievement over time. Specifically, perseverance, self-regulation, and self-advocacy are three categories of skills associated with long-term, favorable outcomes.

Providing Access to True Peers

The vast literature on resilience in children at risk consistently points to the value of supportive relationships in mediating the negative effects of adversity (Anthony & Cohler, 1987; Criss, Pettit, Bates, Dodge, & Lapp, 2002; Doll & Lyon, 1998; Garmezy & Rutter, 1983; Luthar, 1991; Luthar, Cicchetti, & Becker, 2000; Miller, 2002; O'Leary, 1998;

Wilkes, 2002). Children who have positive peer connections have a lower incidence of emotional and behavioral problems (Berndt & Keefe, 1995; Birch & Ladd, 1997; Murray & Greenberger, 2006), and children who report strong feelings of connectedness to school report lower levels of emotional distress, suicidal ideation, violence, and substance abuse (Bagwell, Newcomb, & Bukowski, 1998; Murray, 2003). Students with learning disabilities, however, are more likely to report lower attachments to school and to view school as an unsafe place. They are more likely to experience social rejection and less likely to rely on peers for social support than are students without disabilities (Murray, 2002, 2003). The true peers of gifted children are not agemates, but others with similar interests, abilities, and drive (Neihart et al., 2002). This is not surprising, given Hartup's (1996) conclusion from his review of the broad literature on children's friendships, that children tend to make friends with people who resemble themselves.

The academic benefits of peer ability grouping for gifted children are well documented (Colangelo, Assouline, & Gross, 2004; Gross, 1994, 2004; Kulik & Kulik, 1982, 1984, 1987, 1992; Rogers, 2004), but there is also indication that ability grouping has social and emotional benefits for some twice exceptional children as well (Neihart, 2007).

The finding that peer relationships influence the social and emotional adjustment of children as well as their achievement is a common one in the developmental literature. Peer relationships contribute to adjustment and to academic performance (Buhrmester, 1990; Furrer & Skinner, 2003; Wentzel & Caldwell, 1997). Children who experience less peer acceptance tend to do less well academically than children who are accepted. In their study of two groups of sixth-grade children, Wentzel and Caldwell (1997) observed that affiliation with a small, selected group of peers who interact with each other on a frequent basis was the most consistent predictor of grades over time, even when social and emotional factors were taken into account.

Of particular concern with twice exceptional children is the child's developmental level. As a group overall, gifted children are characterized by advanced maturity. They tend to be more similar to children 2 to 4 years older than they are to children their own age. In contrast, children with learning disabilities, ADHD, autism spectrum disorders, etc., tend to be delayed by as much as one-third of their chronological age. They are more similar, socially or emotionally, to children 2 to 5 years younger. How wise is it to place such a child in a classroom where the social milieu is advanced by several years? How well will a gifted child with learning problems be able to function within the social demands of a more sophisticated peer group? How well will the peer group that will receive the child accept a classmate who is more immature? These are some of the questions that should guide individual placement decisions. There is no formula we can apply to all twice exceptional children.

One of the conclusions across the many studies of risk and resilience in children and of children's social support networks is that stress is better negotiated when children have friendship support. It is not enough that children get along with their classmates, they must have access to people who can become their friends.

The Acceleration of Twice Exceptional Children

Twice exceptional children must have the opportunity to take advantage of high-level learning options. They require an appropriate level of challenge and access to others with similar interests, abilities, and drive (true peers). One of the most effective interventions for meeting gifted children's academic, emotional, and social needs is academic acceleration (Colangelo et al., 2004).

More than 100 studies have established that acceleration options, especially grade skipping, early kindergarten enrollment, and early college admission, are among the most effective programming interventions for high-ability youth when students are carefully selected (for reviews, see Colangelo et al., 2004; Moon & Reis, 2004; Neihart, in press; Robinson, 2004; Rogers, 2004). Sadly, the common characteristics of twice exceptional children lead teachers to refer them more often for grade retention than for grade acceleration (Reis et al., 1997), even though the empirical research suggests the latter would benefit them more (Moon & Reis, 2004).

The Templeton report (Colangelo et al., 2004) is an elegant summary of the empirical research on academic acceleration of high-ability students. Its publication brought to light the demonstrated effectiveness of acceleration options in meeting the academic, social, and emotional needs of gifted children. Psychologists in clinical settings may be less familiar with the value of this intervention. Though grade skipping may not be the best option for many twice exceptional children, acceleration within their domain of strength (subject acceleration) can by a highly effective means of addressing their needs for intellectual challenge and access to true peers when candidates are carefully selected (Moon & Reis, 2004).

The Iowa Acceleration Scale (IAS) is an effective tool developed to guide such decisions (Assouline, Colangelo, Lupkowski-Shoplik, Lipscomb, & Forstadt, 2003). It is especially helpful in discussions about grade skipping and early entrance to kindergarten, decisions about which parents and educators often have strong feelings and opinions. Using this standardized, well-researched tool helps minimize the emotionality of the decision-making process, and grounds the discussion on the relevant issues of acceleration as indicated by the empirical research. Many school districts have this inexpensive tool on hand.

Both parents and two teachers complete the instrument, rating the child on items that fall into one of 10 categories, including academic ability, attitude toward learning, academic self-concept, developmental factors, and interpersonal skills, among others. The averaged rankings yield candidacy ratings that indicate the child is either an excellent, good, or marginal candidate for acceleration. Readers are directed to the manual for a thorough discussion of the instrument and the research supporting its use (Assouline et al., 2003).

Summary

Twice exceptional children are those with superior ability in one or more domains whose achievement in one or more academic areas is significantly below what would be expected for their ability level. They are found in all racial and ethnic groups and across all socioeconomic levels. Though the empirical research about them is only 25 years old, and is mostly descriptive, it yields considerable pragmatic guidance regarding identification, educational placement, and supportive interventions for these children.

Regarding identification of learning problems in gifted children, psychologists should be aware that there is solid evidence that reliance on profile analyses or intraindividual discrepancy models of assessment for identification of learning disabilities in children is statistically flawed and its use is even more inappropriate for high-ability children than it is for the general population. A number of factors can depress achievement in gifted students, learning disabilities being only one of many.

Practitioners should exercise caution and good clinical judgment when interpreting test data, especially in regard to reliance on normative tables that may not apply as well for gifted populations.

The current recommendation is for curriculum-based dynamic assessment. Standardized individual achievement and intelligence tests should still be used, but never as the sole criterion and ideally, as a supplement to some type of dynamic assessment. Out-of-level group achievement tests like the SAT may be especially helpful in identifying giftedness in some disabled children. These methods will require significantly greater collaboration among parents, teachers, and psychologists, but should yield fewer false positives and more effective and efficient interventions.

However, dynamic assessment approaches may prove to have little value in practice if the benchmark for referral of high-ability children continues to be low achievement relative to age rather than to ability. Gifted children's achievement should be evaluated relative to mental ability; otherwise, many twice exceptional children will be missed, and their learning difficulties will become entrenched.

Recognizing superior ability in identified disabled children also should involve multiple assessment methods, including individual measures of intelligence and achievement as well as authentic assessments in domain-specific tasks. Portfolios, dynamic assessment methods, teacher rating scales, and self- and parent reports have all been reported in the literature to be useful. In addition, tests of nonverbal reasoning ability like the Naglieri or the Raven's have been demonstrated to identify superior intellectual ability in children whose deficits inhibit their performance on verbal measures. A reliance on static, standardized measures of achievement or aptitude will miss many children, especially those of color or from disadvantaged socioeconomic backgrounds. Ideally, forms of dynamic assessment, in which children are provided with authentic opportunities to demonstrate their strengths, are warranted.

The empirical research to date suggests that the best long-term outcomes are achieved when the primary focus of intervention is on developing talent while a secondary emphasis is on remediation and compensation strategies, and when the child is helped to develop social and emotional tools, especially those related to developing a will to succeed (perseverance), self-regulation, and forging relationships (self-advocacy and social connections). Too often in school the focus of instruction is on their deficits, and twice exceptional children are held back from advanced learning opportunities. In response to their growing awareness of the needs of these children, some large school districts have integrated gifted and special education services and developed differentiated programs for twice exceptional children. A focus on talent development appears to minimize problems with social and emotional adjustment and to yield better long-term outcomes.

There are less data about emotional and physical disorders in gifted children than about specific learning disabilities, but what there is suggests that significant emotional difficulties are present in many more twice exceptional children than among gifted children and average-ability children generally. Mood disorders in particular seem to be relatively common. Twice exceptional children typically have comorbid conditions that require counseling or behavioral interventions to assist with self-regulation and interpersonal skills. These should also be addressed on their learning plans.

Psychologists can be helpful to schools and families when decisions about educational placement are being made when they remember that the best available research indicates these children must have the services gifted children require as well as

educational support and instruction in compensation strategies. Poor outcomes are more generally seen when schools fail to provide the intellectual challenge and access to true peers that twice exceptional children require. Such a fit can be obtained a number of ways, but it does not typically happen in a special education resource room. Differentiated instruction in the regular classroom in addition to placement in the gifted program may be sufficient for some (Brody & Mills, 1997), while others will require some form of acceleration. The most appropriate placement will vary with the child's developmental level, degree of giftedness (moderate or profound), and type of disabilities. Psychologists should remember that twice exceptional children may face significant difficulties with social adjustment when ability grouped if accommodations are not made for their disabilities (Neihart, in press).

There is a sizable body of empirical research investigating the role of interpersonal factors in children's achievement and school adjustment, and much of it has focused on the influence of peer relations in the classroom. These studies concluded that there is a relationship, though not necessarily a causal one, between peer rejection and poor school adjustment, lower aspirations and achievement, more behavioral difficulties, and even adult adjustment. Investigators tend to agree that friendship quality and quantity does not cause certain outcomes, but more likely plays a role in mediating the risk factors associated with negative developmental outcomes. This view is consistent with the vast literature on children's resilience that repeatedly points to the essential role social supports play in long-term positive outcomes for children (Doll & Lyon, 1998; Garmezy & Rutter, 1983; Luthar, 1991; Luthar, Cicchetti, & Becker, 2000; Miller, 2002;).

There is limited research on the nature of gifted children's friendships, but what is available indicates that the twice exceptional child's need for access to true peers must be met in order to increase the child's chances for a positive school experience, for good overall adjustment, and for outstanding achievement. Psychologists can influence schools and families to ensure that this vital need is met.

There remains the practical dilemma of what to do with gifted students whose achievement, though lower than expected given their abilities, falls at grade level or slightly below. Though both the federal definition and the clinical definition of learning disabilities refer to low achievement relevant to ability, that is not the marker that is used in practice to identify children at potential risk.

Gifted education experts maintain that gifted children whose learning hovers around grade level but is below what would be expected given their ability should be evaluated for a possible learning disability. Others, however, argue that relative underachievement is not a sufficient risk marker for learning disabilities. The question of whether an LD label is justifiable for gifted children with grade level achievement is one that will continue to be debated (Gordon et al., 1999). Meanwhile, practitioners may continue to find themselves identifying learning problems in children whose schools will not provide them with special educational services because the child's achievement is not significantly below what is expected for his or her age. The movement to use evidence-based assessment (EBA; Achenbach, 2005) will improve the accuracy of identification and measurement of disorders in children and adolescents.

There are many smart children in this country who are not considered gifted because their behaviors and achievement do not fit the stereotyped view of gifted children. Their superior ability can be recognized when adults realize that gifted children with

learning or behavior problems do exist and that they can be identified and served by multiple measures.

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Chapter 8

Underachievement Syndrome: A Psychological Defensive Pattern

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The report entitled *A Nation at Risk: The Imperative of Educational Reform* was prepared by the National Commission on Excellence in Education (1983). It brought great attention to the phenomenon of underachievement among gifted children, pronouncing that fully half of gifted children do not work to their abilities in school. Unfortunately, that report did not reference any basis for the calculation of that dramatic conclusion, so the percentage of underachievers is not clear and can be calculated in many ways. Although the exact percentage is not known, most educators agree that underachievement is a major problem.

A broad definition of underachievement is a "discrepancy between children's school performance and their abilities" (Baum, Renzulli, & Hebert, 1995; Butler-Por, 1987; Colangelo, Kerr, Christensen, & Maxey, 1993; Dowdall & Colangelo, 1982; Emerick, 1992; Kedding, 1990; Lupart & Pyryt, 1996; Richert, 1991; Rimm, 1986a, 1995; Supplee, 1990; Whitmore, 1980; Wolfe, 1991), but that broad definition only alerts one to the fact that problems exist. Not all underachievement is attributable to psychological defensive patterns, the focus of this chapter.

The manner in which discrepancies are measured reflects the possible causes of the underachieving pattern. For example, in some cases, discrepancies between IQ and achievement test scores are used to determine which students are underachievers. While it is possible that such differences can be caused when children use defensive patterns to avoid achieving, poor achievement test scores can occur because the curriculum is not challenging enough, thus giving children insufficient exposure to expected learning. They could also occur because children become test anxious on timed, group-administered achievement tests or because they have processing speed or attention deficit problems. Learning disabilities are often responsible for discrepancies between achievement and IQ test scores (Baum, Owen, & Dixon, 1991; Reis & McCoach, 2005). A dyslexic child may struggle on an achievement test that requires reading for any subject. Furthermore, lower achievement test scores could emerge in economically deprived communities where low expectations for students may exist in some instances (Baldwin, 1987; Ford, 1996; Frasier & Passow, 1994).

Another typical discrepancy used is a measure of grades compared to abilities. When report card grades are used, there may be underestimates of the extent of underachievement because high-ability students doing easy schoolwork may earn high marks with little effort, particularly in the primary grades. Furthermore, some schools do not give report card grades in the primary years (Peterson & Colangelo, 1996). Teachers may ignore incomplete assignments because test grades are high, although they report to parents in conferences that children are working below their abilities. By the upper grades, when teachers become more rigorous in their grading standards and account for all assignments, grades are better indicators. Unfortunately, by the time these obvious discrepancies appear, children may have been underachieving for many years without any quantitative indicators appearing on their report cards to alert parents to the seriousness of the pattern. Here, too, however, there is an exception. If the curriculum is inappropriately easy or difficult for the student, one would expect an intelligent child to withdraw from the process of learning in school and while they would be underachieving, the cause of that underachievement would be psychologically appropriate and not defensive (Kanevsky & Keighley, 2003; Reis, 1998).

A third measurement used is a discrepancy between a student's high achievement test scores and low report card grades. This, too, could be difficult to measure among young children when early intervention could be most effective. In a study by Colangelo et al. (1993), students with high ACT scores and low grades were compared to those with high ACT scores and high grades. These low-grade students were apparently learning, despite their poor school performance. They may be learning outside of school, but are not engaged in the process of learning in the expected way, or perhaps even learning to their abilities. They are nevertheless absorbing considerable information. They are likely to be using psychological defense mechanisms; although they may also be correct in avoiding some inappropriate curriculum.

Measuring the process of learning can document whether students are working to their abilities in school. Checklists or questionnaires that describe motivation or engagement in the learning process and attitudes toward school are reasonably accurate for determining if children are underachieving (McCoach & Siegle, 2001; Renzulli, Smith, White, Callahan, & Hartman, 2001; Rimm, 1986b, 1987, 1988). Children who are not engaged in the process of learning in school are likely to be underachievers who are in the habit of using psychological defenses. The origin of the bad habits may be low expectations, inappropriate curriculum, or peer pressure to be cool, but if the habits continue with maturity, they are more likely to become defensive habits. The multiple interpretations of quantitative measurements of underachievement may appear to add rigor to research, but in truth it obscures the understanding of the psychological underpinnings of some kinds of underachievement that can be reversed (Reis & McCoach, 2002). Furthermore, dependence on self-perceptions by underachievers who often lack insight about their motivation is unlikely to yield helpful information. Most underachievers have little understanding of their problems and defensively blame their parents, their teachers, other students, their siblings, or their own laziness with almost no understanding of why they are not working to their abilities in school. While researchers should continue to pursue a path to quantifying this problem, and while there continue to be mysteries about underachievement, some techniques for reversing the problem are known and effective. In clinics and schools, psychologists, counselors, social workers, and teachers can use what is presently

known and can reverse underachievement syndrome for many students (Kaufmann, 1986; Mandel & Marcus, 1988, 1995; Rimm, 1986b, 1995).

Underachievement Syndrome: Psychological Defensive Patterns

The causes of the psychological defense patterns that gifted students exhibit begin at home among siblings and parents, at school with teachers and curriculum, and often among peers. The origins are so similar to those of healthy motivation that even parents with excellent strategies and expert teachers can unwittingly foster underachievement while their similar approaches might foster high achievement in other children. For example, children who feel very special may be motivated to achieve to maintain those special feelings or may stop achieving because they no longer believe they can attain that specialness. Students praised for their creative projects may continue to produce creative work or may only begin, but not complete their work for fear it will not be creative enough. Socially well-adjusted, high-achieving children may stop achieving in order to maintain their good social adjustment to a peer group that does not value academic achievement. These examples show how similar actions by parents and teachers can support high achievement and good social adjustment for some students, while the very same actions could foster underachievement. Delineating the techniques that will help underachievers reverse their problems without harm from the same techniques that facilitate achievers can be difficult.

Defensive Characteristics of Underachievers

When underachievement is a psychologically defensive pattern, parents and teachers observe clusters of obvious symptoms, but it is important to realize that beneath the surface of the apparent characteristics there are more deep-seated concerns that students are protecting.

SURFACE SIGNS AND SYMPTOMS. The surface characteristics that parents and teachers typically report include disorganization, uneven skills, lost, unfinished, or carelessly completed homework, missing assignments, a barrage of excuses including forgetfulness, blame laid on teachers, parents, or peers, and, most frequently, the description of school as boring. For some underachievers, there are school behavioral problems including class clowning, argumentativeness with teachers, and even bullying other students. While some underachievers complain of loneliness and victimization, others prioritize their social life over schoolwork and have many "cool" friends, most of whom are also underachievers.

The defensive patterns are clustered around dependency, dominance, or sometimes a combination of both (Rimm, 1986a, 1995). Thus, dependent underachievers avoid effort by requesting more help than they should require. They ask parents to sit with them while they complete homework when they should work independently. They cry and are easily overwhelmed, complaining that work is too difficult or that they have too many assignments. They complain that their teachers blame them for other people's problems or that teachers do not like them. They avoid doing their work by making excuses of forgetfulness. Dominant underachievers are more likely to argue with their teachers, blame them for their boredom, demand alternative

assignments, or claim that school is irrelevant or a waste of time. They also debate parents and are sometimes given pejorative nicknames such as "lawyer" for their litigious spirit. Parents and teachers alike feel continuously pushed and manipulated by these powerful students. Typical dependent and dominant defensive manipulations are shown in Figure 8.1 (Rimm, 1986a, 1995).

Some parents report they have heard the comment "not working to ability" from teachers for many years, while other parents specify a particular grade when problems began, certain that previous years were problem free. Moving to a new community or to a new school level within the same community, a traumatic divorce or illness, birth of another sibling, a negatively described teacher, or a new peer-group association is sometimes associated with the onset of symptoms of underachievement. The process of learning has gone awry. The student is not working to his or her ability, although there may be other children in the very same classroom who are working and learning from the identical teachers who are teaching the underachieving children. Grades may vary from A's to F's, but some teachers may be so forgiving of the underachieving student that grades are not reflective of the problem yet. Parent and teacher comments document the problem.

UNDERLYING PROBLEMS.   Considerable research documents that underachievers lack internal locus of control (Laffoon, Jenkins-Friedman, & Tollefson, 1989) and attribute success to luck or task ease, rather than effort (Weiner, 1985). If the child sees no relationship between efforts and outcome, he is unlikely to make effort (Rimm, 1986a, 1995; Seligman, 1975). Bandura (1986) described self-efficacy as the belief in one's capabilities to carry through a designated performance. Academic self-efficacy (Schunk, 1981) is thus a good predictor of achievement and motivation. McCoach and Siegle (2001) found no significant difference in the academic self-perception factor between gifted achievers and underachievers, but found significant differences in their attitudes toward school, attitudes toward teachers, goal valuation, and motivation factors. An underachieving student at Family Achievement Clinic described his feelings perceptively, "I know I'm smart enough, but I just can't produce that smarts in my schoolwork." Other student comments like "Lucky break. That teacher gave

Dependent and Dominant Manipulations	
Dependent	Dominant
Help me.	Admire me, praise me, applaud me.
Nag me.	Do not criticize me.
Protect me.	Disagree with me.
Feel sorry for me.	Give me.
Love me.	Be mine.
Shelter me.	See my difference.
	How far can I push?

Source: *Why Bright Kids Get Poor Grades And What You Can Do About It,* p. 201, by S. Rimm, (New York, NY: Crown Publishers, Inc., 1995).

Figure 8.1. Dependent and dominant defensive manipulations.

me an A," or "There's no use studying; it only makes me nervous and I mess up my test" show that lack of connection. They attribute success to luck or chance, rather than to personal effort or mastery of subject matter.

Much less research has been done on considering competition as an underlying cause, although most educators would agree that many gifted children are highly competitive. Schunk (1984) found students often concluded about their self-efficacy by comparing their performances to those of other students, and that comparative success established self-efficacy while early comparative failures diminished self-efficacy. Although he did not use the term *competition*, comparison is typically competitive. The initial factor analysis of Achievement Identification Measure (AIM; Rimm, 1986b), an instrument for identifying underachievers, yielded competition as the prime factor. Gifted children frequently find they are winners in school, have the highest academic grades, are recognized for being smartest or one of the smartest, are in advanced reading or math groups, win essay, music, or art contests, get writing or art published, and are generally recognized by family members by such words as *brilliant*, *genius*, *smartest*, *extraordinary*, *talented*, or *unique*. In research on the childhoods of successful women (Rimm, Rimm-Kaufman, & Rimm, 1999), these women most frequently regarded success in competition as a most positive childhood experience. Children become habituated to that competitive recognition and rarely have experiences where they are not successful. Parents and teachers may also be accustomed to their winning, thus unintentionally placing too high expectations on them (Clinkenbeard, 1991; Robinson, 1986, 1989).

Underachievers have lost the confidence that they can be winners, and instead of describing themselves as one of the intelligent students, they feel they have fallen short of the goal and consider themselves losers in the academic game. They may also indicate they prefer being popular, captain in sports, first chair in music, lead in drama, or queen of prom court. Some state no other preference, only that they are alternative kids or simply give up and remind parents and teachers of their boredom or complain that they are expected to be perfect like a younger sister or older brother. They rarely acknowledge their feelings of competition because they understand that "jealousy" is not considered an acceptable feeling.

Insight about the importance of competition usually comes from adults in retrospective examination of their lives. Often, when they acknowledge their experience with the competitive emotions that temporarily thrust them into underachievement, they no longer have the problem, are successful,l and are therefore no longer defensive. One adult explained that she had moved from a school where she was at the top of her class to a school where there were many other gifted students. She gave up, did not like school or her teacher, and neither her parents nor her teachers could determine why she had become so negative about school. Her grades declined as did her confidence. At the time, she recalls not understanding why she found school boring. She also recalled years later gradually becoming motivated by an inspiring teacher. Others have shared reversals related to parents exercising strict discipline, joining with a positive peer group, or finding a particular interest. For these adults, underachievement was temporary. For some underachieving adults, there was never a turnaround, and they live with the feelings of boredom and the belief that they will never work to their abilities. It will be difficult for research to empirically validate the role of competition, since children are reluctant about admitting it as a problem and often are not even conscious about the part competition plays in their lives.

School Origins of Underachievement

Underachievement is too complex an issue to attribute its origins to only one source. School environments can initiate and do contribute to psychological underachievement patterns.

CURRICULUM. Gifted students do need to have a differentiated curriculum if they are to learn in school. Reis, Westberg, Kulikovich, and Purcell (1998) found that most gifted elementary school students already know about half of what they are scheduled to learn before they enter school for the year. Repetitive material intended for students who need review can only fit into the category of "boring" for many of these students. Kanevsky and Keighley (2003) concluded that gifted students wanted five C's to define quality learning experiences: control, choice, challenge, complexity, and caring. Curriculum materials that are too easy or too difficult do not build internal locus of control or a sense of self-efficacy in students. They do not contribute to experiences where children find success by making strong efforts. Instead, for gifted students, they learn that they can be successful without effort. Figure 8.2 summarizes the appropriate relationship between efforts and outcomes and also shows the transitional classroom curriculum that causes students to lose their sense of self-efficacy (Rimm, Cornale, Manos, & Behrend, 1989). In reviewing the four quadrants of this figure, consider that both intrinsic and extrinsic success build efficacy. Thus, the love of and interest in learning provides the intrinsic reward, while good grades and teacher and parent praise provide the extrinsic rewards. Children continue to achieve if they learn that strong effort results in good intrinsic and extrinsic results (Quadrant 1). When children make little effort, they should be disappointed in their learning experiences, grades, teacher and parent approval (also Quadrant 1).

Quadrant 4 represents underachievement where children do not sense the connection between effort and outcome. The earlier quotes by underachieving students indicate that disconnect. Even when underachievers describe their study, it is typically

+   **OUTCOMES**   –

| | Quadrant 1

+ +

Achievers | Quadrant 2

+ –

Underachievers |
| **+**

EFFORT

– | Quadrant 3

– +

Underachievers | Quadrant 4

– –

Underachievers |

Figure 8.2. Relationship between effort and outcomes. Source: *Guidebook: Underachievement Syndrome: Causes and Cures*, p. 289, by S. B. Rimm, M. Cornale, R. Manos, & J. Behrend (Watertown, WI: Apple Publishing Company, 1989).

unengaged study. For example, they may claim they have studied when reading something over a few times lightly and simultaneously watched TV or listened to music.

Quadrants 2 and 3 represent the inappropriate classroom environments that when continuous will lead to underachievement. In Quadrant 2, students initially make good effort, but outcomes are not successful. Twice-exceptional students, particularly dyslexic students, struggle in that scenario (Baum, 2004; Renzulli, 2005; Schultz, 2000). While they feel intelligent in many ways, in comparing themselves to their classmates, they feel failure related to reading. Because reading is omnipresent in curriculum, it affects their abilities to produce successful outcomes in most subjects. Students who have handwriting problems struggle with producing legible work and are slowed down in the completion of workbook pages or speeded math tests. These "pencil anxious" children, mostly boys (Van Tassel-Baska, 2008), who manipulate screwdrivers and Legos deftly, feel inept and "dumb" because they compare themselves to their classmates invidiously. They often define intelligent students as those who have finished their work first. In one young man's words, when asked how smart he was compared to his classmates, "I'm fifth from the bottom." When asked how he could be so exact in his calculation, he explained that when he completed his work there were always four other students who had not completed theirs. Gifted students with disabilities who were accustomed to early praise and notice for their intelligence feel as if something has gone amiss, lose interest in learning, and label their work as "boring."

Quadrant 3 represents the more usual dilemma of gifted students who are unchallenged. In addition to curriculum being repetitive, they find they can accomplish good grades and significant praise without real effort. Students, parents, and teachers alike remark on how quickly and easily they learn difficult material. In early grades outcomes are almost always successful, while effort is minimal. They learn to define intelligence as "fast and easy" and do not experience the effort required of students with lesser abilities. Eventually that changes. For some students, curriculum feels difficult by middle school (Baker, 1996; Rimm, 2005); for others, by high school; while for profoundly gifted students, they may not experience true challenge until college. While some gifted children increase their efforts and struggle to meet these new challenges, others begin their defensive, avoidance behaviors. Rather than admit that work has become more difficult and they must work harder, they hide their sense of inadequacy for fear that they will no longer be considered intelligent. They avoid work that challenges, fall further behind in skills, and blame schools, teachers, or parents for their shortfalls. They may decide that social or sports life is more important than school, or that they would rather be "normal" than gifted. Grades decline and teachers' and parents' disappointment and punishments increase. While for some, parent and teacher consequences are sufficient for immediate reversal of the underachieving pattern, others have already lost their sense of efficacy and no longer believe that hard work can deliver them to success. Consider also that their self-efficacy often comes from comparison to other students, and the increase in complexity of curriculum is paired with schools that are larger and more competitive. These psychological issues are only rarely addressed directly by counselors and teachers.

THE TEACHER'S VITAL ROLE. While curriculum adjustment to the abilities of students is an important task of teachers, it is not the only role. The beginnings of underachievement are too often blamed on teachers by both students and parents for

them not to play an important psychological role in the initiation of underachievement. The reversal of underachievement is often credited to teachers as well. Teachers who are blamed by a particular student can be a favorite teacher to other students in the class. A truly talented, insightful teacher manages to build an alliance with a student who may have lost his or her sense of efficacy in the classroom (Emerick, 1992; Kanevsky & Keighley, 2003). In clinical work with students, the author points out to underachieving students that teachers are not logically attracted to students who do not turn in assignments, are not interested in learning, or do not pay attention in class because many teachers prefer to teach those who want to learn. It is often surprising to these students that they may actually turn teachers off because of their lack of interest. For teachers of gifted students, that disinterest should present itself as a challenge because it is within teachers' power to ignite interest in the very students who are disengaged.

PEER PRESSURE.   By the middle grades, peer pressure to be popular becomes a priority (Brown & Steinberg, 1990; Clasen & Clasen, 1995; Kinney, 1993). In a survey of over 5000 students in grades three through eight, popularity ranked highest among their worries, tied only with terrorism (Rimm, 2005). By third grade 15% of the students indicated they worried a lot about being popular with the opposite sex, and surprisingly, slightly more boys worried than girls. The percentage of worries increased with each grade in school. Being smart enough was much lower among the stated worries, although feeling above average in intelligence mediated anxieties about being popular, pretty enough, confident, having nice clothes, and being thin enough.

Middle-grade students stated frequently that they felt conflicted about working hard in school for fear it put them into an unpopular "nerd" category. Parents and teachers are often shocked to hear of students who deliberately do not turn in homework or refuse to study for tests because they prefer average grades. A discerning adult can often prevent that from becoming a pattern, but once initiated, underachieving to be "cool" can take on a life of its own. When underachievement becomes a habit, it can destroy self-efficacy. When the student matures and decides that it can be "cool" to get good grades, win scholastic awards, and be accepted into excellent colleges, it may be difficult for that student to believe that they can ever again accomplish what they are capable of.

PARENT ADVOCACY GONE AWRY.   Parents should communicate to teachers about the needs of their gifted children. They may indeed know more about their children's special skills than teachers have discovered. Nevertheless, it is possible that parents' legitimate advocacy can initiate an underachieving pattern. If the advocacy is conducted in a manner that shows disrespect for the teacher (Rimm, 1986a, 1995), it empowers the student to believe they can challenge the teacher and be victorious when they are expected to complete a task that they view as unpleasant. Thus, the power granted to the student initially to provide challenge can be easily misused by both student and parents if the student can make an argument for the irrelevance of the curriculum material. Students who do not project very well into the future argue fervently that there is no useful role for English grammar, mathematics, or Spanish. Occasionally they convince parents to stand by their sides on such issues by blaming teachers they deem inept. If they are successful in changing teachers or classes, they build their self-efficacy on manipulating others rather than on task completion.

Underachieving students have intimated to the author in counseling how initially their complaints were appropriate, but later, negotiating became a rewarding habit. Arguments with teachers brought positive peer and parent attention, and they were often able to avoid unpleasant tasks based on convincing adults that they had no need for these competencies or could prove they already had sufficient knowledge in an area.

THE SUBTLE POWER OF COMPETITION.   As noted earlier, competition can be exhilarating and motivating to gifted students who succeed (Rimm & Rimm-Kaufman, 2001; Rimm et al., 1999), but it can be demoralizing to those who feel unsuccessful and are not resilient. Students always compare themselves to others, whether activities are structured to be competitive or not. While coaches openly discuss good sportsmanship on the baseball or football fields, teachers and counselors less frequently recognize its powerful impact on achievement and underachievement. Ignoring the impact of competition prevents students from coping with their own competitive feelings. Discussing competition in the classroom (Rimm et al., 1989) may at least heighten awareness in students who may not understand why they are no longer functioning well in the classroom.

Family Origins of Underachievement

Surely there are no genes for underachievement. Thus, environments at home must make their contribution to the psychological characteristics of underachievement syndrome. The family origins include parenting and sibling issues (Baker, Bridger, & Evans, 1998; Brown, Mounts, Lamborn, & Steinberg, 1993; Colangelo & Dettmann, 1983; Olszewski, Kulieke, & Buescher, 1987; Rimm & Lowe, 1988).

Overempowerment

The adult-sounding vocabulary and mature insights that gifted children exhibit early attract extreme praise and attention. While young children thrive on the inordinate attention, it also serves to both empower them and accustom them to continuous attention. Parents easily consult with children who sound like adults and give them power to make decisions early because they seem so capable of making them. It is assumed that they will become better decision makers if they practice the skill early. That can be quite confusing to young children whose developmental stage confirms that they learn best by wishing to please parents and teachers. When adults ask them to think for themselves, they may translate that expectation as "I need to think differently than my parents." Thus, by being provided with so many choices, children learn to expect to always have choices. In order for those choices to be independent choices, they feel they must not agree with parents. The overempowerment of gifted children leads them to become frequent arguers. Parents are advised to encourage children's thinking and curiosity, but the arguing by overempowered children easily becomes argument for the sake of winning rather than intellectual discussion. Some gifted have been told often how brilliant they are by admiring adults and that can easily become internalized as a need to prove one's intelligence by outarguing their parents and teachers. Gifted children's self-concept is often tied too closely to how intelligent

they are, because it is their intelligence that has brought them so much attention. That also explains the connection between high motivation and underachievement. As long as gifted children continue to view themselves as highly successful achievers, they continue to achieve in school and at home. Parents and other adults who admire their talent may even refer to them as kings, queens, and princesses. Once power is granted, it is not easily taken away. If children are accustomed to making decisions, they will not easily accomplish challenging or unpleasant tasks that are not of their own choosing. There is little that is intrinsically motivating about learning math facts or spelling words, but if a child is highly successful, there are many extrinsic rewards for their successes. The gifted child who finds him- or herself in the classroom where he does not do as well as other students may indeed decide that math facts or spelling words are irrelevant or useless. If the student is accustomed to making choices and finds that he cannot change the teacher's assignments to something he performs better at, that student might begin avoiding assignments or making excuses for not completing work that he now feels powerless to excel in.

Birth Order and Sibling Issues

There has been much written about birth order and how it affects achievement. By and large, there are reasonably consistent findings that show oldest children are more likely to be high achievers than later born, and later born tend to be more social and creative (Rimm et al., 1999). Surprisingly, first and only children are also more likely to be gifted underachievers (Baker et al., 1998; Rimm & Lowe, 1988), although there are underachievers of all birth orders. In the case of first children who are underachievers, the birth order issue shows itself in a child who had been the center of attention and overempowered but now feels displaced by a younger sibling who has taken center stage in the family. From the parent perspective, it often feels that the first child demands unending attention, but many first children typically feel "attention deprived." The author refers to that extreme form of sibling rivalry as "dethronement," because the first child can show a dramatic change in personality (Rimm, 1986a, 1995). A formerly positive, enthusiastic child gradually becomes negative, aggressive, angry, or depressed and expresses continuous feelings of attention deprivation. A child who loved learning seems to shut down almost entirely. Other traumatic changes in the child's life could also cause "dethroning" characteristics including divorce or death in the family (Battle, 2002). As noted earlier, classroom environments can also dethrone children.

Other birth order combinations such as two same-gender siblings very close in age, often cast one child into the role of achiever, the other into underachiever. A brother following a perfect sister can be a difficult role to fulfill. The labels used to describe children in the family are reciprocal, in that children's behaviors and personalities cause parents to label them, and these labels then set expectations. It is quite usual for families to refer to their children as the "scholar," the "social one," the "athlete," or the "creative one." All but the scholar underachieve academically as part of fulfilling parental expectations and the "scholar" underachieves socially. Children's individual temperaments and abilities obviously play a role in the direction they take (Kagan, 2006), but competition for attention within the family is also crucial to their developmental directions.

Cross-Generational Alliances and Conflict

Subtle competition between parents to be the favored parent or the best parent can create alliances between a parent and a child that facilitate underachievement. Parents may have heard of their grandparents talking about parenting with a "united front." That unity between parents has been superseded in today's society by a priority for open, honest communication with children, sometimes even if it is about their other parent, and that causes problems for children. Children may have multiple parents and caregivers. According to a Census Bureau report, only half of this country's children live in traditional two-parent families (Usdansky, 1994). Sometimes grandparents, aunts, or uncles help with parenting.

It is important that those adults who guide children's lives guide them in a united and reasonably consistent way. Even though the adults may have some differences in their preferred styles of parenting, the view from the children's perspective should be of fairly similar expectations, efforts, and limits. If adults are consistent with and respectful of each other, children know what is expected of them. They will also understand that they cannot avoid doing what feels a little difficult or scary by the protection of another adult. In his book *A Better World for Our Children*, Benjamin Spock (1994) stated it well: "… the best-behaved children are those whose parents are clear about what they want from their children and go about it in a friendly way (Rimm, 1990, 1996).

Parent Rivalry

Competition invades families. Underlying parent rivalry are parents' concerns about being good parents. That wish to be a good parent may be internalized as being the "better" parent. Sometimes a parent's effort to be better may cause the other parent to feel that he or she can never be good enough. Family opposition was found (Colangelo & Dettmann, 1983; Olszewski et al., 1987; Rimm & Lowe, 1988) among families of gifted underachievers.

One parent may see him- or herself as being the best parent by being kind, caring, loving, and understanding. The other parent may see him- or herself as being best based on being respected and expecting a child to take on responsibilities and show self-discipline. Although each parent sees him- or herself in these ways, he or she does not necessarily see the partner in the way that the partner describes him- or herself. The parent who sees him- or herself as kind and caring may, therefore, be viewed by the other parent as being overprotective. The parent who sees him- or herself as being disciplined and responsible may be viewed by the other parent as being rigid and too strict. They do not see each other in the same way as they see themselves, so they just decide that because their own ways are better, they must change the other parent.

After fruitless efforts to change each other, they give up and decide that they must balance out the other parent by becoming more extreme in what they believe. The kind, caring parent becomes more protective in order to shelter the children from the parent who expects too much. The expecting parent becomes more demanding to balance out the overprotective parent. The more one expects, the more the other protects. The more the second protects, the more the first expects. The "balancing act" approach moves them further and further apart, leaving the children caught in the middle, not sure they can ever meet one parent's expectations, but absolutely certain the second parent will approve of almost everything.

If children face parents who have contradictory expectations and lack the confidence to meet the expectations of one of their parents, they turn to the other parent who not only unconditionally supports them, but accidentally teaches them "the easy way out." The kind and caring parents, without recognizing the problem they are causing their children, unintentionally protect their children when they face challenge. When children have grown up in an environment where one adult has provided an easy way out for them, they develop the habit of avoiding challenge.

The balancing act increases in complexity when there are three or four parents involved. Each parent is desperately anxious to provide the best parenting to keep their children's love. After divorce, parents are more likely to believe they can tempt children to love them by protecting them the most, doing too much for them, or buying them more.

Rimm (1986a, 1990, 1995, 1996) described the four competitive rituals that take place between parents as "ogre and dummy games." There are variations of ogre and dummy games that involve stepparents, grandparents, and aunts and uncles, and those that change between childhood and adolescence. Two of these are described here, but they will be graphic enough to easily imagine how they could happen in homes if parents do not make specific efforts to maintain a united front. The roles that parents can assume are, of course, not gender specific.

FATHER IS AN OGRE.   In the family where this ritual takes place, the father is viewed by outsiders as successful and powerful, the mother as kind and caring. A closer view of the family shows a father who has high expectations for his children. They are perceived as being too high by the mother and the children. The children learn to bypass father's authority by appealing to their kind, sweet mother to avoid his requests. Mother either manages to convince Dad to change his initial decisions or surreptitiously permits the children to carry out their desired activities anyway. Children quickly learn the necessary manipulative maneuvers. Mother literally, although unintentionally, encourages her husband to seem like an "ogre" by her determination to protect her children from a strict father.

Dad may escape through his continuous work, which further convinces his children to avoid being like their "workaholic" father. As the children mature, their learned opposition to their father often generalizes to angry opposition to other authority figures as well.

MOTHER IS THE MOUSE OF THE HOUSE.   The ritual where mothers are made to seem like dummies, which results in rebellious adolescent daughters, begins with a conspiratorial relationship between father and daughter. It is a special alliance that pairs Dad and his perfect little girl with each other but, by definition, gives Mom the role of "not too bright."

During early childhood, Dad never says no to his daughter. She has a special way of winding him around her little finger. Mom admires the relationship, but she is really not part of it. Daughter is perfect.

Preadolescence arrives and daughter changes. Battles take place between mother and daughter. Daughter cannot accept the slightest criticism. They argue. If Mom says black, daughter says white, and vice versa. Daughter confides in Dad that she cannot get along with Mom. Dad mediates and helps daughter to feel better while she snuggles in his lap and complains about how controlling her mother has become.

Daughter shows signs of maturing physically, and Dad begins to worry about tobacco, alcohol, drugs, and, most of all, boys. Dad decides it is time for rules.

Rules mean no and daughter has really never received a no from Dad. She appeals to Mom who sees her first opportunity to build closeness to her daughter. Now there is a new alliance—Mom and daughter against Dad. When that works, daughter is happy. When it does not, daughter returns to Dad. She learns to manipulate her parents back and forth.

Now daughter is in high school. Both parents are worried. They realize it is time for a united front. They are on the same team, and daughter stands alone against them. They are saying "no" more frequently, and even when she performs her best manipulations, she cannot change their rules. She feels that neither of them understands her. She finds peers who are having similar problems with their parents. She has her own team. Together they will prove they can oppose their parents.

Daughter hangs out with "losers," and her parents have found marijuana in her room. How can they trust her? They want her to change friends. She says she has to be her own person and that her parents must stop controlling her. The parents think they should be stricter. They ground her, but she climbs out the window.

Daughter is disrespectful and ignores rules, and her formerly A and B grades drop to D's and F's. Her parents cannot understand what has happened to the sweet, little girl they remember.

Rebellious daughter, who had too much power as a small child and whose father unwittingly encouraged her to compete with her mother, feels rejected, unloved, and out of control. Girls like this take various paths, but they all signal the same sense of lack of power, which they feel mainly because they were given too much power as children. Some say their parents (especially their fathers) do not love them, and they must have love. When a girl is in a boy's arms she mistakenly believes that he loves her. When he leaves her bed for the next one, she again feels rejected.

Other girls express rebellions silently. Bulimia, depression, and suicide attempts are powerful ways of expressing feelings of loss of control. Their illnesses leave parents feeling helpless and blaming each other. The wink-of-the-eye between Dad and his little girl that puts Mom down as the "mouse of the house" will become the preadolescent daughter's roll-of-the-eyes at her mother. When father says no as well, that daughter feels rejected by both mother and father (Rimm, 1986a, 1995).

Serving the Underachieving Child

Counselors and psychologists are in ideal positions for reversing underachievement for gifted children. They can coordinate the parents, teachers, other mentors, and models to facilitate the child's self-efficacy and teach the resilience in competition necessary for achievement success (Baker et al., 1998). They can teach the child to balance achievement and social needs, to develop strengths and accept weaknesses, and to set reasonable goals for success. The trifocal model (Rimm, 1986a, 1995) is a six-step model that provides a framework for many techniques for reversing underachievement. Some elements of that model will be included in this chapter, as will strategies proposed by other researchers for modifications at school and home to correct the underachievement problem.

Changes at School

School counselors and teachers can make school changes, although private clinicians who work regularly with school districts and have built good relationships with district personnel are also effective.

CURRICULUM ADJUSTMENTS. Underachievers often require curriculum changes. Differentiated curriculum (Karnes & Bean, 2005; Reis & McCoach, 2000; Smutny, 2004; Tomlinson, 2004; Tomlinson, Kaplan, Renzulli, Purcell, Leppien, & Burns, 2002; VanTassel-Baska, 2003; Winebrenner, 2001), subject or grade acceleration (Colangelo, Assouline, & Gross, 2004; Rimm & Lovance, 1992), placement in a cluster group, independent studies, movement up to a reading or math group are typical. These changes should not be made without test data that document the student's readiness, or a planned path to accomplishing these moves. In some cases, students may have to prove their knowledge by accomplishing specific tasks before adjustments can be made. For example, a student who might be a better fit for an accelerated math program might have to demonstrate accomplishment of specific skills by independent study, brief tutoring, or summer school attendance. Not all curriculum changes will provide more challenge. Occasionally, gifted students who are uneven in their abilities may have been thrust into honors or accelerated programs in areas of weakness and may benefit from change to easier sections. As part of the psychological protection they have learned to use, dominant children may not be willing to admit that material is too difficult for them. Dominant children often prefer to describe their weaknesses as boring, rather than difficult. On the other hand, dependent underachievers may request an easier session, even when they are capable of more challenging work. Detecting the child's skill level and encouraging a child to be part of the appropriate section instead of avoiding work or making excuses is both a curriculum adjustment and a counseling task.

SAFE ENVIRONMENTS. Gifted and talented resource programs are often safe environments for gifted students. Although they may continue to underachieve, even in the gifted program, they usually enjoy and complain least in that program. Although theoretically the student makeup of gifted programs is highly competitive, they are often structured to be more collaborative. Grading is not stressed and sometimes not even used. Because it is assumed that all students in the program are gifted and that the program is especially challenging, underachievers feel less pressured to prove themselves. They are more likely to admit mistakes or expect to have to work hard since all gifted students in the program are expected to exert effort and there is not the assumption that they can learn the material easily. There are fewer reasons for students to have to define "smart" as fast and easy. Good gifted programs are more likely to be intrinsically interesting and creative (Emerick, 1992; Siegle & McCoach, 2003) and to include the five C's: control, choice, challenge, complexity, and caring that were described by Kanevsky and Keighley (2003). Regular classroom teachers are more likely to have the responsibility of teaching the core foundational skills and are less likely to be able to individualize instruction. It is also likely there will be less peer pressure to underachieve and less emphasis on popularity within the gifted resource room because intelligence and learning are an appreciated values. Although resource programs are ideal for underachievers, unfortunately, students' histories of underachievement may prevent their being selected for these programs. Furthermore, dominant

underachievers, who continue their oppositional pattern within the resource room, are sometimes suspended from programs.

TEACHING HEALTHY COMPETITION.   Because an underlying issue for underachievers is coping with competition, teaching students to cope with healthy competition through extracurricular and classroom activities may help them to develop resilience. The poor coping strategies may not be obvious in dependent underachievers because they habitually avoid competition and often describe themselves as noncompetitive. Dominant underachievers also avoid competition, but are more likely to claim they will not enter because the competition is unfair or only a "popularity contest." Students who are interested in competitive sports or even in observing contests such as "American Idol" or TV quiz shows can discuss these competitive examples (Coil, 2004; Rimm, 1990, 1995, 1996). Biographies of successful athletes, media personalities, politicians, or scientists are prototypes of competitive lifestyles that demand perseverance and resilience and can be used as models of coping with competition (Rimm, 2003; Rimm & Rimm-Kaufman, 2001; Rimm et al., 1999; Siegle, Reis, McCoach, Mann, Green, & Schreiber, 2002). Applying these models to earning grades in school, attempting contests in areas of skills, and eventually applying to colleges and for jobs are examples of applying competitive strategies. Intellectual teams such as Future Problem Solving, Odyssey of the Mind, math, forensic, drama, music, and debate teams provide numerous opportunities for students to experience victories and defeats and include both collaborations and competition. These experiences often generalize to encouraging underachievers to reverse their classroom underachievement as well.

LEARNING FROM ENGAGEMENT.   Becoming engaged in an interest or strength is a powerful tool for reversing student underachievement (Butler-Por, 1987; Emerick, 1992; Whitmore, 1980). Many underachievers dream magically of becoming rock stars, inventing computer games, being victorious on pop culture television shows, becoming Olympic skaters, swimmers, or divers, or any number of high-visibility, very unlikely successful enterprises (Rimm, 2005). Unlike their achieving counterparts with high goals, underachievers rarely engage in actual goal-directed activities. Making effort, practicing, and disciplining oneself carries with it too much risk of failure. They select goals that are either too easy or too difficult, and their dreams for those that are difficult involve magical thinking. They fantasize about being discovered for their natural talent, which they produce without practice (Rimm, 1986a, 1995). Thus, these magical goals can sometimes be converted into true engagement experiences that permit them to learn the process of accomplishment. For example, the student who programs the computer and dreams about inventing games effortlessly may be able to become engaged by developing a website for the family, for a small business, or even for the school or gifted program. The student who dreams of becoming a rock star may be able to be convinced to actually take lessons and practice and continue to develop talent to reasonable success, thus recognizing the place of effort. These engagements may lead them to careers in the future, or may only lead them to understanding self-efficacy, or how to cope with competition, but the engagement is potentially generalizable to other arenas of interest and skill. It is good to take their interests and "passions" seriously and provide opportunity for involvement, because even if they eventually lose interest, they will have learned from the experience (Siegle & McCoach, 2003).

Compensating for Weaknesses.   As noted before, gifted underachievers sometimes label their problems as "boring," rather than difficult, so it is important to identify problems to teach them to either cope with them or compensate for them. A most frequent problem, especially for boys, is handwriting. Rimm (1995) describes the handwriting problem as "pencil anxiety" because while it is a small-muscle coordination problem, it does not affect these children's use of screwdrivers, Legos, computer games, or even keyboarding skills. Furthermore, this problem often causes students considerable anxiety as they try to attack their timed math facts and writing the steps in math solutions that they can think through quickly, but can only write slowly. Students who have "pencil anxiety" can verbalize long stories, but typically write short ones because they struggle with handwriting. Learning keyboarding facilitates their written expression, and computers can be used within the classroom. For younger children or students without keyboarding skills, talking their stories into a recorder permits them to get their ideas consolidated and makes it more likely that they will write more extensively. Even then, unless they learn to use the keyboard, their stories become shorter when handwritten.

Dyslexia is a very serious problem for gifted students. While students with reading disabilities need additional instruction for compensatory reading skills, they can also have their textbooks recorded. Listening to their information maintains their feelings of intelligence in areas such as social studies, science, or even math, where word problems need to be read. Surprisingly, involvement in drama provides a wonderful confidence builder for dyslexic students. Creative teachers can identify strengths to assist the gifted student in coping with weak areas. The teacher or counselor can also help the student accept their problem areas by providing examples of gifted, productive adults who have managed successfully despite disabilities. Biographies are helpful for this effort (Rimm, 2003; Rimm & Rimm-Kaufman, 2001).

Dealing with Defenses.   Students who use dependent defense mechanisms generally ask for more help in school than they require. Intuitively, many kind teachers respond by doing too much for them or reducing expectations. Although dependent students do respond well to kindness, they also require teachers who are firm and foster their independence. Because they are not yet resilient, teachers should help them to set small, independent goals, so that they gradually build confidence in their efficacy. For example, for the perfectionist student who is so overwhelmed she cannot get started writing her story, teaching brainstorming techniques for discovering a topic and breaking the story into parts, so that the student can address one section at a time, will assist her in completing the assignment. While the teacher can initially break the assignment into small parts to show the student how to do that, the next step in independence would be for the student herself to break the assignment into parts and check back with the teacher after each part is completed. Eventually the student should be able to conduct the entire task on her own. Any one class might have several dependent students who would require that support toward independence.

To deal with dominant students who argue and debate defensively, counterintuitive responses are most effective as well. Winning an argument with such a student within the classroom environment is rare. Dominant students tend to push even rational teachers to irrationality. It is better for all if the teacher can create an alliance with the student, listen to the student's perspective privately, agree on reasonable

compromise solutions and consequences, and write a contract that documents the student's commitment. Teachers will need to keep a copy because dominant students often conveniently lose their copy Holding the students to theircommitment based on the contract and encouraging them in their strengths will be more effective than proving them wrong (Rimm, 1986a, 1995).

Changes at Home

Counselors and teachers can make an impact on many parents regarding changes at home for their underachieving students. While it may not be possible to facilitate change for all families, schools can provide auxiliary programs that may prove to be helpful. Clinicians are in excellent positions to facilitate home changes because parents expect to make changes when they come in for assistance.

DEVELOPING STRUCTURES.   Organization is often a problem for underachievers (Baker et al., 1998; Rimm, 1986a, 1995).Teaching parents how to set positive structures for independent study, goal setting (Siegle & McCoach, 2003), organizing schoolwork, regular attendance (Peterson & Colangelo, 1996), healthy eating and sleep routines are all within the power of teachers and counselors. Suggestions can be given in the form of guidelines at an open-house meeting or a counseling session. If the guidelines are provided in writing, parents will be further empowered to guide their children according to developmental expectations provided by educators. While not all parents attend open-house sessions, follow-up e-mail or letters to parents can communicate expectations for children.

FINDING ROLE MODELS.   Students find role models in their lives and unconsciously copy them. Teachers, counselors, and parents can be excellent role models, but children only copy what they can see modeled for them. Counselors can heighten sensitivity in parents on how to model an interest in learning and a positive work ethic (Rimm, 1986a, 1990, 1995, 1996). Counselors can also assist students in finding appropriate role models and discourage inappropriate role modes. Three variables seem to make a dramatic difference in encouraging students to emulate models (Hetherington & Frankie, 1967). Nurturance between the adults and child, similarities that a child sees between him- or herself and an adult, and the child's perception of the powerfulness of the adult make a difference as to whom children choose to emulate (Mussen & Rutherford, 1963). It is not surprising that students often choose media entertainers and athletes to emulate (Rimm, 2005). They seem very powerful to young people, both by the celebrity attention they receive and their advertised high salaries. Peer role models, for better or worse, also play a part in underachievers' lives and that, too, is an area where counselors can make a positive difference.

GUIDING THE FAMILY.   Parents will feel defensive if they are blamed for their children's problems. In order for school counselors to assist in guiding the family, they will need to go beyond the defenses of parents. If counselors can convince parents of their own personal interest in the underachieving student, that common concern can help them to form an alliance with parents. Parents who are assured that their children's best interests can be furthered by minor changes are most likely to be willing to make changes. This is easier to facilitate in the clinic setting, but even school counselors and

teachers can make available appropriate CDs, books, articles, or videos to parents. Schools can conduct successful parent training courses that emphasize parenting toward achievement (Rimm, 1994).

Counseling and Consultation Implications

Counselors and psychologists in school and private practice can provide the broad psychological perspective on why gifted children underachieve and can improve the home and school environments so as to permit gifted students to work to their ability. Although underachievers are assumed to have an educational problem, the underlying issues are mainly psychological in nature. The main goal of therapy is not achievement, but good mental health, which includes achievement. One client whom I worked with in therapy for underachievement when he was in fourth and fifth grade was disorganized, had poor grades, did homework only with his mother's assistance, had few friends, and was not involved in sports or extracurricular activities. At home he had a poor relationship with his father and brother and was overprotected by his mother. His favorite activity was dressing up as various characters and acting out plays, alone. As an adult, his recollections of therapy indicate how school, family, and child were changed to create a mentally healthy, achieving, gifted student. Author: Insert a few sentences from former client's letter to illustrate your point.

COORDINATION IN THE SCHOOL SETTING.   The reversal of underachievement in the school setting is best conducted by a counselor or school psychologist. Gifted coordinators or resource-room specialists could also facilitate the model, but might be limited by what they could provide to parents in terms of counseling. Furthermore, their other responsibilities may not leave time for coordination of a counseling program. The program proceeds best when classroom teachers have an understanding of the psychological defenses involved in underachievement.

COUNSELING IN SCHOOL.   Counselors and school psychologists can serve as mediators to classroom teachers and parents in reversing underachievement. They can also provide direct interventions to students in the form of social skills sessions or discussions about competition and self-efficacy. These staff rarely have training in the area of giftedness, but perhaps that can change in the future.

Conclusions

There are multiple definitions of underachievement. Causes for the psychological defensive type of underachievement emerge from home and school environments, as well as from within the child. Because underachievement can be psychological in nature, it can be reversed best by educators and practitioners who understand its underlying psychological nature. Psychologists and counselors can evaluate and conduct therapy around the issues of underachievement. Typical diagnosis codes used for dependent underachievers include anxiety, Asperger's, depression, attention, and adjustment disorders. Typical diagnosis codes for dominant underachievers are oppositional defiant, attention, depression, and adjustment disorders. Individual,

group, collateral therapy with parents, and family therapy may all be part of the return to good mental health and achievement. Mental health professionals can also sensitize educators to the psychological underpinnings of the problem to encourage them in the reversing of student underachievement.

Additional Resources

Websites About Gifted Children

Council for Exceptional Children
http://www.cec.sped.org
ERIC Digests (formerly *ERIC Clearinghouse System*)
http://www.ericdigests.org
Hoagies Gifted Education Page
http://www.hoagiesgifted.org
National Association for Gifted Children (NAGC)
www.nagc.org
Rivanna Music—*CDs for teaching early social skills*
www.rivannamusic.com
Supporting Emotional Needs of the Gifted (SENG)
www.sengifted.org
Sylvia Rimm
www.sylviarimm.com
www.seejanewin.com
The Davidson Institute for Talent Development
http://www.ditd.org
Twice-Exceptional Newsletter
www.2enewsletter.com
World Council for Gifted and Talented, Inc.
www.worldgifted.org

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Assessment of Giftedness in School-Age Children Using Measures of Intelligence or Cognitive Abilities

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INTRODUCTION

Identifying those students who will benefit most from enriched or accelerated programs has been a controversial issue in many school districts. While many would agree that identification of students should follow from and match the program being offered, others feel that identification of students should precede and guide the type of program. In either case, the identification procedures take on an important role, and measures of intelligence or cognitive abilities have traditionally and continue to be widely used in this process. As other chapters in this book address, measures of intelligence or cognitive abilities represent only one aspect of a student. They do not measure motivation, creativity, or other important influences on a student's success in school or in life. Nevertheless, intelligence or cognitive abilities measures are important predictors of school performance and future development, and they continue to be widely used in the process of gifted identification. Therefore, it is important to understand how best they can be used to assist students, families, teachers, and school districts in ensuring that students are developing to their full potential.

This chapter will present a brief history of tests of intelligence or cognitive abilities, particularly as to how they have been used in identification of students with gifts. Next, the chapter will explore theories of intelligence and how they have influenced the most commonly used measures of cognitive abilities. In addition, there is a discussion of some of the strengths and weaknesses of common measures of intelligence or cognitive abilities for gifted identification and how these tests can be used as part of a comprehensive assessment to develop a learning profile of a student. Finally, there is a discussion of some of the challenging and controversial issues facing those who use intelligence or cognitive abilities measures to identify students who have gifts, cultural factors in tests, and methods of testing and identifying students with both gifts and disabilities.

BRIEF HISTORY OF INTELLIGENCE TESTING

Intelligence testing has its origins in the schools and identifying the educational needs of students. Although Francis Galton developed the first known intelligence test, it is Alfred Binet's work in France that is most well known and has had most influence on modern measures of intelligence. Binet with Theodore Simon developed the Binet-Simon Scale in 1905 (Binet & Simon, 1905) as a means to determine the children in need of alternative education. In particular, Binet's focus was on children who were delayed or had a deficit in their cognitive functioning and would benefit from specialized curriculum (Siegler, 1992). Binet based his tasks on watching children and what they typically do at certain ages and devised a multitask format for the scale that is still used today in intelligence measures. Of interest, you may recognize many of his tasks as they continue to be used in today's measures of intelligence or cognitive abilities. Binet developed a total of 30 tasks that included naming body parts, repeating digits, and defining words (Binet & Simon, 1905). In developing his scale, he used the concept of *mental age*, based on the idea that children demonstrated growth in their skills and therefore could be behind their chronological age or ahead of their chronological age. This established the basis for the intelligence quotient and held implications for the identification of students with gifts (Colangelo & Davis, 1997). Binet, however, recognized the limitations of his scale and promoted the notions that intelligence was diverse, that it progressed at varying rates, and was not fixed, but rather could be influenced by the environment and therefore the scale should only be used with students who had similar background experiences (Siegler, 1992).

Binet's scale was eventually brought to the United States and translated into English and adopted by Lewis Terman. The test was standardized with American children and revised and in 1916 Terman published the measure as the Stanford Revision of the Binet-Simon Intelligence Scale (Terman, 1916). Soon known as the Stanford-Binet Intelligence Scale, the scale from the very beginning adopted Walter Stern's (1914) suggestion of an intelligence quotient or IQ as measured by the mental age over chronological age and then multiplied by 100 (to remove the decimal) and so began the notion that a single number could capture intelligence. In addition, Terman adopted Francis Galton's beliefs in (1) the heredity of intelligence, (2) the fixed nature of intelligence, and (3) the link between intelligence and giftedness (Clark, 1997).

Finally, one of the stated goals that Terman had for this first Stanford-Binet Scale was to assist schools in responding to the needs of students who have superior intelligence (White, 2000). Terman's interest in students with superior intelligence continued and through his research and development of the Stanford-Binet, he became known as the "father of gifted education" (Clark, 1997; Colangelo & Davis, 1997), promoting early identification, specialized services and teachers, and the development of the students' gifts and talents as a national resource (Terman, 1925). In his research program, Terman and his team used the Stanford-Binet to identify students who were scoring in the top 1% and followed them as adults to reveal what could be learned to further the education of upcoming gifted students. The conclusions from this work by Terman and his team suggested that individuals who were "superior," as defined by the top 1% on his test, as children continued, as a group, to be above average as adults on indicators such as higher education, income, and health (Oden, 1968). Based on Terman's work, intelligence testing, with the underlying theory that intelligence could be captured by a single unifying number and that intelligence is

the basis of giftedness, became the standard for identifying those students who have gifts and would benefit from specialized services to develop those gifts. While our theories of giftedness and assessment have expanded, the use of intelligence or cognitive ability tests alone and in conjunction with other measures continues today as a standard for identifying students for gifted programs in schools (Coleman & Cross, 2001).

ASSESSMENT OF STUDENTS WITH GIFTS

While intelligence or cognitive ability has historically been a defining factor in identification of students with gifts, new theories of giftedness have emerged that have broadened our definitions of what attributes a student with gifts possesses. In the United States, the current Jacob K. Javits Gifted and Talented Students Education Act defines gifted and talented students as those who "give evidence of high performance capability in specific academic fields, or in areas such as intellectual, creative, artistic, or leadership capacity, and require services or activities not ordinarily provided by a school in order to fully develop such capabilities" (U.S. Department of Education, 2003). While each school district develops its own programs, the federal definition provides a model for the attributes possessed by students with gifts and talents. These attributes include intellectual gifts, but also capabilities in academic achievement, leadership, and creative endeavors. Although most school districts have moved to an identification process based largely on intellectual ability and academic achievement test scores (Perleth, Schatz, & Mönks, 2000), other indices include measures of creative abilities, motivation, teacher nominations, classroom grades, and portfolios (see Pfeiffer & Blei, ch 10 in handbook). This broader assessment process more closely matches the strengths identified in the federal definition and allows educators to better identify students' areas of strengths. While school districts move from an exclusive use of intelligence tests in their identification process, these tests continue to be widely used as a component of the assessment for gifts and talents.

As we develop a better understanding of what constitutes intellectual strengths and intelligence, our measures of intelligence and cognitive abilities have also been revised and new measures have been developed to better reflect this understanding. Although Binet never advocated his test being used for the purpose of generating a single, fixed measure of intelligence, Terman's influence and the widespread use of the Stanford-Binet scales promoted that belief and future tests were published to fit that model. The original Wechsler scale reflected David Wechsler's general theory that although intelligence is composed of different abilities, it is more than the sum of its parts (Sattler, 2001). Wechsler chose to adopt tasks from previous measures of general ability and combine them into a single factor with little empirical rationale for how these tasks contributed to "intelligence" (Sattler, 2001). Advancements in psychometrics have led to the development and revision of measures to reflect our growing understanding of cognitive abilities. More recent revisions of the Wechsler (WISC-IV; Wechsler, 2003) and Stanford-Binet scales (SB5; Roid, 2003), and newer measures such as the Differential Ability Scales, Second Edition (DAS-II; Ellliot, 2007a), the Woodcock-Johnson Tests of Cognitive Abilities, Third Edition (WJ-III; Woodcock, McGrew, & Mather, 2001), the Kaufman Assessment Battery for Children, Second Edition (K-ABC-II; Kaufman & Kaufman, 2004), and the Das-Naglieri Cognitive Assessment System (CAS; Naglieri & Das, 1997) have reflected a growing

acknowledgment that our measures need to better reflect our understanding of cognitive abilities (Kamphaus, Winsor, Rowe, & Kim, 2005). While our most widely used measures of intelligence still reflect a unidimensional structure of intelligence or "g" factor, many are also acknowledging a multidimensional factor structure and focusing on the identification of profiles of strengths and weaknesses.

THEORETICAL BASIS OF INTELLIGENCE TESTS

Underlying all intelligence or cognitive abilities tests is the assumption that what we are testing is the ability to learn. This is what distinguishes intelligence tests from measures of achievement. So, what do we mean when we say the "ability to learn" and what type of learning are we measuring with these different tests? Understanding the theory behind the assessments will help us choose, administer, and interpret these measures for different children. In essence, measures of intelligence or cognitive ability should contribute to our understanding of how a child learns best or what tasks a child will generally find easier or harder to learn.

While many theories of intelligence exist and are reviewed in other places in this book, one theory in particular has become an influential force in recent intelligence or cognitive ability tests (Flanagan & Kaufman, 2004). Many of our current most widely used tests have adopted or reflect the Cattell-Horn-Carroll Theory of Intellectual Abilities (CHC theory) (e.g., WJ-III, SB-V, DAS-II, and KABC-II) (Alfonso, Flanagan, & Radwan, 2005).

The theory was developed based on the original factor-analytic work of Cattell (1943) that identified not one g-factor, but two factors: a crystallized (Gc) and a fluid (Gf) factor of intelligence. Crystallized abilities reflected acquired knowledge and the ability to acquire that knowledge, whereas fluid abilities reflected reasoning, particularly reasoning that does not require crystallized knowledge (Wasserman & Tulsky, 2005). Cattell and his student Horn later expanded the theory from two factors to five(Horn & Cattell, 1966) and in the 1990s Horn added four additional factors for a total of nine (Horn & Noll, 1997). In surveying the factor-analytic studies of human cognitive abilities, Carroll (1993) concluded that the Cattell-Horn theory of crystallized (Gc) and fluid (Gf) intelligence (Horn & Noll, 1977) was the most empirically grounded theory available.

Based on this work, Carroll presented the hierarchical three-stratum model of abilities, including a single g-factor composed of a number of broad factors (including Gc and Gf), each composed of a number of narrow factors (Carroll, 1993). The g-factor is believed by some to reflect a meaningful composite of the broad and narrow factors (Carroll, 1993, 2003) while others feel that the higher-order g-factor has no theoretical or practical justification. In contrast, the broad abilities have gained wider acceptance and have been used to provide a meaningful comparison across the many tests of cognitive ability available today (Flanagan & McGrew, 1997; Flanagan & Ortiz, 2001; McGrew & Flanagan, 1998). The broad abilities currently include the original Fluid Reasoning and Crystallized Intelligence, in addition to factors that reflect General Memory and Learning, Broad Visual Perception, Broad Auditory Perception, Broad Retrieval Ability, Processing Speed, and Broad Cognitive Speediness (Carroll, 1993). The narrow abilities include approximately 70 highly specialized abilities; for example, Fluid Intelligence may include such narrow abilities as inductive reasoning, quantitative reasoning, speed of reasoning, and general sequential reasoning (Carroll, 1993).

While the theory reflects a common understanding of the current state of our knowledge on cognitive abilities, Carroll acknowledges that the theory will likely evolve and that we may not yet be measuring all the abilities that exist or are important to daily life (Carroll, 2005). However, the empirical support for this model has provided the impetus for many test developers to adopt or reflect the model in the latest revisions of their tests.

Based on the CHC theory of intelligence, Gridley, Norman, Rizza, and Decker (2003) have proposed a model of giftedness stating that gifted students show superior potential or performance at all three strata of the CHC theory: general intellectual ability, specific intellectual abilities (broad), and general or specific academic aptitudes (narrow). Although many broader theories of giftedness exist, few theories would discount the importance of cognitive abilities as a part of that definition. Measures of cognitive abilities remain important in identifying the educational needs of students who are gifted.

MEASURES OF INTELLIGENCE AND GIFTEDNESS

Overview

Measures of intelligence or cognitive ability have historically bore little relation to intelligence theory, resulting in the overemphasis of a g-factor (Flanagan & Ortiz, 2002). Newer measures and recent revisions of common measures have reflected new theoretical understanding of intelligence. The most recent revision of the Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV) (Wechsler, 2003) has adopted subtests that more closely reflect recent theories of intelligence and more specifically the Cattell-Horn-Carroll theory. Other commonly used measures of cognitive abilities have more explicitly adopted the theory in developing or interpreting their assessment batteries. In particular, the Woodcock-Johnson, Third Edition Tests of Cognitive Abilities and Tests of Achievement (WJ-III; Woodcock et al., 2001) were explicitly designed with the CHC theory of cognitive abilities, while the Kaufman Assessment Battery for Children, Second Edition (KABC-II; Kaufman & Kaufman, 2004) and the Differential Ability Scales, Second Edition (DAS-II; Ellliot, 2007b) offer means to interpret their tests using CHC theory, and even the inveterate Stanford-Binet, Fifth Edition (SB5; Roid, 2003) has adopted a five-factor model based on CHC theory. Flanagan and Kaufman (2004) noted that no other theory of intelligence has had such a pervasive influence on intelligence testing. While each of these measures reflects the influence of CHC theory, the structure of each test, the individual subtests chosen and developed, and the administration procedures offer different advantages and disadvantages when considering their use with students who are gifted.

Traditionally, practitioners have adopted a standard score of two standard deviations above the mean or a score of 130 on a standardized measure of intelligence or cognitive abilities to indicate a student is gifted. While the composite or g-factor score was the score most often used in determining giftedness, more recently, the recognition that gifted students often demonstrate uneven cognitive profiles (Sparrow & Gurland, 1998) led to the frequent adoption of distinguishing criteria of 130 on certain factor scores. Commonly used tests in schools, the WISC-IV, the SB5, and the

WJ-III, are reviewed below, along with the new DAS-II. These tests are reviewed with consideration for testing of this unique population of students who are gifted.

Wechsler Intelligence Scale for Children, Fourth Edition

The Wechsler scales, in general, have been the most widely used instruments for the assessment of gifted students, in part, because they represent the most widely used intelligence tests in schools in the United States (Klausmeier, Mishra, & Maker, 1987).

The latest revision of the Wechsler scale for school-age children is the Wechsler Intelligence Scale for Children, Fourth Edition. It is an individually administered measure of intelligence for children aged 6 to 16 years 11 months (Wechsler, 2003). This latest edition offers a substantial change from earlier editions in its move toward a more theoretically sound factor structure. While previous editions all offered a full-scale "g" score comprised of two factor scores—verbal (VIQ) and performance (PIQ)—the fourth edition has done away with the VIQ/PIQ and offers the full-scale "g" score with only the more theoretically sound four-factor structure reflecting verbal comprehension, perceptual reasoning, working memory, and processing speed (Wechsler, 2003). The verbal comprehension factor reflects primarily acquired knowledge (or crystallized ability), and new subtests were devised for the perceptual reasoning factor (Matrices, Pictures Concepts) to better assess fluid reasoning. Of note, in assessing students who are gifted, Watkins, Greenawalt, and Marcell (2002) conducted a factor-analytic study of WISC-III performance of 505 gifted students. Results indicated a two-factor solution that approximated the Verbal Comprehension and Perceptual Reasoning indices best demonstrated the strengths of the gifted students.

The WISC-IV standardization sample included 63 children who had previously been identified as gifted based on a standard score of two standard deviations above the mean on a standardized measure of cognitive abilities either individual or group administered. Compared to matched controls, the students identified as gifted performed significantly higher on all the WISC-IV subtests with the exception of two measures of processing speed: Cancellation and Coding (Wechsler, 2003). These nonsignificant findings are consistent with previous reports suggesting that processing speed is not a distinguishing characteristic of gifted individuals (Kaufman, 1993) and is not a factor in intelligence (Sternberg, 1982). Of benefit, the separation of processing speed tasks into a separate factor allows students with strengths in the higher-level verbal comprehension and perceptual reasoning tasks to demonstrate their skills with time to reflect. However, psychologists should be aware that the full-scale or "g" score on the WISC-IV now contains two measures of processing speed and therefore may be a less accurate measure of intellectual giftedness than the individual factor scores with the lowered emphasis on speed.

In addition to using caution when using the full-scale and processing speed factors in determining giftedness, one final consideration when interpreting the factor scores of the WISC-IV is the working memory factor. In the standardization sample, the working memory factor was not as influential as the verbal comprehension and perceptual reasoning factors in distinguishing the group of students identified as gifted from the matched controls.

As is apparent as we review the measures of cognitive ability below, many of the new revisions of tests, including the WISC-IV, are yielding lower scores in the gifted standardization sample. For the WISC-IV, there are a large number of students

previously identified as gifted who are not performing two standard deviations above the mean on any factor (Wechsler, 2003). There are a number of possible reasons for the lower scores including a possible Flynn effect (Flynn, 1987), the considerable changes to the content and structure of the WISC-IV from previous editions, and the large number of students in the standardization sample who were identified as gifted based on a group-administered test, which offers a less valid measure of abilities than an individually administered one. Psychologists using these new measures should be aware that scores may be lower for a student than on previous assessments.

Stanford-Binet, Fifth Edition

While the Wechsler scales are the most commonly used instruments in the assessment of children who are gifted, the Stanford-Binet scales have the richest tradition in assessing and identifying students with gifts. The Stanford-Binet is a standardized, individually administered measure of intelligence. For the current revision, the SB5, approximately 45 to 75 minutes is needed to administer the entire battery; however, it does offer the option of an abbreviated battery with one nonverbal (Object Series/Matrices) and one verbal subtest (Vocabulary) (Roid, 2003). Like the Wechsler scales, the SB5 has a composite score and both a verbal and a nonverbal scale, each containing five subtests which they report can be administered in 30 minutes each if a school district is only interested in using one or the other (Roid, 2003). There are a number of advantages of the SB5. Of note, both the verbal and nonverbal scales contain subtests that measure five CHC factor indices: Fluid Reasoning, Knowledge, Quantitative Reasoning, Visual-Spatial Processing, and Working Memory (Roid, 2003).

The technical manual of the Stanford-Binet, 5th Edition makes note of the special attention to higher end items for students who are gifted; in addition, the broad age range (2 to 85+) provides those higher end items for children and adolescents who may show abilities at an adult level (Roid, 2003). One of the additional advantages of using the SB5 with students who are gifted is the use of routing subtests. The routing subtests are based on a Rasch (Rasch, 1980) analysis of the individual item difficulties, allowing the examiner to determine an appropriate starting point for the other subtests (Roid, 2003). Starting at an appropriate level based on the student's estimated ability allows for possible shorter testing times and less influence of fatigue on student test performance.

In addition to the normative sample of 4800 individuals, the test author conducted a validity study with a number of special needs groups. One of these groups was children aged 5–17 previously identified as gifted and the technical manual states that they were members of gifted programs; however, no other prior data are provided on the students. Although the initial sample of students identified as gifted is listed as 202 students, the means and standard deviations on the SB5 subtests and composite scores are only reported for a sample of 96 students (Roid, 2003). The students identified as gifted had an average full-scale score of 123.7, which is lower than the two standard deviations from the mean (130) score that is traditionally used as the standard for determining intellectual giftedness (Roid, 2003). The assumption is that students were previously identified with an older measure of intelligence, such as the WISC-III, and this is a Flynn effect (Flynn, 1987) and that the students in gifted programs are now identified based on multiple indicators and not just a full-scale IQ score (Roid, 2003). With no reported data on the students, it is difficult to determine why these scores

are lower. As with the WISC-IV, the gifted sample on the SB5 had a working memory score that was lower than their scores on the other factors (average 115.8).

The administration manual of the SB5 also includes a section on testing students who are gifted (Roid, 2003) and consistent with the trend in gifted identification, there is a caution against the use of a single full-scale score in determining giftedness. The manual encourages the use of multiple indicators, and highlights measurement error and other possible factors that influence performance, for example, distractibility, learning disabilities, reflective processing style, and teaching to the test (Roid, 2003). Use of only one indicator increases the potential of misidentifying both students who have and those who do not have intellectual gifts.

Woodcock-Johnson, Third Edition Tests of Cognitive Abilities

The Woodcock-Johnson Assessment Battery was the first standardized battery to adopt the CHC theory of cognitive abilities in developing the tasks and interpretation guidelines for the second edition of the battery (Woodcock & Johnson, 1989). Now in its third revision, the Woodcock-Johnson offers the most complete coverage of the CHC theory in its co-normed cognitive and achievement battery. This individually administered assessment for individuals aged 2 to 90+ offers 20 subtests in its cognitive battery and 22 subtests in its achievement battery (Woodcock et al., 2001). In the Tests of Cognitive Abilities, seven of the CHC broad factor scores are represented: Comprehension-Knowledge (Crystallized Ability), Long-Term Retrieval, Visual-Spatial Thinking, Auditory Processing, Fluid Reasoning, Processing Speed, and Short-Term Memory. Each of these factors is assessed by 2 subtests. A composite score called the General Intellectual Ability Score (GIA) can be calculated by combining the core 7 subtests (one assessing each factor) called the GIA-Standard or by combining all 14 of the subtests (twoassessing each factor) called the GIA-Extended. In addition, a Brief Intellectual Ability composite score (BIA) can be calculated for screening purposes based on 3 subtests that assess Comprehension-Knowledge, Fluid Reasoning, and Processing Speed. In addition to the 14 subtests that contribute to the seven broad factor scores, 6 supplemental subtests contribute to clinical factor scores assessing phonemic awareness, working memory, broad attention, cognitive fluency, executive processes, and delayed recall.

In assessing students who are gifted, one of the primary advantages of the Woodcock-Johnson is the range of skills assessed by both subtests and factor scores. Based on the gifted program being offered or the abilities most valued in the program, the WJ-III offers the means to measure many of the skills found to be important to academic success and not found on other assessments of intelligence or cognitive ability. For example, measures of long-term retrieval and auditory processing are assessed exclusively by the WJ-III. In addition, the co-normed achievement battery provides the benefit of also assessing a wide range of academic skills, another common indicator used in gifted identification. However, care should be taken in interpreting the composite scores designed to measure general intellectual ability. As indicated above, these composite scores include measures of processing speed (GIA and BIA) and short-term memory (GIA), both of which are known to not discriminate individuals who are gifted from their peers (Processing Speed) or have been found on other measures reviewed above to be less discriminating (Short-Term Memory). In addition, there is no evidence as to whether measures of Auditory Processing and Long-Term

Retrieval discriminate between gifted individuals and their peers. These are measures most often used to assess for learning difficulties and, in particular, if used to assess for giftedness, may exclude students who have gifts and learning difficulties. In contrast, two other broad factors, Knowledge-Comprehension and Fluid Reasoning, measure abilities most often found to discriminate students who are gifted from their peers, and the final factor Visual-Spatial Thinking may provide an additional strength that gifted programs wish to address. If using the WJ-III for identification purposes, care should be taken in choosing the factors shown to best identify gifted individuals and that are most appropriate to match the program being offered.

Differential Ability Scales, Second Edition

The DAS-II is another individually administered test of cognitive abilities designed for ages 2 years 6 months through 17 years 11 months (Elliot, 2007). It is not a traditional measure of intelligence and, in fact, explicitly claims to be a measure of cognitive abilities, as its focus is on exploring the profile of a student's cognitive abilities. However, the DAS-II does provide a composite score that is a measure of conceptual and reasoning abilities or "g," but its focus is on the subtest analysis and the cluster scores analysis to better understand a student's learning (Elliot, 2007). The DAS-II has a total of 20 subtests and there is an Early Years Battery for ages 2 years 6 months to 6 years 11 months and a School Age Battery for ages 7 years 0 months to 17 years 11 months. Up to age 3 years 5 months, only 4 subtests are required to obtain the composite score, whereas over 3 years 6 months of age a reliable general conceptual ability (GCA) score can be calculated from 6 subtests (Elliot, 2007). The cluster scores that comprise the GCA measure verbal ability (crystallized ability), nonverbal ability or nonverbal reasoning ability (fluid reasoning), and for the older preschool and school-age children, a cluster score measuring spatial ability (Elliot, 2007). Other factors, such as working memory and processing speed that are often included in traditional measures of intelligence, are offered in a selection of diagnostic subtests and cluster scores, but are not included in the composite "g" or GCA score (Elliot, 2007).

For assessment of students who are gifted, the DAS-II provides a number of advantages. One general advantage is the reliability of the individual subtest scores that allows interpretation at a specific skill level. As many individuals with gifts have been found to have uneven cognitive profiles (Sparrow & Gurland, 1998), this analysis at the subtest level and cluster level provides an advantage in understanding of a child's strengths and needs. In addition, if a composite score is important for funding or admission to programs or for other reasons, the focus of the GCA on the heavily "g" loaded conceptual and reasoning abilities and the exclusion from the GCA of tasks that have been traditionally found to discriminate less between gifted and non-gifted students (processing speed and short-term and working memory) (Sparrow & Gurland, 1998) may provide for a more valid assessment of giftedness. One consideration of calculating the GCA for some students is the inclusion of a paper-and-pencil Copying (Early Years) or Recall of Designs (School-Age) subtest in the Spatial Ability Composite and the GCA. For students who have fine motor weaknesses, careful consideration should be used when determining whether to include this score in making determinations for inclusion in programs. A final advantage of the DAS-II for assessing preschool and early elementary students who are gifted, is the co-normed battery from ages 5-0 to 8-11 (Elliot, 2007). This co-normed battery of

subtests allows the meaningful use of the school-age battery for children aged 5-0 to 6-11 who are functioning above their peers.

Validity studies of the DAS-II were conducted with a number of groups of students with special needs, including those previously identified as intellectually gifted (Elliot, 2007). This study included 68 students identified as having a standard score greater than two standard deviations above the mean on a measure of cognitive ability. These students were compared to a matched control sample and standard scores on the core and diagnostic clusters and the GCA were found to be significantly higher for the group previously identified as gifted (Elliot, 2007). Of note, as with the WISC-IV and the SB5, the scores on the diagnostic clusters for Working Memory and Processing Speed, although higher than the control group, were significantly lower than the average GCA for the gifted group (Elliot, 2007). In addition, a subtest assessing Speed of Processing was one of only three subtests that did not significantly discriminate the two groups. The other subtests that did not discriminate were a memory task and the previously mentioned Copying task that contributes to the GCA (Elliot, 2007). As noted earlier, care should be taken in using the Copying task and Recall of Designs task (that also showed a smaller effect size) in determining eligibility for gifted programs. The average GCA and Verbal Composite score for the group identified as intellectually gifted was 125.4, which is lower than the 2 SD above the mean that qualified them for inclusion in this group (Elliot, 2007). This slightly lower score is consistent with those reported earlier for the gifted samples in the WISC-IV and the SB5 (Wechsler, 2001; Roid, 2003).

CROSS-BATTERY ASSESSMENT

A recent trend in assessment, based in CHC theory, has been an interest in developing a means for practitioners to effectively use a cross-battery assessment approach to testing (Flanagan & McGrew, 1997; McGrew, 2005; McGrew & Flanagan, 1998). As reviewed above, different assessments of intelligence or cognitive abilities offer measures of different abilities identified in the CHC theory. While the WJ-III offers an assessment of seven of the broad factors in addition to several narrow CHC factors, many other commonly used instruments, such as the WISC-IV, only assess five of the broad and narrow factors (Alfonso et al., 2005). A cross-battery assessment approach allows the practitioner to identify the broad and narrow factors they have assessed using their primary instrument and supplement using subtests from other assessment batteries (Woodcock, 1990). Thus, a practitioner can assess a wider array of abilities than is available in a single measure in a principled, theoretically grounded, and time-efficient manner (Alfonso et al., 2005).

The additional advantage of cross-battery assessment for practitioners is the means with which to organize and interpret assessment findings. For the purposes of educational planning for students, to identify strengths and weaknesses, to exclude or identify sources of learning difficulties, or to simply assess factors of interest for program planning purposes, a cross-battery assessment approach may be the most informative. This may be a particularly useful approach for a student who presents with a very uneven profile, such as a student who has both gifts and learning difficulties. Understanding the specific strengths and needs of a child provides the means for better educational programming. Dawn Flanagan and Keith McGrew along with

other authors have written extensively on cross-battery assessment and through their various publications have outlined the means with which to effectively use cross-battery assessment.

ASSESSMENT WITH SPECIAL POPULATIONS

In the Jacob K. Javits Gifted and Talented Students Education Act there is the recognition that students with gifts come from all "cultural, racial, and ethnic backgrounds, and socioeconomic groups" and may also have disabilities (U.S. Department of Education, 2003), and also that these groups have historically and continue to be underrepresented in gifted programs. As the No Child Left Behind Act of 2001 is scheduled to be reauthorized in 2007, priorities are set out to discover ways to effectively educate students who are gifted and talented and who are from lower socioeconomic backgrounds, have limited English, or who have disabilities. The use of measures of intelligence or cognitive abilities to identify students for gifted programs has been one reason cited for the underrepresentation of these groups in gifted programs. What can we as practitioners do to ensure that we are using measures of intelligence or cognitive abilities responsibly with these groups?

The Use of Intelligence Tests with Culturally and Economically Diverse Students

Much has been written about the use of intelligence measures with students from diverse cultural and economic backgrounds. While the standardization samples of our most commonly used instruments include representation from across the country, this does not guarantee that the assessments are not invalid for students who are from diverse backgrounds. There are a number of considerations when using standardized measures of intelligence or cognitive abilities with students who have less exposure to the mainstream culture from which tests have arisen or who have had less exposure to the information that they have been expected to acquire. Ortiz and Dynda (2005) identify four important factors to consider: culture, language, norm sample issues, and limitations of nonverbal assessments.

First, our tests of intelligence have cultural content; they measure the skills and learning valued by the culture from which the tests arose (Cole & Cole, 1993). The tests can be considered not necessarily culturally biased, but culturally loaded (Sattler, 2001; Valdes & Figueroa, 1994). Thus, the degree to which the student you are assessing has been acculturated to mainstream American culture compared to their same-age peers who comprise the norm group impacts the validity of that comparison (Ortiz & Dynda, 2005). For example, in assessing two sisters who had grown up on a native reservation, but attended mainstream American schools and were bright and capable, both separately provided responses indicating that they did not see a problem with thick smoke coming from a window of their neighbor's house. Thus, practitioners have to recognize that care must be taken in administering the assessments and interpreting the scores of children who have immigrated to the United States, and also those who have grown up in homes with cultural backgrounds that diverge from the mainstream American culture. Both the United States and Canada have very heterogeneous populations and being aware of these issues in testing is important.

Second, although language and culture are linked, language presents its own unique challenges. While many feel that the use of native-language tests or the use of a translator or interpreter in assessment minimizes these biases, it has been found that this does not significantly increase the validity of the measures (Lopez, 2002; McCallum & Bracken, 1997). Even for students who speak English but are bilingual or multilingual, any difference between amount of exposure to English between them and their same-age peers in the normative sample may render the comparison invalid (Ortiz & Dynda, 2005). Care should be taken in administering and interpreting tests for those students who have English as a second language, or for those who know more than one language, even if they have no accent (accent is more related to age they learned the language, than development of the language!).

Third, the standardization of tests provides the means for us to compare an individual's responses to those of their age-matched peers. Better sampling procedures have led to tests that provide representative samples based on age, gender, race, education level, socioeconomic status, geographic location, and so forth. However, none of these directly address the level of acculturation or experiential background or degree of English language proficiency, factors noted above that are more likely to violate the assumption of comparability than gender, racial, or ethnic background (Salvia & Ysseldyke, 1991; Valdes & Figueroa, 1994).

Finally, it is intuitive to resort to nonverbal measures when assessing students who have different experiential or linguistic backgrounds. However, all testing, even when no oral language is required of the examiner or examinee, is dependent on the ability to communicate effectively (Flanagan & Ortiz, 2001; Ortiz, 2001). Nonverbal gestures, facial expressions, and other means of communicating may also be culturally loaded (Ehrman, 1996). In addition, many nonverbal assessments have verbal directions and pictures with cultural content, such as the nonverbal factors of the WISC-IV and the SB5, and the student's ability to comprehend the directions or fully understand the pictures may impact their performance. Finally, what we know about students with gifts is that many demonstrate uneven performance (Sparrow & Gurland, 1998) and that verbal comprehension/knowledge is often a factor that most distinguishes gifted individuals. Using only a nonverbal assessment limits the abilities we are able to measure and may miss the gifts of some students.

Recognizing the potential factors that impact assessment of students with diverse experiential backgrounds and taking care in administration and interpretation of test results leads to greater understanding and perhaps changes in how the tests are used to assess students who are gifted from diverse backgrounds. In the Office for Civil Rights Survey (1998), it was found that students who are black or Hispanic are less than half as likely to be identified for gifted programs (National Research Council, 2002). This underrepresentation of students who likely to have had different experiential backgrounds suggests that we need to do a better job with our assessment measures and interpretation. As noted earlier, while measures of intelligence are important indicators of giftedness, other means of assessment should be integrated into the process and this is perhaps even more important for students who have diverse backgrounds.

Students with Both Gifts and Disabilities

Students who have disabilities often receive services to assist them in their areas of weakness or special needs (e.g., reading intervention). However, what about the

students who have both gifts and disabilities? Research has shown that, in particular, students with gifts and learning disabilities are often not identified for gifted programs (Brody & Mills, 1997). For students with this uneven profile, focusing exclusively on their weaknesses or areas of need may have significant negative consequences on their self-esteem and opportunity to develop the skills, abilities, and confidence that will allow them to be successful in careers that utilize their areas of strength.

Identifying the strengths of these students often takes care and consideration beyond what is immediately apparent in the classroom. For most of these students, an assessment that includes multiple sources of information will be the best means to capture the different strengths. However, as one part of that process, measures of intelligence or cognitive abilities, when used with care and caution, can be very informative. Kaufman and Harrison (1986) pointed out that intelligence tests may identify as gifted, children who might otherwise go undetected because of disabilities that might otherwise cause educators or other professionals to overlook the children's intellectual abilities. In particular, the recent measures of intelligence or cognitive abilities, with the focus moving toward factor scores and on identifying profiles of strengths and weaknesses, provide psychologists with a means to more easily identify strengths separate from any processing weaknesses.

As with students from diverse cultural and linguistic backgrounds, there are many considerations when assessing students who have a disability. Scores may significantly underestimate a student's potential if care is not taken in measurement selection, administration, and interpretation. In general, an individual should have training and experience in assessing students with a specific disability as the considerations are different depending on the needs of a child. Specific considerations include (1) the impact of the child's disability on test accessibility and performance, (2) the impact the disability has had on the child's experiential learning that may impact test performance, and (3) the impact of the disability on a child's self-esteem, confidence, emotional well-being, and test-taking behavior that may impact test performance.

Carefully considering how a child's disability may impact their ability to access the test materials and perform up to their full potential is perhaps the most obvious factor to consider. For example, most of us would carefully consider giving a test with oral instructions to a child who has a hearing impairment or providing picture-based materials to a child with a visual impairment. However, we must also consider less obvious cases, for example, a child who has difficulty sustaining their attention may miss test instructions or lose motivation and we might take steps to ensure test materials are engaging, ensure the child understands the directions, keep the test situation moving, provide breaks, and take the child's difficulty sustaining their attention into account when we interpret results. Ensuring the child can access the materials and provide responses in a way that is comparable to their peers in the norm group ensures that the test is valid.

In addition to the direct impact of a child's disability on the testing situation, we must also consider how the disability has impacted the child's experiential background. As we noted above for children with different cultural or linguistic backgrounds, experiential background can impact the validity of the comparison to the norm group for a measure for a specific child's performance (Ortiz & Dynda, 2005). For example, when assessing a child who has a sensory impairment, such as hearing or vision, understanding the potentially very different language and cultural experiences of that child and how those can impact their performance compared to their peers on

measures with heavier cultural and language loadings will be important. Less obviously, children with a reading disability, as they progress through school, may have had many fewer experiences with books and building their general knowledge base, resulting in lower scores on measures that assess that learning.

Finally, we must also consider the potential impact of a child's self-esteem, confidence, motivation, or overall emotional well-being. Factors such as achievement motivation, anxiety level, and morale of the examinee have long been identified as variables that can affect a test score (Sattler, 2001) and while they are important to watch for in all testing situations, they have the potential to be more prevalent with students who have disabilities. For example, children who are embarrassed or ashamed and try to hide their difficulties, or are depressed or anxious may not speak up if they do not understand directions (Sattler, 2001).

It is easy to see that with the pressure on educators to remediate weaknesses, strengths may go unnoticed or underserved, but a focus exclusively on areas of weakness does a disservice to the student and may make them less motivated. Measures of intelligence of cognitive abilities when used with care and caution in the context of a multisource assessment, may provide educators with a window into a child's areas of strength.

FINAL CONSIDERATIONS

While measures of intelligence or cognitive abilities are widely used in gifted identification, many authors have issued cautions regarding the application and interpretation of scores for this purpose. Such issues include the possible depression of scores from ceiling effects, the cultural loadings, the arbitrary choice of cutoff scores, the Flynn effect when using recently revised tests, the inclusion of processing speed in many of the measures, and the uneven profile of abilities found in gifted students (Flynn, 1987; Harrington, 1982; Sparrow & Gurland, 1998). In addition, measures of intelligence or cognitive ability may underestimate the potential of highly creative children who provide divergent-type responses on tests that reward the one "right" answer. Finally, Sternberg (1982) pointed out that test situations can be highly anxiety provoking for some students, that the tests are measuring not just ability or intelligence but also previous learning or achievement, and that precise scores do not necessarily reflect valid scores.

Despite their weaknesses, when used with care and consideration, in the context of an assessment that includes multiple sources of information, measures of intelligence or cognitive ability have the potential to provide valuable information in the gifted identification process. Kaufman and Harrison point out that measures of intelligence or cognitive abilities continue to be very good predictors of academic achievement and academic success and have the most solid psychometric properties of tests used with gifted individuals. While overall the best accuracy is obtained through multiple measures and clinical procedures (Pfeiffer, 2002), measures of intelligence or cognitive abilities are currently an integral component in that equation.

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Gifted Identification Beyond the IQ Test: Rating Scales and Other Assessment Procedures

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Introduction

This chapter describes rating scales and other tests and procedures used in gifted identification aside from traditional intelligence tests (see Newman, this volume, for discussion of IQ tests). The chapter highlights how a psychologist's conception of giftedness should guide the particular tests and procedures that one selects in conducting a gifted evaluation. The chapter very briefly describes a variety of alternative tests and procedures used in gifted identification, including nominations, nonverbal measures, portfolio assessment, dynamic assessment, and auditions. A more detailed discussion on gifted rating scales is provided. The Gifted Rating Scales is described in detail to illustrate how rating scales offer flexibility that complements and extends information from the intelligence test. The chapter proposes a gifted assessment model that intentionally links gifted identification and talent development by endorsing ongoing evaluation of a gifted student's performance.

As many authorities in the gifted field remind us, *giftedness* is a label, a social construction (Pfeiffer, 2003; see Kaufman & Sternberg, this volume). Psychologists, gifted consultants, and other professionals in the schools are often asked if a given student is gifted. The answer to what may seem like a simple and straightforward question, however, depends on one's conception of giftedness and on which criteria one decides—explicitly or implicitly—to use in answering this seemingly straightforward question. For example, if one embraces a conception of giftedness based on the notion that giftedness equates to high intelligence or g, then the choice of assessment test or procedure would likely be guided by one or more tests heavily weighted in g. On the other hand, if one embraces a conception of giftedness that equates to domain-specific abilities, multiple intelligences, or perhaps creativity (see Makel

& Plucker, this volume), then the selection of specific assessment tests or identification procedures would likely be quite different.

Most definitions of giftedness include some reference to *intelligence*. However, the reader is aware that there are many different views of intelligence and how to measure it. Most definitions of intelligence agree with the view that intelligence consists of goal-directed mental activity marked by efficient problem solving, critical thinking, effective abstract reasoning, and superior memory (Pfeiffer, 2001). Sternberg adds that, "intelligence compromises mental abilities necessary for adaptation to, as well as shaping and selection of, environmental context" (Sternberg, 1997, p. 1030; see Kaufman & Sternberg, this volume).

The majority of states use some form of the 1978 modification of the 1972 federal definition of giftedness, popularly known as the *Marland definition*. Most states use the phrase *gifted and talented* in describing exceptionally capable students, although less than 15 states limit their definition to the term *gifted*. Almost all states include superior intelligence as a defining characteristic of giftedness. Specific academic ability and giftedness are both considered a type of giftedness by more than 30 states, and approximately 20 states consider leadership ability a type of giftedness (see Stephens, this volume).

Further complicating what may seem like a simple and straightforward question—is the student gifted?—is the fact that, oftentimes, psychologists are asked to make predictions about the student's potential or future performance. This is often the case when conducting a gifted evaluation on a young student whose family's primary language spoken in the home is not English, comes from poverty or abject economic or educational disadvantage, and/or is a member of a typically underrepresented gifted minority group (see Ford & Whiting, this volume). In these instances, the assumption that guides the gifted assessment is that the student may not yet be in a position to fully demonstrate her/his gifts—at least in terms of traditional classroom indicators or standardized test scores. This forces the psychologist or gifted educator to make a prediction or estimate of the child's future unfolding of gifts or talents, and the reasonableness (and defensibleness) of the student being awarded placement in a select gifted program.

Some gifted authorities, such as Tannenbaum (2003), argue that the identification process should afford the flexibility to cast the widest possible diagnostic net so as not to exclude any *possibly* gifted young students with *outstanding promise*. Based on work with extremely bright students at Duke University's summer gifted program, Pfeiffer contends that giftedness should be viewed as exceptional ability in one or more culturally valued domains or fields. Although most people think only of intellectual giftedness, children display artistic, musical, athletic, dramatic, interpersonal, aesthetic, leadership, creative, and other gifts. Pfeiffer proposes that the number and types of gifts are limited only by what a given society recognizes and values. In today's society, American education places a premium on intelligence and scholastics, particularly the sciences, engineering, and mathematics. However, this relative emphasis does not necessarily contradict the recognition of *multiple manifestations of giftedness*.

There exists no precise cut score or set of characteristics that differentiate gifted from not-gifted, although many would like to believe otherwise (Pfeiffer, 2002). Pfeiffer suggests that giftedness is best viewed *not* as a condition or permanent state that a child either has or does not have; absolute, immutable, and unchangeable. For example, a young child can at one point show great promise in music, reading, or even solving mathematical problems, later only to appear average compared to

her peers in these areas. Another child might display a very different course of development; in her early years, she might show little precocious promise or outstanding potential, only to later become a national merit finalist in high school and captain of her school's softball and debate teams.

Implicitly embedded within the views of Tannenbaum, Pfeiffer, and others is the seemingly paradoxical issue of whether one should identify giftedness based on *outstanding promise/potential* or based on already existing, *demonstrated performance/productivity*. This issue has obvious implications for which tests and procedures one selects to identify students for gifted programs. It is important to remember that the emergence of eminence or expertise does not unexpectedly burst onto the scene but rather requires years of cultivation, systematic study, hard work, and support (Ericsson, 2004; Lubinski & Benbow, 2000; Winner, 1997). The fact that excellence in any field takes considerable time, supervision and mentoring, and focused effort to develop implies that early gifted identification should be viewed as a first, preliminary step in the ongoing process of providing appropriately challenging and supportive learning environments and ongoing reevaluation of giftedness. We will talk more on this issue later.

What follows is a brief overview on a variety of alternative procedures that have been used to help identify gifted students and a more extended discussion on gifted rating scales. Space limitation forces us to limit our discussion to select tests.

Nominations

Parent and teacher nominations have been used in the schools as a means of assisting in the gifted identification process. Nominations can focus exclusively on general intellectual ability, or *g*, or cover a wide array of specific abilities and talents. Schack and Starko (1990) report that teachers view the following four criteria most helpful in identifying a student as gifted: creative, learns quickly and easily, initiates own learning, and curious. The next three most preferred criteria by teachers were: wide knowledge, academic talent, and motivated. These findings suggest that teacher nomination forms should include one or more of these criteria.

A study by Lee and Olszewski-Kubilius (2006) explored the validity of parent nominations to qualify students for talent search participation at Northwestern University's Midwest Talent Search Program. Parents were instructed to verify that their child (grades 3–9) demonstrated unusually advanced aptitude in verbal or mathematical reasoning, and/or academic status. The researchers found that scores on the verbal and math subtests of the SAT and the ACT—off-level testing used by the Talent Search Program for gifted placement—were generally similar for students who qualified via standardized testing versus parent nomination. Parent nomination, however, did not significantly increase the participation of students who are typically underrepresented in talent search testing and gifted programs (Lee & Olszewski-Kubilius, 2006). The authors cautioned that any effort to identify greater numbers of typically underrepresented gifted minority group students will require not only developing valid methods of nominating students, but getting schools to use them.

Use of parent and teacher nominations is not without potential problems. The most obvious challenge is the potential for a lack of scientific rigor in the nomination process. Exactly how the psychologist or educator goes about inviting parents

and/or teachers to nominate students will bear on the outcome (and validity of the process). For example, the wording of the instructions on the nomination form and whether or not one or more concrete examples are provided to assist the nominee in understanding the criteria to guide the nomination can have a profound impact on which students are nominated.

Cunningham, Callahan, Plucker, Roberson, and Rapkin (1998) investigated the reliability and validity of a peer nomination form used to identify Hispanic students of outstanding talent. The form included 10 questions that addressed intellectual abilities and creative/artistic abilities. The scale had fair-to-adequate reliability and preliminary evidence for validity. The authors concluded that the instrument held promise but further work was needed before using the scale in actual practice.

We recently conducted a study to determine whether students might be able to accurately nominate and rate peers on gifted dimensions (Blei & Pfeiffer, 2007). We asked third to eighth graders to nominate and rate their classmates, and compared their ratings with teacher ratings. We obtained some unexpected findings. For example, student nominations and ratings by students with above-average intelligence were more similar to teacher ratings than ratings generated by students with below-average intelligence. Popularity proved to be a confounding variable, influencing ratings. Surprisingly, students were significantly more successful (i.e., accurate) in identifying peers' leadership ability, compared to intellectual ability, academic ability, creativity, and artistic talent (e.g., 63% versus41% hit rate for leadership versus academic ability; $p \leq 0.001$). Our findings, unfortunately, did not provide support for the use of peer nominations in gifted identification. At the same time, we believe that there is evidence that parent and teacher nominations can be useful. However, we offer the caveat that if parent or teacher nominations are used, they should be a first step in a multigate gifted identification process, and *not* be part of a weighted calculus in determining whether or not a student is recommended for gifted program placement.

Nonverbal Measures

Recently, nonverbal ability tests have gained popularity in helping to identify gifted students. One important reason is that many educators contend that nonverbal ability tests are more fair or equitable for culturally or linguistically diverse populations (Naglieri & Ford, 2005). The logic underlying this view is that many children are intellectually gifted but not able to demonstrate high academic achievement because of unequal opportunities to learn—in essence, they have been exposed to a substantially diminished, understimulated, and/or markedly culturally different educational environment in their early development.

Nonverbal tests generally refer to instruments with reduced emphasis on language on the part of both the examiner and the child. Nonverbal ability tests are intended to have low cultural loading and linguistic demand (Athanasiou, 2000; McCallum, Bracken, & Wasserman, 2001). Nonverbal ability tests are measures of general ability or *g*. Although some nonverbal tests are quite comprehensive and include multiple subscales, they are intended to measure the various abilities underlying intelligence, and *not* multiple types of giftedness (e.g., artistic ability, leadership, science, creative writing).

Four nonverbal ability tests popular in gifted identification are the Leiter International Performance Scale-Revised (Leiter-R; Roid & Miller, 1997), Naglieri Nonverbal Ability Test (NNAT; Naglieri, 1997), Test of Nonverbal Intelligence: Third Edition (TONI-3; Brown, Sherbenou, & Johnson, 1997), and Universal Nonverbal Intelligence Test (UNIT; Bracken & McCallum, 1998). Each of these nonverbal tests has unique qualities; in addition, there is considerable research on each of the tests (e.g., Borghese & Gronau, 2005; Fives & Flanagan, 2002; Hooper & Bell, 2006; Naglieri & Ford, 2003).[1]

Athanasiou (2000) reviews a group of nonverbal ability tests. Her cogent article points out subtle but important considerations that a practitioner should consider in selecting among the various available nonverbal tests for gifted identification: the degree of emphasis on process over product, the extent to which abstract or novel stimuli are used as items, the simplicity of response mode, the extent of receptive and expressive language skills required to explain test instructions, and level of language proficiency required of the child. Of course, in selecting a nonverbal test, the practitioner should also consider evidence of reliability and validity, whether the norms and standardization sample are appropriate for use with the particular student being evaluated, whether the test has a high-enough ceiling for use with a gifted student, and the user-friendliness of the scale.

The crucial and definitive benchmark for the value of nonverbal ability tests for use in gifted identification is their predictive validity. At the present time, there is no research on the predictive validity of nonverbal ability measures. Nonverbal ability tests purport to more equitably or fairly assess general ability or *g* in a student who has limited English language skills and/or has not been exposed to an academically rich and stimulating home environment. The logic is that otherwise bright students from culturally or linguistically diverse populations are at a distinct disadvantage on a test that has high language demands and is heavily culturally loaded—such as the IQ test. This is perfectly logical. However, for nonverbal ability tests to ultimately be of practical value to gifted education, investigators need to demonstrate that students identified on nonverbal scales, who otherwise would not have been identified as gifted, are *successful placements* in gifted programs. This might mean that the students benefit from the specialized gifted curriculum and instruction, demonstrate, at some future time, advanced academic performance compared to their peers, and otherwise are indistinguishable from other gifted students on important academic benchmarks and performance criteria considered by gifted authorities as central to gifted education.

Authentic Assessment, Portfolio Assessment, Dynamic Assessment

The heading for this section could have easily been "Alternative Assessments." Performance-based assessment, authentic assessment, portfolio assessment, and dynamic assessment are terms used to describe alternative ways to assess giftedness

[1]A number of brief intelligence tests include nonverbal scales that can be used in gifted screening, including the Kaufman Brief Intelligence Test-Second Edition (KBIT-2; Kaufman & Kaufman, 1997), Reynolds Intellectual Screening Test (RSIT; Reynolds & Kamphaus, 2003), Wechsler Abbreviated Scale of Intelligenced (WASI; Wechsler, 1999).

(Johnsen, 1996). Brown, Renzulli, Gubbins, Siegle, Zhang, & Chen (2005) contend that since giftedness is multifaceted, there is a need for multiple criteria and multiple sources of evidence to identify gifted students.

Performance-based assessment requires the student to act in a prescribed way or to produce an original product or response. Auditions used in the performing arts are instances of performance-based assessment. Other examples of performance-based assessment include asking students to write a short story or computer program, act in a play, design an experiment, compose a melody, plan a hypothetical military or political tactic, and create a fund-raising strategy. Rubrics can then be developed to judge the quality of the product or performance (Van Tassel-Baska, 2002).

Authentic assessment refers to what students are actually doing in the real world. An example might be asking a student to design an experiment with the purpose of determining how to increase voter turnout in an upcoming student council election.

Portfolio assessment is a collection of a student's work that reflects academic products and accomplishments. The collection of work *may* include products that are authentic. However, portfolios are not necessarily always authentic (Johnsen, 1996). For example, a student portfolio could be a collection of nonauthentic materials such as homework assignments, drawings, worksheets, and classroom tests. A rubric can similarly be developed to help judge the quality of the student's portfolio. Rubric categories could include: use of language, level of sophistication, problem-solving strategies, depth of information, creativity, preference for complexity or novelty, ability to analyze, interpret, and/or synthesize (Smutny, 1998). To increase the preciseness of the portfolio assessment, it is advisable to convert the rubric to a numerical scale and quantify the ratings.

Pfeiffer, Kumtepe, and Rosado (2006) describe the use of a rubric as part of a districtwide gifted screening initiative. A gifted program in a school district in the southeastern United States sought to increase the number of minority group students referred for gifted programs. Teachers rated all of the kindergarten students in the district on the GRS-P, a popular gifted rating scale (see next section). Teachers also submitted one classroom product for each student that depicted each student's academic/intellectual ability (a drawing which included a story told by the student and transcribed by a classroom assistant). A rubric was designed to rate each of the student's products on a scale of 1–4. The district decided that any kindergartner who obtained a 3 or 4 on the rubric and a T score ≥ 60 on either the GRS-P Intellectual Ability or Academic Ability scale would be recommended for a full gifted evaluation. The initiative increased the number of minority group students considered for gifted programs districtwide (Pfeiffer et al., 2006).

Dynamic assessment includes a learning component and focuses on the interaction between the student and the task. The tasks must be problem based, require complex strategies, and provide opportunities to observe varying rates and proficiency of learning, efficiency in retrieving information for problem solving, and transfer to new tasks (Geary & Brown, 1991; Johnsen, 1997; Vygotsky, 1978). Tasks presented to the student are typically higher-level cognitive activities such as concept learning, classification, matching, matrix problems, and spatial reasoning. Dynamic assessment models consist of assessing baseline performance, teaching how to solve the problem, and then reassessing student performance.

Borland and Wright (1994) used a dynamic assessment model to determine whether they could identify typically underrepresented groups of gifted students.

Students in their experiment were presented with a matrix task; those students who had difficulty solving the problem were provided instruction and questioned, then retested following instruction. They found that performance on the dynamic assessment task, along with other strategies, helped identify young, potentially gifted, economically disadvantaged students.

The above group of alternative assessment procedures hold promise to increase the comprehensiveness and precision of gifted identification. However, there remain unanswered questions. Under what circumstances should we use alternative assessment procedures such as portfolio assessment or dynamic assessment? Is authenticity necessary or important in alternative assessments—and if so, then how can we guarantee it? How do we ensure that the rubric consists of valid and reliable criteria when used to judge the quality of a student product or performance? The answer to these questions will further practitioners' comfort level in using evidence-based alternative methods to gifted identification. We next move to a discussion of gifted rating scales.

Rating Scales

Teacher rating scales are among the most widely used instruments for screening and identifying students for participation in gifted programs. They are probably the second most frequently used instrument, following the IQ test, in gifted assessment in the schools (Pfeiffer, 2002). There are five widely used teacher gifted rating scales: the Gifted Evaluation Scale, Second Edition (McCarney & Anderson, 1998), Gifted Rating Scales (Pfeiffer & Jarosewich, 2003), Gifted and Talented Evaluation Scales (Gilliam, Carpenter, & Christensen, 1996), Scales for Identifying Gifted Students (Ryser & McConnell, 2004), and Scales for Rating the Behavioral Characteristics of Superior Students (Renzulli, Smith, White, Callahan, Hartman, & Westberg, 2002). The remainder of this section will discuss one of these scales, the Gifted Rating Scales (Pfeiffer & Jarosewich, 2003), authored by the editor of this handbook.

The Gifted Rating Scales

Recognizing that hundreds of thousands of school-age children in the United States and worldwide are tested annually for gifted consideration, and that the gifted field did not have a technically adequate screening tool to assist in the identification of gifted students, the Gifted Rating Scales (GRS) was developed (Pfeiffer & Jarosewich, 2003). Six principles guided the development of the rating scale. The GRS was designed to be user-friendly, requiring minimal training to administer, score, and interpret. It was developed to be scientifically sound, reliable, and valid. It included a standardization sample that matched the latest U.S. census in terms of race/ethnicity, parent education level, and regional representation. It was based on Pfeiffer's multiabilities conceptualization of giftedness and a straightforward interpretive model that simplified the screening process. It was intended to be a clinically flexible tool that could complement an IQ test and other procedures (e.g., auditions, portfolio samples, nonverbal tests) as part of a comprehensive test battery. And it was linked to the new Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV) and Wechsler

Preschool and Primary Scale of Intelligence-Third Edition (WPPSI-III), which was accomplished by co-linking the standardization of the GRS with the standardization of the new WISC-IV and WPPSI-III (Pfeiffer & Jarosewich, 2003).

The GRS includes a Preschool/Kindergarten Form (GRS-P) for ages 4:0 to 6:11 and a School Form (GRS-S) for ages 6:0 to 13:11. The GRS-P consists of five scales with 12 items each for a total of 60 items; the GRS-S consists of six scales with 12 items each for a total of 72 items. The items of the GRS-P represent skills and behaviors developmentally appropriate for preschool and kindergarten students, while the items of the GRS-S reflect more developmentally advanced skills or behaviors. The GRS-S includes a sixth, leadership scale, which is not included in the GRS-P. Both forms yield raw score totals on all scales, which are converted to age-based *T* scores and associated cumulative percentages.

The GRS is based on a multidimensional model of giftedness that incorporates the Munich Model of Giftedness and Talent (Zigler & Heller, 2000) and the typology that appears in the U.S. Department of Education Report, *National Excellence: A Case for Developing America's Talent* (Ross, 1993). Below is a brief description of each of the GRS scales.

- *Intellectual Ability*. This scale measures the student's verbal and/or nonverbal mental skills, capabilities, or intellectual competence. Items on this scale rate a student's abstract reasoning, problem solving, mental speed, and memory. For example, one item asks how well the student learns difficult concepts easily.
- *Academic Ability*. This scale measures the student's skill in dealing with factual and/or school-related material. Items rate advanced competence and high levels of proficiency in reading, math, and other aspects of the school curriculum. For example, one item asks how well the student completes academic work unassisted.
- *Creativity*. This scale measures the student's ability to think, act, and/or produce unique, original, novel, or innovative thoughts or products. Items rate how a student solves problems, experiments with new ideas, formulates a solution to a group project, and/or uses imagination. For example, one item asks how well the student approaches the world "as a scientist" or explorer.
- *Artistic Talent*. This scale measures the student's potential for, or evidence of ability in drama, music, dance, drawing, painting, sculpture, singing, playing a musical instrument, and/or acting. Items rate how a student approaches activities, completes assignments, and/or uses art supplies or artistic media. For example, one item asks how well the student expresses emotions effectively in artwork.
- *Leadership Ability*. This scale measures the student's ability to motivate others toward a common or shared goal. Items rate a student's conflict resolution skills, initiative in group situations, and understanding of social dynamics and interpersonal communication. This scale is included on the GRS-S but is not part of the GRS-P. An illustrative item asks how well the student inspires confidence in others.
- *Motivation*. This scale refers to the student's drive or persistence, desire to succeed, tendency to enjoy challenging tasks, and ability to work well without encouragement or reinforcement. The motivation scale is *not* viewed as a type of giftedness, but rather as the dynamic energy that drives or impels a student to achieve. An illustrative item asks how well the student strives to improve or become more competent.

Each item is rated by a teacher on a nine-point scale divided into three ranges: 1–3, Below Average; 4–6, Average; 7–9, Above Average. The GRS-S manual provides a classification system that indicates not whether a student is gifted, but rather the *likelihood* that a student is gifted, based on their *T* score. The higher the student's *T* score on one or more of the gifted scales, the higher is the probability that they are, in fact, gifted compared to their same-age peers. The *T* scores were computed based on each age group and thus age adjusted so that the classificatory ranges may be applied across age bands. A *T* score below 55 (below 69%) indicates a low probability of gifted, a score between 55 and 59 (69–83%) a moderate probability, a score between 60 and 69 (84–97%) a high probability, and a score above 70 (98+%) a very high probability.

Test development followed a carefully prescribed set of steps, including a survey of gifted experts; focus groups of teachers, school psychologists, and gifted experts; and pilot and field testing. As mentioned earlier, standardization was co-linked with standardization of the new WISC-IV (and WPPSI-III in the case of the GRS-P). Final item selection was guided by factor structure, item mean scores, bias (parent education level, gender, and ethnicity), and interrater and test–retest reliability. Item generating and pruning was extensive throughout test development. For example, items were pruned or eliminated if they did not have a high enough ceiling—critical for a gifted measure, or if they loaded on more than one factor or content domain. For example, one early GRS-P creativity item, "displays an active imagination," was eliminated because it had a mean score of 6.03, exceeding the 5.0–5.9 decision rule set to ensure that all items had high-enough ceiling. One early GRS-S intellectual ability item, "asks probing questions," loaded on both Intellectual Ability and Creativity and was, therefore, eliminated.

The GRS test manual reports evidence of high reliability and validity. Based on the standardization sample, coefficient alpha reliabilities ranged from 0.97 to 0.99 and standard error of measurements ranged from 1.0 to 1.41 across the six scales and eight age ranges. Test–retest reliability coefficients, based on a sample of 160 students aged 6:0 to 13:11 and a median retest interval of 7 days, ranged from 0.83 on the Artistic Talent scale to 0.97 on the Academic Ability scale. Interrater reliability, based on 152 students, ranged from 0.70 to 0.79 for students aged 6:0 to 9:11, and 0.64 to 0.75 for students aged 10:0 to 13:11. The test manual also provides evidence in support of internal structure and convergent and divergent validity (Pfeiffer & Jarosewich, 2003). Initial, independent reviews of the GRS have been very favorable (Margulies & Floyd, 2004; Ward, 2005).

Recently published articles examined possible differences on each of the GRS-S and GRS-P scales for gender and race using the standardization sample (Pfeiffer & Jarosewich, 2007; Pfeiffer, Petscher, & Jarosewich, 2007). The GRS-S study also tested the diagnostic validity of the scale for the total sample of the standardization sample for which both GRS-S and WISC-IV scores were collected (Pfeiffer & Jarosewich, 2007). We will first report on the GRS-S findings.

GRS-S: What the Research Says

The study by Pfeiffer and Jarosewich (2007) used subjects from the standardization sample. The sample consisted of 291 boys and 301 girls. The age group of the sample was stratified within eight 12-month age bands from 6:00 to 13:11, with each

age comprising 13% of the standardization population. The standardization sample was stratified to closely approximate the U.S. population on important demographic characteristics such as race/ethnicity, parent education level, and regional representation (U.S. Bureau of Census, 2000). For example, 64% of the sample was Caucasian ($N = 379$), 16% African American ($N = 96$), 16% Hispanic ($N = 94$), and 4% ($N = 23$) Asian American (Pfeiffer & Jarosewich, 2003).

A subsample of the standardization data that included *all* subjects with *both* GRS and WISC-IV data was used for the analysis of diagnostic efficiency statistics and ROC analysis. The subsample consisted of 196 boys and 185 girls and closely matched the U.S. population on race/ethnicity, parent education level, and geographic representation. Multiple statistical analyses were conducted. First, a separate multivariate analysis of variance (MANOVA) was conducted with the full standardization to test for differences on each of the six GRS-S scales for gender, race, and age. The follow-up of significant effects was conducted using univariate ANOVAs (Newton & Rudestam, 1999).

Second, using the subsample of students who received *both* the GRS-S *and* the WISC-IV, diagnostic efficiency statistics were calculated for a GRS-S Intellectual Ability *T* score of 60 and WISC-IV IQ Full Scale (FS) scores of 115 and 130. A *T* score between 60 and 69 represents a moderate probability of giftedness (84–97%) based on the GRS classification system (Pfeiffer & Jarosewich, 2003). WISC-IV FS IQ at 115 and 130 were selected because most school systems presently use the 130 IQ (2 *SD* above the mean) for operationally defining intellectually gifted and some authorities (e.g., Renzulli, 1978) suggest using a less stringent IQ score of 1 *SD* above the mean for identifying gifted students. Pfeiffer and Jarosewich (2007) also computed diagnostic efficiency statistics, including: *sensitivity*, the proportion of children which the GRS-S correctly detected as intellectually gifted, based on an IQ ≥ 130; *specificity*, the proportion of children correctly identified by the GRS-S as *not* intellectually gifted; *likelihood ratio*, an index of the accuracy of a test which depicts what the odds are that a positive test result comes from a youngster who is gifted; and *overall correct classification*. These diagnostic statistics are *not* affected by the prevalence or base rate of the condition in the population (Meehl & Rosen, 1955; Streiner, 2003), which is important because giftedness is a low-prevalence phenomenon, and only 2% of the GRS-S standardization sample obtained WISC-IV IQ ≥ 130. Pfeiffer and Jarosewich (2007) also reported the results of a receiver operating curve (ROC) analysis. The ROC analysis graphically depicts the diagnostic efficiency across the entire range of standard scores for each possible cut score on the GRS-S (see Figure 10.1).

Findings: GRS-S Analysis of Gender and Race

Correlations among the GRS-S scales were all significant at the $p \leq 0.01$ level. The highest correlation coefficient among GRS-S scale scores was 0.93, between Intellectual Ability and Academic Ability. The lowest correlation coefficients all included the Artistic Ability scale (0.58 with Leadership, 0.62 with Intellectual Ability, and 0.65 with Academic Ability). The MANOVA corresponding to gender yielded a significant result *F*, $p \leq 0.001$ with an effect size of $\eta^2 = 0.11$. The scale scores for girls were significantly higher on the Artistic Talent ($p \leq 0.001$, $\eta^2 = 0.04$), Motivation ($p \leq 0.001$, $\eta^2 = 0.03$), and Leadership ($p \leq 0.01$, $\eta^2 = 0.02$) scales. The mean score for girls on the Artistic Talent scale was $M = 52$ and for boys was $M = 48$, yielding a 4-point difference in favor of females. The girls' mean scores for the Motivation scale was $M = 52.6$

Table 10.1. Mean scores and standard deviations for GRS-S scale scores by race standardization sample analysis

	Asian American (N =23)		African American (N = 96)		Caucasian (N = 379)		Hispanic (N = 94)	
	M	SD	M	SD	M	SD	M	SD
Intellectual	51.39	9.21	48.06	10.21	50.99	10.47	48.01	9.65
Academic	52.87	9.41	48.86	10.62	51.82	9.93	49.09	8.88
Creativity	50.04	7.61	48.55	10.54	51.28	9.74	48.47	9.15
Artistic	50.70	9.52	48.33	10.87	51.02	10.15	49.22	9.26
Leadership	52.91	10.40	49.16	10.52	50.96	9.99	49.03	7.85
Motivation	53.17	10.07	48.93	10.36	51.55	10.41	49.55	9.12

and boys' $M = 49$ (3.6-point difference), while the girls' mean score for the leadership scale was $M = 51.7$ and the boys' $M = 49$ (2.7-point difference).

The MANOVA comparing GRS-S scales based on race did *not* yield significant results at the 0.01 level, $p = 0.443$. Table 10.1 presents the means and standard deviations based on race. Although *not* statistically significant, the trend was consistently in favor of Asian American and white students obtaining slightly higher GRS ratings than African-American and Hispanic children. This finding of slight differences in favor of white and Asian students is consistent with the findings reported on the NNAT (Naglieri & Ford, 2003; Naglieri & Ronning, 2000).

It is important to emphasize that the differences on the GRS-S by race/ethnicity are, at most, quite modest and unlikely to be educationally or clinically meaningful. For example, the mean scale score for Asian-American students was 3 points higher than the mean scale score for African-American and Hispanic students on the Intellectual Ability scale score (approximately 1/3 *SD* higher). Most noteworthy, race/ethnicity differences did *not* reach significance. This is an important finding, especially since the gifted field has been concerned with the underrepresentation of African-American, Hispanic, and Native American students in gifted education programs (Ford, 1998; see Ford & Whiting, this volume). Of course, every test is culturally loaded to some extent (Barona & Pfeiffer, 1992; Flanagan, McGrew, & Ortiz, 2000; Jensen, 1974). For example, picture vocabulary tests and portions of the Verbal Scale of the WISC-IV and Stanford-Binet are highly culturally loaded, whereas nonverbal matrix tests and digit span memory tests are purportedly less highly culturally loaded (Jensen, 1974, 2004; McCallum et al., 2001; Naglieri & Ford, 2003; Sattler, 2001). The fact that the GRS-S appears to be less highly culturally loaded and works equally well across different racial/ethnic groups makes it an attractive gifted screening tool.

Findings: GRS-S Analysis of Diagnostic Accuracy

Recall that Pfeiffer and Jarosewich (2007) set WISC-IV FS IQ scores at 115 and 130 because a majority of school systems presently use the 130 IQ score (2 *SD* above the mean) for defining intellectually gifted and some authorities suggest using the less conservative IQ score of 115. Irrespective of whether the WISC-IV FS IQ score was set at 115 or 130, the GRS-S Intellectual Ability *T* score of 60 was diagnostically accurate.

The overall correct classification rate (OCC) was 0.82 when the WISC-IV FS IQ was set at 130, and 0.80 when the WISC-IV FS IQ was set at 115.

The sensitivity or true positive rate for the GRS-S Intellectual Ability scale, using a T score of 60, was 0.86. The specificity or proportion of students who were not intellectually gifted, and who were correctly identified by the GRS Intellectual Ability scale as *not* gifted was 0.82.

Using a T score of 60, and setting the WISC-IV IQ ≥ 130, the LR+ = 4.8. This means that a obtaining a T score of 60 or above on the GRS-S Intellectual Ability scale is almost 5 times as likely for those students who have IQ ≥ 130 as for those who do not. Again looking at a T score of 60 and WISC-IV ≥ 130, the LR- was 5.9. This means that obtaining a T score below 60 on the GRS-S Intellectual Ability scale is almost six times as likely to have come from a student who does *not* have IQ ≥ 130.

The receiver operating curve (ROC) analysis for the GRS-S Intellectual Ability scale performed significantly above chance, with an estimated Area Under the Curve (AUC) of 0.92 ($p < 0.01$) and a 95% confidence interval of 0.86 to 0.98. An AUC of 1.0 would represent perfect accuracy.

As Figure 10.1 shows, the ROC falls far above the diagonal line, which represents chance level prediction, indicating that the GRS-S Intellectual Ability scale works exceptionally well as a diagnostic screening index for intellectual giftedness across all T scores.

To reiterate, the study by Pfeiffer and Jarosewich (2007) examined diagnostic validity by testing how successfully the GRS-S Intellectual Ability scale classified individuals as high IQ (as a proxy for intellectually gifted) or not high IQ (as a proxy
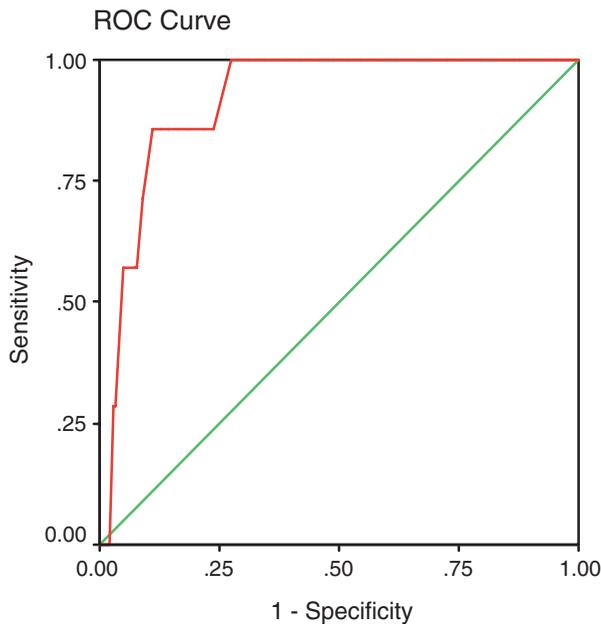
Figure 10.1.   ROC curve.

for not intellectually gifted). Of course, one daunting challenge in undertaking any test validation study is the need to identify an established *gold standard* that meets the criteria for defining the construct of interest, in this instance, intellectual giftedness. They used the FS IQ as the criterion measure since it is almost universally accepted as the putative measure of intelligence within the gifted field (Pfeiffer, 2002; Sparrow, Pfeiffer, & Newman, 2005).

Although infrequently reported in the gifted field, the validity of any instrument or screening procedure should include reporting the diagnostic performance of the test (Kessel & Zimmerman, 1993; Robins, Schoff, Glutting, & Abelkop, 2003; Streiner, 2003). The GRS-S was successful in both correctly identifying individuals who are intellectually gifted (test sensitivity) and correctly identifying individuals who are not intellectually gifted (test specificity), especially when intellectually gifted was operationally defined as intellectual ability in the top 5%. Using a *T* score of 60, as suggested in the test manual as demarcating a *high probability of gifted*, the overall correct classification rate for intellectually gifted was 0.82 with a WISC-IV IQ of 130 and 0.80 with a WISC-IV IQ of 115.

Findings: GRS-S Cross-Validation Study

Pfeiffer, Petscher, and Kumtepe (in review) conducted a cross-validation study of the GRS-S with 122 students from the southeastern United States. The sample consisted of 73 girls and 49 boys, mean age of 10.3. Seventy-four percent of subjects were white, 14% were African American, 7% were Asian American, and 3% were Hispanic American. Parent education level of the cohort, a proxy for socioeconomic level, was similar to data gathered by the U.S. Bureau of Census (2000). Intentional sampling created a cohort of subjects across five ability levels.

Results indicated very high internal consistency indices for all six GRS-S scales. Coefficient alpha reliabilities ranged from 0.98 to 0.99. These findings are consistent with earlier findings and reaffirm that the GRS-S has excellent internal consistency (Pfeiffer & Jarosewich, 2003, 2007).

The highest obtained correlation coefficient was between Intellectual Ability and Academic Ability ($r = 0.95$); the lowest correlation between Artistic Talent and Leadership ($r = 0.66$). These results are compatible with a multidimensional model of giftedness that includes an underlying general ability *g* common factor (Gottfredson, 1997; Jensen, 2004).

Based on earlier analyses of the standardization data, Pfeiffer et al. (in review) expected that the GRS-S would not be biased by gender or race. The MANOVA main effect for gender was not statistically significant, $p > 0.05$, $\eta^2 = 0.07$. The GRS-S scale scores for girls and boys were generally equivalent. The largest gender difference was on the Motivation scale (girls $M = 58$ versus boys $M = 52$); this 6-point difference in favor of females indicated moderate practical importance ($d = 0.51$). This finding should be interpreted cautiously since the multivariate effect was nonsignificant. Other nonsignificant differences by gender ranged between 1.3 points and 3.8 points, all in favor of females. The MANOVA comparing GRS-S scales based on race also did *not* yield significant results, $p > 0.05$, $\eta^2 = 0.03$. Finally, the MANOVA did *not* reveal a significant interaction effect for gender by race ($p > 0.05$, $\eta^2 = 0.05$) or gender by race by age ($p > 0.05$, $\eta^2 = 0.02$).

GRS-P: What the Research Says

As mentioned earlier, a recent article also examined the GRS-P standardization sample based on gender and race (Pfeiffer et al., 2007). Following a procedure which paralleled the methodology reported in the Pfeiffer and Jarosewich (2007) study, this investigation obtained similar, favorable findings for the GRS-P.

Correlations among the GRS-P scales were moderate to high, ranging from 0.70 between Intellectual Ability and Artistic Ability, to 0.93 between Intellectual Ability and Academic Ability. Among the eight possible subscale intercorrelations, one was above 0.90, three were in the 0.80–0.89 range (Academic Ability–Creativity; Intellectual Ability–Creativity; Academic Ability–Motivation), and four of the intercorrelations were in the 0.70–0.79 range (Artistic Talent–Motivation; Academic Ability–Artistic Talent; Artistic Talent–Creativity; Intellectual Ability–Artistic Talent). These findings provide support for the GRS-P multidimensional model of giftedness.

Separate MANOVA tests were conducted to test for differences on each of the five GRS-P scales by gender and race/ethnicity. A Bonferroni correction was applied to control for the inflation of Type I error. The F scores corresponding to gender and race yielded small but statistically significant results with a small effect size for both gender ($p > 0.01$, $\eta^2 = 0.05$) and race/ethnicity ($p > 0.01$, $\eta^2 = 0.04$). Females obtained a statistically significant higher score on one of the five GRS-P scales, Artistic Talent ($p > 0.01$, $\eta^2 = 0.02$). There were *no* significant differences, however, on the other four scales. Recall that girls obtained statistically significant higher mean scores than boys on three of the six GRS-S scales (Pfeiffer & Jarosewich, 2007). The gender differences for these GRS-S scales were in all instances small (e.g., mean difference of 2.5 points for Leadership Ability and 3.5 points for Motivation). However, they are nonetheless noteworthy since girls' mean scores are higher than boys' mean scores for all scales on both the GRS-P and GRS-S—including those differences not statistically significant. It is unlikely that the standardization sample is unrepresentative or biased in a way that might explain the small but notable gender differences. A more likely explanation is that teachers from preschool through middle school, who serve as raters, perceive girls as somewhat stronger and more precocious in terms of artistic talent, leadership ability, and motivation, when compared to their same-age male counterparts. It is interesting (and important from a policy perspective) to note that girls did *not* obtain higher mean scores than boys on either the GRS-P Intellectual Ability or Academic Ability scales—two scales frequently used for preschool and kindergarten gifted screening (Pfeiffer et al., 2007).

In terms of race/ethnicity, Asian Americans were rated highest among the racial/ethnic groups on the GRS-P. The largest difference between groups was between the Asian-American and African-American and Hispanic children—with mean differences averaging 7 points higher for Asian Americans. Differences between the Asian-American and white and Native American groups were considerably smaller. For example, mean scale scores averaged 1.5 points in favor of Asian Americans over whites. It is noteworthy that the small but statistically significant GRS-P differences by race/ethnicity were not found on any of the GRS-S scales (Pfeiffer & Jarosewich, 2007; Pfeiffer et al., in review). It is unclear and future research will need to unravel why small but significant race/ethnicity differences were found on the preschool/kindergarten scale, but *not* on the school form (first to eighth grades). What is important is that both the GRS-P and GRS-S, although not culture-free, appear to be low on cultural loading and work fairly equitably across different racial/ethnic groups.

Using the GRS to Measure Change in a Student's Profile of Abilities

In addition to screening and identifying multiple manifestations of giftedness, the GRS was designed to measure change over time in a student's profile of abilities. Pfeiffer envisioned two practical purposes for measuring change in a student's profile of abilities. The first purpose relates to program eligibility. The second purpose relates to measuring a student's progress in gifted education; using assessment to evaluate student and program effectiveness.

In terms of program eligibility, psychologists frequently find that one or more seemingly academically precocious students come close but do not quite make the district or state cut score for gifted eligibility. In other instances, a student may be *on the bubble* with a lack of corroborating evidence to support classifying the youngster as gifted. Often, typically underrepresented groups of gifted—those who come from families where English is not the primary language spoken in the home, those from rural and/or low-income families, and those of color —do *not* obtain scores considered high enough to qualify for gifted programs (Ford, 1998; also see Ford & Whiting, this volume). Gifted educators and psychologists often face the dilemma of not knowing exactly what to do when a bright student comes close but does not quite qualify for a gifted classification. In addition, psychologists and educators are uncertain how to measure change as a result of a gifted student receiving special instruction; an adjusted, enriched, or accelerated curriculum; cluster or other form of grouping—in essence, a differentiated curriculum and distinctive instruction (see VanTassel-Baska & Stambaugh, this volume). The GRS was designed with an eye toward impacting curriculum by measuring reliable change. Pfeiffer and his colleagues developed statistically *and* conceptually sound, and easy-to-use, tables to augment clinical decision making in those instances when one is evaluating change using the GRS scales (Pfeiffer et al., 2006).

The procedure is fairly simple and straightforward. The practitioner compares a student's original GRS scale score(s) with a range of scores that take into account the variability expected by both regression to the mean *and* measurement error. Standard error of prediction (SEp) scores provide confidence bands for T scores so that a second and more recent set of T scores can be compared with an original set of T scores. The SEp was used rather than the SEM because it is preferable in providing an unbiased estimate of population measurement error (Atkinson, 1991).

Technically speaking, a student's obtained score on the GRS or any measure, for that matter, is not the best estimate of her/his true score because of the phenomenon of regression toward the mean (Lord, 1956). SEp-based confidence bands are bracketed around a student's *predicted true score* and *not* around her/his obtained score because of the pernicious phenomenon of regression toward the mean. This phenomenon is common in assessing giftedness because highly capable students typically score at or near the ceiling. The SEp was calculated for T scores on both the GRS-P and GRS-S using the formula provided by Atkinson (1991),

$$\text{SE}p = SD \sqrt{1 - r^2}$$

where the *SD* is 10 and r is the internal reliability coefficient (Cronbach & Furby, 1970) for each GRS scale. As mentioned earlier, the GRS reports high levels of internal consistencies across both forms, with r's ranging from 0.97 to 0.99 for *all* GRS scales

across the entire age range (Pfeiffer & Jarosewich, 2003). The SE*p* is then multiplied by 1.64 (90% level of significance) and 1.96 (95% level of significance) to obtain a range of *T* scores that bracket the estimated true score at the 0.10 and 0.05 levels of significance. Posttest confidence ranges were calculated for scores ranging from a *T* score at the mean (50) to a *T* score three *SD* above the mean (80). The GRS-P values appear in Table 10.2.

Data used to generate Table 10.2 were obtained from the GRS-P standardization sample. The sample consisted of 975 children selected from across the country to match the U.S. census by ethnicity and by parent education level (U.S. Bureau of the Census, 2000). The table provides posttest confidence ranges for GRS-P pretest–posttest *T* score comparisons.[2] The table provides initial or pretest *T* scores ranging from the mean to 3 *SD* above the mean. As mentioned above, the GRS reports *very* high levels of internal consistencies across both forms (SEMs ranged from 1.0 to 1.73), which allows the GRS to precisely measure reliable change. In creating the posttest confidence ranges, Pfeiffer and his colleagues used the most conservative decision rule (i.e., always applied the lowest reported internal reliability coefficient for a given scale when the reliability coefficient varied by age).

To use the table, first determine which scale or scales you want to examine. For example, assume that you are working with a kindergarten student. In early fall, his teacher completes a GRS-P record form, and he obtains a *T* score of 65 on the Academic Ability scale. Assume further that the school district has agreed that a GRS cut score of *T* ≥ 70 on the Academic Ability, Intellectual Ability, or Creativity scale is the minimal criterion to "trigger" a comprehensive gifted evaluation. The teacher completes a second GRS-P in the spring and the student now obtains a *T* score of 70 on Academic Ability. Table 10.2 allows you to determine whether this student's second score demonstrates reliable change. The table brackets posttest score confidence ranges at two levels of confidence (0.95 and 0.90). The far left and right columns provide initial *T* scores. Recall that the student originally obtained a *T* score of 65 on Academic Ability. First find the *T* score of 65, and then locate the column with the confidence range you want to use. Assume that you have decided *a priori* to use a 0.95 confidence level for gifted screenings. For an initial *T* score of 65, the posttest confidence interval for Academic Ability is 60–69. In this instance, the student's most recent *T* score of 70 on Academic Ability falls *outside* the SE*p* range. You can conclude, with 95% confidence, that the student's second score is different from his original score. In addition, the student's new score meets the criterion to trigger a more comprehensive gifted evaluation.

One unresolved issue in the measurement literature is just how much change is needed to be considered meaningful. The question addresses the practical importance of statistical effects. The child therapy literature has grappled with this conceptual issue: even large effect sizes can be clinically insignificant (Jacobson, Roberts, Berns, & McGlinchey, 1999). Gifted classification systems are not nearly as refined or researched as the multiaxial DSM classification system. It remains difficult demarcating exactly where normal ends and abnormal begins (one reason for the category *subclinical*). The distinction between gifted and not-gifted is even more blurred and indistinct. This makes setting thresholds for significant or meaningful change on any gifted instrument a challenge.

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[2] A table providing posttest confidence ranges for the GRS-S is available from Pfeiffer.

Table 10.2. GRS–P posttest confidence ranges for pretest–posttest *T*-score comparisons

Pretest score	Intellectual 2nd score range		Academic 2nd score range		Creativity 2nd score range		Artistic 2nd score range		Motivation 2nd score range		Pretest score
	90% CI	95% CI	90% CI	95% CI	90% CI	95% CI	90% CI	95% CI	90% CI	95% CI	
80	76 – 83	75 – 83	75 – 83	74 – 84	75 – 83	74 – 84	76 – 83	75 – 83	76 – 83	75 – 83	80
79	75 – 82	75 – 82	74 – 82	73 – 83	74 – 82	73 – 83	75 – 82	75 – 82	75 – 82	75 – 82	79
78	74 – 81	74 – 81	73 – 81	72 – 82	73 – 81	72 – 82	74 – 81	74 – 81	74 – 81	74 – 81	78
77	73 – 80	73 – 80	72 – 80	71 – 81	72 – 80	71 – 81	73 – 80	73 – 80	73 – 80	73 – 80	77
76	72 – 79	72 – 79	71 – 79	70 – 80	71 – 79	70 – 80	72 – 79	72 – 79	72 – 79	72 – 79	76
75	71 – 78	71 – 78	70 – 78	69 – 79	70 – 78	69 – 79	71 – 78	71 – 78	71 – 78	71 – 78	75
74	70 – 77	70 – 77	69 – 77	69 – 78	69 – 77	69 – 78	70 – 77	70 – 77	70 – 77	70 – 77	74
73	69 – 76	69 – 76	68 – 76	68 – 77	68 – 76	68 – 77	69 – 76	69 – 76	69 – 76	69 – 76	73
72	68 – 75	68 – 75	67 – 75	67 – 76	67 – 75	67 – 76	68 – 75	68 – 75	68 – 75	68 – 75	72
71	67 – 74	67 – 74	66 – 74	66 – 75	66 – 74	66 – 75	67 – 74	67 – 74	67 – 74	67 – 74	71
70	66 – 73	66 – 74	65 – 73	65 – 74	65 – 73	65 – 74	66 – 73	66 – 74	66 – 73	66 – 74	70
69	65 – 72	65 – 73	64 – 72	64 – 73	64 – 72	64 – 73	65 – 72	65 – 73	65 – 72	65 – 73	69
68	64 – 71	64 – 72	63 – 71	63 – 72	63 – 71	63 – 72	64 – 71	64 – 72	64 – 71	64 – 72	68
67	63 – 70	63 – 71	63 – 70	62 – 71	63 – 70	62 – 71	63 – 70	63 – 71	63 – 70	63 – 71	67
66	62 – 69	62 – 70	62 – 70	61 – 70	62 – 70	61 – 70	62 – 69	62 – 70	62 – 69	62 – 70	66
65	61 – 68	61 – 69	61 – 69	60 – 69	61 – 69	60 – 69	61 – 68	61 – 69	61 – 68	61 – 69	65
64	60 – 67	60 – 68	60 – 68	59 – 68	60 – 68	59 – 68	60 – 67	60 – 68	60 – 67	60 – 68	64
63	59 – 66	59 – 67	59 – 67	58 – 67	59 – 67	58 – 67	59 – 66	59 – 67	59 – 66	59 – 67	63
62	58 – 65	58 – 66	58 – 66	57 – 66	58 – 66	57 – 66	58 – 65	58 – 66	58 – 65	58 – 66	62
61	58 – 64	57 – 65	57 – 65	56 – 65	57 – 65	56 – 65	58 – 64	57 – 65	58 – 64	57 – 65	61
60	57 – 63	56 – 64	56 – 64	55 – 64	56 – 64	55 – 64	57 – 63	56 – 64	57 – 63	56 – 64	60
59	56 – 62	55 – 63	55 – 63	54 – 63	55 – 63	54 – 63	56 – 62	55 – 63	56 – 62	55 – 63	59
58	55 – 61	54 – 62	54 – 62	53 – 63	54 – 62	53 – 63	55 – 61	54 – 62	55 – 61	54 – 62	58
57	54 – 60	53 – 61	53 – 61	52 – 62	53 – 61	52 – 62	54 – 60	53 – 61	54 – 60	53 – 61	57
56	53 – 59	52 – 60	52 – 60	51 – 61	52 – 60	51 – 61	53 – 59	52 – 60	53 – 59	52 – 60	56
55	52 – 58	51 – 59	51 – 59	50 – 60	51 – 59	50 – 60	52 – 58	51 – 59	52 – 58	51 – 59	55
54	51 – 57	50 – 58	50 – 58	49 – 59	50 – 58	49 – 59	51 – 57	50 – 58	51 – 57	50 – 58	54
53	50 – 56	49 – 57	49 – 57	48 – 58	49 – 57	48 – 58	50 – 56	49 – 57	50 – 56	49 – 57	53
52	49 – 55	48 – 56	48 – 56	47 – 57	48 – 56	47 – 57	49 – 55	48 – 56	49 – 55	48 – 56	52
51	48 – 54	47 – 55	47 – 55	46 – 56	47 – 55	46 – 56	48 – 54	47 – 55	48 – 54	47 – 55	51
50	47 – 53	46 – 54	46 – 54	45 – 55	46 – 54	45 – 55	47 – 53	46 – 54	47 – 53	46 – 54	50

Note: 90% CI = 90% confidence interval; 95% CI = 95% confidence interval.

The GRS classification system indicates the *likelihood* that a student might be gifted. The higher the student's *T* score on one or more of the scales, the higher is the *probability* that they are gifted in that domain. The classification system proposes that a *T* score below 55 (below 69%) is unlikely to reflect giftedness; a score of 55–59 (69–83%) suggests moderate probability; a score of 60–69 (84–97%) high probability; and a score above 70 (98%) very high probability. To be considered *diagnostically meaningful*, the second *T* score should exceed the posttest confidence range *and* be ≥ 60 (high probability) or ≥ 70 (very high probability of gifted). Recent validity studies provide preliminary validity for this approach (Pfeiffer & Jarosewich, 2007; Pfeiffer et al., in review; Ward, 2005).

A second use of GRS change scores is to impact curriculum by providing the teacher and student with feedback on whether the student (and class) is making significant improvement in one or more areas measured by the GRS. Because each of the GRS scales is highly reliable, and because SE*p* tables are available, you can measure reliable change as a result of a student's participation in a special program. For example, the first author co-taught a leadership institute for gifted middle and high school students in a summer program. Students selected from the GRS-S leadership scale up to five items that they wanted to further develop as a result of the summer leadership program. For example, one student identified the following four items as personal goals for himself: "recognizes the feelings of others"; "projects a positive image to peers"; "motivates others"; "takes charge in group situations." It was stipulated that each selected item had to be rated no higher than 5 at the beginning of the summer institute so that the student could reasonably improve in each area. The student and instructors completed a second set of GRS-S ratings at the conclusion of the summer institute. The simple and straightforward GRS change methodology permitted the summer leadership institute to determine whether this student, and the other students as well, demonstrated reliable change in specific areas linked to the leadership curriculum.

Concluding Comments

The purpose of this chapter has been to introduce alternative approaches beyond the use of the IQ test in identifying gifted students. We intentionally allotted disproportionate weight to rating scales, since we see great promise in their use and personally have been involved in their application in gifted education nationwide. We hope that we have not upset readers of this chapter when emphasizing a view that giftedness is *multifaceted*. We hope that we have not disappointed readers by advocating that gifted identification should include *multiple measures* and *multiple sources of evidence*. This position is supported by classroom teachers, teachers of the gifted, administrators (Brown et al., 2005), and authorities in the gifted field (Pfeiffer, 2003).

We conclude by highlighting five points that we consider important in ensuring best practices in gifted identification. First, a practitioner's view of giftedness guides, explicitly or implicitly, how she or he approaches identifying students who might be gifted. Some gifted authorities equate the construct giftedness with high intelligence or *g*. This position has implications for the specific tests that one would use to identify students demonstrating high cognitive ability. Others view giftedness as multifaceted. As the reader by now knows, our own position is that giftedness is no more than a useful social construct best conceptualized as exceptional ability in one or

more culturally valued domains or fields (Pfeiffer, 2003). Although most people think only of intellectual giftedness, children display artistic, musical, athletic, dramatic, interpersonal, aesthetic, leadership, creative, and other gifts. The view that there are *multiple manifestations of giftedness* has implications for gifted identification that are different from a traditional view which equates giftedness with high intelligence.

Second, irrespective of how one conceptualizes giftedness, the practitioner still faces the thorny question of exactly how many students should be included in this special group. Some gifted authorities appeal to the philosophy of casting a wide diagnostic net and adopting liberal inclusion criteria. This viewpoint has great appeal because it ensures not excluding any highly capable students, increases typically underrepresented gifted minority group students, and exposes large numbers of students to enriched and challenging learning environments. Others disagree with this philosophy and argue that an overly inclusive position dilutes the meaning of giftedness and draws attention away from the truly gifted student, whose extraordinary abilities and unique needs require a special curriculum.

The decision by a school district regarding how inclusive or exclusive their gifted program is (i.e., essentially how many students a district can serve given limited and competing resources) has important implications for where exactly to set the *cut score* for any test—even when using multiple measures. Deciding on the cut score that you use should take into account the purpose of the test (e.g., screening, classification, diagnosis) and the relative risk that you are willing to accept in making Type I versus Type II errors. For example, when the GRS-S is used as a screening instrument to assist in the identification of gifted students, a *T* score ≥ 60 will miss correctly identifying very few truly intellectually gifted students. At the same time, the same *T* score may overidentify as *high probability gifted* a substantial number of students who, on more comprehensive assessment, are found not to be intellectually gifted—at least based on a high IQ score.

This leads to our third point. We agree with Callahan (2005) that it makes sense to identify early and often. The younger we begin identifying students for gifted programs, the more weight our assessments must give to signs and indicators of high promise and exceptional potential. The notion of identifying gifted students often translates into a philosophy of a systematic, ongoing *talent search*. The New York City Department of Education recently adopted this talent search model citywide for their gifted education program. They launched a bold initiative and have screened tens of thousands of preschool, kindergarten, first and second grade students using a brief and accurate protocol, the GRS and Otis Lennon School Ability Test (OLSAT).

Fourth, decisions about gifted placement should never be based on the results of a single test score. The stakes are simply too great. A single test score should *never* be used alone in making any diagnostic or classificatory decision (Pfeiffer, 2002). Irrespective of how you view giftedness, overall predictive accuracy is increased with the use of technically sound, multiple measures (Pfeiffer, 2002). Interestingly enough, only four states, Hawaii, Pennsylvania, Virginia, and Washington, refer to the use of *multiple criteria* for gifted identification (Stephens & Karnes, 2000). We believe that there is *no* one best test or test battery for screening or classifying gifted students. We also believe that the use of rating scales, authentic assessment, systematic review of portfolio material, auditions, tryouts and interviews, and dynamic assessment provides important data to help decide if a student is gifted.

Fifth, in addition to identifying early and often, practitioners should frequently reevaluate. In our opinion, no student should be guaranteed unfettered access to a

school district's gifted program and resources without demonstrating, periodically, that she or he is benefiting from, and appropriately taking advantage of, the gifted program and its resources. This "no free lunch" view may seem unduly harsh and even callous to some parents and gifted educators who believe that once identified, a gifted student is gifted for life. And has the right to gifted programs throughout his or her educational career. We disagree. We believe that gifted programs, like other special programs for exceptional students in our schools, such as band, orchestra, debate team, competitive athletics, student newspaper, and theater, are essential for promoting excellence in our schools and in America's future leaders. Each of these special programs in the schools has highly competitive admissions criteria, and each sets high performance expectations for continued membership. Each program, that is, except the gifted program. We believe that an early and frequent gifted talent search model should be linked with ongoing monitoring of each student's academic performance. This would ensure that each student identified as gifted is benefiting from, and taking appropriate advantage of, the special gifted program. We expect the same of our student athletes, band and orchestra members, theater actors, debate team members, and writers on the school newspaper. We suggest that gifted reevaluation should be an annual or biannual process. This would provide the psychologist with a new and critically important assessment/evaluation role in gifted education.

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Clinical Practice with Gifted Families

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We have gained profound respect for the 5000 families served by the Gifted Development Center over the last 28 years. These unsung heroes have an uphill battle convincing educators that their children have legitimate needs. They often face a wall of resistance, if not outright hostility. Would those who claim, "All our children are gifted" be as likely to say, "All our children are retarded"? While gifted children have parents and some teachers who advocate for them, their parents may have no advocates at all. Parents of the gifted need as much support as their children. As the primary influence in their children's lives, they should be perceived as partners in the emotional and academic development of their children. Parents have fought for provisions for the gifted and are invaluable allies in keeping special programs alive. They need practitioners who care not only about their offspring, but also about them. Everyone who serves gifted children needs to become an advocate for the parents of these children.

Although empirical research on the issues of gifted families is sparse (Moon, 2003), there is ample clinical research on the types of support needed by families of the gifted. Parents often seek psychological services to (a) confirm their child's giftedness, (b) guide them in parenting, (c) determine an educational path, (d) help them advocate more effectively, (e) locate available resources, (f) deal with family dynamics, (g) provide home stimulation, and (h) obtain guidance with specific issues, such as underachievement (see Chapter 8), finding friends (see Chapter 3), twice exceptionality (see Chapter 7), and, occasionally, undeveloped potential in the parents.

"Is My Child Gifted?"

This is the first question parents ask—the initiation of the journey. It is important for professionals to know how early giftedness can be recognized, the accuracy of parental observations, the characteristics that signify advanced development, the stability of these developmental differences over time, the optimal time frame for assessment, and the intricacies of interpreting test results for the gifted. Misinformation and myths about gifted development abound, influencing clinical practice. Too often, parents' perceptions of their children are devalued. To work effectively with gifted families requires mental health workers to be well informed and to take parents seriously.

For as many as 87%, the journey begins well before school age (Gogel, McCumsey, & Hewett, 1985; Kaufmann & Sexton, 1983). Some observe developmental differences in infants 6 months old or even younger. Louis and Lewis (1992) discovered that some parents make judgments about their children's abilities in the first 48 hours of life. Of the 1039 U.S. parents in the Gogel, McCumsy, and Hewett (1985) study, 7% responded that their children's alertness and responsiveness in the first 6 months of life led them to suspect that their children were gifted. Another 15% saw signs of giftedness in their children between 6 and 12 months of age. Forty-five percent recognized their child's gifts before the age of 2. Nearly two decades later, in Kuwait, Alomar (2003) reported similar observations. Some parents became aware that their infants—between 3 and 12 months of age—were developing at a greater than average rate.

The pervasive myth, "All parents think their child is gifted," may lead one to be skeptical of these parental observations. However, there is substantial evidence that parents are proficient at recognizing early signs of giftedness (see Robinson, 1993). One example is the Fullerton Longitudinal Study of the development of gifted and nongifted children from infancy to age 8 (Gottfried, Gottfried, Bathurst, & Guerin, 1994):

> These findings support the notion that parents recognize their child's potential prior to the time that educators test for giftedness… (p. 29)

> Parents…are accurate in their ratings of their children's functioning and…perceptive of their children's developmental position as early as infancy. This is supported by…the correspondence of their ratings with the objective developmental test data… (p. 83)

> Differences in level of intellectual performance between the gifted and nongifted children emerged on the psychometric testing at 1.5 years and maintained continuity thereafter. However, the earliest difference was found on receptive language skills at age 1 year. (pp. 84–85)

What are the Signs of Giftedness?

Among the earliest signs of giftedness are a preference for novelty (Fisher, 1990), high newborn cry count (Robinson, 1993), alertness (M. Rogers, 1986), awareness and intensity (Maxwell, 1985), and faster progression from reflexive to intentional behavior (Berche Cruz, 1987). Parents notice that their child is talking earlier than other children of the same age and making connections that seem very advanced. A child's remarkable memory and rapid learning rate are also observable in early

childhood (Louis & Lewis, 1992; Parkinson, 1990; Tannenbaum, 1992). Other indicators include less need for sleep in infancy (Gaunt, 1989); high activity level; smiling or recognizing caretakers early; marked need for attention and stimulation; intense reactions to noise, pain, or frustration; fascination with books, and asking many questions (Silverman, 1997).

When parents have access to developmental norms for average children, they quickly become aware that their child is progressing through the developmental milestones at a much swifter rate. These guidelines tend to focus on verbal abilities, so that an early talker is much more likely to be recognized as gifted than an early builder.

> During the early years (perhaps throughout childhood), parents tend to do best at identifying precocious children in domains in which there are distinctive milestones and normative expectations, as there are for the emergence of language and reading. Parents are, for example, quite good at identifying toddlers with broad vocabularies and complex sentence structure and better at identifying preschoolers who reason well mathematically and read early than those who exhibit precocious spatial reasoning and memory, areas in which adults typically do not possess such informal timetables. (Robinson, 1993, p. 510)

Children with advanced visual-spatial abilities may not be perceived as gifted by their parents or teachers unless they also demonstrate verbal precocity. When children develop speech later than their siblings, parents often worry that the children are developmentally delayed, even if they display extraordinary facility with puzzles, construction toys, creating things from odds and ends, disassembling items, and spatial memory. Some of these children have auditory issues (Silverman, 1989), and those who are also asocial may have Asperger's syndrome (Lovecky, 2004), but many are simply developing their right hemisphere before their left hemisphere (Silverman, 2002).

Parental recognition has been found to be a key ingredient in identification of, and differentiation for, gifted children in school settings (Dickinson, 1970). Recognition is enhanced when parents are exposed to a list of the typical traits of giftedness (Munger, 1990; Silverman, Chitwood, & Waters, 1986), such as the following:

Characteristics of Giftedness

Compared to other children your child's age, how many of these descriptors fit your child?

- Reasons well (good thinker)
- Learns rapidly
- Has extensive vocabulary
- Has an excellent memory
- Has a long attention span (if interested)
- Sensitive (feelings hurt easily)
- Shows compassion
- Perfectionistic
- Intense
- Morally sensitive
- Has strong curiosity
- Perseverant in areas of interest
- Has high degree of energy
- Prefers older companions or adults

- Has a wide range of interests
- Has a great sense of humor
- Early or avid reader (if too young to read, loves being read to)
- Concerned with justice, fairness
- Judgment mature for age at times
- Is a keen observer
- Has a vivid imagination
- Is highly creative
- Tends to question authority
- Has facility with numbers
- Good at jigsaw puzzles

The 25 traits above are from the *Characteristics of Giftedness Scale* (Silverman, 1993b), developed and studied over a period of 34 years (K. Rogers & Silverman, 1998; Silverman, 2003a). The descriptors were selected to meet the following criteria: (a) applicable to a wide age range, (b) generalizable to children of varied socio-economic and ethnic backgrounds, (c) gender fair, (d) easily observed in the home environment, (e) brief and clearly worded for ease of interpretation by parents, and (f) supported by research. The Characteristics of Giftedness Scale is a 4-point Likert scale, with room for anecdotal descriptions of each characteristic. Delisle (1992) has found that accuracy of parent checklists improves dramatically when parents are asked to provide anecdotal data about each characteristic endorsed. For many years, the scale was administered in a phone interview, and now it is sent to parents electronically. There is also a teacher version. In a study of 1000 children whose parents indicated that their children exhibited three-fourths of the characteristics, 84% of the children tested above 120 IQ (Silverman, 1998). Another 11% demonstrated superior abilities in some areas, but had weaknesses that depressed their IQ scores below 120. Exceptionally gifted children (above 160 IQ) demonstrated 80 to 90% of the characteristics (K. Rogers & Silverman, 1998).

When Should a Child Be Formally Identified as Gifted?

School wisdom and psychometric research differ on the answer to this question. In a study in Canada, only 50% of the preschool and kindergarten teachers surveyed believed that gifted children should be identified between the ages of 3 and 6 (Sankar-DeLeeuw, 2002). The purpose of testing advanced students in schools is for selection to programs. Where gifted programs exist, they may start at fourth grade and stop after sixth grade. It is common for school districts to test children on group IQ tests at the end of third or the beginning of fourth grade. Some school districts extend gifted programs to the primary grades or up through middle school. Coordinated kindergarten through 12th grade programs for advanced students are rare.

There are three major problems in waiting until around age 9 to test a gifted child. First, this is the age when girls go underground and are likely to hide what they know in order to fit in. Many girls say, "I don't know" to test questions they can readily answer because they do not want to be separated from their friends. They also become perfectionistic at this age and are unwilling to guess unless they are absolutely certain of the answer, which depresses IQ scores (Silverman, 1995). Second, at this age, exceptionally gifted children easily hit the ceiling on the IQ tests. Since

the content is of insufficient difficulty, the children may be considerably brighter than their test scores. Third, a critical period for the development of talent is lost. Giftedness is exceptionality; therefore, as with all forms of exceptionality, early intervention promotes optimal development (Bloom, 1985; Guralnick & Bennett, 1987). Because of the importance of early intervention, it would not be appropriate to wait until age 9 to identify a child with developmental delays. For the same reason, it is best to identify gifted children as early as possible.

Since parents are able to recognize their child's giftedness in early childhood, it is wise for them to obtain formal identification before the child enters school. This may sound bizarre to those who have bought the myths that early IQ scores are just the result of a stimulating home environment and that "by third grade, all kids catch up." It is true that intelligence tests measure a mixture of environmental exposure and innate intelligence. But which child has had the most environmental exposure: the 4-year-old or the 9-year-old? The effects of environment increase with age, not decrease. As for "catching up," the gifted mind has access to higher levels of abstraction, learns more information, retains it better, accesses it more efficiently, organizes it, and associates it with previous information more effectively. How, then, would it be possible for a child of average intelligence to "catch up" to a child of extremely high intelligence? It can only appear that way if the information being taught is at such a low level that children of vastly different abilities can perform at the same level.

A fundamental principle in developmental psychology is that "Development usually proceeds at the rate at which it started" (LeFrancois, 1981, p. 89). This principle has been found repeatedly to apply to the gifted: "The differences between gifted and nongifted children were significant at 1.5 years and every age thereafter" (Gottfried et al., 1994, p. 56). From her review of the research, Robinson (1993) wrote: "Advanced ability tends to maintain its rapid pace of development. This evidence substantiates the notion that early giftedness, or rapid development, also *predicts* the subsequent rate of development" (p. 511).

The optimal time to identify a gifted child is between the ages of 4 and 9. Children younger than 4 may lack the ability to attend and respond to the examiner. Four-year-old gifted children are intellectually more like 6-year-olds, and they usually respond to assessment like school-age children. Based on a half-century of research in testing, Elizabeth Hagen, coauthor of the *Cognitive Abilities Test* and the *Stanford-Binet Intelligence Scale, Revision IV*, confirmed that accurate information can be obtained with 4-year-olds.

> I don't think four to six is too early to obtain a valid assessment. The correlations between scores obtained at ages four or five and later IQ scores are slightly lower than those obtained at age nine, but not that much lower. The only reservation I would have about testing at that age is being able to locate children who come from somewhat limited backgrounds. (quoted in Silverman, 1986, p. 170)

The Knowledgeable Examiner

It takes more courage than most people realize for a parent to initiate testing of a highly able child. "In truth, few parents think their children are gifted and want to label their children as gifted" (Feldhusen, 1998, p. 194). Afraid that they are overestimating their children's abilities and will be proven foolish, parents feel compelled to amass large amounts of evidence of precocity before they are willing to even begin

exploring the possibility of giftedness (Seeley, 1998). Once they decide to assess the child, locating an examiner with knowledge and experience in testing the gifted is not simple, but it is easier today with the advent of the Internet. Some websites offer lists of testers who have been recommended by parents and professionals:

- Hoagies Gifted Education Page www.hoagiesgifted.org
- Institute for Educational Advancement www.educationaladvancement.org

Another excellent resource is TAGFAM, Families of the Gifted and Talented [www.tagfam.org]. On TAGFAM, parents can ask other parents where they had their children tested and how satisfied they were. Local advocacy groups and state conferences for the gifted are also good places to get recommendations of experienced examiners (Gilman, 2003).

There is always a need for knowledgeable testers of the gifted. Within the school setting, assessment of advanced students is limited. Many school districts use teacher-administered group IQ tests for program selection. There is a shortage of school psychologists, and most of them work with learning-disabled students; they receive little or no training on testing gifted students. In those school districts that employ specialists to test advanced students, budgetary constraints limit the assessment to specific instruments. Determining if a child qualifies for gifted services is only a first step. School districts should welcome more in-depth evaluations by psychologists to assist parents and teachers in planning effectively for the child's affective and academic needs.

Ideally, a comprehensive evaluation provides an in-depth understanding of the child, including level of ability, cognitive and modality strengths and weaknesses, achievement as compared with ability, self-concept, preferred learning style and personality type, social and emotional development, and detection of possible learning disabilities. The examiner offers recommendations, resources, a plan for accommodating the child's needs at home and at school, and referrals to other diagnosticians, as needed. Regardless of the range in which the child scores, extensive assessment is invaluable for understanding how the child learns best and what modifications of the school and home environment will assist in optimal development. (See Chapter 9 for more on this topic.)

Preferably, the psychological examiner of the gifted should have (a) considerable experience in testing gifted children, (b) ability to gain rapport easily with gifted children of all ages, (c) skill in working with the typical personality traits of the gifted (e.g., introverted, perfectionistic, sensitive, highly active, etc.), (d) knowledge of extreme levels of giftedness, (e) understanding of how giftedness interacts with various exceptionalities, (f) knowledge of resources for gifted children and, in the case of twice exceptional clients, referrals for further diagnoses, and (g) willingness to test the full strength of the child's abilities.

The examiner also needs to be skillful in interpreting test results for the gifted. A boilerplate description of relative strengths and relative weaknesses in relation to the norms for average students is insufficient. Are there major discrepancies between the child's strengths and weaknesses? If so, would the derivation of a General Ability Index (GAI) on the Wechsler Intelligence Scale for Children (WISC) provide a better estimate of the child's abilities (Flanagan & Kaufman, 2004)? Are there patterns of strengths in the test results (e.g., high visual-spatial perception combined with advanced math comprehension indicates talent in mathematics)? Are there patterns

of weaknesses (e.g., low scores in Comprehension, Digit Span, and Spelling may signify a Central Auditory Processing Disorder)? Did the child answer more items than the minimum necessary to obtain the highest subtest score (i.e., 19 on Wechsler scales)? If so, how many additional raw points did the child earn (e.g., 19 + 4)? Is a second test with a higher ceiling needed? If siblings attained much higher scores, is the current assessment an underestimate? Was the child comfortable with the examiner? If not, perhaps the child should be tested again in a year with another tester who might be able to establish better rapport.

Practitioners who wish to develop expertise in assessing the gifted may consider doing internships with seasoned examiners. The gifted have complex profiles and deserve intensive study to develop proficiency in interpreting their scores.

"Now What Do I Do?"

When parents discover that their children are gifted, they may be delighted with the news—at first. Then they become anxious about how to meet the special needs of the child, both at home and at school. Some parents feel inadequate and overwhelmed by the information. Typical reactions include, "Am I smart enough to guide my child?" "How will my family and friends react to this?" "Will I be able to find the right educational program?" and, "Do I have enough time and money to properly stimulate my child?" The varied and changing needs of a gifted child can push a family's financial resources to the limits (Alomar, 2003).

It is important to assure parents that their children were not randomly distributed. There is "evidence for a very strong genetic influence on intelligence" (Bouchard & Lykken, 1999, p. 92). Thus, parents and children are usually close in ability, and, despite their fears, parents do have the inner resources to raise their gifted child. Relatives generally have high abilities as well, which may make the child's abilities more difficult to recognize (Munger, 1990). And relatives and friends all have their own opinions on how to raise a gifted child. Parents may be bombarded with well-meaning but misguided advice. "Skipping grades will make him a social outcast." "If you put her in a school for the gifted, she will not be able to relate to people in the *real* world." "I was in regular classes in the public school, and I turned out just fine." All of these messages can create anxiety in the parents. They need to be able to rely on an informed health care professional, who is knowledgeable about research and resources, and has had experience with gifted children and their families.

Raising a gifted child can be a roller coaster ride of extreme highs and distressing lows. The child's high levels of energy, inquisitiveness, less need for sleep, and tremendous need for stimulation can easily exhaust the energy of even the best of parents. One parent commented, "When other babies were getting 12 hours of sleep, I was lucky if he slept 6 hours. I figured he was smarter than other children his age because he had been awake twice as long" (Silverman & Kearney, 1989, p. 52).

The emotional intensity that often accompanies giftedness can make the child difficult to manage. Gifted children are asynchronous (Morelock, 1992; Silverman, 1993c); they can be both adultlike and childlike, almost simultaneously. The same child who can communicate his love of dolphins by reciting the Latin names of virtually every species can be found moments later arguing over toys. Adolescent-type conflicts often appear on the scene during the elementary school years. This can lead

to a great deal of parental insecurity. It is useful to create forums where parents of the gifted can come together to share common issues, under the guidance of a skilled facilitator. Betty Meckstroth (1991) created the prototype of the parent forum models currently available.

For most American families, there is no village available in which to cooperatively raise a gifted youngster. But parents are forming their own "villages" on the Internet—listserves where they can connect with other parents facing similar dilemmas. In this context, parents often become coaches for each other. However, in the end, parents must learn to trust their own judgment about their child's needs. They have spent 24 hours a day with this young person since birth and they have more information about their child than any neighbor, relative, Internet parent, educator, or expert. All advice needs to be filtered through their knowledge and experience with their child.

It is ironic that parents of the gifted are often accused of "pushing" their children when most are hanging on for dear life (Golon, 2006)! Parent advocacy is actually essential for the emotional and academic development of highly able children. One of the services a mental health provider can offer to parents is advice on how to advocate effectively. Parents may need guidance in establishing a collaborative relationship with the child's teacher. The mother who is concerned with creating opportunities for all gifted children will be more successful than one who is concerned only with her own child. Volunteering in the classroom gains the trust of the teacher. Parents can offer to be resources on student projects, supervise students on the computer, share special areas of interest, or mentor other gifted children (Lucas, 1995). Teachers appreciate a parent asking, "How can I help?" Parents show respect for a teacher's time when they set up appointments. Providing two highlighted sheets of recommendations is also more respectful than expecting a teacher to read a wheelbarrow full of documentation. Most important of all, parents need to remember to express appreciation for a teacher's efforts.

Sometimes parent–teacher collaborations fail. In the event of clashes between the perceptions of teachers and parents, the practitioner can act as a mediator. A classroom observation or participation in a staffing can make a world of difference. Parent education is still another needed service. Parents want help in understanding what is normal for this population, what the research says, as well as various strategies and resources.

Educational Alternatives

Selecting a School

Finding the right school for a gifted child can be an overwhelming task. The simplest solution is the neighborhood school with its advantages of geography, neighborhood friends, and the fact that it is *free*. There are many excellent public schools throughout the country with innovative programs, individualized curricula, exciting teachers who understand the needs of gifted children, and supportive principals who are willing to consider "out-of-the-box" alternatives. Therefore, the neighborhood school should be the first place parents consider in their search. Unfortunately, some schools are not responsive to the needs of gifted children, particularly highly, exceptionally, and profoundly gifted children (Kearney, 1993).

In guiding parents through the slippery waters of the school selection process, it helps to investigate with them all the local options available. Does the district have open enrollment? Are certain public schools more welcoming and accommodating to the gifted than others? (As the principal sets the tone of the school, this situation is likely to change whenever there is a new administrator.) Are there self-contained classes for the gifted or pull-out programs available within the district? Are there magnet, charter, or independent schools in the area that specialize in serving gifted students? How amenable is the child's school to substituting faster-paced distance learning courses, such as the Education Program for Gifted Youth (EPGY), for the regular coursework? Can a child be partially homeschooled? How early can a student enroll in an Advanced Placement class? Is there an International Baccalaureate program?

Many parents are fiercely committed to the egalitarian values of a public education. Too often, though, their local school focuses exclusively on minimal standards, increasing test scores, and bringing up the bottom, to the detriment of gifted children's development. An alternative is to enroll the child in a special school designed for the gifted. There is now a National Consortium of Schools for the Gifted, which includes 86 private, charter, magnet (K-8), and public schools in the United States specifically for gifted students (www.gifteddevelopment.com/PDF_files/natlconsrt. pdf). In contemplating a special school, parents are often concerned that removing children from the neighborhood school will result in elitism, isolation, inability to get along with the mainstream, or rejection of democratic values. Some parents fear that placement in a selective school will develop only their children's intellectual abilities, at the expense of their social, emotional, artistic, or athletic lives. "Clearly, the social concerns have come from adults unfamiliar with gifted schools" (Gilman, 2006, p. 1). We have found that these apprehensions are usually unwarranted and disappear once families visit a school, witness the daily happenings, and consult with other parents who have chosen this path. The advantages of a special school are (a) development of friendships with true peers, (b) teachers who are specially trained and experienced in working with the gifted, (c) faster paced instruction, and (d) opportunities to develop specific interests. Some practitioners accompany parents to different schools and assist them in evaluating the school. Guidelines for selecting a school for the gifted are also available (Gilman, 2006; Silverman & Leviton, 1991).

A comprehensive evaluation provides a basis for matching an individual student to the school environment. Each school is different, as is each student, and the strengths of the student should be matched with the strengths of the school. Just as a continuum of services exists of increasing amounts of support for the developmentally delayed, depending on the degree of severity, the higher the child's IQ is, the greater the need for special provisions (Silverman, 1993c). Children who score in the high average range on individual tests of intelligence (115–119 IQ) will probably be successful in the neighborhood school. Children who score in the superior range (120–129 IQ) are good candidates for differentiation, enrichment, some gifted programs, and college preparatory schools. Many who score in this range on a group test, or on the Stanford-Binet Intelligence Scale, Revision 5, actually would test in the gifted range on other instruments. Thus, retesting or other evidence of high ability should be considered. Moderately gifted children, those who score two standard deviations above the mean (130–144 IQ), usually need programs or schools designed specifically for the gifted in order to progress at their own rate and achieve

optimal social relations with true peers. Highly gifted children, those who score three standard deviations above the mean (145–159 IQ), are usually best served in full-day congregated programs, special schools for the gifted, or at least partial homeschooling. Children in the exceptionally (160—174 IQ) or profoundly gifted range (175+) require such provisions to an even greater degree.

Additional considerations in selecting a school include the preferred learning style and unique profile of the student, as well as the needs of the family, including the financial limitations, distance to the school under consideration, ease of transportation, and so on (Silverman & Leviton, 1991). Families should visit as many potential programs and schools as possible before making a decision. Parents should inquire about acceleration options, special training of the staff in gifted education, the staff's and administration's experience with gifted students, and observe the atmosphere of the school as well as the attitude of attending students. When the parents have narrowed the choice to two or three schools, the child should visit these schools for a day or so and parents should be afforded an opportunity to talk with other parents whose children are enrolled. A skilled practitioner can help the family weigh the positives and negatives of each school, giving primary weight to the overall impression of the child following a full-day visit. When care is taken in the selection process, and everyone—including the child—has the opportunity to be heard, a good choice is usually the outcome.

To Accelerate or Not to Accelerate …

No educational strategy for highly able students has been as closely scrutinized as the acceleration of students and none has as large a body of empirical evidence to support its success (Gross & van Vliet, 2005). Yet, there are many educators who strongly oppose any, or all, forms of acceleration. Mental health professionals are also likely to harbor the misperception that acceleration causes social adjustment difficulties. Research has continually demonstrated that gifted students receiving various acceleration options are as well adjusted as their nonaccelerated peers (Caplan, Henderson, Henderson, & Fleming, 2002; Gagne & Gagnier, 2004; Plucker & Taylor, 1998; K. Rogers, 1992; Sayler & Brookshire, 1993). Although belief in the harmful effects of acceleration is deeply entrenched, there have been no studies that show that gifted children have better social adjustment when they are kept with their age peers. A recent review concluded, "We can lay firmly to rest the myth that acceleration is inherently dangerous for gifted students" (Robinson, 2004, p. 64). A bonus for parents and schools is that acceleration is *free*.

A Nation Deceived (Colangelo, Assouline, & Gross, 2004), a report funded by the John Templeton Foundation, has had a powerful impact on dispelling the pervasive myths about acceleration. It is available for free at http://nationdeceived.org.

> Students who are moved ahead tend to be more ambitious, and they earn graduate degrees at higher rates than other students. Interviewed years later, an overwhelming majority of accelerated students say that acceleration was an excellent experience for them.

> Accelerated students feel academically challenged and socially accepted, and they do not fall prey to the boredom that plagues many highly capable students who are forced to follow the curriculum for their age-peers. (Colangelo et al., 2004, p. 53)

Most people who are antiacceleration say that they know someone who had terrible social experiences because he or she skipped a grade. This always raises two questions: How do they know that the person would have been well adjusted if kept with age peers? And, did anyone *ask* this person if he or she wanted to be advanced? It has been common practice to place children in grades and groups without ever consulting them. Julian Stanley (1981), one of the first in current times to systematically accelerate students, found that youth who want to be accelerated have no difficulty with social adjustment. The critical factor in predicting the success of grade advancement is the student's desire to be accelerated. The bottom line is, "Ask the child."

Feldhusen, Proctor, and Black (2002) provide excellent criteria to determine if acceleration will be effective, including: (a) a comprehensive psychological evaluation of intelligence, academic mastery, and social and emotional adjustment, (b) an IQ of at least 125, (c) academically, the child demonstrates skill levels above the mean of the grade desired, (d) the child is free of any serious adjustment problems, (e) the receiving teachers have positive attitudes and willingness to help the child adjust to the new situation, (f) efforts are made to accelerate at natural transition points, and (g) grade advancement is done on a trial basis of approximately 6 weeks. *The Iowa Acceleration Scale* (Assouline, Colangelo, Lupkowski-Shoplik, Lipscomb, & Forstadt, 2003) is a valuable tool to assist families, educators, and counselors in making successful decisions regarding acceleration.

Advanced students often need a variety of accelerative options available to them throughout their school years in order to perform optimally: (a) early entrance into kindergarten, (b) grade skipping, (c) content acceleration in one or two subject areas while remaining with age peers, (d) continuous progress classes in which students can complete 3 years of curriculum in 2 years, (e) compacting coursework so that it can be covered in less time, (f) testing out of courses or partial course requirements, (g) substituting fast-paced distance learning courses for the regular coursework, (h) taking advanced courses for credit in summers or after school, (i) early admission to advanced placement courses, (j) dual enrollment in high school and college, (k) early graduation and early enrollment in college, and (l) for extremely gifted children, radical acceleration (more than 2 years). Highly, exceptionally, and profoundly gifted children may need several types of advancement throughout their educational career.

Acceleration is simply matching the curriculum to the learning rate and level of mastery of the student. In one-room schoolhouses, this was accepted practice. The opportunity for continuous progress is an essential response to the accelerated development of gifted students. It allows every child the opportunity to learn at his or her own rate with no glass ceiling.

Homeschooling

Once dominated by families who chose homeschooling for religious purposes, the number of homeschooling families today is swelling with those who have chosen this form of education solely for academic reasons. Homeschooling should be seriously considered for the gifted child requiring acceleration, individualization, or other accommodations that may not be available in the community. "Instead of regimented, standardized provisions delivered within a detailed set of rules and regulations, learning could be much more diverse, open and flexibly tailored to a child's requirement and responsive to his or her individual development" (Belfield, 2004, p. 18).

With the prevalence of the Internet, options abound for homeschooled students, including online classes and virtual field trips to museums of other countries. There are classes that "meet" online on a regular basis to offer students peer feedback and camaraderie. While each state has its own set of rules and regulations surrounding homeschooled students, there is now a wealth of resources and support for families choosing this alternative. Some avenues to consider include correspondence courses through accredited institutions and universities, as well as public school or state programs that provide curriculum and computers. In Iowa, public support is provided on a regular basis to homeschoolers through Home School Assistance Programs.

There is growing evidence that homeschooling is effective, particularly for gifted children. In one study, 16,000 home educated children in grades K–12 performed at the 79th percentile on standardized achievement tests for reading and at the 73rd percentile for language and mathematics (Klicka, 2000). "Nearly 80% of home schooled children achieve individual scores above the national average" (Klicka, p. 1). Homeschooled students appear to be better prepared than their traditionally schooled counterparts to enter and succeed in college. Research from both the College Board (SAT) and the American College Testing Program (ACT) "indicate that homeschoolers are exceeding the national average test scores on both the SAT and ACT college entrance exams" (National Center for Home Education, 2000, p. 1). "The College Board, which administers the Scholastic Aptitude Test (SAT), also notes the above-average performance of homeschoolers" (Home School Legal Defense Association, 2003, p. 1). For the years 1998 through 2003, homeschooled students consistently outscored nonhomeschooled peers in both college board examinations. Below is the comparison of ACT scores for homeschooled students versus all test takers for the years 1997 through 2006:

ACT Test Results for Homeschoolers vs All Test Takers
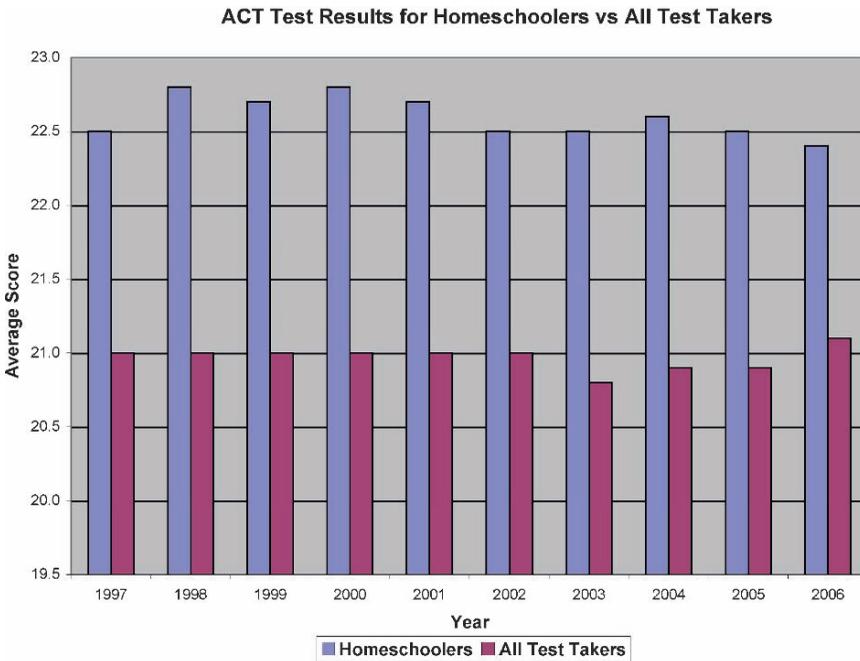
With permission from: http://homeschooling.gomilpitas.com/olderkids/CollegeTests.htm

Ivy League colleges have begun to seek homeschooled students (Klicka, 2000, p. 2). A report from Stanford University suggests that these students have greater "intellectual vitality" than their competitors. "Homeschooled students may have a potential advantage over others in this [intellectual vitality], since they have consciously chosen and pursued an independent course of study" (Foster, 2000, p. 1). Practitioners can assist parents in finding homeschool support groups in their area and resources for homeschoolers.

Knowledge of Resources

Supportive professionals working with gifted families need to become acquainted with the resources in their local community, their state, and available on the Internet for advanced students. Are there any enrichment programs for the gifted within driving distance? Do the local colleges and universities offer talent searches, summer courses, afterschool or weekend programs, mentoring, auditing, free Internet courses, early entrance, scholarships, or any other services for gifted students? Can juniors or seniors simultaneously enroll in high school and college and receive credit toward both high school and college degrees?

To build a practice with the gifted, it is helpful when clinicians perceive themselves as advocates and become active in local, state, regional, and national advocacy groups, such as the National Association for Gifted Children. This increases their knowledge of resources, workshops, and conferences—information they can pass on to families; it also establishes parents' confidence in them. It is extremely valuable for practitioners to be aware of the journals in the field, magazines and newsletters for parents, books written specifically for parents, and major websites (see Appendix).

Parents may need assistance in finding distance learning resources (see Golon, 2004) and homeschooling support groups. A list of free online courses can be found on www.hoagiesgifted.org. These include advanced placement courses, foreign languages, mathematics, physics, history, and so on.

It is estimated that 10 to 15% of school children suffer from learning disabilities (Springer & Deutsch, 1998) and a similar percentage has been found among the gifted (K. Rogers & Silverman, 1998). Therefore, it is important for service providers to be aware of the possibility of dual exceptionality, the signs, referral sources, and resources. The most common issues that have surfaced among our clients at the Gifted Development Center are (a) sensory processing disorder (SPD), (b) attention deficit/hyperactivity disorder (AD/HD), (c) central auditory processing disorder (CAPD), (d) visual processing deficits, (e) dyslexia, (f) spatial deficits, and (g) Asperger's syndrome (AS) (Silverman, 2003b). It helps to develop a network of specialists who regularly see gifted clients. Ideally, clinicians who specialize in giftedness can coordinate information from these various referral sources, so that the interaction of giftedness with other syndromes can be taken into account. (For example, the AD/HD specialist may not realize that a gifted child with AD/HD is able to concentrate for long periods of time when the work is sufficiently challenging, but unable to concentrate if the work is below his or her level of mastery.)

Some excellent resources on dual diagnoses are the *2e Newsletter*; *Different Minds: Gifted Children with AD/HD, Asperger Syndrome and Other Learning Deficits* (Lovecky, 2004); *Uniquely Gifted: Identifying and Meeting the Needs of the Twice-Exceptional Student*

(Kay, 2000); *Crossover Children: A Sourcebook for Helping Children Who Are Gifted and Learning Disabled* (Bireley, 1995); and *To Be Gifted & Learning Disabled: From Identification to Practical Intervention Strategies* (Baum, Owen, & Dixon, 1991). More information on twice exceptional learners can be found in Chapter 7.

Family Dynamics

> What is it like to live with intense, sensitive, perfectionistic children? And what if the parents also fit this description? One would hardly expect to find calm, peaceful households in these cases. Add to these personality factors the findings that half of these children are "highly energetic," a third of them need very little sleep, and most are argumentative. Welcome to living opera! (Silverman & Kearney, 1989, p. 52)

The prior sections address parental guidance, counseling, advocacy, and consultation. Clinicians who specialize in the development of gifted children emphasize the role of assessment in guiding interventions. "They are focused on prevention of social/ emotional problems through timely, early intervention" (Moon, 2003, p. 388). Dealing with the complex dynamics in gifted families requires a different set of skills, a therapeutic orientation, as well as an understanding of how giftedness affects individuals and interactions in families.

Albert (1978) has found that eminent adults often come from a family "that is anything but harmonious—one which has built into its relationships, its organization of roles, and its levels of communication a good deal of tension if not disturbances at times, what I term a 'wobble'" (Albert, 1978, p. 203). The therapist working with such a family needs to have an appreciation for idiosyncrasy—the "wobble" of the gifted family, see beneath the surface, and not try to mold the family into more traditional patterns.

Characteristics of Gifted Families

The characteristics of giftedness in childhood do not disappear when one becomes an adult. Only memory has a short shelf life. Parents of highly able children are usually gifted ex-children (Tolan, 1994). Genetic studies suggest that "intelligence…is one of the most heritable dimensions of behavior" (Plomin, 1999, p. 29); therefore, if one child is gifted, it is likely that the entire family is gifted. From this perspective, there are no "potentially" gifted children, even as there are no potentially retarded children.

Families of the gifted have been studied from a different vantage point: to discover how family life creates giftedness or eminence (e.g., Albert, 1980; Bloom 1985; Goertzel, Goertzel, Goertzel & Hansen, 2004) and to see how one child being labeled gifted affects siblings (e.g., Colangelo & Brower, 1987; Cornell, 1984). (See also Chapter 4.) These questions are from the fields of psychology and education, which have been somewhat skeptical of genetics. The concept that a gifted child is imbedded within a gifted family is probably more palatable to medically trained psychiatrists and clinical social workers, since medicine places a strong premium on heredity.

When a parent brings a child for testing, it often opens the door to self-discovery, sometimes leading the parent to seek assessment for him- or herself. Even without

formal testing, parents may begin to recognize their own abilities when they read a list of the characteristics of giftedness. But owning one's gifts is another matter. Giftedness is so wed to recognized achievement in adults that most parents, regardless of what they have achieved, have an immediate disconnect from the notion that they might be gifted. This is particularly true of mothers, who often avow, "She gets it from her father!" If mothers are their daughters' first role models, and mothers cannot be gifted, how can their daughters believe in their own giftedness?

Many of the issues in gifted families are related to unrecognized giftedness and the characteristics of the gifted throughout the life cycle. The feeling of being an outsider in any social sphere, a feeling that began in childhood, colors the parent's attitudes and concerns for the child. It is this lack of belonging that may drive a gifted adult to seek therapy and that gets triggered when there is family conflict. If the conflict is intense, it may bring the threat of loss of the only community to which the parent has ever belonged.

Increased sensitivity is common throughout the family system. Intensity is another family trait (Meckstroth, 1989). Any perceived slight can quickly escalate into a major drama. Luckily, intense blow-ups often blow over quickly. In working with the incendiary quality of the gifted family, two other characteristics of giftedness can mitigate the potential damage to family relations. Highly intelligent people are capable of understanding the point of view of others. And, as the first counselor/psychologist of the gifted, Leta Hollingworth (1940), often pointed out, humor is their "saving sense" (p. 274). If they can see the humor in the situation, or can get to the point where they are capable of laughing at themselves, they can get beyond their feelings of woundedness.

The argumentativeness of gifted families can be off-putting for those who do not understand it. Nearly all gifted individuals argue: some argue out loud and some argue with others in their minds—too polite to voice what they are thinking. Argument is a way of knowing and a form of mental exercise engaged in by inquisitive minds. In some gifted families, mental sparring is the basic form of communication. Leta Hollingworth understood this trait well. As part of her "emotional education," she designed a program to train highly gifted children in the fine art of argumentation, including "argument with oneself," "argument with others in private, involving etiquette and the art of polite disagreement," and "argument in public" (Hollingworth, 1939, p. 585). If parents were raised in authoritarian families where they were punished if they were disobedient, they may perceive their children's argumentativeness as oppositional defiance.

There is very likely to be heightened perfectionism in a gifted family. This is one of the most frequently misunderstood qualities of the gifted. Clinicians often assume that perfectionism needs to be cured, since it appears to be a factor in several conditions, such as stress-related ailments, anxiety, depression, anorexia, bulimia, workaholism, sexual compulsions and dysfunctions, chemical abuse, Type A coronary-prone behavior, migraines, excessive cosmetic surgeries, suicide, psychosomatic disorders, and obsessive-compulsive personality disorder (American Psychiatric Association, 1994). However, in the gifted, perfectionism may have an entirely different significance (Silverman, 1999).

Perfectionism is an energy that can be used either positively or negatively. It can cause paralysis and underachievement, if the person feels incapable of meeting standards set by the self or by others. It also can be the passion that leads to extraordinary

creative achievement—an ecstatic struggle to move beyond the previous limits of one's capabilities and a component of the drive for self-actualization (Maslow, 1970). In a study of 400 gifted sixth graders, Parker (1997) found perfectionism to be correlated with conscientiousness rather than neurosis; he argued for appreciation of a healthy form of perfectionism. Therapists need to be able to distinguish between unreachable, punitive self-standards and a level of excellence within the grasp of gifted clients.

In gifted mothers, perfectionism may blend with their desire for beauty and order. Leta Hollingworth (1939) wrote that she had never met a gifted person who did not have a love of beauty. The desire to create beauty can express itself in gardening; flower arranging; taste in clothing; the care with which one decorates one's home; delight in music, art, and sunsets; orderliness; and appreciation of the elegance of mathematics. Gifted individuals with limited funds may become depressed having to live in inelegant surroundings. Family conflicts erupt when perfectionistic mothers with a strong aesthetic sense strive to maintain too high a level of order in their homes. For example, one mother insisted that her teenage son hang all of his clothes in the same direction in his closet. It is essential for the counselor to honor the gifted mother's need for beauty and, at the same, assist her in picking her battles.

The complexity of gifted minds is mirrored in the complexity of their emotions. Highly intelligent people see so many variables in a situation, so many connections between seemingly unrelated events, and so many potential outcomes that they may not be able to sort through all of the information to find an appropriate path. Decision-making is simpler when one has less information. While there has been much psychological investigation of the pitfalls of black/white thinking, little has been written about the dilemma of living with an infinite number of shades of gray. If the individual is petrified of making a mistake and believes that all but one of those shades of gray will be a dreadful error, life becomes a perilous walk on a tightrope with no safety net below. And if members of a family share this trait, decision-making is highly charged. The therapist must provide the safety net, while attempting to unknot the multitudinous variables, so that family members can safely navigate life.

The heart of therapeutic work with gifted families comes from their insatiable need for meaning. The clinician often asks, "What does this mean to you?" Gifted individuals are willing to cope with loneliness, being the perpetual outsider, and even lack of joy, if they can find meaning in their experience.

Two other characteristics of the gifted family are their lack of conventionality and their cohesiveness. Both of these topics are covered thoroughly in Chapter 4. Some therapists mistake the closeness of many gifted families for enmeshment. This is especially true for the exceptionally gifted, who may have no one outside their family with whom they can relate. Kearney (1992) writes:

> Giftedness is a family affair. … Discrepancies in an individual child's development affect siblings, parents, and extended family members as well as the child, and educational options have repercussions that can reverberate throughout the family system and across generations. (p. 9)

> If these children are placed in heterogeneous, rigidly age-graded classrooms in school with no opportunity to associate with gifted peers for academic and social activities, it may appear to their teachers that they do not "socialize well" with other children. In addition, if they complicate the play to the point where other children literally cannot play with them, they will not be surrounded by playmates at recess. But within the family,

they may spend hours and hours with gifted siblings of varying ages participating in imaginative, extremely complex play. During the 19th century, this would not have been unusual, since children spent much less time in school and much more time at home. Twentieth century society, however, features a much different pattern of expectations for family life. Thus, such closeness and creativity among gifted siblings sometimes is perceived negatively by schools and mental health professionals… (pp. 9–10)

Sibling Relations

As described above, siblings in gifted families often spend more time together than siblings in average families. In homeschooling families, there may be no break from sibling interaction. Given the intensity of these families, sparks are bound to fly. On rare occasions, we have come across a child who did not fight with his or her siblings. The parents of one 4-year-old boy said that "he has never hit, kicked, or pushed a sibling… extremely loving (e.g., he sings, 'I'm so glad when Daddy comes home' every day to me.) He daily praises my wife and I for taking care of his baby brother" (Silverman, 1993a, pp. 62–63). We have also come across eldest children who have never forgiven the second child for being born. But beneath the deafening level of squabbling of most gifted siblings lies a lifelong bond. They may say horrible things to each other; however, if someone outside the family were to verbally or physically attack one of them, the siblings would unite to protect their own.

Birth order plays an important role in children's development, and the distinctions may be even sharper in gifted families. It is often the firstborn who is identified by the school and placed in gifted programs (Cornell, 1984). The list of characteristics of high-achieving children matches closely the list of characteristics of firstborns. Firstborn children have the greatest need for achievement, the need to please teachers and parents, and are more perfectionistic than their younger siblings (Leman, 1984).

Second-born children, in the attempt to individuate, will often do the exact opposite of the firstborn. If the first one is studious, the second child may lose homework and focus on sports. The school niche is filled. If the firstborn is lonely, the second child will be everybody's buddy. If the older sibling is musical, the younger child might be a visual artist.

Like educators, parents are more aware of the giftedness in a high-achieving child than in one who is not achievement motivated. They are much more likely to bring their first child in for assessment. At the Gifted Development Center, only an offer of a substantial discount for second children lured parents to bring in their happy-go-lucky, "nongifted" second children for assessment. We found numerous second children who were "average" on the outside and gifted on the inside. Over 60% of 148 sets of siblings scored within 10 points of each other (Silverman, 1988).

Cornell (1984) reported that parents of second children who were recognized as gifted found them to be better adjusted than those second-born children who were not identified. The tension and disharmony created when the firstborn is the family's only identified gifted child can be avoided. Our experience at the Gifted Development Center has shown that the so-called "nongifted" child often demonstrates extremely high reasoning ability on IQ tests, which may be combined with hidden learning disabilities. One of the signs that siblings are well matched intellectually is that they can play highly complex games together. The differences that make them seem miles apart in ability at school often disappear at home.

There are also families with an extremely advanced firstborn who consumes most of the family's energy. Some of these high-maintenance children are musical prodigies or involved in competitions for national championships or they attend college at a very young age (with a parent chaperone). In these families, second-born children live in the shadow of the accomplishments of the firstborn. The family may chose to move in order to support the unusual abilities of the firstborn, and the plans and social life of the second child are disrupted. In families of prodigies, it is difficult to distribute financial, emotional, and time resources so that all children feel equally important.

When parents learn that their easygoing second-born children are gifted, we often see marked changes in their attitudes toward these children. As the younger siblings receive more special attention for their abilities, family harmony increases. Their new self-perceptions have an ameliorative effect on family dynamics. However, in those families in which the children remain highly competitive or are verbally or physically abusive to each other, family therapy is strongly recommended.

Family Therapy

When a gifted family is experiencing stress, family therapy is often the solution. Family therapists are trained to see the family as a unit and to deal with interactions among family members, rather than trying to fix the member who is labeled "the problem." They can facilitate greater understanding through role-play, modeling how to listen, creative problem solving, and moving toward mutual goals. Skilled family therapists strengthen cohesiveness by drawing out the love and deep connection in families that may be temporarily buried in conflict.

Knowing how to listen is a fundamental therapeutic skill. Piechowski (2006) writes:

> In order to understand emotional life, two kinds of knowledge and skill are absolutely necessary: the ability to listen, and the knowledge of human development. Anyone who teaches the basic skills of counseling or conflict resolution starts by training people to listen with attention to what others say and to understand what they mean. Listening attentively—without prejudice and without preconceived notions—requires putting on strong brakes so that one stops oneself from interpreting and thinking of what to say. Listening requires taking in how the other person sees his or her situation and how he or she feels about it. … We have to listen, carefully and attentively, to hear *the intended message*—the feeling behind the words, the yet-unarticulated level of experience, not-yet-capable of being consciously grasped and expressed. To listen like this…we have to give the other person our full attention. (p. 7)

This intense level of listening is ameliorative. Gifted individuals have a deep yearning to be seen and heard, to be understood. Part of the therapist's role is to teach family members how to really listen to each other, to give each other undivided attention. As this is not always possible, parents can learn to say to their children, "I can't really listen to you right now because I'm in the middle of [cooking dinner, writing a paper, thinking about my work, etc.], but I promise I will sit down with you [at 7:00 PM or right after we do the dishes, etc.] and give you my undivided attention."

Family therapists can also demonstrate how members can interact respectfully with each other in family discussions. Family meetings can be held in the therapist's office and then, when therapy is no longer needed, continued on a regular basis as a method of preventing issues from escalating out of control. These meetings provide an opportunity

for gifted children to have direct experience in democratic decision-making. Parents are no longer the arbitrators and enforcers. When issues arise, they are dealt with in the context of the family meeting. Grievances are aired and the entire family works together to achieve solutions that respect everyone's needs. Gifted children learn conflict resolution techniques and practice effective communication skills on a routine basis.

Family meetings can also be a vehicle for building self-esteem and family solidarity. Everyone is treated like an equal and works together to resolve issues equitably. A time for compliments should be included as well as a time for complaints. When a child is praised, the praise should be specific, rather than general. Another way to build self-esteem in the family is to forbid put-downs of oneself or of others. This house rule can diminish to a large extent the sarcasm that typifies the communication patterns of many gifted children.

Boundary setting is another arena where family therapy can be helpful. Gifted children tend to be extremely strong willed. Often, they are able to outargue their parents or simply refuse to cooperate and there is nothing the parents can do to make them change their minds. They can wear down the resistance of any parent. In the battle of wills, everybody loses.

In family therapy, the warriors can relax, listen to each other, try to take each other's point of view, and brainstorm solutions that will make everyone happy. Parents learn that "Do it because I said so" does not work. Reasoning does. Talking to a gifted child the way they would talk to a dear friend is more likely to gain cooperation. Asking works; telling does not. Gifted children think "Respect your elders" is ageism. They believe everyone deserves respect.

Gifted children are quick to complain, "That's not fair!" In family therapy, they can learn that "fair" does not mean, "I get whatever I want whenever I want it." Fair is a reciprocal concept. "Is it fair to your brother?" "Is it fair to me?" "Should I have to pick up everyone's clothes when I didn't throw them on the floor?" Responsibilities are shared and chores get accomplished because it is in everyone's best interest that the garbage be taken out, the dishes washed, the house kept clean—at least the main parts that are shared by the family. Gifted children learn to really think about fairness in a different light. And the therapist can help parents learn to be consistent and fair.

A family therapist can help the family divide attention and resources equitably. Parents can learn to spend time alone with each child every night or every week, doing something that child wants to do. They can support different interests in their children in order to reduce competition. An effective therapist recognizes each person's strengths, the strengths of the family, and the underlying bond that will keep this family together throughout the life span. The most important element in family cohesiveness is respect. A high school student wrote, "Above all, I respect the way my parents have raised me because they have always respected me" (American Association for Gifted Children, 1978, p. 53). Respect lasts a lifetime.

Home Stimulation

As children's first teachers, parents of gifted children should be encouraged to provide nurturing, enriched homes that quench the craving for knowledge most gifted children possess. Reading to a child is the best means of teaching a child to read.

Frequent trips to the library and witnessing other family members read enforce that reading is a family value. Everyday math such as cooking together, counting, building, and learning to skip count provide an excellent foundation for mathematics. Even the most introductory knowledge of maps on a local, state, national, or global level will help children understand the foundations for geography, a subject many gifted children enjoy. Trips to local art and history museums foster an appreciation for those subjects and offer gifted children opportunities to explore new interests and passions. Stimulation provided in the home is as varied as children are and should have no limitations, particularly none from outside influences that fear such enrichment may harm the child.

Gifted families are generally responsive rather than controlling. We have encountered very few parents who tried to create a gifted child. These families tend to be child-centered (Bloom, 1985; VanTassel-Baska, 1989). Perhaps the most striking impression is the high degree of parental involvement with their children (Gogel et al., 1985; Silverman & Kearney, 1989). When parents of gifted children are asked to describe their interests, the first response of many mothers is "my children."

Gogel et al. (1985) asked over 1000 families to list the most successful ways they work with their gifted children at home. Reading together was the number one response. Consistent encouragement came in second. Also listed were frequent conversations; participation in community activities; field trips to museums; vacations; discussions; listening; asking and answering questions. VanTassel-Baska (1989) found that in culturally diverse families, emotional support from extended family members, such as grandparents, was critical in the development of giftedness. (See Chapter 15 for more information about cultural diversity.) A great many parents simply share their own interests with their children and these become the most meaningful experiences of childhood. Stimulating home environments are filled with warmth and affection, respect, honesty, support for children's interests, opportunities to develop independence and understanding of their emotional needs. (See Chapter 4 for more information about talent development in families.)

Conclusion

Mental health professionals need to be aware of the characteristics of giftedness in order to recognize what is typical and atypical for this population, rather than comparing gifted individuals with the general population. Society recognizes retardation is an organizing principle—a unique trajectory of development with atypical characteristics. Few expect developmentally delayed individuals to behave like everyone else. The *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV) provides ample demonstration of this. The criteria for many of the psychiatric diagnoses have the exclusionary clause, "If Mental Retardation…is present, the…difficulties are in excess of those usually associated with these problems" (American Psychiatric Association, 1994, p. 58). Certain behaviors that would appear abnormal in an average person are part of the syndrome of retardation; therefore, they are attributed to retardation rather than to other categories. The diagnostic emphasis is on comparing the developmentally disabled with their own group rather than with societal norms.

This same principle needs to be applied to the gifted population. Traits that may be viewed as dysfunctional—intensity, sensitivity, perfectionism—need to be seen as typical manifestations of this population. The gifted are injured immeasurably when their strengths are seen as deficits. In the same vein, gifted families may be misread as enmeshed or dysfunctional, when they are often doing their best to meet the needs of exceptional children without sufficient societal support. They need practitioners who understand their challenges.

Luckily, the mental health professions attract highly intelligent people. Those with higher ability are often called to take responsibility for others. It is a natural role as the gifted are usually empathic, conscientious, good problem solvers, and desire to be of service. However, there are pitfalls in being the responsible one. Highly responsible people may have difficulty saying "no" to all the demands made of them. They are easily overcommitted and overextended because they see the need and think they are the only ones who can fill it. They may know little about what they need to take care of themselves. People who give a great deal to others are not usually aware that they need a great deal of support from others as well. Even if they are, they are often reluctant to ask for help. It is important for gifted practitioners to put on their own oxygen masks before helping others.

The conspicuous absence of training in psychology and related fields on issues related to giftedness has provided the gifted practitioner with no compass for self-awareness or for assisting gifted clients. Learning about one's own giftedness can be healing, not only for oneself but also for those one is called to serve. This volume is a first step in the journey to discover one's own gifts.

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Resources

Websites

Gifted Development Center www.gifteddevelopment.com
Hoagies Gifted Education Page www.hoagiesgifted.org
Institute for Educational Advancement www.educationaladvancement.org
National Association for Gifted Children www.nagc.org
TAGFAM, Families of the Gifted and Talented www.tagfam.org
Supporting Emotional needs of the Gifted (SENG) www.sengifted.urg
Twice-Exceptional Newsletter www.2enewsletter.com

Chapter 12

Counseling the Gifted

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Introduction

In recent years, the field of gifted and talented studies has paid increasing attention to issues affecting gifted youth and factors that promote healthy social-emotional development in this population (Neihart, Reis, Robinson, & Moon, 2002). However, the field continues to have a heavy emphasis on achievement outcomes, to the neglect of "other important outcomes such as happiness, wellbeing, and life satisfaction" (Moon, 2003b, p. 16) that can be facilitated by counseling. Similarly, while a great deal of attention has been paid to the need for differentiated curriculum, very little work has been done to provide guidance to counselors and psychologists regarding how they might differentiate their typical counseling practices in order to be more effective with gifted clients. Several clinicians have developed new counseling models that are designed to address the needs of gifted clients (Mendaglio & Peterson, 2007; Moon, 2003a), but few of these models have been evaluated in clinical trials. In other words, although counseling can be an important mechanism for promoting the holistic development of gifted persons, most of what is currently known about how counselors might work with this population is grounded in the scholarship of theory and/or clinical practice rather than empirical research.

The purpose of this chapter is to provide an overview of the current state of the art regarding counseling gifted students. The chapter begins by giving clinicians an overview of the developmental issues facing gifted students and the typical presenting problems of this population when they seek assistance from counselors. Then counseling models that have been described in some depth in the literature are reviewed in three categories: individual, family, and group. Finally, implications for practice, training, and research are discussed. It is hoped that the chapter will serve as a rough guide for practicing clinicians and encourage university-based counselors and psychologists to initiate programmatic research to test interventions with this population.

Developmental Challenges

Gifted individuals experience both typical and atypical developmental challenges. *Typical* developmental challenges are those associated with maturation. Gifted people generally experience the same typical developmental challenges that others experience. For example, like other children, gifted children gradually learn to walk, talk, and socialize as they grow older.

At the same time, gifted people may experience these typical developmental milestones on a different timetable than their peers. This creates an *atypical* developmental challenge. The developmental path of a gifted individual can be accelerated or delayed. At younger ages, acceleration is more common; in adolescence, delay is more common. For example, gifted preschoolers may exhibit more "terrible two" behaviors at 18 months than at the more typical age of 30 months because they have the cognitive characteristics of children a year older and, therefore, begin asserting an independent will earlier. Similarly, when highly intelligent children progress more rapidly through the stages of friendship, they may have difficulty creating friendships with children their age, because their chronological peers are not yet capable of forming the type of friendship they expect and desire (Gross, 2000, 2004). On the other hand, financial independence from parents may be delayed for gifted individuals because they spend more years in school receiving advanced education to prepare themselves for professional careers. In these examples, the gifted individual is experiencing a typical developmental sequence on a different timetable than are their same age peers—earlier in two cases, later in another. It is the difference in timing that creates challenges for the gifted individual. Developmental challenges created by atypical trajectories through typical developmental sequences are common among gifted individuals, but they usually can be resolved by the individuals themselves, without professional assistance. When professional assistance is needed for these issues, good intervention modalities include bibliotherapy, psychoeducation, and group counseling.

In addition to the challenges associated with having developmental trajectories that differ from same-age peers', some gifted individuals experience atypical developmental challenges that are related to their giftedness. These developmental challenges are not found in all gifted children, but can create serious problems for those who are affected by them and often warrant professional intervention. For example, gifted children with AD/HD (Moon, Zentall, Grskovic, Hall, & Stormont, 2001) or learning disabilities (Olenchak & Reis, 2002; Reis, Neu, & McGuire, 1997) can experience extreme levels of frustration and peer rejection that can contribute to emotional or behavioral disorders. Similarly, peer teasing and/or bullying related to giftedness can create serious emotional distress in some gifted individuals (Peterson & Ray, 2006a, 2006b).

Developmental challenges that affect gifted individuals can be divided into two types: *endogenous* (arising from characteristics within the gifted individual) and *exogenous* (arising from the environments in which gifted individuals live). These two categories of atypical developmental challenges are discussed in detail below, followed by a discussion of common presenting issues for gifted clients.

Endogenous Challenges

Developmental challenges that result from asynchronous development with same-age peers are endogenous. Almost all gifted individuals experience asynchronies at

some level. However, two subgroups of gifted individuals experience them especially strongly: the highly gifted and the twice-exceptional. The highly gifted are so cognitively different from other children their age that it may be hard for them to build normal socialization skills. Twice-exceptional children have internal asynchronies in addition to external ones. They must come to terms with the fact that they have both great strengths and great weaknesses (Olenchak & Reis, 2002). In addition, many twice-exceptional children have deficits in social-communication skills or exhibit annoying behaviors that lead to social rejection (Moon et al., 2001). Both highly gifted students and twice-exceptional students are at risk for problems with psychosocial adjustment that can lead to mental health disorders such as depression. This is especially the case when such students lack a supportive home environment and/or do not receive gifted education services in school.

Other endogenous characteristics that can create developmental challenges for some gifted students include (a) a type of giftedness that is not recognized or rewarded in the culture, (b) gender, (c) ethnicity, and (d) maladaptive motivational characteristics. Generally, these characteristics create problems for the gifted individual only via interaction with maladaptive social contexts.

TYPES OF GIFTEDNESS.   Two forms of giftedness that are common but not well-recognized and rewarded by Western culture are *spatial giftedness* (Silverman, 2002) and *creativity* (Westby, 1997; Westby & Dawson, 1995). When children who possess these types of giftedness are forced to interact with families and schools that do not recognize, value, or reward their talents, problems can develop. The reverse is true as well: An atmosphere of caring, strength-oriented accommodations, and student-centered learning can promote positive development in these students (Mann, 2006).

GENDER AND ETHNICITY.   Gender and ethnicity add additional layers of adjustment challenges for some gifted students. For example, gifted females can struggle with achievement affiliation conflicts in adolescence (Clasen & Clasen, 1995; Reis, 2006) and career development in young adulthood (Arnold, 1995; Arnold, Noble, & Subotnik, 1996; Reis, 1998). Gifted males face unique developmental challenges when they pursue traditionally female careers (Hébert, 2000). Ethnicity can also affect the cognitive, social, and emotional development of gifted students. In the United States, the least supportive peer culture for the development of academic giftedness is African American, and the most supportive is Asian American (Steinberg, 1996). Since peer pressures are especially acute in adolescence, adolescence is the developmental period when gender and ethnicity enhance or inhibit the development of giftedness, the support networks and friendships of gifted students, and the psychosocial development of gifted individuals most significantly.

MALADAPTIVE MOTIVATIONAL CHARACTERISTICS.   Finally, some gifted students develop maladaptive motivational characteristics that can contribute to underachievement and poor mental health. Sometimes these maladaptive characteristics are associated with gender or ethnicity. For example, gifted adolescent girls often have maladaptive attributional patterns for learning in math and science classes (Ziegler & Heller, 1997, 2000). Similarly, in an ethnographic study of middle-class African Americans attending a high-achieving high school, talented African-American students seemed to be unmotivated to do well in secondary school in part because they "were

not really sure that education was the key to upward social mobility or to the achieve-ment of the American Dream" (Ogbu, 2003, p.252). At other times, these maladap-tive motivational characteristics seem to develop through interactions between the personality of gifted individuals and their parents and teachers. For example, mala-daptive perfectionism in gifted students has been shown to be related to perceived stringent expectations from others and rigid/authoritarian parenting (exogenous fac-tors) in combination with a fear of disappointing others and a belief that self-worth is tied to achievement (endogenous factors) (Neumeister, 2004). Once these maladap-tive patterns develop, they can become stable, internal characteristics that interfere with both learning and social/emotional development.

When endogenous factors create high levels of distress for gifted students, referral to a professional counselor may be warranted. Counseling modalities that have been recommended for the types of developmental issues discussed in this section include family therapy (Moon & Hall, 1998; Moon & Thomas, 2003), group counseling (Colangelo & Peterson, 1993), and individual psychotherapy (Boland & Gross, 2007; Mendaglio, 2007). Family therapy seems to be particularly appropriate for young children, highly gifted children, and twice-exceptional children. Group counseling is particularly effective with gifted adolescents and for addressing issues related to gender, culture, and ethnicity, as well as to lack of interpersonal ease and problems related to giftedness as part of identity. In schools and centers, development-focused group work can also be used as a psychoeducational affective curriculum geared to preventing problems and preventing concerns from becoming worse. Individual psychotherapy is especially helpful for older adolescents and young adults, as well as for gifted persons of any age for whom endogenous characteristics appear to be the primary contributor to mental health problems.

Exogenous Challenges

INAPPROPRIATE SCHOOLING.   One of the most common exogenous challenges facing gifted students is inappropriate schooling (i.e., curriculum and instruction that is too simple, slow-paced, and/or repetitive for their accelerated learning styles). In fact, two recent studies of referrals to a university-based counseling center for gifted children and their families found that the most common reason that parents of gifted children of all ages sought the services of the center was concern about the adequacy of their schooling (Moon, Kelly, & Feldhusen, 1997; Yoo & Moon, 2006). Similarly, a compre-hensive review of the empirical literature on the social and emotional development of gifted students concluded that the social/emotional problems that occur in gifted stu-dents usually reflect an interaction between personal characteristics and an ill-fitting school environment (Robinson, Reis, Neihart, & Moon, 2002). Finally, there is evidence that highly gifted students who receive no special accommodations for their giftedness in school develop psychosocial problems (Gross, 2004).

The potential impact of schooling issues on the psychosocial adjustment of gifted children and youth creates a challenge for counselors who are used to working only with individuals and/or their families. To be effective with gifted children and ado-lescents, counselors need to develop an understanding of the ways that inappropriate school environments can inhibit or impair the development of gifted students and use assessment tools that explore possible effects of schooling on their client's presenting problems. Ideally, counselors who work with gifted young people also develop

skills for advocating directly with schools for more appropriate educational programming and/or for coaching parents to be more effective advocates for their children. Counselors can also consider attending educational planning meetings with school personnel and/or partnering with a school counselor or school psychologist in addressing the school-related issues.

Inappropriate schooling is the most common exogenous issue affecting gifted students. However, other exogenous factors can also have impact on the development of gifted students, including culture, family functioning, and peer relationships. These additional factors are discussed below, with the greatest attention to peer relationships, because peer relationships are frequently cited as contributing to the presenting problems of gifted youth.

CULTURE.   Culture can be an important contributor to underachievement in gifted students, especially during adolescence (Ford, 1996; Neihart, 2006). Culture and ethnicity can also influence the identity development of gifted students (Ford, Harris, & Schuerger, 1993; Hébert & Kelly, 2006). The heightened sensitivity of gifted individuals can make identity development in adolescence particularly challenging for gifted students who are gay, lesbian, or bisexual (Peterson & Rischar, 2000). As noted above, culture also influences endogenous characteristics of gifted students such as motivation for academic success. It is important for counselors of gifted students to be trained in multicultural counseling and to be aware of the many ways that giftedness and culture can interact to influence the development of gifted persons.

FAMILY FUNCTIONING.   Family functioning influences the development of all children, including gifted children. In many ways, gifted children are similar to other children: They develop best when families are authoritative, rather than authoritarian or permissive (Csikszentmihalyi, Rathunde, & Whalen, 1993; Moon, Jurich, & Feldhusen, 1998). At the same time, parents of gifted children and adolescents face unique stressors because of the cognitive characteristics of their children (Keirouz, 1990). For example, when schools identify and label one child in a family as "gifted," the resulting effects on family dynamics can be quite powerful. Investigators have found effects such as sibling personality adjustment problems (Cornell & Grossberg, 1986), increased sibling competition and noncooperation (Grenier, 1985), and greater uncertainty about parental roles (Keirouz, 1990). Fortunately, these effects seem to mitigate with time (Colangelo & Brower, 1987). Nonetheless, they are unsettling when they are happening and can lead families to seek professional assistance. Several approaches have been recommended to address issues related to family functioning in families of gifted children: parent support groups (DeVries & Webb, 2007), family guidance (Silverman, 1991), and family therapy (Moon & Hall, 1998; Moon & Thomas, 2003).

PEER RELATIONSHIPS.   Finally, peer relationships are an important exogenous influence on the development of gifted students. Problems with peer relationships can lead gifted individuals or their families to seek professional counseling. Some of the issues with peer relationships were discussed in the section on endogenous issues because they interact with individual characteristics of the students. For example, highly gifted students and twice-exceptional students are both at risk for problems with peer relationships. The behaviors of both types of students tend to be misunderstood

by same-age peers, resulting in rejection and threats to the fundamental need to belong (Baumeister & Leary, 1995). Highly gifted children use words that their peers do not understand, seek more sophisticated types of friendship than their peers want, and have different interests than their chronological peers have (Gross, 2004). Gifted children with AD/HD exhibit numerous behaviors, such as incessant talking, inability to sit still, difficulty staying on task, and inappropriate poking or touching, that annoy other children and cause them to distance themselves (Moon et al., 2001).

Gifted adolescents in the United States often view giftedness negatively—as a characteristic that inhibits peer relationships. Research has identified several strategies that gifted students use to cope with the "stigma" of giftedness, including denying giftedness, downplaying the importance of popularity, and becoming involved in organized activities, such as sports or after-school clubs (Cross, Coleman, & Terhaar-Yonkers, 1991; Rimm, 2002; Swiatek, 1995). Girls are more likely than boys to deny their giftedness and report high levels of socializing (Rimm, 2002). The highly gifted are most likely, of children at all levels of giftedness, to deny their giftedness, and gifted students with predominately verbal abilities report lower levels of peer acceptance than those with predominately mathematical abilities (Swiatek, 1995). Hence, it appears that peer relationships, especially in adolescence, are a major developmental stressor for many gifted persons.

These problems are exacerbated when peer cultures are intensely anti-intellectual or hostile to academic achievement. Gifted students immersed in such peer cultures experience strong achievement–affiliation conflicts that can result in either (a) underachievement in order to be accepted or (b) achievement at the cost of loneliness and rejection (Clasen & Clasen, 1995; Kaiser & Berndt, 1985; Neihart, 2006; Rimm, 2003). Obviously, neither of these outcomes is optimal. Professional counseling can help gifted students resolve achievement–affiliation conflicts more positively, so that they can fulfill their academic potential and build a strong network of supportive friends.

Bullying is the most serious peer issue facing gifted children and adolescents. According to Williams and Zadro (2005), continued exposure to ostracism, social exclusion, and rejection "leads targets to experience ongoing psychological, somatic, and interpersonal distress that may reverberate throughout all segments of their life" (p. 33) and "will eventually deplete the resources necessary to respond successfully" (p. 20). In a study of the prevalence and effects of bullying among gifted eighth graders (Peterson & Ray, 2006b), 67% were found to have experienced at least 1 of 13 kinds of bullying during the school years, 11% had experienced repeated bullying, and, by grade 8, the peak year, 16% were bullies. Grade 6 was found to be the peak grade for bullying among gifted students, and males were bullied more often and more physically than females. A qualitative follow-up study of the subjective experience of bullying revealed that bullying left victims feeling helpless, worthless, degraded, and despairing, and that even a single incident of bullying was highly distressing for some gifted students (Peterson & Ray, 2006a). Most of the victims externalized the causes of bullying and internalized responsibility for stopping it. Perhaps more troublesome, this coping style led some students to despair or think violent thoughts when they were ineffective in stopping the bullying. Similarly, in the second author's private practice, severe emotional distress related to bullying at school was a common theme among the gifted children who presented for family counseling.

Interventions for issues related to peer relationships vary with the age of the individual and the nature of the peer concerns. All counselors working with gifted children

and adolescents should include an assessment of peer relationships in their intake interviews because peer relationships are such a salient developmental issue for gifted children. In addition, counselors of gifted students need to be aware that unresolved traumatic stress from peer bullying may underlie other presenting problems, and that their gifted clients may be reluctant to reveal bullying incidents (Peterson, 2007). If peer problems are the presenting problem or are detected in a thorough intake interview, a variety of strategies will be needed to address them. Young gifted children dealing with extreme or dual exceptionality may benefit from family counseling to ensure that parents provide good relationship modeling in combination with direct instruction in social skills (Moon & Hall, 1998). Gifted adolescents struggling with the stigma of giftedness and/or more severe achievement-affiliation conflicts can benefit from group counseling and peer mentoring programs (Ogbu, 2003; Peterson, 2008). If distress from being bullied is detected, individual psychotherapy by a therapist trained in resolving posttraumatic stress disorder would be our recommended treatment. Gifted students who are bullying others need prompt, professional intervention that encourages them to change their behavior and learn prosocial skills such as perspective taking. Otherwise, since bullying is a precursor of more serious aggression (Batsche & Knoff, 1994), they may continue to use power and aggression in relationships over the life span (Craig & Pepler, 2003).

Presenting Problems

CLINICAL PERSPECTIVES.   In a recent edited volume (Mendaglio & Peterson, 2007), eight clinicians (counselors, marriage and family therapists, and psychologists) who work primarily with gifted youth presented their views of giftedness, counseling, and personality and described their approaches. The following list ranks presenting issues in descending order of frequency of mention by these professionals:

- Problems related to extreme sensitivities
- Depression
- Anxiety
- Underachievement
- Social difficulties, including isolation and aggression
- Drug use and dependency
- Adjustment disorder related to troubling life events
- Developmental issues for both high and low achievers
- Perfectionism
- Twice-exceptionality, including giftedness combined with ADD/ADHD and learning disorders
- Asperger's syndrome
- Extreme sensitivity
- Sexual promiscuity
- Stealing, Conduct Disorder, Oppositional Defiant Disorder
- Truancy
- Sexual-identity issues
- Thought disorders
- Physical and sexual abuse
- Choices related to developing extreme talent

Given this range of issues, mental-health professionals need to be aware that gifted individuals may present with social, emotional, and academic difficulties. However, these students may be reluctant to ask for help, believing that it is their responsibility to resolve such problems themselves (Peterson, 2001; Peterson & Ray, 2006b). They may also not be comfortable with expressive language (Peterson, 1990). Therefore, all health providers, including physicians, need to be aware that a handsome, confident, articulate, and capable self-presentation may belie troubling thoughts, insecurities, high anxiety, and serious issues.

SOCIAL AND EMOTIONAL HEALTH.   Giftedness may be prized, but how it is manifested may be socially desirable or socially undesirable (Mendaglio, 2007). Giftedness may be confused with conventional desirability (Kerr, 2007); that is, individuals who excel academically, are well behaved, and have pleasant personalities are more likely than those who do not, or are not, to be identified for special programs for gifted students. Scholars have, in fact, associated giftedness with factors of resilience—intelligence, problem-solving ability, and a positive explanatory style, for instance (Higgins, 1994; Neihart, 2002). However, problematic identification procedures may mean that findings are skewed positively when based, for example, on convenience samples from residential or summer programs for gifted students, who are likely to be highly motivated academically (cf. Peterson, 2007). In general, scholars have concluded, based on limited empirical evidence, that gifted individuals are probably no more and no less socially and emotionally healthy than others (Reis & Moon, 2002).

However, even achievers may struggle. In Peterson's (2000) post-high-school follow-up study (N = 97), in response to an open-ended question about most significant challenges, 24% of achievers listed academic and social challenges, 14% being away from home, 15% finding direction, 14% illness, trauma, accident, or crisis, and 9% relationships. Regarding narrative themes of underachievers, 32% alluded to academic concerns, 19% to new environment, 16% each to social concerns, being away from home, or relationships, and 10% to addictions or an eating disorder. A recent longitudinal study of life events in families of gifted students (Peterson, Duncan, & Canady, 2007) found that graduates, in narrative responses to a question about challenges, tended not to mention challenges related to the deaths or illnesses their parents had reported, but instead challenges related to high expectations, heavy academic loads, multiple advanced placement tests in one week, overcommitment to activities, and teachers and coaches who hindered their success. Whether clients are achievers or underachievers, it is important for helping professionals not to assume that giftedness precludes developmental and other challenges and to ask about the school academic and social milieu when exploring presenting issues.

Parents frequently seek out psychologists for assessment and recommendations for advocacy when they perceive that their children are not receiving appropriate schooling (Gridley, 2001; Yoo & Moon, 2006). Underachievement is another school issue that can lead to counseling. Colangelo (2003) reported that underachievement was the most common presenting issue in a clinic serving only gifted students and their families. Underachievement, a complex phenomenon, may reflect developmental challenges (Peterson, 2002), values that differ from those of teachers (Peterson, 1999), and, among many other possibilities, difficulties with family or peers (Reis & McCoach, 2002). School-related social difficulties, such as being bullied (Peterson & Ray, 2006a, 2006b), may also lead parents to seek counseling for their child.

CHARACTERISTICS RELATED TO GIFTEDNESS. Characteristics related to giftedness have been associated with presenting issues, including, for example, intense reactions, depth of feeling, acute observations, perfectionism (Saunders, 2007), the need for complexity and the ability to see complex patterns rapidly (Thomas, Ray, & Moon, 2007), a strong sense of justice (Boland & Gross, 2007), an urge to seek (Kerr, 2007), overexcitabilities (Piechowski, 1997), divergent thinking (Guilford, 1987), and entelechy (Lovecky, 1992)—all of these interacting with a gifted individual's environment. According to Mendaglio (2007), gifted individuals experience heightened forms of sensitivity, self-criticism, and emotion as they develop, and reality is experienced differently by them, and more intensely, than by others. Furthermore, because they think more than others do, they feel more, and their rapid information processing and access to memory may be reflected in emotional lability. Because of their cognitive ability, gifted individuals understand and are keenly aware of others' expectations. They may also be highly aware of their emotions, as well as painfully self-conscious and self-critical, but with emotions unexpressed.

Sensitivity can interfere with classroom, community, peer, and family relationships. Peterson (2007) noted that sensitivities may also exacerbate difficulties associated with stress, family changes, family relocation, and moving from one developmental stage to another, the last three with associated losses. Facing the reality that much of the future is not within an individual's control may be daunting for a child or adolescent for whom verbal ability and a nimble mind normally afford a sense of control. Normal development as related to sexuality, sexual relationships, postsecondary education, multipotentiality, and even parenting, not to mention domestic and global political uncertainties, may loom large in the mind of a thoughtful individual. In addition, normal developmental milestones may be delayed or particularly complex because of some form of trauma (Peterson, 2006a).

Peterson (2007) addressed the sensitivity issue further. Sensitivity to fairness, being able to see what *ought* to be, and high moral values may make accepting the world, as it is, extremely difficult. High expectations from self and others can contribute to maladaptive perfectionism, potentially interfering with taking appropriate social and academic risks, relaxing, playing, enjoying the *process* of learning, or affirming self and others. Social difficulties, feeling "different," and feeling anxious and vulnerable when entering academic territory without bringing in prior knowledge may all bring someone into counseling. With their cognitive precocity, gifted individuals may struggle with existential concerns even as young children, but be unable to express them or deal with them emotionally because of asynchronous development. They may also not feel known and appreciated for anything other than their performance in school. Homosexual individuals may have particular challenges in this regard, and one study (Peterson & Rischar, 2000) found that some became "hyperinvolved" to have balance and outlet, to have a structured, safe place at school, and to distract themselves from the realization that they would not be accepted by significant people in their lives if "out" (pp. 238–239).

Keiley (2002) noted that some reviews of literature have indicated that gifted individuals are inclined toward internalizing disorders, including anxiety and depression. In contrast, other research findings have shown similar or lower levels of risk for internalizing disorders when comparing gifted and nongifted students. In their study of bullying among gifted children, Peterson and Ray (2006b) found that targeted children often assumed responsibility for resolving

interpersonal difficulties themselves, investing great mental energy in trying to make sense of cruelty and injustice and to make changes in themselves in order to avoid harassment.

Gifted individuals likely do not seek counseling because of lack of knowledge or understanding (Mendaglio, 2007). Nevertheless, psychoeducational information about development and about giftedness may be welcome and useful to them, especially if they do not have other opportunities to gain social and emotional knowledge, and especially if elsewhere the emphasis is mostly on their achievement or underachievement. Such information can also help them to make sense of their behaviors, sensitivities, and intensities.

The cognitive ability of gifted children and adolescents may allow them to disguise or compensate for social and emotional concerns. However, they can be responsive clients (Thompson & Rudolph, 1996). Boland and Gross (2007) noted the importance of assuming a collaborative posture with them, explaining treatment rationale even to young gifted clients, erring on the side of overestimating vocabulary and understanding, and developing something akin to an adult-to-adult therapeutic relationship. Just as gifted children and adolescents' verbal ability helps them articulate their subjective experience of various phenomena to qualitative researchers, this ability to illuminate their inner world is an asset in counseling. Just as they often welcome a chance to talk to researchers about social and emotional concerns that may not be on the radar screens of performance-oriented adults elsewhere in their lives, they may welcome the opportunity to become more self-aware through counseling (cf. Peterson, 2001).

Counseling Approaches

Most existing models for counseling gifted children and adolescents are school based (e.g., Betts & Kerscher, 1999; Buescher, 2004; Peterson, 2003), and such models have typically not been empirically tested, including approaches to underachievement, a common presenting issue (Reis & McCoach, 2000). There is therefore little research to guide the process of counseling (Reis & Moon, 2002). However, a few models have been described in the literature by clinicians who have developed counseling models specifically for use with gifted clients.

Individual Approaches

MODELS.   Rimm's (1995) Trifocal Model addressed underachievement through purposefully coordinating efforts of psychologist, teacher/school, parent(s), and student—with the psychologist not always needed. This model has some empirical support. Mandel and Marcus's (1988) model featured differential diagnosis and differential treatment of underachievement, emphasizing that previous studies had usually assumed that underachievers were a homogeneous group to be treated with one approach. They identified five types of underachievers: Overanxious Disorder, Conduct Disorder, Academic, Identity Disorder, and Oppositional Defiant Disorder.

Mahoney's (1998) clinical Gifted Identity Model focused on the importance of attending to gifted-identity development during the counseling process. He offered a detailed framework of several systems that have impact on gifted-identity formation, arguing that the self, family, family of origin, cultural, vocational, environmental,

educational, social, psychological, political, organic physiological, and developmental systems interact with the constructs of validation, affirmation, affiliation, and affinity. He focused on the impact of giftedness on well-being and development, simultaneously ensuring that the client felt support related to the four constructs.

Mendaglio (2007) offered an approach that blended sound counseling principles and practices and his conception of the nature of giftedness. Peterson (2007) applied a developmental template to presenting issues, including to underachievement; considered level of giftedness as related to difference; and focused on strengths and resilience. In connection with Silverman's (1993b) presentation of her Developmental Model for Counseling the Gifted, she encouraged individual psychotherapy when gifted students act out sexually, have problems with anger, show symptoms of abuse, underachieve, or seem depressed.

Development. Developmental tasks, in themselves, can be a counseling focus, and counselors can use a developmental template during intake when conceptualizing problems (Peterson, 2007), subsequently helping young gifted clients move into the next developmental stage. Counselors might call attention to factors of resilience (e.g., being able to attract the attention of adults, having a positive vision of the future, being able to seek help, having a confidante) (Higgins, 1994) in order to instill hope and validate strengths. Peterson's (2001, 2002) longitudinal study of underachieving gifted adolescents focused on the tasks related to direction, a mature relationship, autonomy, and resolving conflict with family, all areas that counseling can address.

Assessment. Assessment can take various forms:

- intelligence and other neuropsychological assessments (perhaps reinterpreting tests already on record), personality assessments (Kerr, 2007; Ziegler & Stoeger, 2007),
- formal and informal assessment of degree of giftedness (Peterson, 2007),
- assessment of incorporation of giftedness into identity (Mahoney, Martin, & Martin, 2007),
- interviews, school data, observation, empirical assessment of the conceptual framework in the client's daily experience (Mendaglio, 2007),
- interviews of parents (Mandel & Marcus, 1988; Saunders, 2007),
- systems and concepts grid (Mahoney et al. 2007),
- Rimm's (1995) formal (test data) and informal assessment of underachievement,
- career inventories (Kerr, 2007),
- social and developmental history, diagnostic assessment (Boland & Gross, 2007),
- family assessment (Boland & Gross; Thomas et al., 2007), including family dynamics assessed through a Transactional Analysis lens (Saunders, 2007),
- developmental template, including for underachievement (Peterson, 2007).

The goal of assessment is a multimodal understanding of the client and the presenting issues. Assessment can actually be used for engaging a gifted child or adolescent in therapy (Boland & Gross, 2007). When not obligatory, diagnostic labels can be avoided in a report (Mendaglio, 2007; Saunders, 2007). The clinician can keep characteristics associated with giftedness in mind. Perhaps later they can

be used to normalize behaviors, including an extreme awareness of social justice. Divergent thinking or profound giftedness may explain a poor fit in the classroom (cf. Boland & Gross). Information about Dabrowski's (see Piechowski, 1997) concepts of overexcitabilities, positive disintegration, and advanced development may be helpful in regard to extreme sensitivities to physical environments and complex emotions.

Gifted individuals with dual diagnoses may be misassessed, with misinterpretation contributing to emotional distress (Webb et al., 2005). High intellectual ability can mask symptoms, potentially leading to missed services (Olenchak & Reis, 2002). On the other hand, instead of disability or pathology, behavioral issues may reflect hypersensitivity to the environment, intense reactions, and developmental asynchrony. Stress related to inappropriate school environments and peer-relational problems may contribute to depression and anxiety, but professionals may not recognize how these are related to giftedness (Webb et al.).

COUNSELING RELATIONSHIP.   Just as when working with other clients, building a therapeutic relationship is important when working with gifted individuals. Safety and trust (Saunders, 2007) and the elements of empathy, congruence, genuineness, and unconditional regard (Rogers, 1951) are important for establishing and maintaining the relationship, which is focused only on meeting the client's needs (Mendaglio, 2007). Boland and Gross's (2007) approach to working with gifted children was collaborative, active, problem-solving, and rich with feedback for the child. Especially during initial sessions, because of the level of their cognitive ability, gifted children and adolescents may appreciate talking about how the counselor–client relationship differs from their relationships with teachers, parents, and peers (cf. Saunders), as well as about other aspects of the process, including approaches.

COUNSELING STRATEGIES.   Counseling treatments have received scant research attention. In general, counseling approaches have not been studied. However, based on their clinical experience, clinicians in the Mendaglio and Peterson (2007) book noted the effectiveness of several therapeutic approaches related to counseling gifted youth and young adults, although not necessarily under any particular theory. Kerr (2007) used powerful techniques to generate motivation for rapid change, through intentionally reducing and increasing arousal, with interpretations timed to occur before or after peak arousal. She also used active listening, here-and-now focus, mind/body techniques, experiments (e.g., empty chair or visioning), bibliotherapy, and healing ceremonies. Boland and Gross (2007), with a cognitive-behavioral approach, used Socratic questioning and explicit instruction, elicited automatic thoughts and schemas, challenged thoughts, and used point-counterpoint, confrontation, and exaggeration with young gifted clients. Saunders (2007) helped children and their parents establish homework routines, unified parental support, and family meetings; instructed them regarding communication (based on Transactional Analysis); and gave suggestions for reading. Ziegler and Stoeger (2007) also involved significant others when appropriate. Peterson (2007) often used a brief, solution-focused approach, helped the client to put the problem at arm's length (i.e., externalizing it), and sometimes used brief semistructured activities (cf. Peterson, 2008) in sessions to engage young clients.

Like Mahoney et al. (2007), Mendaglio (2007) focused on integrating giftedness into the view of self. He also explored the impact of values, beliefs, and traditions; nurtured client gifts; gathered information about the educational environment; and employed confrontation. Applying somewhat unique expertise, he sometimes assumed a directive-didactic posture, explaining characteristics related to giftedness and Dabrowskian concepts (cf. Piechowski, 1997). However, most significant in his approach was his focus on the experience and expression of emotion in sessions in order to help clients change patterns of emotion suppression or learn different modes of expression. To reinforce gains in sessions, homework assignments, framed as experiments, were intended to enhance emotion awareness and emotion regulation. Cognitive restructuring involved focusing on clients' assumptions, as related to the connection between interpretation of situations and intense negative emotions. He argued that their becoming aware of their assumptions was often enough to move clients toward more logical and rational assumptions, with awareness being curative in itself (Jacobs, 1989). He believed that awareness of emotion and of the effect of thinking on emotion is a prerequisite for emotion regulation. He co-constructed a conceptual framework with his clients, continuing until client objectives were met.

Family Approaches

Family approaches to counseling gifted children, especially young gifted children, are frequently recommended in the literature (Colangelo, 2003; Exum, 1983; Lester & Anderson, 1981; McMann & Oliver, 1988; Moon, 2003a; Moon & Hall, 1998; Moon & Thomas, 2003; Silverman, 1993b; Zuccone & Amerikaner, 1986). However, as is the case with individual approaches, only a small amount of research has been conducted to test the effectiveness of recommended approaches to family counseling. Hence, relying on recommendations from clinicians who have provided counseling for families of gifted students, this section summarizes the presenting problems addressed by family counselors and provides brief descriptions of recommended counseling models (for a more thorough review, see Moon, 2003a).

Family approaches to counseling gifted students can be divided into two large categories: parent guidance and family therapy (Moon, 2003a). Each type of family counseling is recommended for specific types of presenting problems and includes several models developed by clinicians who specialized in working with gifted individuals. Which type to use depends on the presenting problem and the skills and expertise of the counselor.

Parent guidance has been recommended for developmental issues common to young gifted children, such as concerns about inappropriate school placements, parenting concerns related to the unique aspects of raising one or more gifted children, and the impact of giftedness on social/emotional development (Gridley, 2001; Silverman, 1993a; DeVries & Webb, 2007; Wierczerkowski & Prado, 1991). Family counseling with a focus on parental guidance is needed when parents seem unable to accept their child's giftedness and lack insight into their child's special characteristics and needs, as these parental behaviors have been associated with underachievement and/or behavior problems in gifted children.

Family therapy has been recommended for presenting problems related to family relationships and/or family life cycle transitions, underachievement, dual exceptionalities, and internalizing or externalizing disorders in children under the age of 18

(Bourdeau & Thomas, 2003; Moon & Hall, 1998; Moon, Nelson, & Piercy, 1993; Moon & Thomas, 2003; Thomas, 1995, 1999). Family therapy with a focus on the family system is also the preferred counseling modality for families dealing with labeling dynamics, especially if giftedness has become a family organizer, structuring the ways that parents relate to both the gifted child and the siblings (Colangelo & Assouline, 2000; Moon & Hall, 1998). The family can be a negative exogenous influence on the development of gifted youth when family relationships are strained, when parents adopt rigid and authoritarian disciplinary styles, or when the family experiences a difficult life-cycle transition, such as divorce or death of a sibling. Families with gifted children that have developed dysfunctional interaction patterns can benefit from traditional approaches to family therapy if the therapist is also aware of the characteristics and needs of gifted individuals (Bourdeau, 2001; Wendorf & Frey, 1985).

In general, individually oriented psychologists tend to favor parent guidance models, and systemically trained psychologists tend to favor family therapy. Some counselors use both types of family counseling, basing their choice on the nature of the presenting problem (Frey & Wendorf, 1985; Wendorf & Frey, 1985). This would seem to be the ideal situation—using parent guidance models for typical developmental issues facing gifted youth, and providing family therapy for presenting problems related to family relationships and/or more serious mental health concerns. One advantage of both types of models over individual models is that parents are actively involved in the counseling process, and presenting problems related to gifted children and/or family dynamics may therefore resolve more rapidly than with individual approaches.

PARENT GUIDANCE MODELS. Silverman (1991, 1993b), in her private practice in the Denver area for many years, specialized in working with intellectually and spatially gifted individuals across the life span. Although her training and primary approach was individual, she worked closely with parents when the gifted individual was a child. Her counseling model proposed analyzing parent concerns and helping parents uncover and resolve issues related to their own giftedness. Her approach was developmental, with a focus on helping gifted individuals to achieve their full potential. As in Rimm's (1995) Trifocal Model, Silverman addressed the parent, school, and child systems simultaneously in order to enhance the development of gifted youth. Silverman's developmental model was supported by extensive application in her own work, but has not been replicated or researched.

In 1985, a counseling center focused on gifted children was developed in Hamburg, Germany, that focused on working with parents of intellectually gifted children (IQ>130) who were underachieving and/or exhibiting behavior problems (Wierczerkowski & Prado, 1991). The Hamburg family counseling model focused on diagnostic assessment, followed by psychoeducation for parents, counselors, and teachers. The type of psychoeducation provided to the parents depended on parent behaviors and attitudes. If parents seemed to understand their child's giftedness and were prepared to support measures to meet the child's needs, the counselors provided suggestions for special provisions. If, on the other hand, parents were still struggling to accept their child's giftedness and/or holding their child back, counselors focused on providing parents with information about the special needs of gifted children.

Another university-based center for working with gifted children was developed at Ball State University in Indiana (Gridley, 2001). This model was developed and

implemented by school psychologists. Like the Hamburg model, the Ball State model began with a comprehensive assessment. The intervention phase of this model, however, was designed to address the common presenting problem of perceived inappropriate schooling for young gifted children (Yoo & Moon, 2006). A parent-guidance approach focused on helping parents advocate for appropriate school services.

FAMILY THERAPY MODELS. The Belin-Blank Center developed a brief family therapy model that was especially useful in addressing relationship issues in families of children who had been identified as gifted by their school (Colangelo, 1997; Colangelo & Assouline, 2000). The model was based on the Family FIRO model (Doherty & Colangelo, 1984; Doherty, Colangelo, Green, & Hoffman, 1985; Doherty, Colangelo, & Hovander, 1991), which categorizes and addresses family relationship issues hierarchically. As in the parent guidance models, therapy began with assessment. The assessment in this model focused on family relationships, using the *Family Adaptability and Cohesion Evaluations Scales III* (Olson, Portner, & Lavee, 1985) and the *Family Environment Scale* (Moos & Moos, 1994). Family issues related to inclusion, control, and intimacy were identified from the assessment. Using the hierarchy from the Family FIRO model, the therapist first addressed issues of inclusion, followed by issues related to control, and finally intimacy. The model helps clinicians prioritize family relationship issues and develop treatment plans.

Structural-strategic approaches to family therapy have been utilized by clinicians trained in both family therapy and the psychology of giftedness (Frey & Wendorf, 1985). Structural interventions have been reported to be effective in helping parents understand and address dynamics such as parentification, which can easily occur in families with a gifted child when the executive subsystem is not strong. Action-oriented, strategic interventions have been reported to be helpful in circumventing the intellectualizing tendencies of some families with gifted persons. Other family therapists prefer to use imaginative and postmodern approaches to circumvent intellectualizing (Thomas, 1995, 1999). Thomas believed that creative, narrative approaches fully engage the creative resources of the family, leveraging one of the strengths gifted families bring to therapy to therapeutic ends. Both Frey and Wendorf and Thomas believed that traditional talk therapy may not be the most effective method to use with these clients.

The second author developed an integrated model of family therapy that combined three approaches: (a) a strength-based, individual focus on talent development, (b) family life cycle therapy with the entire family unit, and (c) structural-strategic therapy focusing on both the family and the couple subsystem (Moon et al., 1993). Moon et al. reported that this integrative model was effective in a complex case with a highly gifted adolescent who presented with underachievement but was also coping with a recent family move, bullying, dysfunctional family relationships, and family violence. However, this integrated model has not been tested empirically.

Group Approaches

Mahoney et al. (2007) recommended group work, when appropriate and feasible and perhaps after individual work, as a context for facilitating connection to others, enhancing self-esteem, developing effective coping skills, and assessing and understanding how giftedness relates to identity. In general, group work can help gifted individuals develop social skills, particularly in regard to applying self-understanding

to understanding of others. Silverman (1998) advocated group work for mutual learning regarding developmental processes and the phenomenon of asynchronous development.

Peterson (1990, 2003, 2008) advocated discussion groups for gifted teens geared to affective, not academic, development in the interest of mental health, comfortableness in school, and motivation for learning. According to her extensive clinical experience with groups, gifted students appreciate being grouped homogeneously by ability and trust that gifted peers can understand them. Those who are shy gain from social access to peers and support for social and emotional development. Achievers and underachievers can break down stereotypes, find commonalities, and learn from each other. Restricting group size, with all members from the same grade level, ensures that all members can contribute and also connect about social and emotional concerns. Curriculum may be in the form of developmentally appropriate topics, related, for example, to identity, career development, peer relationships, learning styles, mood range, authority, and family roles. Such groups are likely to be more feasible in schools, including as part of programs for gifted students; however, they also can be effective in summer institutes and in gifted-education centers and clinics.

Future Directions

Implications for Practice

Although it is difficult to ascertain exactly how many practitioners have special expertise in counseling gifted children and adolescents, it appears that there is a national dearth of such professionals who are available for referrals for a wide array of problems that gifted children and their parents seek help for, according to a former chair of the Counseling and Guidance Division of the National Association for Gifted Children (E. Amend, personal communication, December 10, 2005). The recent edited volume of clinical perspectives on counseling gifted youth (Mendaglio & Peterson, 2007), mentioned earlier, therefore offers rare guidance for practice. Perhaps more and more professionals will increase their understanding of giftedness through scholarly literature and clinically oriented convention presentations and regional workshops. The latter may now increase in number, given recent developments regarding training standards, which will be discussed in the following section.

Implications for Training

According to a study (Peterson & Wachter, 2007) of CACREP-accredited school-counseling programs, preparatory curriculum gives little or no attention to unique developmental concerns and counseling issues related to high ability. Only 62% of programs gave any attention at all. Of those, 94% devoted 6 or fewer contact hours in the entire preparatory program (58% of all programs), 75% devoted 3 or fewer contact hours (47% of all programs), and 13% devoted 1 contact hour or less (8% of all programs).

Such minimal emphasis on the overlay of characteristics associated with giftedness on social and emotional development, on the dark side of high capability,

and on the need for differentiated counseling responses suggests that school counselors may not respond to gifted students appropriately or at all. Furthermore, like other educators who may be unaware of complex affective concerns of gifted students, counselors may have attitudes and biases that preclude trusting relationships, and therefore effective work, with gifted clients. Whether counselors can embrace giftedness, affirm it, be comfortable with it, not need to compete with it, and be aware of associated risk factors is important in their work with gifted youth (Peterson, 2006b).

The survey in the Peterson and Wachter (2007) study asked program representatives to indicate the degree to which each of several items represented a barrier to giving attention to counseling concerns related to high ability. In terms of highest percentages, no accreditation requirement was "definitely a barrier" for 25%; no pertinent state or national standards was "definitely a barrier" for 22%; no room in the curriculum was a "great barrier" for 33%; and lack of philosophical support among faculty was "probably a barrier" for 27%. Responses indicated a current low to moderate level of faculty *expertise* in regard to affective concerns of gifted youth; *perceived need* for increasing expertise; faculty *support* for addressing this topic; and *interest* in teaching about the gifted.

These findings are not a surprise and most likely would hold true for other counseling-related training programs such as those for school psychologists, clinical psychologists, counseling psychologists, and psychiatrists. Positive media stereotypes and school images of "brightest" students usually do not make a compelling argument that there are, in fact, a multitude of social and emotional concerns. Even the field of gifted education probably has not shown a sufficiently furrowed brow when advocating for services. In addition, research samples have often not been inclusive enough culturally or socioeconomically or in terms of performance levels to reflect broad affective concerns. Yet clinicians and academics who have contributed to scholarly literature support the idea that gifted children and adolescents need differentiated counseling approaches. Two pertinent developments represent progress. Training modules, such as the one developed by the Ohio Department of Education on a federal Javits grant (Sue Heckler, personal communication, September 1, 2006), might be disseminated to counselor-preparation programs to raise awareness about needs and to provide guidance for practice. School-counselor preparation at The University of Iowa now includes significant focus on counseling gifted children and adolescents—still the only such program nationally, but a model nevertheless.

Implications for Research

Essentially no empirical research has focused on outcomes of individual and group interventions with gifted individuals, and very little has studied family interventions. One challenge for researchers is that large, available samples of gifted children and adolescents with counseling issues do not exist. In addition, very little funding is currently available for scholarly work related to counseling interventions and outcomes. Major grants tend to focus on serious mental-health issues. Highly able students are not exempt from these, and characteristics associated with giftedness may even be risk factors. However, gifted individuals collectively are stereotypically not seen as being at particular risk. The Supporting Emotional Needs of Gifted

(SENG) Foundation is an example of a rare organization which has offered funding for pertinent studies in the past, but future SENG funding for research is uncertain. Nonetheless, there are glimmers that scholars are persisting. Chan's many recent studies (e.g., 2005, 2006) related to self-efficacy, predicted adjustment, and resilience amid negative environments are examples of important findings being added to the collective knowledge.

It is hoped that other gifted-education organizations will begin to offer seed grants to scholars interested in studying giftedness in school-age youth. Even small, start-up financial incentives might generate interest in studying social and emotional development, counseling interventions, and outcomes through pilot studies which might lead to larger projects. Clinicians, too, might not only seek information and training about working with gifted individuals, but also independently or in collaboration with university scholars conduct much-needed studies. Finally, with appropriate advocacy, large federal funding agencies such as NIMH might establish initiatives to fund the large, randomized clinical trials that are needed to determine how counseling models can be differentiated for gifted clients and which of the models developed for work with gifted clients are most effective for different types of presenting problems.

Conclusion

Though scholarly contributions to the literature have been providing more and more information and insights about the social and emotional development and counseling concerns of gifted youth, there has been little attention to counseling practice, counselor training, and research related to interventions and outcomes. The few counseling models which have been published by clinicians have generally not been tested empirically. Nevertheless, attention to counseling issues and practices has been slowly increasing.

The initial focus here was on endogenous and exogenous developmental challenges related to giftedness, including the interplay of giftedness and school, peer, and family environments, with the assumption that all of these elements are related to presenting issues. The counseling approaches to individual, group, and family work which followed, though from a limited number of clinicians, offered guidance for professional practice. Given the difficulty of securing financial and institutional support for research of practice, training, and research related to the social and emotional development of gifted children and adolescents, organizations interested in giftedness were challenged to offer seed grants for pilot and other studies. Findings could potentially offer helpful information about counseling interventions and outcomes to both young and veteran individuals in the helping professions.

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Chapter 13

Creativity

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Creativity is arguably among the most important —yet least understood —psychological constructs. Creativity is often conceptualized as an engine of economic development as well as the impetus behind technological advances, workplace leadership, and life success (see Amabile, 1998; Davila, Epstein, & Shelton, 2006; Kappel & Rubenstein, 1999; Stevens & Burley, 1999; Tierney, Farmer, & Graen, 1999; Torrance, 1981a). Florida (2002, 2005) goes so far as to make a strong case that the American economy is, in fact, a "Creative Economy."

Of course, creativity's virtues extend beyond economic benefits. The recent rise in popularity of positive psychology, with its shift in emphasis from pathology to prevention and personal strengths, has focused attention on the use of creativity and creative development as paths to improve the human condition. For example, creativity has been associated with maintaining healthy, loving relationships (Livingston, 1999), effective therapy (Kendall, Chu, Gifford, Hayes, & Nauta, 1998), learning to resolve conflicts effectively (Webb, 1995), combat grief (Davis, 1989), and even the use of humor to defuse potentially violent circumstances (Jurcova, 1998). With such a diverse array of effects, one might presume an abundance of attention and funds have been spent researching creativity. However, Sternberg and Lubart (1996) concluded that psychology researchers have committed far too few resources toward creativity given its importance to the field and the world, and the situation appears to have changed little since their observations a decade ago.

Frameworks of Creativity

Definitions

Williams (1999) noted that the usefulness of higher-order cognitive constructs is connected to the clarity with which they are defined and measured. Definitions of creativity have not always accomplished this and have sometimes been presented in a nonchalant manner. In fact, most creativity research does not include an explicit definition; this partially accounts for the often conflicting research on the topic. As such, those in the field become estranged from each other by semantic issues and those outside the field become distanced because it appears no one in the field can even define creativity. Perhaps worst of all, recognition of such problems has been around for decades (e.g., Yamamoto, 1965).

Explicit definitions of creativity do exist but are far from the norm. Plucker, Beghetto, and Dow (2004) proposed a synthesized definition of creativity based on several recurring elements from the literature. In this chapter, we adopt their proposed definition: "Creativity is the interaction among aptitude, process, and environment by which an individual or group produces a perceptible product that is both novel and useful as defined within a social context" (p. 90).

Theoretical Models of Creativity

There have been numerous conceptions of creativity and methods of measuring creative output. Although space does not permit a comprehensive overview of theoretical models, this section highlights a few of the more influential theories in the field. For a more comprehensive review of theories of creativity, see the *Handbook of Creativity* (Sternberg, 1999b) and *The International Handbook of Creativity* (Kaufman & Sternberg, 2006).

Psychometric Conceptions: Guilford and Torrance

J. P. Guilford (1950) is often credited with catalyzing scientific research on creativity. Although disagreement exists about the importance of his 1950 American Psychological Association Presidential address on creativity, his influence was considerable: Nearly every chapter of *The International Handbook on Creativity* (2006) cites Guilford's influence as sparking research on creativity in each country. In his Presidential address, Guilford noted that the study of creativity was found in only 0.2% of all psychological research and challenged the field to increase this number. For his own part, Guilford did much to facilitate the growth and development of creativity and creativity research.

Guilford's creativity research on creativity and problem-solving was part of his broader Structure of the Intellect model (1967). Guilford stressed that intelligence was not comprehensively measured in traditional intelligence tests, and he conceived intelligence as a cube with dimensions of operations, content, and products. Operations consisted of cognition, memory, divergent production, convergent production, and evaluation. Content could be broken down to figural, symbolic, semantic, and behavioral whereas products were made of units, classes, relations, systems, transformations, and implications. According to Guilford, each component can be

matched with others from the different dimensions to form 1 of 120 unique kinds of intelligence. The part of Guilford's model that is most relevant to creativity is the operation of divergent production, or the ability to generate numerous responses. Rather than study the creative genius, Guilford used a psychometric approach, measuring creativity with the paper-and-pencil Unusual Uses Test that measured what Guilford eventually termed "divergent thinking." Indeed, Guilford has been credited with founding the psychometric measurement of creativity (Sternberg & O'Hara, 1999).

Building on Guilford's work, Torrance (1974) created the Torrance Tests of Creative Thinking (TTCT). Testing fluency (total number of responses), flexibility (number of different kinds of responses), originality (the uniqueness and rarity of responses), and elaboration (the detail of responses), Torrance's tests became the bedrock of the psychometric assessment of creativity. Their universal appeal and application is evident throughout the field. Rose and Lin (1984) conducted a meta-analysis that was restricted to studies that had used the TTCT. Moreover, Torrance and Presbury (1984) conducted a survey and found that roughly 75% of published creativity studies on K-12 students and 40% of published creativity studies on college students and adults had used the TTCT.

Systems Theories

Although researchers such as Mark Runco and James Kaufman continue to study creativity psychometrically, other scholars have proposed systems theories of creativity. Csikszentmihalyi (1988, 1999), for example, has taken a systems approach to creativity that emphasizes the interaction between an individual, the domain, and the field in which creativity occurs. The systems perspective focuses on the confluence of events that occur when creativity happens rather than considering creativity to be a trait of an individual. According to Csikszentmihalyi, creativity is not just a mental process, but also a cultural and social event. In a systems approach, a field is the social organization that makes decisions in a particular area. For example, most people do not understand Einstein's theory of relativity, but accept it as true because the gatekeepers in the field accept it. A domain is the cultural or symbolic portion relevant to creativity. Creativity "happens" when an individual changes a domain.

SOCIAL PSYCHOLOGY OF CREATIVITY. Amabile (1983, 1996), whose work is among the most influential in the field, proposed a componential framework of creativity. The theory was originally conceived as a comprehensive theory of creativity that took cognitive, personality, motivational, and social factors into account. The theory states that the creative process follows a fixed sequence of steps. The steps are problem presentation, preparation, response generation, response validation, and outcome. The three primary influences of the creative process are domain-relevant skills, creativity–relevant skills, and task motivation (Amabile, 1983). Domain-relevant skills vary depending on the person and the task at hand. However, task motivation is a prominent factor in the creative process and acts as a gatekeeper that determines whether the creative process is begun—or, once begun, continues. The theory was updated and modified (Amabile, 1996) to account for the potential nonlinearity of the creative process (i.e., the creative process does not always follow the steps in that sequence).

Amabile (1982) also introduced the Consensual Assessment Technique (CAT). The CAT measured creative production in a unique way by eliminating a perceived weakness

of prior work: providing raters of creativity with definitions or criteria. Because the CAT uses an implicit definition of creativity, "a product or response is creative to the extent that appropriate observers independently agree it is creative" (Amabile, 1982, p. 1001), individual differences in interpretation of "creativity" are muted. The reliability and validity of the CAT are supported by research showing that people know creativity when they see it (Amabile, 1982; Baer, 1994b). Despite allowing judges to use their implicit definitions, creativity is reliably assessed (Amabile, 1982). The CAT has been applied to an array of creative products (Amabile, 1996; Baer, 1994b; Hennessey & Amabile, 1988a, 1988b), and in numerous settings (e.g., Baer, 1993; Sternberg & Lubart, 1991).

Investment Theory of Creativity.   Unlike Guilford, who saw creativity as an aspect of his Structure of Intellect model, Sternberg asserts that creativity does not fully explain intelligence and that intelligence does not fully explain creativity. In other words, creativity "comprises intelligence plus other things" (Sternberg & O'Hara, 1999, p. 254). Sternberg and Lubart (1995) elaborate on those "other things" in the Investment Theory of Creativity. According to the investment theory of creativity, creativity is the result of an interaction between an individual, an environment, and a particular task. Creative individuals are like financial investors who turn a profit by buying low and selling high. Translated to creativity, the creative individual formulates ideas that are not popular or well-developed and persuades others of their worth and value. However, once these ideas become accepted, the creative individual sells them and moves on to the next set of unpopular ideas.

Sternberg and Lubart proposed six elements that work in concert to generate creativity in individuals. The elements are intelligence, knowledge, thinking styles, personality, motivation, and the environment. Creativity results when these elements are present in a given individual in a particular situation.

Developmental Perspectives

Explanations for how creativity develops in individuals have a short history with a long past. There are several edited volumes that provide extensive reviews of the development of creativity (e.g., Isaksen, Murdock, Firestien, & Treffinger, 1993; Sawyer et al., 2003). We provide a brief synopsis here.

In their article on why creativity research has been neglected, Sternberg and Lubart (1999) explain that creativity was once considered mystical and spiritual, examples of which are Rudyard Kipling's belief that a daemon lived in a writer's pen and Plato's claim that the Muses were responsible for the creative acts of mere mortals. Under this view, individuals do not develop creativity; rather, they seek to find it or it finds them. Plucker et al. (2004) posit that believing creativity to be a static all-or-none phenomenon is one of the most pervasive myths surrounding creativity. Despite an abundance of research showing that training can increase creative production (e.g., Amabile, 1983, 1996; Sternberg & Lubart, 1992; Torrance, 1972a), the belief that creativity is static persists (Treffinger, Isaksen, & Dorval, 1996).

However, intraindividual variations in creative production vary substantially: Simonton (e.g., 1999b) showed that creative production tends to follow an inverse-U development curve over time, with the average age of peak creative production varying from domain to domain. For example, creativity in mathematics peaks

between age 20 and 30, whereas biologists' creativity peaks on average two decades later. Torrance has also provided psychometric evidence of developmental changes (Torrance, 1968; Torrance & Gupta, 1964). These changes across the life span provide convincing evidence that creativity is not a static construct.

Important Conceptual Issues in the Study of Creativity

Biological Bases for Creativity

There has been significant interest in finding the biological—and, more specifically, neurological—basis for creativity for some time. Despite attempts to clarify the neurological antecedents of creativity, we are not much closer to being able to predict creativity empirically from brain functions than we were 20 years ago. One potential hurdle that may slow such advancement is the aforementioned variety in the definitions of creativity. Numerous researchers have developed a series of hypotheses to be tested to better answer questions regarding the relationship between creativity and brain functions (Dietrich, 2004; Heilman, 2005; Martindale, 1999), but all also lament that that data have not yet been collected. To further muddy the waters, Martindale (1999) also posed the question of whether physiological differences are caused by or result from creativity.

This murkiness should not be taken to imply we know nothing about the relationship between creativity and brain functions. In a review of the literature, Martindale (1999) concluded that general increases in arousal lead to decreased creative production. Such decreases in creative production can be manifest in the form of more stereotypical writing in stressful situations. However, some evidence exists that people are able to control their level of cortical arousal. When participants were connected to biofeedback and told to keep a light bulb that is powered by their brain waves either on or off, they are able to do so (Kamiya, 1969). Interestingly, participants who scored high on measures of creativity initially performed *better* at powering the light bulb than those who scored lower on behavioral measures of creativity, but within a few minutes were *worse* at it than people who score low on measures of creativity (Martindale & Armstrong, 1974; Martindale & Hines, 1975). Nonetheless, research in this area generally illustrates that creativity is not a function of self-control or will. Creativity cannot be turned on and off like the light bulb. Rather, creativity seems to be more of a reaction to a situation (see Martindale, 1999, for a discussion).

Big C versus Little c Creativity and Similar Debates

One of the most common ways creativity is distinguished in research is whether it concerns Big C or little c creativity. Under this conception, Big C creativity is eminent creativity such as the creativity of Freud or Picasso (Gardner, 1993). On the other hand, little c is everyday creativity: creativity that people can perform on a regular basis. Big C creativity has received extensive research attention (e.g., Gardner, 1993; Simonton, 1994), but overemphasizing Big C creativity may foster the belief that creativity is rare and available only to the lucky few (Plucker et al., 2004). Indeed, some

researchers have found that teachers hold such a belief (e.g., Fryer & Collings, 1991). Lamentably, the vast majority of research on adult creativity focuses on eminent creativity and not everyday creativity. Several possible explanations for this research imbalance are detailed in subsequent sections of this chapter. These explanations include conceiving creativity to be limited to particular domains, thinking of creativity as an all-or-none, static construct, and believing creativity to be predominantly content-specific and context-bound.

Recently, Beghetto and Kaufman (in press) proposed adding an additional level, mini-c. Whereas Big C and little c creativity rely on interactions with others, mini-c is an intrapersonal assessment that extends the creative process to more than just external interactions. Beghetto and Kaufman hope that this broadened conception of creativity will serve as a bridge to connect creativity and learning more effectively than current theoretical approaches allow. Runco (2005) proposed a similar conception of creativity called personal creativity. In personal creativity, any form of cognitive adaptation by an individual yields a creative product. Citing Piaget (1976), Runco posits, "to understand is to invent" (p. 298) and thus is to be creative.

In their "propulsion theory" of creativity, Sternberg and colleagues (1999a; Sternberg, Kaufman, & Pretz, 2001, 2002) have disaggregated creativity even further—into eight qualitatively distinct kinds of creativity. The concept of propulsion stems from the idea that a creative idea propels a field forward. These eight kinds of creativity are grouped into three categories: those that accept current paradigms, those that reject current paradigms, and those that synthesize current paradigms. The creative contributions that accept current paradigms are replication, redefinition, forward incrementation, and advance forward incrementation. The types of creative contributions that reject current paradigms are redirection, reconstruction/redirection, and reinitiation. Finally, integration is the label given for creative contributions that synthesize current paradigms. The distinctions are not meant to illustrate differences in quality or amount of creativity; rather, they simply differentiate types of creativity.

Limited to Specific Domains?

A common misconception about creativity is that a person can only be creative within a few particular domains (e.g., painting or poetry). Many also believe in the stereotype that creative people are loners and do not fit in with their peers or society as a whole. The first misconception is simply unfounded and the second is contradicted by any number of examples of creative individuals. Gardner (1993) clearly shows that many of the most eminent creative individuals are quite accomplished at selling their ideas. The belief that creativity is limited to a few domains for a few individuals leads people to believe that creativity is "soft" or "fuzzy." On the contrary, as discussed throughout this chapter, the construct of creativity has become quite sophisticated. In many cases (e.g., Smith, Ward, & Finke, 1995), research on creativity has adopted well-defined themes that address creativity rigorously. Relying on current definitions, creativity is not limited to specific domains but can be produced in any number of areas. Csikszentmihalyi (1999) concluded that an individual might be creative in any established domain as long as it has an established set of rules and traditions.

Content Generality versus Content Specificity

In a related vein, researchers disagree about whether a creative person tends to be creative in a particular domain or whether that person would be creative in numerous domains. The dominant position held today is that creativity is content-specific. This position is supported by recent research on situated cognition and other areas within cognitive science (e.g., Barab & Plucker, 2002). Additionally, domain-specific creative tasks tend to have low correlations with each other (Baer, 1998), and emphasis on task-specific training typically yields task-specific creative performance (Csikszentmihalyi, 1999; Gardner, 1993). Nonetheless, other researchers (e.g., Cramond, 1994; Plucker, 1998) argue that a domain-specific conception fails to account for theoretical and methodological issues. For example, a systems approach to creativity (e.g., Csikszentmihalyi, 1988, 1999) takes the view that creativity cannot be determined entirely within a domain. The interactions between person, context, and the domain must also be considered. Implicit theories of creativity also support a domain-general perspective (Kaufman & Baer, 2002; Lim & Plucker, 2001; Runco & Bahleda, 1986).

A more fruitful question may focus on which aspects of creativity are content-general and which are content-specific. Plucker and Beghetto (2004) suggest that the answer to this question may change as a person develops and matures. Such distinctions are noteworthy because content-general creativity implies that there are general skills that can be taught to enhance creativity. On the other hand, if creativity were content-specific, general creativity training would not be worthwhile. To assess whether creativity was content-specific or -general, Runco (1987) compared student responses for a creativity checklist to quality ratings of students' creativity. According to Runco, student responses supported a content-general conception of creativity on the creativity checklist but demonstrated content-specific ratings on the quality ratings.

Hot Topics in Creativity Research

Creativity and Drug Use

Expanding one's mind through the use of drugs and alcohol is a common conception. This belief, according to Isaksen (1987), likely originates from equating creativity with novelty. Under this purview, anything new or unique is creative. However, novelty is not synonymous with creativity. Moreover, merely being in an altered stated does not necessarily enhance the likelihood of novelty (Neihart, 1998; Plucker & Runco, 1999). There is some evidence (e.g., Norlander, 1999) that alcohol consumption simultaneously augments and suppresses various skills associated with creativity. For example, decreased inhibitions may facilitate opportunities for creativity, but diminished preparation and communication abilities suppress creative expression.

Despite such findings, there are numerous famous anecdotes of revolutionary artists who abused drugs or alcohol. Nevertheless, such anecdotes can be extremely misleading; they distort how creativity is produced, particularly when more important questions remain unanswered (Plucker et al., 2004; Plucker & Dana, 1998). Such questions include why some creative individuals turn to drugs and alcohol (i.e., is their creativity critical or irrelevant to the drug use?), whether creativity can be used to fight

drug abuse and alcohol (can creative activity be used to "inoculate" people against substance abuse?), or whether the behaviors of a few eminent individuals are even relevant to the creativity of most people (see the Big C–little c discussion earlier).

Creativity and Mental Illness

According to Plucker et al. (2004), a similar myth surrounds the relationship between creativity and mental illness. Psychopathology is discussed in two chapters of the *Handbook of Creativity* (Csikszentmihalyi, 1999; Simonton, 1999a); these authors claim that the research cited in each chapter suggests a relationship between creativity, mental illness, and pathology. However, Csikszentmihalyi asserts that this relationship could be explained by the fact that individuals in creative fields receive little cultural support. These conclusions differ from what Isaksen (1987) described as the stereotype that a creative person "must be mad, weird, neurotic or at least unusual" (p. 2). These conclusions differ in that, as Isaksen also notes, "there is no clear evidence to suggest that to be creative, a person *must* also be neurotic or psychologically disturbed" (emphasis added, p. 3). Correlation, after all, does not equal causation— and in this case, the existence of a strong correlation between creative production and mental illness remains questionable.

The belief in the relationship between creativity and mental illness also exists in a less dramatic fashion in the school setting. For example, teachers may perceive creative students to be potential troublemakers and nonconformists (Chan & Chan, 1999; Scott, 1999). Having these beliefs may inhibit creativity and creativity enhancement in students and can even exist when teachers view creativity to be important (Dawson, 1997).

Creativity, Intelligence, Giftedness, and Other Psychological Constructs

For much of the twentieth century, it was believed that creativity and intelligence were closely related. In a retrospective analysis of the childhoods of some of the most eminent creators in history, Cox (1926) calculated the correlation between posited intelligence and the eminence (a proxy for creativity) of the individual to be 0.16. However, on reanalysis, no such correlation was found (Simonton, 1976). More recent research on the relationship between creativity and intelligence has produced varying results (Fuchs-Beauchamp, Karnes, & Johnson, 1993; Getzels & Jackson, 1962; Runco & Albert, 1985, 1986). However, these findings must be taken with a grain of salt. Intelligence and creativity theories have become increasingly more complex in recent decades (e.g., Ceci, 1990; Gardner, 1993; Sternberg, 1988). Thus, comparisons of intelligence and creativity must also evolve with the increased complexity of theory. This makes the interpretation of research increasingly difficult because research relying on varying definitions, measures, samples, and analyses will reveal different aspects of the intelligence–creativity relationship.

Regardless of the controversy, Plucker and Renzulli (1999) conclude it is now a matter of uncovering not whether, but *how* the two are related. Sternberg and O'Hara (1999) suggested five potential ways in which creativity and intelligence could be related: "(1) Creativity is a subset of intelligence; (2) intelligence is a subset of creativity; (3) creativity and intelligence are overlapping sets; (4) creativity and intelligence

are essentially the same things (coincident sets); and (5) creativity and intelligence bear no relation at all to each other (disjoint sets)" (p. 251). In a review of the research of the creativity–intelligence relationship, Sternberg et al. (2002) concluded that the relationship depends largely on how each is defined and measured.

However, Sternberg et al. also concluded that creative people typically have above-average intelligence, but that the relationship between creativity and intelligence diminishes above an IQ of 120. This finding (often described as the Threshold Effect) may be the result of extremely high intelligence inhibiting creativity (Simonton, 1994; Sternberg, 1996). Furthermore, fields that reward knowledge acquisition or analytical thinking but not creativity may stifle creative production whereas fields such as the arts, where creativity is essential for success, reward creative production.

The relationship between creativity and giftedness has also received substantial attention. Renzulli's three-ring definition of giftedness (1977, 1986, 2005) consists of the interaction of above-average ability, task commitment, and creativity (the three rings) within the interaction of personality and environment. Here, creativity composes a portion of gifted behavior. Renzulli and colleagues have developed a sophisticated method of schoolwide implementation emphasizing the three-ring conception thus simultaneously also implementing a schoolwide fostering of creativity (for a review, see Renzulli, 2005). Runco (2005) has defined creative giftedness as "(a) an exceptional level of interpretive capacity; (b) the discretion to use that capacity to construct meaningful and original ideas, options, and solution; and (c) the motivation to apply, maintain, and develop the interpretive capacity and discretion" (p. 303). In other words, both Runco and Renzulli appear to believe that creativity is a necessary but not sufficient component of giftedness.

Creativity and Gender, Ethnic, and Cultural Issues

In general, gender comparisons of creativity do not provide evidence of differences in creativity (for reviews see Baer, in press; Baer & Kaufman, 2006). Although the amount of creativity may not differ between males and females, numerous investigations have reported gender differences on specific *kinds* of creative behavior. For example, analysis of TTCT results showed no overall gender differences in creativity, but girls reported more sexual responses while boys reported more aggressive responses (Dudek & Verreault, 1989). Strough and Diriwaechter (2000) also found that boys were more likely to report aggressive ideas and were also less likely to report prosocial responses.

Baer (1997) investigated how creative production in the form of poem- and story-writing was influenced by situations inspired by differing motivations. In the extrinsic motivation condition, participants were told the stories/poems they wrote were to be evaluated whereas students in the intrinsic motivation condition were told their stories would not be rated. Baer found that eighth-grade boys performed relatively similarly regardless of motivation while eighth-grade girls' creativity suffered in the extrinsic motivation condition.

Similarly, numerous studies report no significant difference between white and black students in creative production, creative thinking, training of creativity, or the relationship between intelligence and creativity (Iscoe & Pierce-Jones, 1964; Torrance, 1971a, 1973). However, research on white–Latino differences in creativity has produced mixed results (e.g., Garcia, 2003, among others).

Creativity Assessment

Historically, there have been four routes to assessing creativity (Plucker & Renzulli, 1999). Frequently referred to as the four P's, here we instead call them Person, Product, Process, and Environment (as opposed to Press). The following section discusses what each path to assessing creativity entails and how each is used to assess creativity. Rather than list in text the associated instruments that have been developed to assess creativity, we have compiled a sample of them in the Appendix while reserving the in-text discussion for some of the most widely used instruments (for a review of creativity measures, see Callahan, 1991; Hocevar & Bachelor, 1989; Hunsaker & Callahan, 1995).

Personality Assessments

There are four types of personality assessments of creativity: personality instruments, biographical inventories (both self- and other-report), attitudinal measures, and implicit theories. Creative products can be rated by expert or novice judges.

PERSONALITY INSTRUMENTS.   Researchers have developed numerous methods to measure personality characteristics of creativity; the most frequently used measures rely on either self-report or external ratings. Each can be used to gather information regarding personality and creative achievement. Personality instruments are typically created by studying creative people and finding similarities in their personalities. Thus, personality instruments rely on the assumption that those whose personalities are similar to creative individuals are more likely to be creative individuals themselves.

Davis (1992) found several personality traits associated with creative people across numerous personality instruments. These traits include awareness of being creative, originality, independence, propensity to take risks, personal energy, curiosity, humor, attraction to complexity and novelty, artistic sense, open-mindedness, need for privacy, and heightened perception. Another common personality trait found in creative people is a tolerance for ambiguity (Dacey, 1989; Sternberg, 1988).

BIOGRAPHICAL INVENTORIES.   Some might be surprised that biographical inventories are considered personality assessment, not product assessment. We place this section here because biographical inventories do not directly assess an actual product. Some researchers (e.g., Hocevar & Bachelor, 1989; Wallach, 1976) prefer biographical instruments to other methods of measuring creativity. These measures follow the assumption that prior creativity is the best predictor of future creativity (Colangelo, Kerr, Huesman, Hallowell, & Gaeth, 1992). Thus, self-reports of prior (and sometimes current) behaviors are used to estimate creative potential.

In some cases, such as with small children or with groups, self-report assessments are not appropriate or practical. To address these situations, numerous instruments that allow others (e.g., parents, teachers, or peers) to complete them have been developed (Runco, 1989b; Torrance, 1962). Research on the validity of external ratings has been inconclusive; some support validity claims (e.g., Renzulli, Hartman, & Callahan, 1981; Runco, 1984) while others do not (e.g., Hocevar & Bachelor, 1989; Holland, 1959; Pegnato & Birch, 1959).

ATTITUDE MEASURES.   Although substantial work has yet to be done in the area, measuring attitudes toward creativity has become an important aspect of person-oriented creativity. Regarding the importance of attitudes in the business world, Basadur and Hausdorf (1996) stress that knowing the attitudes of managers can help dictate the appropriate course of action to facilitate future performance. Further, ideational thinking and attitudes have been connected (Basadur & Finkbeiner, 1985). Such ideas have not yet been transferred to the school setting, but appear ripe for the plucking.

IMPLICIT THEORIES.   An implicit theory of creativity is the conception an individual has about creativity on his or her own. Using implicit theories, a researcher can tap into stereotypes people have about a construct and can better plan interventions to facilitate development (Sternberg, 1993). Research on the implicit theories of parents and teachers reveals similar conceptions of creativity (Runco, 1984, 1989b; Runco, Johnson, & Baer, 1993). Both groups report associating children's creativity with adventurousness, being artistic, curiosity, enthusiasm, and imagination. One distinction Runco et al. (1993) found between parents and teachers was that parents tended to use intrapersonal traits (e.g., self-confident, resourceful) to describe creative children while teachers used social adjectives (e.g., cheerful, friendly) to describe creative children. Nevertheless, research using implicit definitions of creativity is typically consistent with research relying on explicit definitions of creativity.

Product Assessments

The assessment of creative products seeks to combat the weaknesses of divergent-thinking tests and creativity rating scales (Runco, 1989a). Indeed, MacKinnon (1978) proclaimed, "the starting point, indeed the bedrock of all studies of creativity, is an analysis of creative products, a determination of what it is that makes them different from more mundane products" (p. 187). Moreover, analysis of creative products allows researchers to compare various types of creativity research because the creativity of the same product can be assessed via different methods. However, such comparisons have a criterion problem; there is no universally accepted criterion of assessing creativity (McPherson, 1963; Shapiro, 1970). Measures of creative products have been tested many times for reliability, but validity remains an issue.

The most common method used to estimate the creativity of a product is the previously discussed consensual assessment technique by Amabile (1983). Relying on the ratings of external judges, creative products can be assessed by teachers, parents, or expert judges. For practical reasons, teacher ratings have received the most attention in education. One study comparing the ratings of teachers and parents (Runco & Vega, 1990) reported that both groups' ratings were moderately correlated with divergent thinking test scores.

There are two types of research that use expert judges' ratings. In some cases, researchers have given expert judges guidelines to rate creativity. For example, when judging art students' drawings, Csikszentmihalyi and Getzels (1971) asked artists and art critics to rate the drawings on the basis of craftsmanship, originality, and aesthetic value, with mixed reliability and validity results. Meanwhile, other studies give little guidance and make judges rely on their own implicit theories of creativity. Because criterion problems are avoided by relying on real-world definitions of creativity, the

CAT has become a popular measure of creativity (e.g., Baer, 1993; Hennessey, 1994; Sternberg & Lubart, 1991).

However, relying on the implicit theories of expert judges is not perfect. Selection criteria for who is considered an expert can vary substantially across numerous factors including the skill of the subjects, the skill of the judges, the target domain, and purpose of the assessments (Amabile, 1996; Runco & Chand, 1994; Runco, McCarthy, & Svenson, 1994; Runco & Smith, 1992). Baer (1994a) notes that comparing the ratings of different groups of experts is unreliable. However, others (e.g., Amabile, 1996; Dollinger & Shafran, 2005) have shown that judges should have some familiarity with the domain. For example, Dollinger and Shafran allowed judges to preview products similar to those they would be rating. Even this minor increase in familiarity increased the correlation between expert and novice judges from 0.74 to 0.90.

Process/Cognitive Assessments

Process assessments do exactly that, measure the processes that are associated with creativity. Starting with Guilford's (1967) SOI battery of tests that measure divergent production, assessing the creative process has been the dominant method of creativity measurement for over 40 years, particularly in schools (Hunsaker & Callahan, 1995). The most commonly tested component is fluency, or ideation, of divergent thinking. Divergent thinking is not the sole component of the creativity process, but it is often used as a proxy for the creative process. In its entirety, the SOI battery has dozens of tests that measure divergent thinking in ways such as fluency, flexibility, originality, and elaboration of ideas.

As discussed above, Torrance developed his own tests of creativity that are based in many ways on the SOI battery. The TTCT has been revised numerous times since its creation and remains popular. Although tests of divergent thinking have been found to illustrate reliability (e.g., Torrance, 1981b; Torrance, Khatena, & Cunnington, 1973), estimates of predictive and discriminant validity have been mixed (cf. Bachelor, 1989; Clapham, 1996; Cooper, 1991; Fox, 1985; Renzulli, 1985; Rosen, 1985; Thompson & Anderson, 1983). Much of this variability has been attributed to practice effects and variations in administration conditions and scoring (e.g., Chand & Runco, 1992; Torrance, 1972a, 1988). However, these deficiencies need not be the death knell of divergent thinking tests. Because of their reliability, divergent thinking tests are used to assess the development in the creative process over time (Plucker & Renzulli, 1999). Additionally, alternate methods for scoring divergent thinking tests can be used, particularly when scores on specific types of tests are of particular interest. For example, an extremely high fluency score can artificially inflate originality and flexibility scores (Hocevar, 1979a, 1979b). To avoid such problems, Runco and Albert (1985) used both verbal and nonverbal measures of divergent thinking. Using nonverbal tests, originality scores were reliable regardless of fluency scores. These examples show that although divergent thinking tests have their uses, their scores must be interpreted carefully.

Readers should not forget that creativity is more than novelty; usefulness is a key component of creativity—a component neglected when one relies solely on divergent thinking measures to estimate creativity. One way researchers have ensured that usefulness is a part of creative process is to analyze problem-solving processes. An example of problem solving and the creativity process is the study of insight. Insight, or the moment of understanding/comprehension, is how individuals solve problems.

Research on insight has become common (e.g., Dominowski & Dallob, 1995; Finke, 1995; Martinsen, 1993, 1995) and insight has been referred to as the most important cognitive process (Metcalfe, 1995, p. x).

Environmental Assessments

Amabile's (1983, 1996) work on the social influences of creativity was the forerunner of numerous other approaches emphasizing environmental influences on creativity. Rubenson and Runco's psychoeconomic theory (Rubenson, 1990; Rubenson & Runco, 1992), Sternberg and Lubart's (1991, 1996) investment theory, and Csikszentmihalyi's (1988, 1999) systems approach, are all examples of creativity conceptions in which environmental contexts are a featured aspect. Additionally, other researchers (e.g., Plucker, 1994) have begun to examine how the research stemming from these conceptions can be applied to environmental settings in order to foster creativity.

A potential weakness to such applications is the dearth of psychometric investigations of environmental assessments of creativity. Prior to developing creativity interventions, specific environmental variables that facilitate (and inhibit) creativity need to be determined. Amabile and colleagues (e.g., Amabile, Conti, Coon, Lazenby, & Herron, 1996; Amabile & Gryskiewicz, 1989) have been working on developing such measures for the workplace, but research on applications for the classroom (Hill, 1991; Siegel & Kaemmerer, 1978) has stalled at the initial level and not advanced beyond initial stages.

In a related area of research, Amabile, Hill, Hennessey, and Tighe (1994) analyzed the impact of being internally or externally motivated on creativity in different environments. They found that the relationship between external motivation and a variety of creativity scores was either negative or nonsignificant. On the other hand, intrinsic motivation was moderately correlated with possessing a creative personality and producing creative products. Similarly, comparisons of personality traits, creative product ratings, and environmental characteristics show that individuals possessing particular personality traits produce more creative products in supportive environments. As noted by Plucker and Renzulli, (1999) this area of research has yet to mature into a clear explanation and until this happens, the exact nature of the relationship between person, product, process, and the environment remains unknown.

Creativity Enhancement

Nickerson (1999) asserts that, lacking evidence to the contrary, assuming that creativity can be enhanced is compelling, but more interesting is the question of *how*, not *whether*, creativity can be enhanced. He supports this logically (rather than empirically) because there are little data regarding creative enhancement, but notes that there exist no data explaining how creativity can*not* be enhanced.

A large part of the discussion concerning the enhancement of creativity has revolved around individual versus group performance. Popularized by Osborn (1953), brainstorming coincides with idea generation. It was believed that groups would generate more ideas than individuals would because group members could build on the ideas of others. Initial research deceptively supported such a claim. For example, Torrance (1970, 1971b, 1974) found that pairs of participants generated more ideas than did individuals.

Further, group participants tend to rate their performance better than those who generated ideas individually (Paulus, Dzindolet, Poletes, & Camacho, 1993; Paulus, Larey, & Ortega, 1995; Stroebe, Diehl, & Abakoumkin, 1992). The implicit idea that creativity is fostered by groups is also furthered in Florida's (2002) research on the "creative class."

This should not imply that creativity in groups is always better. Investigations that compared the performance of groups to the combined ideas of individuals found that the groups generated fewer ideas (e.g., Diehl & Stroebe, 1987; Finke, Ward, & Smith, 1992; Mullen, Johnson, & Salas, 1991). However, Paulus and Paulus (1997) note that much empirical research on brainstorming involves groups of strangers generating ideas that are not relevant to them personally. Trained groups of individuals who know each other (e.g., classmates) may perform differently.

The enhancement of creativity is not limited to brainstorming. Numerous other creativity enhancement projects have been developed (e.g., Feldhusen, 1983; Sternberg & Williams, 1996), but have failed to gain lasting popular implementation. Moreover, Cropley (1992) posited that efforts to enhance creativity may yield short-term increased (though altered) conformity behavior in students. Rather than expanding students' ability to think creativity, enhancement efforts may simply elicit off-the-wall answers from students.

Why are Efforts to Enhance Creativity not more Successful?

Reasons why creativity enhancement struggles extend beyond being stuck implementing creative practices several decades old. In many cases, people studying (and teaching) problem solving, reasoning, and functional fixedness are using the idea of creativity, but not the name. Several researchers have attempted to identify the reasons for such hesitancy. For example, Plucker et al. (2004) concluded that the primary factor impeding the enhancement of creativity is faulty prior conceptions about creativity, and Sternberg and Lubart (1999) posited six roadblocks to studying creativity: creativity's mystic and spiritual origins; negative effects of the numerous pop psychology and commercialized approaches; early work conducted in relative isolation from mainstream psychology; elusive or trivial definitions; negative effects of viewing creativity as an extraordinary phenomenon; and narrow, unidisciplinary approaches.

Similarly, Plucker and Beghetto (2003) identified several issues that impede creative enhancement: emphasis on eminent rather than everyday creativity, overemphasis on the role of divergent thinking as part of the creative process, and insularity of theory and research. These roadblocks are not universally recognized as impediments (nor as even existing) and thus do not appear to be changing. Further, Nickerson (1999) describes creativity as a time-consuming action that is largely influenced by an individual's habits and routines. Thus, enhancing creativity is equivalent to getting a person to change habits and routines for a significant period of time. The confluence of all these difficulties yields little clear knowledge on how to best enhance creativity.

Despite advances in the research regarding creativity, changes in implementation in the classroom to enhance creativity have lagged behind (Plucker & Renzulli, 1999). For the most part, classrooms continue to focus on divergent thinking and providing multiple responses to a single problem. Such activities are related to creativity, but do not fully encompass the construct as it is currently defined; as a result, they should not be expected to produce major increases in creative production.

Promising Alternative Views of Creativity Enhancement

A subtle distinction that should be noted is the difference between enhancing and encouraging creativity. Runco (2005), in a discussion on what can be done about creative giftedness, proposed that encouraging creative behavior, such as pretending, avoiding strict conformity behaviors, as well as modeling and rewarding original behavior would "…encourage children's creativity" (p. 306). Nickerson (1999) provides a similar list of methods that have the potential to result in increased creative production. This list includes establishing purpose, building basic skills and domain knowledge, building motivation and confidence. Creativity may not be *enhanced* per se, but simply encouraging creativity and fostering environments conducive to creative production may yield a functional equivalent to creative enhancement.

Looking at creativity enhancement through the lens of the definition of creativity taken in this chapter, a promising avenue for enhancing creativity would be to optimize the time an individual spends in ideal aptitude–process–environment contexts. This may be similar to Csikszentmihalyi's concept of flow (1992) and Sternberg's emphasis on contextual awareness (if not contextual intelligence) in his theories of intelligence. However, the ideal creative context needs to be identified for each individual. Not only will this vary across individuals, but across time, process, and environment as well. Moreover, research from the field of expertise suggests that more is not necessarily always better regarding time spent working (Ericsson, Krampe, & Tesch-Romer, 1993).

What Do We Not Know About Creativity—and What Do We Really Need to Know?

Acquiring knowledge for the sake of having knowledge is certainly not a waste of time, but living in a world of limited resources sometimes requires falling into a need-to-know basis. The most potentially fruitful and useful future research on creativity would seek to maximize creative development of students in whatever social environment they are in. Fostering the creation of unique and useful people, products, processes, and environments for students is the best of all possible research goals for creativity. Although previous research has made great strides toward improving the knowledge base, we are still far from understanding how to best foster creativity. In spite of a problematic past, researchers remain optimistic about future creativity research. In his summation chapter of *The International Handbook of* Creativity, Simonton (2006) concluded that interest in creativity is universal, but creativity itself varies based on local wants and needs. He also predicted an international convergence toward a single set of empirical results and theories that explain creativity and its development, a development which should be encouraged and welcomed.

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Appendix

Sample Measures of Creativity

PERSONALITY

- Group Inventory for Finding Talent and Group Inventory for Finding Interests (Davis, 1989)
- What Kind of Person Are You? (Torrance & Khatena, 1970)
- The Institute of Personality Assessment and Research (Hall & MacKinnon, 1969; Helson, 1971; MacKinnon, 1965, 1975, 1978)
- Specific scoring dimensions of the Adjective Check List (Domino, 1970, 1994; Gough, 1979; Smith & Schaefer, 1969)
- The Sixteen Personality Factor Questionnaire (Cattell & Butcher, 1968, Chap. 15; Cattell, Eber, & Tatsuoka, 1970)
- Barron-Welsh Art Scale (Welsh & Barron, 1963)
- Measures of aesthetic sensitivity (see Frois & Eysenck, 1995, for a review)
- Tolerance for ambiguity (Kirton, 1981).

Biographical self-report

- The Alpha Biological Inventory (Taylor & Ellison, 1966, 1967)
- Creative Behavior Inventory (Hocevar, 1979b)

Other checklists

Anastasi & Schaefer, 1969; Holland & Nichols, 1964; Holland & Richards, 1965; James, Ellison, Fox, & Taylor, 1974; Milgram & Hong, 1994; Milgram & Milgram, 1976; Runco, 1987a; Runco, Noble, & Luptak, 1990; Runco & Okuda, 1988; Schaefer & Anastasi, 1968; Wallach & Wing, 1969

Biographical other-report

- The Preschool and Kindergarten Interest Descriptor (Rimm, 1983)
- The Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS; Renzulli, Hartman, & Callahan, 1981)

Attitudes

- Evaluating attitude interventions in business (Basadur, Graen, & Scandura, 1986; Basadur, Wakabayashi, & Graen, 1990; Runco & Basadur, 1993)
- Identifying individuals who are predisposed to innovation or adaptation (Kirton, 1976, 1992; Kirton & McCarthy, 1988)

PRODUCT

- Straightforward rating scales (Besemer & O'Quin, 1993; Hargreaves, Galton, & Robinson, 1996; Treffinger, 1989)
- Conceptually complex consensual assessment techniques (Amabile, 1983; Hennessey & Amabile, 1988a).
- The Creative Product Semantic Scale (Besemer & O'Quin, 1993)
- The Student Product Assessment Form (Reis & Renzulli, 1991)
- Westberg (1991) originality, technical goodness, and aesthetic appeal factors of student inventions

PROCESS

- Guilford's (1967) Structure of the Intellect (SOI) divergent production tests
- Torrance's (1962, 1974) Tests of Creative Thinking (TTCT)
- Getzels and Jackson's (1962) divergent thinking tests
- Meeker and colleagues (1969; Meeker & Meeker, 1982; Meeker, Meeker, & Roid, 1985) developed a version of the SOI, the Structure of the Intellect-Learning Abilities Test (SOI-LA) to diagnose weaknesses in divergent thinking (among other areas) that are then addressed by remedial services.
- the Instances Test (Wallach & Kogan, 1965)
- the Uses Test (Wallach & Kogan, 1965)
- Runco and Albert (1985) verbal and nonverbal tasks

Chapter 14

Gender and Giftedness

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During the last few decades, an increasing number of psychologists have become interested in gifted and talented students, and the reasons they underachieve or excel in school and, subsequently, in life. While some research has focused on this population, comparatively little has been conducted on the ways that psychologists can help male and female gifted students to achieve well both in and out of school, and find challenging work, as well as contentment in their personal lives. In this chapter, research from the last few decades concerning giftedness and gender is summarized, with special attention paid to how psychologists can help intervene for positive outcomes for both girls and boys. When we refer to academically gifted and talented students, we include those who have been identified as academically gifted and talented, high achieving, or very creative. In this chapter, current research is summarized relating to gender differences in ability, achievement, belief in self, social and emotional factors, socialization factors including teacher and parent influences, and barriers to the development of giftedness in males and females. The chapter concludes with some suggested strategies for talent development in both gifted boys and girls, and the psychoeducational and clinical implications of the interaction between gender and giftedness.

One of the most critical truths about gender role identity is that males and females differ in fundamental ways. Feingold (1994), summarizing decades on personality research, suggested that on average, men are more assertive and have higher self-esteem than women, while women are more extroverted, anxious, and trusting. The interaction of giftedness and gender in adolescents is rarely studied. Gender usually refers to judgments about masculinity and femininity based on culture and context (Deaux, 1993) and gender role identity usually refers to the image that each person has about his/her masculine and feminine characteristics. Most individuals regard themselves as either having feminine or masculine characteristics, but some are more androgynous, that is, they believe they have both feminine and masculine characteristics. Both socialization and aptitude can and do influence gender identity and the formation of gender schemas, also known as organized networks of knowledge about what it means to be male or female (Woolfolk, 2004). Some research has addressed gender differences in children and youth, but less has focused on gender differences

in the process of talent development. Gender and giftedness has been examined as one variable in larger studies. For example, Csikszentmihalyi, Rathunde, and Whalen (1993) studied 208 male and female academically talented students, finding that they were "… equally likely to continue in or become disengaged from the domain of the area of their talent by the end of high school" (p. 207). This research suggests that chance factors contribute to engagement in areas of interest and talent for males and females. The review of research summarized in this chapter focuses on areas that appear to differentially affect the development of talents and gifts in academically talented boys and girls, as noted in the sections that follow.

Ability, Achievement and Underachievement, and Belief in Self

Ability and Attribution Theory

Effort, ability, and belief in self can help to predict whether students achieve or underachieve in school (Good & Brophy, 1986). Attribution theory (Weiner, 1986) suggests that students attribute their academic successes and failures largely to ability, effort, task difficulty, and luck. These four areas are not the only attribution explanations used by students to explain successes and failures, but they are commonly accepted as the reasons for achievement outcomes. Higher-achieving students tend to attribute their successes to a combination of ability and effort, and their failures to lack of effort (Franken, 1988; Good & Brophy, 1986). Students who underachieve, however, often attribute their successes to external factors such as luck, and their failures to lack of ability (Reis, 1987, 1998; Siegle & Reis, 1998). Gender differences exist in attribution theory as academically talented boys more often attribute their successes to ability and their failures to lack of effort (Hébert, 2001, 2002b), while academically talented girls often attribute their successes to luck or to effort and their failures to lack of ability (Reis, 1987, 1998; Rimm, 1999). Accordingly, the academic self-efficacy of young males may be enhanced because they believe in their ability, and can be maintained during failures because of their attribution of failure to lack of effort (Nicholls, 1975). However, the same may not be true for adolescent females, as they may accept responsibility for failure, but not for success (Reis, 1998).

Other research by Siegle and Reis (1994) found that adolescent female gifted students believed they had higher ability than males in reading and language arts only, while male gifted students indicated they had higher ability than females in mathematics, science, and social studies. Developing a strong belief in one's ability in the elementary and middle school years is important because "by the end of elementary school, children's [perceptions]…of ability begin to exert an influence on achievement processes independent of any objective measures of ability" (Meece, Blumenfeld, & Hoyle, 1988, p. 521).

Do these measures of ability affect belief in self and subsequent performance on other tests? Claude Steele and his colleagues (Spencer, Steele, & Quinn, 1999; Steele, 1997) have found some conventional and often inaccurate perceptions that one's genes or culture can lead members of a group such as women or blacks to score poorly on standardized academic assessments. This phenomenon, called "stereotype threat," has been found to raise doubt and anxiety about performance, and Steele has also found that even casual reminders that someone belongs to a group that is stereotyped to be

inferior in an academic area can result in lower test performance. Current differences in standardized tests suggest that an advantage still exists for high school-aged males who continue to score higher in verbal and quantitative areas, but the gap has lessened during the last decade (ETS, 2006; Halpern, 1989; Rosser, 1989a). The trend for lower SAT scores for girls has lessened, but a gender gap still exists in scores. For example, in the most recent 2006 SAT test, of the 1.3 million high school students who took the tests, a gender gap favoring males on both the verbal and math sections persists across all other demographic characteristics, including family income, parental education, grade point average, coursework, rank in class, size of high school, and size of city. Males outscored females by 34 points in mathematics areas (scores of 536 and 502, respectively), and they also outscored females by 3 points in verbal areas, obtaining scores of 505 to 502 (College Board, 2006). This gender gap does not merely reflect differences in academic preparation, as ETS researchers Wainer and Steinberg (1992) found that on average, males score 33 points higher on the SAT-Math than females who earn the same grades in the same college math courses. These researchers suggest that the SAT-Math underpredicts the proficiency of what contributes to success in college. Ramifications exist about these differential scores, including fewer opportunities for selective colleges and programs for the gifted and talented—particularly at the secondary level. Lower scores may also have a detrimental impact on girls' desire to enter graduate school and select careers (Reis, 1998). Selection of majors, academic interests, and even careers can be affected by the achievement tests that many young people take with the general SAT exam. For example, boys score higher on many of the SAT achievement tests. In 1991, the largest point gap was in physics (62 points), but in l990, males scored 60 points higher in European history, representing the largest gap. Test scores may have even more detrimental effects on gifted females than previously believed as Rosser (1989b) found that both boys and girls estimate their math and English abilities closer to their SAT scores than to their grades, suggesting that girls underestimate their own abilities. Rosser also found that "girls planned to go to slightly less prestigious colleges than boys with equivalent GPAs" (p. iv). Considered collectively, when girls score lower, they may lower their expectations and apply for admission at less prestigious colleges. When girls attribute their performance to effort and not ability, they may have less confidence that they can excel in challenging coursework and careers.

While the overall news is generally positive about the gains made by girls in tests in general, and in math and some areas of science specifically in the last decade, little progress has been made in the area of technology and engineering. In fact, a recent National Science Foundation report (NSF, 2000) details the problem clearly, stating that "at all levels of education and in employment, women are less likely than men to choose science and engineering fields" (p. xi). Although the number of women receiving degrees has increased in some areas of science and math, bachelor's degrees granted to women in computer science have actually decreased from 37% in 1984 to 28% in 1996 (NSF, 2000). High school female still take fewer higher-level math and science classes, and data from the SATs indicate that only 18% of those who expressed an interest in pursuing engineering, and only 16% of those interested in computer or information sciences were female (ETS, 2006). This means that many female math and technology students may have less interest or encouragement to pursue technology, math, or science than their male counterparts. The problem may be worse for academically talented girls who often fail to perform at levels that match their potential (Reis, 1998), particularly after they leave high school.

Despite data showing differences in achievement tests that largely favor academically talented boys, it is interesting that research has consistently found that girls get higher grades in both elementary and secondary school (American College Testing Program, 1989; Coleman, 1961; Davis, 1964; Kimball, 1989). This phenomenon, if it still exists, is not necessarily positive. Girls' attainment of higher grades, when contrasted with their lower scores on some standardized tests, may contribute to talented female adolescents' beliefs that they are not as "bright" as boys and can only succeed by working harder. In fact, perceptions of ability may affect performance. In research by Reis and Park (2002) using data from the National Education Longitudinal Study, two subsamples were selected representing the highest achieving students in math and in science. Results indicated that there were more males than females in both subsamples of high-achieving students in math and science. The results also suggest that the best predictor for distinguishing between mathematically high-achieving males and females was locus of control. High-achieving males had both higher self-concept and higher standardized math test scores than high-achieving females. Female students were more influenced by teachers and more likely than the male students to regard "hard work" as more important in their life than "chance or luck." High-achieving male and female students were significantly different in self-concept, locus of control, standardized test scores, and parental influence. This study suggests that talented female adolescents continue to lag behind their male counterparts.

Other research also suggested that talented adolescent females begin to lose self-confidence in elementary school and continue to do so in their academic careers (AAUW, 1991; Arnold, 1993). Kline and Short (1991b) summarized research on gifted girls' social and emotional development, concluding that self-confidence and self-perceived abilities steadily decreased through high school. While gifted girls remained competitive and perfectionistic, they valued their own personal achievements less. Therefore, adolescence may affect the achievement and the self-confidence of gifted females. In a qualitative study of five gifted female adolescents that examined barriers to achievement in the lives of the young women, not one participant attributed her success in school to extraordinary ability (Callahan, Cunningham, & Plucker, 1994).

Identification as gifted and acceptance of gifts and talents may be problematic for both female and male adolescents because of adverse social consequences (Alvino, 1991; Buescher, Olszewski, & Higham, 1987; Callahan et al., 1994; Eccles, Midgley, & Adler, 1984; Kramer, 1991; Reis, 1998). Kramer (1991), for example, found that gifted girls deliberately underestimated their abilities in order to avoid being seen as physically unattractive or lacking in social competence. Swiatek (2001) found that gifted female adolescents may sacrifice giftedness for acceptance and may also deny their giftedness. Eccles et al. (1984) found a "general increase in negativism toward academic achievement … is even characteristic of the better students in junior and senior high school" (p. 291). Buescher et al. (1987) found that gifted boys and girls were more alike than peers not identified as gifted, except in the critical area of the recognition and acceptance of their own level of ability. Callahan et al. (1994) found that middle school gifted females avoided displays of outstanding intellectual ability and attempted to conform to the norm of the peer group. Alvino (1991) suggested that needs and problems of preadolescent and adolescent gifted boys emerged as a direct function of their giftedness and gender. He summarized the challenges facing gifted boys thematically in terms of cultural conditioning, sexuality and success-orientation, and ego development.

Some high-ability adolescents do view their abilities and talents positively. For example, Ford (1992) studied gender differences in the American achievement ideology among 148 gifted and nonidentified African-American male and female adolescents, exploring perceptions of social, cultural, and psychological determinants of achievement and underachievement. Both male and female gifted students expressed the greatest support for the achievement ideology and gifted females believed they had the highest teacher feedback on their efforts. Reis, Callahan, and Goldsmith (1996) studied gifted adolescents, focusing on their attitudes and beliefs about achievement and personal choices related to abilities and talents and found gender differences. Both male and female gifted adolescents had positive views about both school and achievement, but boys believed they were more often encouraged to pursue specific careers.

In a longitudinal study of 35 academically talented adolescents who either achieved or underachieved in an urban high school (Reis, Hébert, Diaz, Maxfield, & Ratley, 1995), the majority of high-achieving, culturally diverse students were proud of their abilities and did not minimize their intelligence. The talented, young, achieving women who participated in the study were determined to be independent. Several said they wanted a different life from that of their mothers. The female achievers consistently echoed determination to be different and to succeed, and many explained that their parents had helped instill their determination to succeed. The high-achieving female students indicated they rarely dated or became romantically involved, were extremely supportive of other high-achieving students, became involved in multiple activities, and were independent, resilient, and dedicated to a career.

In Hébert's (2000a) examination of the talented achieving males within a larger sample of 35 students, he identified a strong belief in self as the most important factor influencing the success of the young men. These teenagers had developed a strong belief in self that provided them with the energy, drive, and tools needed to face the challenges they met in an urban environment. They defined their aspirations as closely aligned with their specific talents, strengths, and personal qualities. They regarded their aspirations as realistic since they believed they had the internal motivation that kept them driven to succeed. Just as an inner will had enabled them to succeed in their urban high school experience, a strong motivational force would keep them focused and allow them to reach their life goals. Within these young men were several qualities that merged to form this belief in self: sensitivity, multicultural appreciation, aspirations, and an inner will. A significant part of that strong belief in self was a heightened sensitivity, a quality that allowed these young men to appreciate, for example, the individual differences in other culturally diverse teenagers around them, the beauty of a poem, or a friendship with a younger handicapped child learning to swim. These young men had developed empathy, emotional self-awareness, and emotional expressivity, qualities that enabled them to manage their emotional lives as they developed their self-identities. They saw their ability to express themselves emotionally as a trait that would serve them well in life. They interpreted their emotional expressivity as functional skills that helped them to make sense of their life experiences and allowed them to feel secure as sensitive males in an urban setting.

Hébert's (2000a) findings are consistent with what theorists have proposed regarding heightened sensitivity within gifted individuals. Emotionally intense males can be sensitive to people, the feelings of others, criticism from others, and the injustices they see in their surroundings (Piechowski, 2006). In Hébert's study, the sensitivity of the talented males was appreciated by others, therefore they were able to express it.

According to Levant (1992), males who benefit from the validation of their sensitivity become capable of developing empathy, emotional self-awareness, and the ability to express their emotions. Developing these skills assists men in becoming successful in relationships, families, and their professional domains (Pollack, 1998).

Hébert's findings were consistent with Wilcove's (1998) who conducted another qualitative study examining the gender schemata of gifted males. Wilcove's participants all spoke of the importance of their emotional expressivity. These young men also valued their emotionality and did not see it as a gender-specific trait; however, they acknowledged that, in their desire to express their emotions, they were atypical of most males.

Hébert (2000b) continued this line of research in another study of gifted university males pursuing careers in elementary education. He found that, as part of their identity, the gifted males displayed empathic qualities and comfort with their psychological androgyny. They recognized personal characteristics traditionally thought to be feminine and they valued those traits. Their identity incorporated a sincere caring quality. They realized they were empathic, and they appreciated that quality within themselves because they knew it allowed them to be better professionals. Their empathy incorporated an appreciation for the developmental struggles faced by young children in elementary classrooms. These findings reinforced Csikszentmihalyi's (1996) notion that a psychologically androgynous individual "doubles his or her responses and can interact with the world in terms of a much richer and varied spectrum of opportunities" (p. 71).

More recently, Hébert (2006) examined gifted high-achieving university males involved in a Greek fraternity. The study was conducted to understand how the fraternity experience influenced the achievement of the collegiate males. The young men in this study had enjoyed academic success throughout their K-12 school years. They enjoyed experiences in gifted education programs and were among the top students in their senior classes. However, their school experience lacked rigorous academic challenge, and they coasted through high school, focusing on athletics. They were known in high school as student-athletes; however, they were more concerned with gaining peer-group approval through their athletic prowess than their academic abilities. With reputations as student-athletes, they were recruited to the fraternity as intelligent young men who could become significant contributors. As brothers in their Greek fraternity, they became associated with older gifted males in the fraternity who were establishing themselves as student leaders. Following the advice of older fraternity brothers, they became involved in a multitude of extracurricular activities and programs associated with the fraternity and other campus groups involved in philanthropic campaigns, campus leadership, and student government. These experiences served as outlets for talent development and they explored talents beyond athletics. Through the fraternity, their talents were nurtured within a culture of intelligent, well-rounded young men who respected academic achievement and continued self-improvement. Supporting and strengthening this philosophical orientation was the fraternity's chapter advisor, who served as a significant mentor.

Underachievement

Some academically gifted and promising students begin to underachieve during adolescence (Reis & McCoach, 2000). Research with both academically talented male and female students has suggested that a number of personality factors, personal

priorities, and social and emotional issues have consistently emerged as contributing reasons that many either cannot or do not realize their potential. Not all gifted adolescents experience the same issues, but a synthesis of current research suggests a combination of the following contributing reasons: dilemmas about abilities and talents, personal decisions about family, peer pressures, ambivalence of parents and teachers toward developing high levels of potential, absence of self-regulation, social issues about labeling and about being perceived as too smart, and choices about personal decisions and sacrifices necessary to develop one's abilities (Reis & McCoach, 2000).

Research about ability, achievement, and underachievement suggests that some gifted girls lose, to varying degrees, their enthusiasm for learning and their courage to speak out and display their abilities. Some research (Arnold, 1993; Cramer, 1989; Hany, 1994; Kramer, 1991; Leroux, 1988; Perleth & Heller, 1994; Reis & Callahan, 1989; Subotnik, 1988) indicates that some gifted females begin to lose self-confidence in elementary school and continue this loss through college and graduate school. These girls may grow to increasingly doubt their intellectual competence, perceive themselves as less capable than they actually are, and believe that boys can rely on innate ability while they must work harder to succeed. Some of this research also indicates that girls try to avoid competition in order to preserve relationships, even if that means that they do not take the opportunity to use their skills.

Hébert (2001) studied gifted underachieving young men in urban classrooms. He examined the life experiences of six talented males and identified several problems that contributed to their underachievement, including: problematic family issues, inappropriate curricular and counseling experiences, a negative peer group and environmental influences, and discipline problems. The troublesome family issues included: problems with siblings, inconsistent role models within the family, and family dysfunction. Moreover, the young men in this study generally found their curricular experiences boring and indicated that their classes did not match their preferred learning style. A mismatch existed between their strengths and their high school coursework, and accordingly, their talents or strengths were not nurtured. They believed courses were often irrelevant and their frustration with the educational system led to apathy and some of them turned to the negative influences in their urban environment. They were negatively influenced by their peers and did not develop strategies for constructively dealing with the challenges in their lives. These factors resulted in behavior problems and disciplinary infractions, too much unstructured time, and confused or unrealistic aspirations. The strong belief in self that Hébert (2000a) identified in the achieving males in this same urban high school was not evident in the underachieving males.

Hébert and Olenchak (2000) examined mentorship experiences as an intervention for gifted underachieving males. They found that the influence of a significant adult on young males was critical in reversing underachievement. Within the relationships that emerged between the mentors and their adolescent protégés was an open-minded and nonjudgmental quality in the mentors. The adults who made a difference for the young men in this study provided consistent and personalized social and emotional support and advocacy. Moreover, their intervention consisted of strength and interest-based strategies for reversing underachievement. This investigation revealed that the mentors genuinely cared for their protégés, believed in them as unique individuals with special talents and abilities, and were able to look beyond the underachieving behaviors of the young men and focused on their strengths.

Findings from the Hébert and Olenchak (2000) study were consistent with Hébert's (1995) earlier research on gifted males who achieved in an urban high school. Many of the young men within the population of achievers made a connection with a significant mentor, the coach of the high school's swim team. Coach Brogan shaped his group of swimmers to become achievers both athletically and academically. The swim team was a subculture with the larger high school culture, and the coach had been successful for many years in building a support system for gifted males in that setting. Through the high-quality experience with this coach, the gifted young men derived many benefits. Along with physical fitness, they learned the importance of task commitment, the value of having a passion, the rewards of cooperative teamwork, the importance of striving for excellence, the joy of reaching a goal, the support of a nurturing mentor, and the sweet taste of achieving success. By designing a culture of achievement, Coach Brogan created an environment where hard work in athletics and academics was valued and talent development evolved naturally. The role of a mentor in nurturing talent and achievement is significant and it is important to note that the underachieving males in that same setting (Hébert, 2001) did not make connections with mentors or other supportive adults in their urban setting.

Differences in Social and Emotional Issues Facing Gifted Males and Females

Research About Talented Girls

Research with talented females has revealed a number of personality factors, personal priorities, and social emotional issues that have consistently emerged as contributing reasons that many either cannot or do not realize their potential. Not all gifted females experience the same issues, but trends have been found in research about talented girls that identify a combination of the following contributing reasons: dilemmas about abilities and talents, personal decisions about family, ambivalence of parents and teachers toward developing high levels of potential, decisions about duty and caring (putting the needs of others first) as opposed to nurturing, personal, religious, and social issues (Reis, 1998). Reis (1998) found that these personal and social emotional issues occur across females' life spans. Some affect the youngest girls and some are only apparent to women who have become involved in serious relationships in their college or graduate school years or had children later in their lives. Older gifted women resolve many personal issues relating to ability and social issues experienced by younger gifted girls. It is also important to understand that some of these dilemmas cannot be resolved to the satisfaction of everyone involved. Rather, some dilemmas shift or are resolved with changes in a woman's life, such as the maturation of her children and, in some cases, the dissolution of a relationship, the reemergence of other relationships, and a change in environments at work or home. Therefore, it is difficult, if not impossible, when discussing social and emotional issues, to discuss gifted girls without discussing gifted women because many young gifted girls believe that they can "do it all" or "have it all," while many older gifted females have learned that they cannot. These gifted girls were extremely bright in school, but as they got older, ambivalence about their future caused their hopes

and career dreams to waver. Preventing this and learning more about why hopes fade is the reason that much of the research about gifted girls and women continues.

Personality Factors/Personal Choices and Decisions

Talented females face a number of personality factors, personal priorities, and decisions that may adversely affect their potential in both academic choices and professions, such as personal choices about relationships, choices about nurturing the talents in oneself as opposed to putting the needs of others first, religious and social issues which consistently affect girls and women, poor planning, hiding abilities and differences; perfectionism, attributing success to luck rather than to ability; poor choice of partners; and confusing messages from home about politeness (Reis, 1998).

Being identified as being bright or talented may create social problems for females (Buescher et al., 1987; Eccles et al., 1984; Kerr, 1994; Kramer, 1991; Reis, 1987, 1995; Reis et al., 1996). Some research indicates that gifted girls believe it is a social disadvantage to be smart because of the negative reactions of peers. Fearing their peers' disapproval, bright young women may deliberately understate their abilities in order to avoid being seen as physically unattractive or lacking in social competence. In other words, they may "play dumb." Parents may also send negative messages about how girls should act, how polite they should be, how they should dress, and how often they should speak out and in what situations.

In research about gifted female adolescents as compared to gifted male adolescents, Reis et al. (1996) found that more than twice the percentage of boys mentioned specific career goals as compared to girls. When asked what they would be doing after they graduated from college, boys were more likely to name a specific job or career (46.4% of the boys and only 27.1% of the girls mentioned a specific job or career). Sixty-five percent of the boys and 25% of the girls thought women should not work after they had children. Some girls still thought they would need to support the family (19%), but fewer boys thought that support was important (11%). Fourteen percent of the boys (and none of the girls) explicitly stated that taking care of the children was a woman's responsibility. Only a very small percentage of the boys (5%) as compared to the overwhelming majority of the girls said they expected both partners to work and for both to share the childcare.

Some gifted girls also demonstrate multipotentiality, characterized by an endless thirst for knowledge (Ehrlich, 1982); uniformly high scores across ability and achievement tests (Sanborn, 1979); multiple educational, vocational, and leisure interests at comparable intensities; and complex personality factors. Women with high potential and multiple interests often have multiple academic, career, and leisure possibilities, and these choices constitute multipotentiality. For some, having many choices is beneficial because they result in a variety of options. Others, however, often cannot find their niche, make it on their own, or choose a vocational path (Fredrickson, 1979, 1986; Jepsen, 1979; Schroer & Dorn, 1986). Many women with multipotentiality find decision making difficult since it is not possible to do all that they would like to do and are capable of doing.

Perfectionism can cause talented women to set unreasonable goals for themselves and strive to achieve at increasingly higher levels. It also can cause women to strive to achieve impossible goals and spend their lives trying to achieve perfection in multiple areas. Hamachek (1978) viewed perfectionism as a manner of thinking about behavior

and described two different types of perfectionism, normal and neurotic, forming a continuum of perfectionist behaviors. Normal perfectionists derive pleasure from the labors of effort and feel free to be less precise as the situation permits. Neurotic perfectionists are unable to feel satisfaction because they never seem to do things well enough. In one study on perfectionism in gifted adolescents in a middle school, Schuler (1997) found that perfectionism is a continuum with behaviors ranging from healthy/ normal to unhealthy/dysfunctional. Order and organization, support systems, and personal effort were the factors that affected the healthy perfectionists who received encouragement to do their "personal best" academically, and told that mistakes were acceptable parts of learning. On the other hand, concern over mistakes, perceived parental expectations, and perceived parental criticisms were the salient factors for the gifted unhealthy/dysfunctional female perfectionists. They possessed a fixation about making mistakes, resulting in a high state of anxiety. Their definitions of perfectionism focused on not making any errors. Unlike the healthy female perfectionists, the unhealthy females' earliest memories of being perfectionistic centered on making mistakes. These unhealthy female perfectionists were concerned about making errors because of both their own high standards and those of their parents, and they worked to please others—teachers, peers, or parents. Unlike the healthy female perfectionists, they viewed their parents' perfectionism negatively, and perceived parental expectations as demands to be perfect in everything they did.

With gifted males, the need to be perfect exists; however, it may look different than perfectionism in gifted females. Self-inflicted pressure involving the need to compete and the need to carry heavy responsibilities become issues that may exact an emotional toll on gifted males (Hébert, 1991). Even with changing attitudes regarding men sharing the childrearing responsibilities, some young men in our society continue to be trained from childhood that their role will become economic provider for their families and gifted males may internalize this societal belief and place unnecessary pressures on themselves to always be "on top of their game." Men's work and career success are measures of their masculinity (Canada, 1998; Doyle, 1989; Newberger, 1999) and many gifted males grow up believing that in order to be a man, they must constantly compete and "be the best" in a variety of domains.

Theorists, clinicians, and researchers have maintained that gifted males also may face challenges in realizing their potential in academic areas and their professions. Some gifted males also demonstrate multipotentiality and their high potential and multiple interests lead to an existential dilemma. Many gifted young men discover early in their schooling that their abilities allow them to be successful in most pursuits. Silverman (1992) indicated they become concerned about the road not taken as much as discovering the right career path to follow. For gifted young men, deciding to pursue political science and law school means giving up a career in physics. Their concern over making the wrong choice, their worry over not living up to their high potential, and their anxiety about attempting to nurture all of their talents and end up becoming second rate at everything are very real. With these concerns considered, career counseling for gifted young men becomes critical and exposure to interdisciplinary coursework may enable them to discover how several fields may become interwoven in their life's work.

Another significant issue facing gifted males is that of the role that athletics plays in their lives. Determined to avoid being seen an the intellectual nerd focused

on academics, some gifted young men feel a need to preserve their masculinity by selecting athletics over academics (Kerr & Cohn, 2001). A number of clinicians (Beausay, 1998; Pollack, 1998; Thompson, 2000) working with boys have called attention to this overwhelming issue. Thompson (2000) succinctly captured its importance: "Every boy is defined by athletics, whether he likes it or not, whether he is good at them or not" (p. 270). Defining one's masculinity through athletics for gifted males becomes a double-edged sword. For the nonathletic, intellectually oriented young man, not being able to compete in the athletic arena may influence how he feels about himself. For the intellectually gifted young man who also excels in athletics, the issue becomes that of dealing with very high expectations from parents, coaches, and communities who celebrate the value of sports. With the gifted nonathletic young men, the issue involves boosting self-esteem and assisting them in focusing on other strengths, and with the athletically gifted males, parents, educators, and counselors are called on to support them with maintaining realistic expectations and establishing a healthy balance in their lives (Hébert, 1998b).

Findings from Hébert's (1995, 2000a, 2000b, 2002a, 2006) studies and the work of Hébert and Olenchak (2000) on gifted young men call attention to the need for authentic friendships and mentors for gifted males. Hébert's work has provided evidence that intelligent young men are in need of supportive relationships with other gifted males. Having a real friend in another intelligent male is critical in the social and emotional development of gifted males. Many young men in our society do establish some intimate friendships during adolescence; however, their friendships are often concerned less with interpersonal intimacy and emotional support than are the friendships of young women. For boys in our culture, the group of buddies he hangs out with may serve as support during conflicts with adults rather than a source of emotional support during times of personal crises (Canada, 1998; Pollack, 1998; Pollack & Schuster, 2000). With gifted males, the need to offer and receive emotional support with other men becomes a significant developmental issue to address throughout the life span.

Barriers to and Support for Talent Development

The importance of environmental variables on the development of gifted and talented boys and girls cannot be overstated. Almost from birth, both find themselves encountering limiting stereotypes and barriers to achievement, but these vary between the sexes. Differing external and internal barriers seem to negatively influence the development of talents and gifts in some gifted girls and boys.

Socialization

Jeanne Block (1982) believed that a fundamental task of developing as an individual is the mediation between internal biological impulses and external cultural forces as they coexist in a person's life space and life span (p. 2). She indicated that the socialization process, defined as internalization of values, appears to have differential effects on the personality development of males and females. Socialization, Block asserted,

narrows females options while broadening male options (p. 220). Unfortunately, as girls get older, many of them learn that their perception of reality differs from the life experiences they encounter, suggesting an increasing role of socialization in their lives (Reis, 1998). Klein and Zehms (1996) found that the self-concept scores of gifted girls declined significantly between grades 3 and 8 and between grades 5 and 8. Eighth-grade gifted girls had a much more negative sense of self in the cluster areas of behavior, intellectual and school status, and popularity than girls of average to below-average abilities in the same grade. Yet, socialization also appears to negatively affect gifted boys. Kline and Short (1991a) studied gifted boys across their elementary and secondary school experiences and found significantly higher levels of discouragement and feelings of hopelessness for adolescent gifted boys as compared with senior high school gifted boys. During junior high, gifted boys had increased feelings of depression, worry, and loneliness, and were more vulnerable requiring special attention and understanding from adults and teachers.

Parental Influences and Gender

Recent research has established the importance of parents' attitudes and beliefs about the academic self-perceptions and achievement of their children (Hess, Holloway, Dickson, & Price, 1984; McGillicuddy-De Lisi, 1985; Parsons, Adler, & Kaczala, 1982; Stevenson & Newman, 1986). In some studies, parents' beliefs about children's abilities had an even greater effect on children's self-perceptions than previous performance (Parsons et al., 1982). Phillips (1987) confirmed this finding with high-ability students, and parental influence was found to affect math self-concept with gifted female adolescents as subjects had consistently significant correlations between parent expectations and student math self-concept (Dickens, 1990). Reis found that memories of negative parental comments continue to negatively affect gifted and talented women decades after they left home (Reis, 1995, 1998). Hébert (1998a, 2002b) found that gifted black males were positively influenced by their mothers and from the recognition of their giftedness, as well as from the support of teachers and mentors. Hébert (1996) also found that the emotional support of parents of gifted Latino males was highly influential in the development of resilience within their sons. More recently, Kao and Hébert (2006) found that mothers of gifted adolescent Asian American males struggled with understanding intergenerational differences; however, the high expectations they held for their sons and the emotional support they provided enabled the young men to succeed academically. Parental opinions matter greatly to male and female adolescents, and the messages sent by subtle and not-so-subtle verbal and nonverbal interactions may encourage or discourage gifted young people throughout their lives.

Teacher Attitudes

Teachers also contribute to the beliefs students hold. As early as first grade, teachers tend to attribute causation of boys' successes and failures to ability and girls' successes and failures to effort (Fennema, Peterson, Carpenter, & Lubinski, 1990). Pintrich and Blumenfeld (1985) found that "teachers' feedback about work was a better predictor for children's self perceptions about their ability and effort than were

other types of interactions with the teacher or with peers" (p. 654). Schunk (1984) found that successful students who received feedback complimenting their ability, rather than focusing on their effort, developed higher self-efficacy and learned more than students who received feedback complimenting their effort.

Kramer (1985) found that teachers were usually able to identify gifted boys, but were often surprised to learn that a girl was considered smart. The gifted girls she studied were very successful at hiding their intelligence and in silencing their voices. In another analysis of research about adult perceptions of girls' intelligence, Sadker and Sadker (1994) summarized that "study after study has shown that adults, both teachers and parents, underestimate the intelligence of girls" (p. 95). Kissane (1986) found that teachers were less accurate in nominating girls who are likely to do well on the quantitative subtest of the SAT than they were in naming boys who are likely to achieve a high score. Research also indicates that teachers like smart girls less than other students. Cooley, Chauvin, and Karnes (1984) found that both male and female teachers regarded smart boys as more competent than smart girls in critical and logical thinking skills and in creative problem-solving abilities, while they thought smart girls were more competent in creative writing. Male teachers in this study viewed female students in a more traditional manner than did female teachers, perceiving bright girls to be more emotional, more high strung, more gullible, less imaginative, less curious, less inventive, less individualistic, and less impulsive than males.

Teachers can reinforce one of the most prevalent sex stereotypes—that males have more innate ability, while females must work harder. Fennema (1990), commenting on the role of teacher beliefs on math performance, reported teachers selected ability as the cause of their most capable males' success 58% of the time, and the cause of their best females' success only 33% of the time. They also concluded that even though teachers did not tend to engage in sex-role stereotyping in general, they did stereotype their best students in the area of math, attributing characteristics such as volunteering answers, enjoyment of math, and independence to males.

In one study examining differences in personality dimensions of gifted adolescents (Olszewski-Kubilius, Kulieke, & Krasney, 1988), gifted females and males were found to be more similar than different on personality profiles. These researchers also found that gifted high-achieving students differed in personality from those who underachieved, as achievers tend to be higher in responsibility and measures of self-control or internal control.

Reis et al. (1995) studied a culturally diverse group of young males and females in a low-socioeconomic high school who achieved versus a group of high-ability students who underachieved in school for a period of 3 years. Teachers were important to the talent development of both male and female students. Gender differences existed in the type of support provided to boys and girls, however. For example, guidance counselors made concerted efforts to discourage high-achieving girls from having relationships, as they perceived that once girls were involved romantically with boys, the girls became less able to focus on academics and changed their college aspirations, preferring to stay close to their high school boyfriends. Relationships in this study were found to negatively affect girls' academic achievement. Within Hébert's (2000a) subset of achieving males in this study, he found that the young men had supportive friendships with young women in the high school and casually dated; however, the majority of their time outside of the classroom was dedicated to involvement in athletics, extracurricular activities, and social action projects.

Loss of Self-Confidence

Previous research has found that some gifted girls lose, to varying degrees, their enthusiasm for learning and their courage to speak out and display their abilities. Some research and reviews of research (Arnold, 1993; Cramer, 1989; Hany, 1994; Kramer, 1991; Leroux, 1988; Perleth & Heller, 1994; Reis & Callahan, 1989; Subotnik, 1988) have indicated that some gifted females begin to lose self-confidence in elementary school and continue this loss through college and graduate school. These girls may grow to increasingly doubt their intellectual competence, perceive themselves as less capable than they actually are, and believe that boys can rely on innate ability while they must work harder to succeed. Some of this research also indicates that girls try to avoid competition in order to preserve relationships, even if that means that they do not take the opportunity to use their skills.

Kline and Short (1991b) found, in a review of the literature, that the self-confidence and self-perceived abilities of gifted girls steadily decreased from elementary grades through high school. Buescher et al. (1987) found that gifted boys and girls were more alike than peers not identified as gifted except in one critical area—the recognition and acceptance of their own level of ability. Interviews with middle school gifted females revealed that girls avoided displays of outstanding intellectual ability and search for ways to better conform to the norm of the peer group (Callahan et al., 1994).

Goals Related to Education, Career, and Family

Whether socialization more positively or negatively affects male or female adolescents is unclear, but some research about gifted students offers some interesting patterns. Reis et al. (1996) identified differences in the perceptions of young gifted males and females relative to career opportunities for females after marriage and children. While both males and females have high career goals, gender differences emerge related to how these career goals will be met. Adolescent males indicated, in this study, that they expected their wives to stay home with their children and postpone or delay their careers until the children are grown. It is apparent that the girls, whose perceptions and beliefs are quite different, will have to address these traditional views of young males with whom they may eventually raise families.

Hébert's (2000b) study of gifted, male, undergraduate students pursuing elementary education careers described earlier in this review also highlights the importance of nontraditional views of career options for talented males. The strong belief in self within the young men that incorporated empathy and psychological androgyny was influenced positively in several ways. Participants identified significant factors that influenced who they were as young men pursuing a nontraditional career: formative experiences with difficult issues during childhood, adolescence, and early adulthood; exposure to male teachers as appropriate career models; and open-minded parents who provided emotional support.

In summary, parents, school counselors and teachers, and environmental influences may negatively affect talent development in gifted girls. Reis (1998) has found that some talented girls and women do not develop a set of philosophical beliefs that is essential to the development of creative and academic potential. In a society in which the majority of our leaders, politicians, artists, musicians, and inventors are male, a young female may not develop a philosophical belief about her own creative potential

(Reis, 1998), nor gain the support of teachers, parents, or peers to develop her talents. She may experience periods in which she is perfectionistic, has diminished self-concept, doubts her abilities, and compares herself unfavorably and inaccurately, all leading to diminished academic performance and a host of other outcomes that may hurt her future.

Educators, counselors, parents, and communities may also influence the development of talent in gifted males. Hébert and other researchers in gifted education and psychology have provided evidence that growing up gifted and male in our society is complex and offers young men numerous challenges. A highly intelligent male may have to deal with peers who do not appreciate his intellectual abilities. He may choose to underachieve academically in order to meet peer group approval. He may also struggle with important decisions about the role that athletics will play in his life. He may struggle with perfectionism and multipotentiality and attempt to juggle the high expectations of the adults in his life. He may discover that psychological androgyny will become a characteristic that he will want to celebrate as he searches to discover an appropriate professional path to follow. Throughout his life, he will need the support of other gifted males who honor and value his intellect and his emotional strengths and talents.

Implications for Psychologists Related to Giftedness and Gender

What role can psychologists play in the development of gifts and talents in both girls and boys and young men and women? First, they must become aware of some of the problems that may affect healthy development. Gifted boys may struggle with cultural conditioning, sexuality and success-orientation, and ego development, and face a number of problems that result from the interaction of their gender and their giftedness (Alvino, 1991; Kerr & Cohn, 2001). Gifted girls face some of the same challenges as well as others that are unique to the interaction of their gender and gifts and talents (Reis, 1998). Never before have so many challenges and opportunities presented themselves to gifted students. New topics, issues, ideas, and disciplines (Renzulli & Reis, 1985, 1997) are presented in ever-broadening arrays and choices as parts of organized gifted program opportunities and life in general that may facilitate further postponements of career and life choices and clear understanding of identities. With opportunities for travel abroad, enriched educational experiences, and the broader access to enrichment and knowledge available on the web, more options are presented on a regular basis. Many more androgynous opportunities exist today for gifted girls and boys. Talented adolescent girls are less often held back by the cultural and gender stereotyping that might have affected their career options, college majors and choices, but when they are, the barriers are often because of relationships (Reis, 1998). With fewer restrictions of choice, more gifted adolescents experience delays in identity formation. A series of implications exist for psychologists who can help gifted students overcome the gender and cultural stereotyping that often affects them and these are summarized in Table 14.1 (adapted from Reis, 1998, 2005).

Gifted males and females should be encouraged to consider a range of options for their futures, as there are more challenging opportunities that become available each year. New careers and options for combining work with family life are opening more doors for students with gifts and talents. Some gifted girls, who in the past

Table 14.1. Recommendations to encourage gifted males and females

School, classroom, and home strategies

Provide numerous enrichment opportunities for talented students to expose them to multiple areas of interest and enrichment.

Encourage involvement in many different types of activities and provide exposure to travel opportunities, clubs, and sports.

Expose girls and boys to adult role models through direct and curricular experiences such as field trips, guest speakers, seminars, books, videotapes, articles, and movies.

Advocate for various levels of programming and equal opportunities.

Provide appropriate treatment in nonstereotypical environments (for example, ensure equal access to technology and computers in classes).

Encourage students to select advanced placement and honors classes in areas of interest; carefully ensure that girls are encouraged to participate in advanced math/science courses, and that boys are reinforced in areas such as the arts and literature.

Support successes in all endeavors and encourage talented students to acknowledge both their abilities and their effort.

Help gifted girls to appreciate and understand healthy competition by encouraging active involvement in leadership, athletics, and academic competitions.

Encourage advanced summer enrichment and acceleration opportunities with other academically gifted and talented adolescents.

Spotlight the academic achievements of gifted boys and girls in a variety of different areas.

Provide educational opportunities compatible with advanced cognitive development and individualized styles of learning.

Strategies to promote healthy social and emotional development

Show sensitivity to the different nonverbal ways that males and females express themselves and work to help them accept their abilities and develop their talents.

Understand some of the external and internal barriers that may negatively affect success.

Encourage relationships among gifted students who want to achieve.

Consistently point out options for careers.

Stress self-reliance, independence, decision-making, humor, safe risk-taking, and encourage inclination for creative action.

Provide individualized, goals-oriented post-secondary and career counseling.

Enable girls and boys to learn various communication styles.

Express a positive attitude about talents and provide an unequivocal source of support, avoiding criticism as much as possible.

Consciously discuss and actively challenge obstacles and barriers to success by pointing out negative stereotypes.

Help to foster a secure identity by helping talented students to understand and develop a belief in self and an understanding of their talents and ability.

Encourage personality characteristics such as independence, smart risk-taking, self-confidence, self-reliance, independence, and decision-making.

Accept differences and encourage diverse interests, styles and choices.

Encourage parental awareness of the special needs of gifted and talented students.

Discuss the importance of peers and loved ones who support students' aspirations.

Implications for psychologists and counselors:

Provide individualized, goal-oriented career counseling and maintain an interest in talented students with high potential who need help to develop their talents.

Provide group counseling sessions for gifted and talented students to address issues such as multipotentiality, underachievement, or absence of belief in ability.

Encourage participation in honors and advanced placement courses, and in extracurricular activities and summer and out-of-school programs such as college science and math classes.

Provide bibliotherapy and videotherapy in small group sessions; provide readings in a wide variety of excellent resources and view films portraying the struggle of talented individuals.

Table 14.1. (continued)

Establish support groups with a network of same-sex peers; encourage use of role models and mentors with gifted adolescents in careers and leadership positions.

Contact and involve parents when gifted adolescents begin to underachieve or seem confused about abilities, aspirations, or careers.

Provide career encouragement and planning, and exposure to career opportunities.

Provide information about societies, web pages, and resources that encourage and support gifted adolescents.

Act as an assertive advocate for the development of interests and talents.

Encourage humor and positive risk-taking.

Encourage independent decision-making.

Help support friendships with other high-achieving students.

might have been influenced by their parents and teachers, may increasingly become less afraid to follow their interests and desires. They may also be less afraid of disappointing or losing those they love if it means giving up an interest or a career. Gifted boys may increasingly become more willing to choose careers in the helping professions or the arts. As more gifted women enter and select full-time careers, more gifted males may have fewer worries about finances and family support, thus enabling them to make interest-based choices providing them with multiple pathways for developing their talents, regardless of the financial benefits or losses that ensue from these choices. Some gifted males and females will struggle to make choices, or avoid making any choice whatsoever. Some will have multiple interests and talents and be unable to focus their interests or talents. Research conducted by Reis (1998, 2005) suggests that time and the desire to develop one's talents emerge over time for older gifted women.

This time for growth and reflection may be critical for both male and female talented adolescents as many older talented individuals reflect back with regret on chances not taken and opportunities lost (Reis, 1998). Reis (2005) defines talent development in women as occurring when women with high intellectual, creative, artistic, or leadership ability or potential achieve in an area of choice and when they make contributions that they consider meaningful to society. Over a decade of research in this area led to a preliminary conception of talent realization in women (Reis, 1995, 1998) that was further refined in subsequent years (Reis, 2005). The factors that contribute to this conception include: abilities (intelligence and special talents), personality traits, environmental factors, and personal perceptions, such as the social importance of the use of one's talents to make a positive difference in the world. Each of these factors contributes to what Gruber called "self-mobilization" (1985, p. 258), characterized in the women Reis studied by the development of belief in self, their fervent desire to develop their own talents, and a sense of destiny enabling them to make conscious decisions to develop their talents, often with little support and against many obstacles. These talents emerged over many years and were constructed using earlier varied life experiences that served as valuable backdrops to prepare them for future accomplishments. Therefore, younger gifted girls should have the gift of time to pursue interests, become involved in increasingly challenging work, and develop their own sense of interests and passions.

Since the beginning of the women's movement in the 1960s, there have been theorists, clinicians, and scholars who have called attention to the fact that the liberation of women from stereotyped roles could not occur without the liberation of men from the stereotyped masculine roles in American society. Since that time our society has had the opportunity to develop men's professional and emotional lives differently than generations past. Scholars and clinicians have provided a rich literature base addressing the societal changes for males. Educators and researchers in gifted education with concerns for gifted boys have learned much from the new literature and have felt compelled to examine specifically the life experiences of gifted males. In doing so, they have discovered that more scholarship is needed to develop a better understanding of growing up gifted and male. We understand that gifted males face special challenges and have unique needs and as society continues to change, the family and professional role of gifted males will become more complex. Talent development in gifted males will continue to be shaped by societal influences. Along with the women in their lives, gifted males will have many more choices to make and high expectations to reach throughout their lives. With these choices and challenges, they too will continue to need our support.

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Recruiting and Retaining Underrepresented Gifted Students*

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The field of gifted education has come under much criticism because of the consistently low representation of culturally and linguistically diverse students in gifted education. At no time in our history have these students been proportionately represented in gifted education. For several decades, increased attention has focused on ways to open doors to gifted education programs and services for students who live in poverty and who come from culturally and linguistically diverse (CLD) backgrounds. Three groups have received the bulk of this attention: African-American, Hispanic-American, and Native American students. Regardless of the date of the reports and studies, these culturally diverse students have always been inadequately represented in gifted education (e.g., Baldwin, 1976; Donovan & Cross, 2002; Ford, 2004a; Frasier et al., 1995). Statistics show that these three groups are underrepresented by some 50 to 70% (Elementary and Secondary Schools Civil Rights Survey, 2002; U.S. Department of Education, 1993). According to the Office for Civil Rights, a discrepancy of 20% or more is unacceptable and may indicate biases in instruments, policies, procedures, and practices (Ford & Frazier Trotman, 2001)

In this chapter, we examine barriers to the recruitment and retention of CLD students in gifted programs, including advanced placement (AP) classes. In addition to discussing barriers, we propose recommendations. Several premises guide our work and this chapter. First, we recognize that change is difficult—resistance to changing is high, specifically if it threatens the status quo. We also recognize that, as we seek to preserve the status quo, a significant segment of our student population is denied access to programs that they are legally entitled to participate in. Second, we believe

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* This chapter is a revision of another chapter by Ford (2006).

that increasing access to gifted education cannot occur unless we decrease and, ideally, eliminate, deficit thinking about CLD students. This move away from low and negative expectations requires substantive training and preparation, as well as leadership to set the tone and ensure accountability. Third, we believe that many policies and procedures must be viewed through a lens of equity so that we can see more fully their impact on underrepresentation. A further assumption and proposition is that no group has a monopoly on "giftedness." Giftedness exists in every cultural group and across all economic strata (USDE, 1993). Consequently, there should be little or no underrepresentation of racial and ethnic minority students in gifted education. A fourth premise is that giftedness is a social construct; subjectivity guides definitions, assessments, and perceptions of giftedness (Pfeiffer, 2003; Sternberg, 1985). This subjectivity contributes to segregated gifted education programs in numerous and insidious ways. Sapon-Shevon (1996) states that "the ways in which gifted education is defined, constituted, and enacted lead directly to increased segregation, limited educational opportunities for the majority of students, and damage to children's social and political developments" (p. 196). Accordingly, educators must examine their views about the purposes of gifted education in particular and their perceptions of students from racially and ethnically diverse backgrounds.

The fifth premise is that all decisions made on behalf of students should be made with their best interests in mind. Education should be additive for students, not subtractive. We should be about the business of building on what students have when they enter and leave our schools. Likewise, we believe that efforts to recruit and retain CLD students in gifted education must be comprehensive, proactive, aggressive, and systematic. Educators, families, and children themselves need to work together to ensure that gifted education is desegregated (Harris, Brown, Ford, & Richardson, 2004). Gallagher's (2004) assertion is worth noting here:

> In another profession, the physician treating a patient will often start with the weakest treatment available and then progress to stronger treatments once the first attempt has seen little effect. We seem to have been following that approach in educating gifted students by prescribing a minimal treatment (one might even say a non-therapeutic dose) designed hopefully to do some good without upsetting other people… as a profession, we need to come to some consensus that we need stronger treatments. (p. xxviii)

Finally, we are optimistic; we believe that schools can do a better job of recruiting and retaining Black, Latino, and Native American students in gifted education.

In this chapter, we first explore barriers to and recommendations for recruiting and retaining CLD students into gifted education programs. We share data primarily on the underrepresentation of African-American students in gifted education for at least two reasons: (1) between 1998 and 2000, African-American students were the only CLD students to become *more underrepresented* in gifted education, as noted in Figure 15.1, and (2) this group is more often the focus of litigation relative to inequities in gifted education (Office for Civil Rights, 2000). We acknowledge and recognize that Asian-American students are also CLD students. However, no data indicate that Asian-American students are underrepresented in gifted education. Further, Asian Americans, unlike African-American, Hispanic-American, and Native American students, frequently experience positive stereotypes and many are high achieving. Consequently, they are not discussed in this chapter. By omitting Asian-American students from this chapter, we are not ignoring the social injustices they

	Enrollment		GT Enrollment		Total	
Race/Ethnicity	Female	Male	Female	Male	% School District	% Gifted & Talented
American Indian/Alaskan Native	.59	.62	.49	.44	1.21	.93
Black	8.46	8.7	4.78	3.65	17.16	8.43
Hispanic/Latino	8.67	9.13	5.36	5.05	17.80	10.41
Asian/Pacific Islander	2.14	2.28	3.65	3.43	4.42	7.64
White	28.81	30.61	36.71	35.88	59.42	72.59
Total	48.67	51.33	51.27	48.73	100.00	100.00

Elementary and Secondary School Civil Rights Survey (2002)

Figure 15.1. Gifted education demographics for 2002

Sources: Elementary and Secondary School Civil Rights Survey (2002). www.demo.beyond2020.com/ocrpublic/eng; National Center for Education Statistics. (2002). *Common Core of Data (CCD), State nonfiscal survey of public elementary/secondary education, 1999–2002*. Washington, DC: U.S. Department of Education.

have experienced and continue to experience in society and in the schools (Kitano & DiJosia, 2002; Pang, Kiang, & Pak, 2004).

This chapter is divided into three major sections. The first section focuses on recruitment issues and barriers, the second section focuses on recruitment recommendations, and the third section focuses on retention recommendations. Two major questions guide this chapter: What are the most promising ways to recruit and retain more CLD students in gifted education? How can we have diverse gifted education programs without sacrificing excellence and equity?

Recruitment Issues and Barriers

Most of the research that examines underrepresentation focuses on recruitment. Specifically, it is contended that CLD students are underrepresented in gifted education because of barriers associated with screening and identification instruments, and policies and procedures.

The first step in addressing (or redressing) the underrepresentation of racial and ethnic minority students in gifted education is to focus on recruitment. The notion of "recruitment" refers to screening, identification, and placement. As argued elsewhere, perceptions about CLD students, combined with a lack of cultural understanding and competence, significantly undermine the ability of educators to recruit diverse

students into gifted education (and to retain them) (Ford, 1996; Ford, Harris, Tyson, & Frazier Trotman, 2002). That is, as described below, a "cultural deficit" perspective pervades decisions made about African-American, Hispanic-American, and Native American students, and this thinking effectively undermines efforts associated with equity and excellence.

Deficit Thinking: Low Expectations at Their Worst

> The more we retreat from the culture and the people, the less we learn about them. The less we know about them, the more uncomfortable we feel among them. The more uncomfortable we feel among them, the more inclined we are to withdraw. The more we withdraw from the people, the more faults we find with them. The less we know about their culture, the more we seem to dislike it. And the worst of it is that, in the end, we begin to believe the very lies we've invented to console ourselves. (Storti, 1989, pp. 32–34)

To repeat, a major premise of this chapter is that deficit thinking effectively hinders access to gifted programs for CLD students, as reflected in the above quote by Storti (1989). This stereotypic thinking dampens the ability and willingness of educators to recognize the strengths of students from diverse ethnic, racial, and language groups. Deficit thinking exists when educators interpret differences as deficits, dysfunctions, and disadvantages. Consequently, many CLD students automatically have the "at-risk" label thrust on them; there is a focus on their shortcomings or weaknesses rather than their strengths. With deficit thinking, differences are interpreted negatively as if they are abnormal, substandard, or inferior. For example, when a Black student speaks nonstandard English and is making good grades in school, he may not be referred to screening and identification if the teacher neither understands nor appreciates nonstandard English. Likewise, if a Latino student has excellent math skills but weak writing or reading skills, she may not be perceived by educators as high potential, gifted, or intelligent.

Perceptions and views about CLD groups influence the development of definitions, policies, and practices. Gould (1981/1995) and Menchaca (1997) proposed and supported the notion that deficit thinking contributed to past and current beliefs about race, culture, and intelligence (Ford, 2004b). Gould described research and theories from the past two centuries to demonstrate how *a priori* assumptions, stereotypes, and fears associated with CLD groups, particularly African Americans, contributed to conscious, deliberate fraud—dishonest and prejudicial research methods, intentional miscalculations, convenient omissions, and data misinterpretation among supposed "scientists" studying intelligence.

Later, as school districts faced increasing economic, cultural, and linguistic diversity, educators resorted to increased reliance on standardized tests thought to be questionable for use with CLD students (Armour-Thomas, 1992; Ford & Whiting, 2006; Helms, 1992; Menchaca, 1997; Naglieri & Ford, 2005). These tests virtually guaranteed low test scores for immigrants and CLD groups who were unfamiliar with U.S. customs, traditions, values, norms, and language (Ford, 2004b). These tests measured familiarity with mainstream American culture and English proficiency, not intelligence. According to Gould (1981/1995), intelligence tests provide limited information about CLD populations. The results from these tests often limited the educational opportunities of CLD students, who tended not to score high on them. Menchaca (1997) stated:

> Racial differences in intelligence, it was contended, are most validly explained by racial differences in innate, genetically determined abilities. What emerged from these findings regarding schooling were curricular modifications ensuring that the "intellectually inferior" and the social order would best be served by providing these students concrete, low-level, segregated instruction commensurate with their alleged diminished intellectual abilities. (p. 38)

The publication of *The Bell Curve* (Herrnstein & Murray, 1994) gave new life to deficit thinking about Black students in particular. Endeavoring to influence public and social policy, Herrnstein and Murray, like ealier researchers, misinterpreted and misrepresented data to confirm institutionalized prejudices. As Gould (1981/1995) noted, the hereditarian theory of IQ is a home-made American product that persists in current practices of testing, sorting, and discarding.

Screening Issues and Barriers

Students undergo screening in which they are administered assessments with predetermined criteria (e.g., cutoff scores) to be identified as gifted and placed accordingly. If students meet the initial screening requirements, they may be given additional assessments, which are used to make final placement decisions. In most schools, entering the screening pool is based on teacher referrals (Colangelo & Davis, 2003; Davis & Rimm, 2003). This practice can stifle or undermine the effective screening of cultural and linguistic minority students because they are less likely to be referred by teachers for screening (Elhoweris et al., 2005; Ford, 1996). Specifically, a Latino female may meet the school district's criteria for giftedness but be overlooked because she has not been referred for screening. The teacher may not refer this student because of his/her biases and stereotypes about CLD groups (deficit thinking). One key indicator of giftedness is strong verbal skills. However, if the student does not speak standard English (e.g., is Limited English Proficient or speaks Black English Vernacular or Ebonics), the teacher may not recognize the student's strong or bilingual verbal skills. We believe that teacher referrals should be used as part of the screening or decision-making process. However, as the above example illustrates, this practice may have a disparate impact on the presence of CLD students in gifted education.

Similarly, teachers and other educators (e.g., counselors, parents, community members) may be required to complete checklists on the referred students. If the checklists ignore cultural and linguistic diversity—how giftedness manifests itself differently in various cultures—then CLD students may receive low ratings that do not accurately capture their strengths, abilities, and potential. A framework proposed by Frasier et al. (1995) described how the core attributes of giftedness vary by culture. They contended that educators should define and assess giftedness with each group's cultural differences in mind. For example, one core characteristic of giftedness is a keen sense of justice. CLD students may be especially sensitive to fairness and lack of consistencies in how teachers interact with and communicate with CLD groups. Thus, these students may be quick to call the teacher on what they view as unfair comments, actions, and practices.

Like tests, checklists can also be problematic. In addition to referral/nomination forms and checklists being "culture-blind," they frequently focus on demonstrated

ability and performance. As a result, they overlook students who are gifted but lack opportunities to demonstrate their intelligence and achievement. Many low-income students are intelligent, but lack essential academic experiences and exposure to develop their abilities and potential.

In 1993, the U.S. Department of Education recognized that no group has a monopoly on giftedness, and that our schools are full of students with high potential. To help educators improve the recruitment of diverse students into gifted education, the Department issued the following definition of giftedness, one that relies heavily on the notion of talent development:

> Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment. These children and youth exhibit high performance capacity in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools. Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor. (USDE, 1993, p. 3)

The ramifications of not adopting the federal definition, or some version of it, are clear—continued underrepresentation of students from racial, ethnic, and language backgrounds in gifted education.

Identification/Assessment Issues and Barriers

Unidimensional and ethnocentric definitions of *giftedness* present barriers to recruiting CLD students into gifted education. Such definitions ignore human differences in general and cultural diversity in particular. They ignore the fact that what is valued as giftedness in one culture may not be valued in another. For example, most European Americans highly value cognitive and academic ability over spatial, musical, interpersonal, and other abilities (Gardner, 1993) and tend to value academic knowledge and skills over tacit or practical knowledge and skills (Sternberg, 1985). Conversely, navigational skills or hunting skills may be prized in another culture. These differences raise the question: "If a student is not gifted in the ways that are valued by my culture, is she gifted?" What are the implications for students who are CLD?

Subjectivity (perceptions and definitions) also determine the instruments or tests we select to assess giftedness. What determines which instrument a school district selects? If we value verbal skills, we will select an instrument that assesses verbal skills. If we value logic and/or problem-solving skills, we will select an instrument that assesses these skills. If we value creativity, the instrument we select will assess creativity. We are not likely to choose an instrument that measures a construct or skill that we do not value.

Accordingly, the majority of educators use intelligence and achievement tests to assess giftedness. Test scores play a dominant role in identification and placement decisions. For example, more than 90% of school districts use scores from these types of tests for labeling and placement (Colangelo & Davis, 2003; Davis & Rimm, 2003). These tests measure verbal skills, abstract thinking, math skills, and other skills viewed as indicators of giftedness by educators. We must also recognize that they ignore or minimize skills and abilities that may be also valued by other groups (e.g., creativity, interpersonal skills, group problem-solving skills, navigational skills,

musical skills). Consequently, CLD students are more likely than others to display characteristics that place them at a disadvantage in testing or evaluative situations (Helms, 1992; Office for Civil Rights, 2000). Ethnocentric definitions contribute to the adoption of unidimensional tests that contribute significantly to segregated or racially homogeneous gifted education programs. These tests are more effective at identifying giftedness among middle-class White students than among racial and ethnic minority students, particularly if these students are from low-socioeconomic-status (SES) backgrounds.

An additional concern related to tests is the extensive use of cutoff scores, referred to earlier. The most frequently used cutoff score for placement in gifted education is an IQ score of 130 or above, two standard deviations above the average IQ of 100 (Colangelo & Davis, 2003). Decades of data indicate that groups such as African Americans, Puerto Rican Americans, and Native Americans have mean tested IQ scores lower than White students, even at the highest economic levels. For the most part, the average tested IQ of African Americans is 83 to 87, compared to 97 to 100 for white students on traditional intelligence tests (see Helms, 1992; Kaufman, 1994). The same holds for children who live in poverty, regardless of racial background. Their average IQ is about 85. Unfortnately, those holding racist ideologies may attribute these differences to genetics and argue that giftedness (or intelligence and achievement) is primarily inherited. This position implies that the environment is less important than heredity in the development of talents and abilities. Such a view is counterproductive in education, which is supposed to build on and improve the skills and abilities of students.

Conversely, those who recognize the influence of the environment and culture on performance are more likely to attribute these different scores primarily to social, environmental, and cultural factors. For instance, numerous studies have shown that exposure to lead, malnutrition, and poor educational experiences effectively hinders test performance, tested IQ, attention span (e.g., Barton, 2003; Ford, 2004a). Thus, cutoff scores cannot be selected arbitrarily and in a culture-blind fashion. If adopted at all, cutoff scores should be used with caution and should take into consideration the different mean scores of the various racial, ethnic, and language groups.

A final issue related to testing is interpreting results. When other information is considered, it is possible to select and use a test that effectively assesses the strengths of racial, ethnic, and language minority students. However, perceptions can prevent school personnel from interpreting the results in a culturally fair or sensitive way. What if a teacher, counselor, or psychologist interpreting the test results holds negative stereotypes about African Americans and Latino students? What if the counselor holds stereotypes about groups who have limited English proficiency? Test interpretation is subjective and interpretations are influenced by the nature and extent of training to work with groups who differ from the mainstream. Results from a "good" test can be poorly interpreted if the interpreter has little understanding of how culture influences test performance (Ford, 2004b).

In a collaborative effort, the American Educational Research Association (AERA), the American Psychological Association (APA), and the National Council on Measurement in Education (NCME) (1999) addressed many problems related to interpreting test scores. They recognized the harmful effects of misinterpreting test results, especially with CLD groups: "The ultimate responsibility for appropriate test use and interpretation lies predominantly with the test user. In assuming this

responsibility, the user must become knowledgeable about a test's appropriate uses and the populations for which it is appropriate" (p. 112). They advised that test users collect extensive data on students to complement test results and use a comprehensive approach in the assessment process (Armour-Thomas, 1992; Helms, 1992). Test users are encouraged to consider the validity of a given instrument or procedure as well as the cultural characteristics of the student when interpreting results (Office of Ethnic Minority Affairs, 1993)(extensive information on equity and testing can be found at The National Center for Fair & Open Testing, www.fairtest.org).

In sum, the data collected on all students should be multidimensional and comprehensive—a variety of information collected from multiple sources. For example, data are needed from school personnel, family members, and community members. Data on intelligence, achievement, creativity, motivation, interests, and learning styles are essential when making decisions about students. In this era of high-stakes testing, educators should err on the side of having "too much" information rather than too little to make informed, educationally sound decisions.

The data collected should also be multimodal— collected in a variety of ways. Information should be collected verbally (interviews, conversations) and nonverbally (e.g., observations, writing, performances), and both subjective and objective information should be gathered. Further, if the student is limited English proficient, educators should use an interpreter and use instruments translated into that student's primary or preferred language. Stated another way, assessments should be made with the students' best interests in mind and the principle of "do no harm" should prevail: "In any testing situation, but particularly high stakes assessments, examinees must have an opportunity to demonstrate the competencies, knowledge, or attributes being measured" (Sandoval, Frisby, Geisinger, Scheuneman, & Grenier, 1998, p.183).

Placement Issues and Barriers

Giftedness is often viewed as synonymous with achievement or productivity. To most educators and parents, the concept of a "gifted underachiever" may seem paradoxical. However, any educator who has taught students identified as gifted knows that gifted students can and do underachieve—some are unmotivated and uninterested in school, some are procrastinators, others do not complete assignments or they do just enough to "get by." The senior author has observed about 40 to 80% of gifted Black students underachieving (Ford, 1996). Other researchers believe that at least 20% of gifted students underachieve (see Davis & Rimm, 2003).

One problem associated with placement, therefore, is the belief that gifted students should receive gifted education services only *if* they are high achievers, hard workers, and motivated. Beneath this assertion lies the belief that achievement must be manifested (e.g., high grade point average or high achievement test scores). Gifted underachievers are unlikely to be referred for or placed in gifted education. If placement occurs, it is often provisional for this group. For example, several school districts will remove students from a gifted program if their GPA falls below a designated level, they fail a course, or have poor attendance that is unexcused. This situation of students meeting gifted education criteria (e.g., high test scores) but underachieving often arises when testing has been unidimensional and unimodal—educators have focused solely on determining the students' IQ scores and with a narrow range of instruments and philosophies. Conversely,

if intelligence *and* achievement data were collected during screening, educators would know whether the student is: (1) gifted and achieving or (2) gifted and underachieving. And they could make placement decisions based on these data. For example, they could place gifted underachievers in gifted education classes and provide them with a tutor, study skills, language skills, or counseling (Ford, 1996). The objective would be to help gifted underachievers become achievers and experience success in gifted education classrooms.

For many reasons already noted, too many CLD groups are likely to be gifted underachievers or potentially gifted students. Some educators do not wish to place these students in gifted education programs because they believe that the level and pace of the schoolwork may frustrate students. In theory, the issue of underachievers being overwhelmed in gifted education programs may be a valid concern, depending on why the students are underachieving. In practice, it has harmed gifted students who are different from the mainstream.

Instead of supporting CLD students and helping them to overcome their academic or skills-based weaknesses and barriers faced, educators have often chosen the option of least resistance under the guise of altruism. ("I don't want him to be frustrated." "She'll be unhappy." "He'll just fall further behind.") As we seek to prevent students from being frustrated, we should ask: "What are we doing to help to alleviate their frustration?" Tutoring, counseling, and other support systems (familial, academic, vocational, psychological, and social-emotional) are essential. When placement is combined with support, gifted underachieving students are more likely to be successful in gifted education programs.

As described below, recruiting students from CLD groups into gifted education programs is one thing; retaining them is another. What policies, practices, procedures, philosophies, and supports should be in place for CLD students to experience success and remain in gifted education?

Recruitment Recommendations

Recruiting students from CLD groups into gifted education is the first half of resolving their underrepresentation in gifted education. As described below, recruitment should include a talent-development philosophy, changes in standardized tests and assessment practices, culturally sensitive tests, multicultural assessment preparation for professionals, and the development of effective policies and procedures.

Talent-Development Philosophy

Educators who support a talent-development philosophy and culturally sensitive definitions of giftedness are more likely than others to have supports in place to assist students from diverse groups. For example, school districts would begin screening and placing students in gifted education at the preschool and primary levels. Currently, most gifted education programs begin in grades 2–4, which may be too late for potentially gifted students and those beginning to show signs of underachievement, commonly referred to as the second-grade syndrome. Abilities—gifts and talents—should be recognized and nurtured early (USDE, 1993), especially among students already at risk of being unrecognized as gifted.

Changes in Standardized Tests and Assessment Practices

Tests that have been standardized on middle-class White populations are here to stay, despite the reality that they are another form of discrimination that favors the privileged (Sowell, 1993). Nonetheless, educators seeking to improve the test performance of CLD students on these instruments have several options to consider. First and foremost, they should never select, use, and interpret tests that lack validity for students from racial, ethnic, and language minorities (Joint Standards, 1999; Whiting & Ford, 2006). Second, they need to merge the process of assessment with the cultural characteristics of the group being studied, while also recognizing that assessment is made culturally sensitive through a continuing and open-ended series of substantive and methodological insertions and adaptations (Suzuki, Meller, & Ponterotto, 1996). In essence, equitable and culturally sensitive assessment requires a combination of changed attitudes, accumulation of more knowledge, thoughtful practice, and development of keen insight into the dynamics of human behavior (Heubert & Hauser, 1999; Kornhaber, 2004; Sandoval et al., 1998). Tests should never be given so much legitimacy and power that other data are disregarded, ignored, or negated; tests assist educators in making *conditional probability statements* on the basis of the particular test (Kaufman, 1994; Sandoval et al., 1998).

Culturally Sensitive Tests

Tests vary in the amount of language used in the directions and in the items. When working with linguistically diverse groups, we must use caution when tests have a high linguistic and/or high cultural demand (Flanagan & Ortiz, 2001). Test results may underestimate what students from different backgrounds can do (e.g., Dana, 1993; Mercer, 1973; Naglieri & Ford, 2005). To address these issues, educators need to include more culturally sensitive tests, such as nonverbal tests, in screening and identification procedures (Ford, 2004b; Naglieri & Ford, 2003, 2005; Sandoval et al., 1998). To date, the most promising instruments for assessing the strengths of African-American students are such nonverbal tests of intelligence as the Naglieri Non-Verbal Abilities Test and Raven's Matrix Analogies Test, which are considered less culturally loaded than traditional tests (Flanagan & Ortiz, 2001; Kaufman, 1994; Saccuzzo, Johnson, & Guertin, 1994).

Contrary to popular opinion, nonverbal tests do not mean that students are nonverbal. Rather, nonverbal tests measure abilities nonverbally; they rely less on language skills and proficiency. Thus, the intelligence of students with limited English proficiency, bilingual students, and students who speak nonstandard English can be assessed with less reliance on language skills.

Relative to cultural loading, Jensen (1980) distinguished between culturally loaded and culturally reduced tests. Culturally reduced tests are often performance based and include abstract figural and nonverbal content; culturally loaded tests have printed instructions, require reading, have verbal content, and require written responses. Essentially, nonverbal tests decrease the confounding effects of language skills on test performance and consequently increase the chances of students from diverse groups being identified as gifted.

Other assessment accommodations in the best interest of CLD students include using tests that have been translated into different languages, using interpreters and

translators when students are not proficient in English, and having educators who are bilingual and bicultural administer the tests.

Multicultural Assessment Preparation

Multicultural assessment preparation is essential for any educator who administers, interprets, and uses results based on tests with diverse students (AERA, APA, & NCME, 1999; Ford &Whiting, 2006; Whiting & Ford, 2006). To repeat, the test results are only as good as the test-taking situation, including the qualifications and competencies of the educator administering the test. Comas-Diaz (2000) has developed a list of cultural assessment variables with which educators should be familiar when making comprehensive assessments and interpreting results. These cultural assessment variables include information about the individual's heritage, religion, history of immigration, child-rearing practices, language skills, gender roles, and views about assimilation and about authority figures and family structure.

Policies and Procedures

Students should be placed in gifted education based on multiple data, which are then used to create profiles of students' strengths and weaknesses. Consequently, recruitment becomes tailored, diagnostic, and prescriptive, with the idea that strengths are used to place students in gifted education, and weaknesses are remediated rather than used as an excuse to avoid placement and otherwise continue current practices.

If teacher and school personnel referral is the first step in the screening and placement process, and CLD students are underreferred, then school personnel are functioning as gatekeepers; schools should reevaluate this practice. To qualify as a valid referral source, educators require preparation in at least three areas: (1) gifted education, (2) urban and multicultural education, and (3) multicultural assessment. Such preparation increases educators' knowledge, skills, and dispositions about gifted students from diverse groups, as well as the limitations of testing them.

Retention Recommendations

Half of our efforts to desegregate gifted education should focus on recruitment and half on retention. The next section focuses on how multicultural education can be used to retain CLD students in gifted education.

Multicultural Instruction

Boykin (1994), Saracho and Gerstl (1992), and Shade, Kelly, and Oberg (1997) are just a few of the scholars who have presented convincing research supporting the notion that culture influences learning styles and thinking styles. Due to space limitations, only Boykin's (1994) work will be discussed in this chapter. Before doing so, we add a caveat. We agree with Irvine and York's (2001) asertion that we must never adhere so strongly to generalizations or frameworks that they become stereotypes.

Boykin (1994) identified nine cultural styles commonly found among African Americans, namely, spirituality, harmony, oral tradition, affective orientation, communalism, verve, movement, social time perspective, and expressive individualism. Movement refers to African Americans being tactile and kinesthetic learners who show a preference for being involved in learning experiences. They are active learners who are most engaged when they are physically and psychologically involved. Harmony refers to an ability to read the environment well and to read nonverbal behaviors. Thus, students who feel unwelcome in their classes may become unmotivated and uninterested in learning. Communalism refers to a cooperative, interdependent style of living and learning in which competition—especially with friends and family members—is shunned. Students with this learning preference may be unmotivated in highly individualistic and competitive classrooms, preferring instead to learn cooperatively and in groups.

Harmony and communalism may explain why an increasing number of African-American students are choosing not to be in gifted programs. They recognize that such programs are primarily composed of white students and express concerns about alienation and isolation (Ford, 1996, 2004a). Further, due to communalism, some African-American students equate high achievement with "acting white" (Fordham, 1988; Fordham & Ogbu, 1986).

With Boykin's model in mind, we encourage teachers to modify their teaching styles to accommodate different learning styles. For example, to accommodate students' preference for communalism, teachers can use cooperative learning strategies and place students in groups. To accommodate the oral tradition as well as verve and movement, teachers can give students opportunities to write and perform skits and simulations, to have formal debates, and to make oral presentations. More examples of ways in which teachers can use culturally responsive teaching activities are described by Ford and Harris (1999), Gay (2000), Lee (1993), and Shade et al. (1997).

Multicultural Gifted Curriculum

Curricular considerations are also critical. How to teach and what to teach gifted students have been discussed extensively by other scholars (e.g., Maker & Nielson, 1996; Tomlinson, 1995; VanTassel-Baska, 1994). These strategies, such as curriculum compacting, independent study, acceleration, and grade skipping, will not be discussed here due to space limitations. While these strategies are certainly appropriate for gifted students from CLD groups, an equally important but overlooked retention recommendation is the need to create culturally responsive and responsible learning environments (Gay, 2000) and to ensure that the curriculum for gifted students is multicultural.

Ford and Harris (1999) created a framework that uses Bloom's (1956) taxonomy and Banks's (Chapter 10, this volume) multicultural education model to assist educators in developing learning experiences that are multicultural and challenging. The result is a 24-cell matrix. Four of the 24 levels in the model are described below (for a more complete discussion of the model, see Ford & Harris, 1999).

At the knowledge–contributions level, students are provided information and facts about cultural heroes, holidays, events, and artifacts. For example, students might be taught about Martin Luther King, Jr., and then asked to recall three facts about him on a test. They might be introduced to Cinco de Mayo and be required to recite the year when it became a holiday.

At the comprehension–transformation level, students are required to explain what they have been taught—but from the perspective of another group or individual. For instance, students might be asked to explain the events that led to slavery in the United States and then to discuss how enslaved persons might have felt about being held captive. They might discuss Thanksgiving from the perspective of a Native American.

At the analysis–social action level, students are asked to analyze an event from more than one point of view. Students might be asked to compare and contrast events during slavery with events associated with infractions of child labor laws today. Following these comparisons, students could be asked to develop a social action plan for eliminating illegal child labor.

At the evaluation–social action level, students might be asked to develop a survey about prejudice in their local stores or businesses. This information could be given to store owners, along with a plan of action for change, such as developing a diversity-training program.

Multicultural education can motivate students and give them opportunities to identify with, connect with, and relate to the curriculum. It consists of deliberate, ongoing, planned, and systematic opportunities to avoid drive-by teaching—to make learning meaningful and relevant to students, and to give minority students mirrors in order to see themselves reflected in the curriculum. Multicultural gifted education challenges students culturally, affectively, academically, and cognitively.

Multicultural Counseling

Fordham and Ogbu (1986), Fordham (1998), Ford and Whiting (in press) and Ford (1998, 1996) have conducted research examining the concerns that high-achieving, gifted African-American students have about being academically successful. Unfortunately, many of these students are accused of "acting white" by other African-American students because of their academic success. Such accusations can be distracting, overwhelming, and unmotivating for students. Students accused of acting white will need assistance with coping skills, conflict resolution skills, and anger management. The accusers will need assistance examining the negative implications—the self-defeating thoughts and behaviors—of an antiachievement ethic. Peer-group counseling is one potentially effective method for addressing these issues (Whiting, 2006a, 2006b).

Skills-Based Supports

Retention efforts must also address and rectify skill deficits. As stated earlier, many CLD students are gifted but need support to maintain an acceptable level of achievement. Supportive systems include test-taking skills, study skills, time-management skills, and organizational skills. This especially important if they live in poverty.

Professional Development in Multicultural Education and Counseling

To carry out the recommendations just presented, educators need to participate in ongoing and formal preparation in multicultural education and counseling. Whether in the form of courses or workshops, such preparation should focus on educators becoming culturally competent in the following areas:

- Understanding cultural diversity and its impact on (a) teaching, (b) learning and achievement, and (c) assessment;
- Understanding the impact of biases and stereotypes on (a) teaching, (b) learning, and (c) assessment (e.g., referrals, testing, expectations);
- Working effectively and proactively with(a) students who are culturally and linguistically diverse, (b) their families, and (c) their community;
- Creating multicultural (a) curricula and (b) instruction; and
- Creating culturally responsive (a) learning and (b) assessment environments.

Summary and Conclusions

De facto segregation persists in schools and in gifted education programs. Educators should focus extensively, consistently, and systematically on the many factors that contribute to and exacerbate the underrepresentation of CLD students in gifted education. We have asserted that a deficit orientation among educators, based primarily on a lack of understanding of culture, permeates all areas of the recruitment and retention of certain CLD students in gifted education programs. Deficit thinking has no place in education. Instead, educators must acknowledge and, then, accept, the realities of the diversity in the world, in the United States, and in schools, and seek to acquire and use the resources and preparation needed to become culturally responsive and responsible professionals. Culturally competent educators are advocates for all students. A multicultural philosophy and preparation of educators will guide their referrals, instrument selection, test interpretation, and placement decisions—all of which are essential for recruiting and retaining culturally and linguistically diverse students into gifted education programs.

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Chapter 16

Ethical and Professional Practice Issues in the Provision of Educational Services to Gifted Students*

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There have been many changes over the past 50–75 years in the provision of services to gifted children. As new theoretical positions and related discussions regarding "what is intelligence" have emerged in the literature (e.g., Gardner, 1983; Guilford, 1967; Renzulli, 1978; Sternberg, 1984; Thurstone, 1947), discussions regarding what constitutes "giftedness" have also taken place—with these discussions going beyond Terman's (1926) restricted view of giftedness as referring to those individuals who score in the "…top 1% of general intellectual ability, as measured by the Stanford-Binet Intelligence scale or comparable instrument" (p.43).

In this chapter, we discuss the ethical and professional practice issues associated with the provision of educational assessment and intervention services to gifted children. We first begin with a discussion and commentary on the issues surrounding the definition of the term "giftedness," followed by discussions and commentaries on the ethical and professional practice issues pertaining to the assessment and identification of gifted children, as well as the associated placement and curriculum issues that may arise. The chapter closes with a brief discussion of issues associated with providing counseling services to gifted children.**

**The terms *child* and *children* will be used throughout this chapter in a more generic manner to denote both children and adolescents. In those instances where the literature suggests that distinct age issues need to be addressed, more specific terms will be used.

Definitional Issues

Most contemporary definitions of giftedness include references to exceptional abilities in areas that are typically considered to be outside the area of general intelligence, such as leadership potential, creativity, and musical or artistic talents (e.g., Feldhusen, 1992; Renzulli, 1978; Stephen & Karnes, 2000). These more inclusive definitions are advantageous in that they allow for a wider range of abilities to be assessed by professionals (e.g., licensed psychologists, school psychologists, school counselors, resource teachers, teachers of gifted students), and, therefore, provide more opportunities for children with exceptional abilities to be identified as gifted (Renzulli, 2002). However, the lack of quantifiable characteristics and abilities in these expanded definitions can also potentially lead to assessor bias in the conduct of giftedness evaluations, as well as contribute to the misidentification of a child as "gifted." This situation can also lead to the improper placement of children in gifted education programs. As a result, professionals who assess and identify students as "gifted" have a responsibility to their school districts, as well as their respective professions and the children who they assess, to use empirically sound (and unbiased) judgment to ensure appropriate identification and educational placement of gifted children.

Gifted Versus Talented

Although many definitions of giftedness use the terms *gifted* and *talented* interchangeably (e.g., *Merriam-Webster*, 2003; Pfeiffer, Kumtepe, & Rosado, 2006; Stephen & Karnes, 2000; U.S. Congress, Javits Act, 1988), others propose to discriminate between the two, with *gifted* generally referring to children with exceptional academic or general intellectual abilities and *talented* referring to those children with exceptional abilities in other areas such as music or art (see, for example, Cohen, 1981; Gagné, 1985, 1995; Sternberg & Davidson, 1986). Combining these two terms into a general category called *giftedness* appears to be more advantageous in our present-day complex and technologically sophisticated society, because it permits the identification of more gifted and talented children and provides educational institutions with an increased opportunity to nourish and support the potential of these children. This inclusive definition also provides more opportunities for placement in gifted programs of children from traditionally underrepresented groups. It may also benefit those students who have an exceptional ability or achievement in only one particular academic area and allow, for example, a mathematically advanced student the opportunity to capitalize on this ability by receiving special instruction and mentoring in this area (Callahan, 2005). This more inclusive definition may also allow children with exceptional creative or artistic talents the opportunity for additional specialized instruction that would not otherwise be available to them in the regular classroom. In this regard, a meta-analysis by Kim (2005) found that the correlation coefficient for the relationship between creativity scores and IQ scores was negligible, indicating that there is a poor relationship between the two and suggesting that children high in creativity may be overlooked for gifted education if schools use the more restricted definition that involves only an IQ score.

The literature does suggest, however, that there are some disadvantages to adopting the more inclusive definition of giftedness. For example, although this

definition reflects the contemporary scholarly discussions on theories of multiple intelligences, many gifted education programs in school districts across the United States still operate on the premise that very high general intellectual ability constitutes the basis for gifted education services (e.g., Gallagher & Gallagher, 1994; Pfeiffer et al., 2006). Consequently, since definitions of giftedness vary across states (see Table 16.1), professionals who evaluate children for giftedness need to consider the implications of recommending, for example, placement of an average-IQ child who qualifies as "talented" within a school district's educational program that operates on the premise that gifted services are for those with very high general intellectual abilities. Such a recommendation could potentially have negative consequences for some children if they are placed in (1) an advanced academic program that is not well matched to their level of academic skill or learning speed or (2) a giftedness program that does not take into consideration their social/ interpersonal and emotional reactions and level of interest or commitment in pursuing their talent (e.g., Barkan & Bernal, 1991; Maker, 1996). Tannenbaum (1983) has also suggested that use of the inclusive definition may lead to favoritism of some children, or to favoritism of one group of children over another, and potentially isolate some children from others in the classroom or even from their peers.

Students from Minority or Other Underrepresented Groups

Definitional issues regarding giftedness become more complicated when one adds into the discussion issues regarding the identification and placement of students from minority or culturally diverse groups into gifted education programs. Traditionally, these students have been underrepresented in gifted programs (U.S. Department of Education, 1993). The main reason for this underrepresentation appears to be that these children typically perform more poorly on those intelligence tests that are typically used for the majority population (e.g., Carroll, 1982; Dickson, 2003; Granada, 2003). These children may also be underrepresented because some school districts may have unrecognized biases in their policies and procedures for referring students to gifted programs, or may have uninformed or insensitive teachers who do not refer students for giftedness evaluations because these students are from minority or culturally diverse groups (McBee, 2006). In this regard, McBee (2006) found that Asian and white students were more likely to be nominated or referred for gifted education programs than were black or Hispanic students. The use, therefore, of the more inclusive definition of giftedness could provide students from minority or other more traditionally underrepresented groups with an increased opportunity for placement in giftedness classes. In addition, the use of this inclusive definition appears to encourage the exploration and use of alternative assessment met hods for the placement of students (e.g., Johnsen, 2003; Pfeiffer et al., 2006). For example, in the case of non-native English speaking children or underachieving native English speakers, nonverbal measures of intelligence are increasingly being used to ensure an unbiased assessment (Naglieri & Ford, 2003, 2005).

Commentary. Given the advantages and disadvantages of differentiating between gifted and talented children, it is our opinion that professionals who assess and identify giftedness have an ethical responsibility to (1) maintain a current knowledge of the research and practice literature in this area and (2) be familiar with ongoing

Table 16.1. Criteria included in state definitions of giftedness

Criteria***	AL	AK	AZ	AR	CA	CO	CT	DE	FL	GA	HI	ID	IL	IN	IA	KS	KY	LA	ME	MD	MA	MI	MN	MS	MO
Superior* intellectual ability	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	**	X	X	X	X
Exceptional* creative thought	X	X		X	X	X	X	X		X	X	X	X	X	X		X	X	X	X			X	X	X
High* specific academic aptitude	X				X	X	X	X		X	X	X	X	X	X		X	X	X	X			X	X	X
Outstanding* leadership ability					X	X		X			X	X	X	X	X		X			X			X		
High visual and performing arts ability		X			X	X	X	X			X	X	X	X	X		X		X	X		X	X	X	X
High potential			X	X			X		X																
High achievement					X																	X			
High ability																									
Exceptional motivation				X																					
Psychomotor ability		X						X			X														
Advanced psychosocial or interpersonal ability														X		X	X								
Total number of eligibility criteria used	3	4	2	4	6	5	5	6	2	3	6	5	5	6	5	1	6	2	4	5	**	3	5	4	4

Criteria***	MT	NE	NV	NH	NJ	NM	NY	NC	ND	OH	OK	OR	PA	RI	SC	SD	TN	TX	UT	VA	VT	WA	WV	WI	WY
Superior* intellectual ability		X		X		X	X	X			X	X	X	**	X	**	X	X	X	X	X	X	X	X	X
Exceptional* creative thought		X		X							X	X	X					X	X	X	X	X		X	
High* specific academic aptitude		X	X	X		X	X	X			X	X	X		X			X	X	X	X	X		X	
Outstanding* leadership ability				X							X	X	X					X	X		X	X		X	
High visual and performing arts ability		X		X		X	X				X	X			X			X	X	X	X			X	
High potential	X								X	X							X								
High achievement	X																						X		
High ability					X					X															X
Exceptional motivation																									
Psychomotor ability																									
Advanced psychosocial or interpersonal ability																									
Total number of eligibility criteria used	2	4	1	5	1	3	3	2	1	2	5	5	4	**	3	**	2	5	5	4	5	4	2	5	2

*Terms such as "superior," "high," "exceptional," and "outstanding" are often used in these criteria with no clarification.

**No state definition provided.

***Most definitions require one or more of these criteria to be present.

Sources: State education websites; Education Commission of the States, 2004; Stephen & Karnes, 2000.

discussions of policy matters and definitional issues in the scholarly literature that may impact their assessment and identification work related to gifted education. This ethical responsibility also includes maintaining one's knowledge of (and training in) new procedures for assessing and identifying giftedness, as well as staying current in the literature on the measurement of creativity and other talents related to giftedness.

Professionals also have a duty to work in the best interests of a child whom they are evaluating for giftedness and, therefore, must be able to consider the educational options available to that child. Specifically, these professionals must be sensitive to the social and emotional implications of each option on a child's overall well-being, and each option needs to be thoroughly considered before the professional agrees to advocate for a child's placement in a gifted program. In addition, these professionals have an ethical obligation to the public (including the child, the child's parents, and the school district) that they have had the appropriate education, training, and supervision in the assessment of giftedness and the decision-making regarding placement for giftedness. They should also be aware of their strengths and limitations in this area, and be prepared to assure others that they are practicing within an area in which they are qualified. They must also be prepared to provide documentation that they have had adequate education and supervised training in the provision of competent (and culturally sensitive) gifted assessment and evaluation services to students from minority and/or other traditionally underrepresented groups, and that they are competent to participate in decision-making regarding placement of these students. Demonstrating such competence and cultural sensitivity and respect may include documentation of the following: (1) supervised training in the assessment and evaluation of students from culturally diverse groups that are represented in a professional's school district, (2) coursework on "evaluator bias" in assessment and "item bias" in assessment instruments, (3) knowledge of the definitions of giftedness in different cultures and how this may impact a child's performance in a school that is not representative of the child's culture, (4) awareness of one's own cultural bias and how this may influence the assessment process, (5) knowledge of various gifted assessment instruments and ability to provide an accurate, objective, standardized assessment of a child, and (6) willingness to state in one's giftedness evaluation report the limitations of the findings and the level of confidence (i.e., High, Medium, or Low) that the professional has with the assessment results.

Assessment and Identification Issues

In 2001, Pfeiffer conducted a study in which 64 professionals and experts in the field of giftedness were surveyed regarding their opinions of the most prevalent issues in the field. In the category, "Identification and Assessment Issues," the top responses included "the lack of consensus on how to conceptualize or define gifted and talented." This lack of definitional clarity leads directly to difficulties in the identification and assessment of giftedness and the potential for a high number of false negatives in the identification of who is a gifted student. This raises several ethical issues for professionals who conduct evaluations of giftedness, especially given the fact that Pfeiffer et al. (2006) have indicated that "[o]ne important element in serving the gifted is being able to accurately identify gifted students" (p. 106).

Although many professionals who conduct giftedness evaluations are not necessarily certified school psychologists or licensed psychologists, it is our position that all professionals who conduct these evaluations—or participate in placement decisions in the area of giftedness—are ethically and morally bound to provide competent identification and assessment services in determining which children qualify for gifted education services. In this regard, we have listed in Table 16.2 several domains of ethical practice that we feel professionals need to be aware of and apply to their work with gifted students. These areas of ethical practice are derived from the ethical principles of the American Psychological Association (APA; 2002) and the National Association of School Psychologists (NASP; 2000) regarding the delivery of psychological services to the public. It is our position that these principles should also guide professionals who provide educational services to students in the area of giftedness.

Table 16.2. Ethical practices domains in the assessment of giftedness and the corresponding ethical practice principles adapted and derived from the ethics codes of the American Psychological Association (APA) and National Association of School Psychologists (NASP)

Ethical Practices Domain	APA-Derived Ethical Practices	NASP-Derived Ethical Practices
Assessment		
a. Bases of assessment	Assessment work is based on a sufficient amount of valid and reliable techniques to substantiate one's findings; make opinions only if an adequate examination supports the statement or conclusion	Based on valid, reliable, and up-to-date instruments that are applicable and appropriate for the benefit of the child; multiple assessment methods are used to reach a conclusion
b. Use of assessments	Use assessment instruments which have been empirically validated to be reliable, valid, and appropriate for the assessment; if this is not possible, the limitations must be discussed. Assessment methods must be used that are language appropriate unless the use of alternative languages is relevant to the assessment issues	Choose those instruments and techniques that have up-to-date standardization data and are applicable and appropriate for the benefit of the child; select and use appropriate assessment and treatment procedures, techniques, and strategies; use those assessment and intervention strategies that assist in the promotion of mental health in the children they serve
c. Interpreting assessment results	Take into account various test factors including situation, personal, linguistic, and cultural differences that may affect one's judgments or reduce the accuracy of their interpretations, and indicate significant limitations of their interpretations	Respect differences in age, gender, sexual orientation, socioeconomic status, cultural, and ethnic backgrounds; decision-making is primarily data-based; intervention is appropriate and consistent with data collected
Unfair Discrimination	Do not engage in unfair discrimination based on age, gender, gender identity, race, ethnicity, culture, religion, sexual orientation, national origin, disability, or socioeconomic status	Recognize that individual bias or that seen in the techniques and instruments used for assessment and intervention may include racial, class, gender, and cultural biases that may affect decision-making, and work to reduce and eliminate these biases where they occur

(continued)

Table 16.2. (continued)

Ethical Practices Domain	APA-Derived Ethical Practices	NASP-Derived Ethical Practices
Competency		
a. Boundaries of Competence	Provide services only within the person's boundaries of competence, based on their education, training, supervised experience, consultation, study, or professional experience	Recognize the strengths and limitations of one's training and experience, engaging only in practices for which they are qualified
b. Maintaining Competence	Maintain an ongoing effort to develop and maintain competence	Engage in continuing professional development, remaining current on research, training, and professional practices
c. Bases for scientific and professional judgment	Work is based on established scientific and professional knowledge of the discipline	Decision-making is primarily data-based
Avoiding Harm	Seek to safeguard the welfare of those served; take care to do no harm	Advocacy – support options that are in the best interest of the child
Placement and Curriculum Issues	Base placement and curriculum decisions on scientific and professional judgment	Placement decisions are primarily scientific and data-based
Counseling and Therapy	Provide counseling services only within one's boundaries of competence	Counseling or therapy services are not specifically addressed; professionals must provide only those services for which they are competent to perform

In terms of *bases of assessment*, professionals should be certain that there are a sufficient number of assessment instruments available to (1) permit the conduct of a thorough giftedness evaluation of a referred student and (2) allow for the formation of an unbiased conclusion regarding whether the student qualifies for a giftedness education program. In addition, the assessment instruments available must be able to generate sufficient data for the professional to formulate an unbiased conclusion regarding the referred student.

With regard to the *use of assessment instruments,* professionals should be certain that the assessment instruments that are available for the evaluation have been empirically verified regarding score reliability and test validity. In addition, the professional should make sure that the norming group used in the validation of the assessment instrument included a sample of children who were of the same age, ethnicity, culture, and gender of those students who have been referred for a giftedness evaluation. Furthermore, those who conduct giftedness evaluations should be certain that, in all cases, the most recent edition of an assessment instrument is being used, norming data for the assessment instrument are consistent with the demographic characteristics of the student(s) being assessed, and a "reasonable person" would conclude that the standardized conditions for administering the assessment instrument are consistent with those conditions under which students will be currently assessed.

Professionals who assess students for giftedness should also be sensitive to the "Flynn effect" (Kanaya, Ceci, & Scullin, 2003). This refers to the tendency for there to be a systematic rise in IQ scores over the years and across the world; therefore, it may be problematic to compare the scores obtained in a particular assessment with those of the IQ comparison group or normative group if the norms are outdated or many years have passed since the assessment instrument was standardized (or restandardized). Specifically, if a student is assessed for giftedness shortly after a test is first standardized, then her or his score will be x; however, if the same person is tested many years after the test has been standardized (with years being represented by y), then his or her real score on the second test will be $x + y = z$. As time passes, therefore, there is an increased likelihood that the person will score higher on the test, prompting a possible conclusion about his or her abilities or achievement level that it is more likely to be due to measurement error than reflecting a true indication of the person's higher ability or achievement level (see, for example, Duvall & Morris, 2006; Kanaya et al., 2003).

A related potential problem in the use of normed assessment instruments is the possibility that a person's "true score" on a test is not the "actual score" he or she received; rather, the true score lies somewhere within a specific range of possible scores she or he could have obtained, and that this range can be determined by calculating the *standard error of measurement* associated with a person's actual score (e.g., Anastasi & Urbina, 1996). In this regard, most IQ test scores have a standard error of measurement at a 95% confidence interval of about plus or minus 5 or 6 IQ points around the actual score that the person received. For example, the Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV), a widely used test of intelligence for determining giftedness, has a standard error of measurement of plus or minus 5 points at a 95% confidence interval. If a particular state or school district uses, for example, a strict IQ cutoff score of 130 as its criterion for gifted education placement, a student who obtains a WISC-IV Full Scale IQ score of 128 would probably not qualify. However, based on standard error of measurement, there is an equal chance that the next time the same student is tested she or he will receive an IQ score that ranges between 123 and 135. Similarly, a student who scores 130 on the WISC-IV at one point in time could score on the next retesting somewhere between 125 and 135. This suggests that professionals who evaluate students for giftedness need to take into account standard error of measurement when forming any conclusions in regard to whether a particular student qualifies for a gifted education program. It also suggests that these professionals should not rely on only one assessment instrument to form a conclusion regarding whether a particular student qualifies or does not qualify for placement in gifted education.

Professionals who assess gifted students should also *use a test that is language appropriate* for the student being evaluated. This may mean using a test or other assessment instrument that is in the child's primary language and having the test administered by an evaluator who is fluent in that language. This ethical practice also means that if an assessment instrument is not available in the student's primary language, then the professional may need to arrange for the administration of a nonverbal test. If, on the other hand, the student does speak English, but is not from the United States, the professional conducting the assessment should be sensitive to potential variations across countries in the use of language (e.g., the differences between American and British English), and how these differences may contribute to possible scoring bias on the test—especially if the student being tested is from, for example, Australia and

the test being used was only normed on U.S. children. In addition, professionals who conduct these assessments should recognize that there are also cultural differences within groups that speak the same language, and that these differences may contribute to bias in scoring when, for example, the cultural background and experiences of the student being evaluated are different from those children in the norming group. These differences and subsequent scores on the assessment instrument may affect the validity of the assessment results and, therefore, this should be noted as a limitation of the results in the professional's report about the student.

With respect to *interpreting assessment results,* it is the responsibility of professionals who evaluate students for giftedness programs to take into consideration many factors when forming conclusions regarding whether particular students qualify for a giftedness placement. For example, such situational factors as noise level in the testing room (and outside of the testing room), as well as temperature and lighting levels in the room need to be considered as possible threats to the validity of the results and related conclusions. The motivation level of the child and his or her level of distractibility and ability to follow instructions also need to be considered. Research further suggests that there are examiner issues that need to be considered which may impact the validity of particular interpretations or conclusions. For example, Fuchs and Fuchs (1989) found that minority students may score significantly higher on an assessment when they have an ethnically familiar examiner. Their study also indicated that socioeconomic status may be an important factor affecting students' test scores.

With regard to identification issues, as Table 16.2 suggests under *Unfair discrimination,* decisions regarding whether a student qualifies for a gifted education program should be based on objective data and not influenced by such issues as the student's age, gender, sexual orientation, cultural background, ethnicity or race, or family background. This means that professionals should use empirically validated techniques and instruments that have been shown to be reliable and valid in assessing the gifted population. This is necessary to ensure accurate identification and placement of a child in a gifted education program. Unfortunately, the lack of consensus on the definition of giftedness has resulted in a corresponding lack of clarity when choosing empirically supported instruments. To compensate, the limitations of an assessment procedure should be stated by the professional, and taken into consideration during discussions concerning placement. In addition, it might be best for professionals to use multiple assessment instruments and methods to help ensure a broader-based assessment for giftedness. This is particularly important when assessing minority children, because many instruments are not adequately standardized on minority populations, particularly those minority students who are gifted. As a result, these instruments may contribute to the misidentification or lack of identification of gifted students who are from minority populations (Callahan, 2005; Maker, 1996).

In addition to conducting assessments in an unbiased and fair manner to help offset the underrepresentation in gifted programs of students from various minority populations, it is also important that those professionals who conduct evaluations in this area maintain an ethically sound practice based on the current scientific literature. Difficulties may arise, however, when it is clear that identification bias exists in certain school district policies, such as when a school district routinely makes giftedness placement decisions regarding students based solely on IQ scores from standardized intelligence tests without taking into consideration the student's ethnic,

cultural, and/or racial background. For example, an IQ score of 130 is two standard deviations above the norm for Caucasian and Asian-American students on standard cognitive ability tests but it is three standard deviations above the norm for African-American students (e.g., Roth, BeVier, Bobko, Switzer, & Tyler, 2001). This suggests that African-American students would need an IQ score at least three standard deviations above their Caucasian and Asian-American regular education peers in order to qualify for gifted education placement.

Given that many current assessment techniques and instruments in the area of giftedness may not provide accurate data for those students who are not representative of the majority culture or ethnicity, a trend has emerged in the literature that encourages the use of alternative assessment procedures (e.g., Gardner, 1997; Maker, 1994; Treffinger, 1995). Alternative assessments may include performance-based assessments, tests based on a multidimensional model of giftedness (e.g., Gifted Rating Scales), nonverbal intelligence tests (e.g., Naglieri Nonverbal Ability Test), talent identification models, product creativity (e.g., student writing samples or storytelling), and student/parent/teacher interviews. The use of these alternative assessments aids in the provision of unbiased educational services, helping professionals who evaluate students for giftedness to avoid discrimination, and employ assessment instruments that are appropriate for the child being evaluated.

Although alternative assessments help to provide an unbiased assessment of a student's abilities, there are some disadvantages associated with these techniques. For example, there is limited evidence available on the reliability and validity of these techniques, and some research has been published that indicates poor interrater reliability and unclear scoring procedures (e.g., Baker & O'Neil, 1993; Johnsen, 2003; Kornhaber, 1999). In addition, in a study by Kornhaber (1999), three alterative assessment measures were reviewed (e.g., DISCOVER, Problem Solving Assessment, and the Gifted Model Program), and it was concluded that while these alternative assessment procedures helped in the identification of minority populations, they demonstrated statistical vulnerability particularly with regard to reliability and validity, and the findings still resulted in an inequity in the identification process. On a related point, although many of these alternative assessment methods allow for greater inclusion of culturally diverse students in gifted education programs, many lack the inclusion of domain-based assessments in such areas as creativity, drama, or music.

A professional's use of assessment procedures that have no (or limited) empirical support may relate to the ethical principle regarding the provision of assessment services in a competent manner (see Table 16.2). Specifically, if a professional who evaluates a student for giftedness uses alternative assessment measures without specifying the limitations of his or her findings, then the person could be construed as not being competent in providing the professional service. Similarly, if a professional uses a well-established assessment instrument on a student who is not representative of the norming group for that instrument, then this, too, could be construed as not providing competent assessment services. The reason for this is that professional associations such as the APA and NASP, as well as the public and consumers (i.e., students and their parents) expect professionals who conduct gifted evaluations to provide services that are based on scientific and professional knowledge regarding test construction theory and practice.

In addition, the presumption is that those professionals who provide these assessment services are competent by virtue of their education and supervised

training in the area of giftedness evaluations. If the professional standard in the field is to use only reliable and valid assessment instruments, to base placement decisions regarding giftedness on reliable and valid data, and to specify the limitations of one's findings, where necessary, then a professional may not be practicing in a competent manner if the assessment instruments used have questionable reliability and validity. Similarly, if the professional has not had the proper education and training in the assessment and evaluation of giftedness, as well as in the identification and placement of students in gifted education programs, then he or she may be construed as providing a service outside of his or her area of competency. In this regard, certain professionals may need to refer a student to another professional for an evaluation until he or she has had adequate supervision, training, and/or experience in working with a specific student population. It is, therefore, necessary that people who assess students for giftedness recognize their strengths and limitations in their experience with the gifted population, and use professional judgment when deciding whether they are qualified to provide an accurate assessment. If an accurate assessment cannot be provided, but the evaluation nevertheless takes place, then the professional who conducts the assessment must state the limitations associated with her or his findings.

Placement and Curriculum Issues

A fundamental goal of most gifted education programs is to provide students with an opportunity for learning that addresses their unique needs and abilities by engaging them in a curriculum that is both stimulating and challenging, and enhances their development (U.S. Department of Education, 1993). In addition, school districts often employ teachers in their gifted education programs who are trained specifically to work with gifted children. These programs also often provide gifted students with individualized tutoring, accelerated coursework or classroom placement, after-school programs, and the opportunity to interact with intellectually equal and/or similarly talented peers (Smutny, 2003). Although some writers have taken the position that all students—not just gifted students—should be provided these same opportunities (e.g., Oakes, 1985; Slavin, 1991), others indicate that gifted students are far more advanced than their regular education peers and, consequently, may need a different and more accelerated educational program to help them reach their true potential and to succeed (e.g., Feldhusen, 1989; Morelock & Feldman, 1992). For example, some writers have indicated that gifted students may become bored with an unchallenging curriculum in a regular classroom, and that this situation may lead to a lack of motivation or interest in academics and/or in average or below-average performance in school, behavior problems, and/or truancy (e.g., Baum, Olenchak, & Owen, 1998; Reis & McCoach, 2002). Placement of these children in a more stimulating and challenging curriculum may alleviate these potential difficulties. In addition, for those gifted students who may feel socially isolated in their regular education classroom, placement in a gifted program may facilitate their social development because it will foster interactions with other students at their intellectual level, not just at their grade level (Colangelo, Assouline, & Gross, 2004).

Although placement in a gifted education program may be beneficial for many gifted and talented students, it should be pointed out that there may be some

disadvantages associated with such placement. For example, a gifted curriculum generally includes accelerated coursework and a heavier workload than typically found in a comparable regular education classroom. If a student does not have the motivation to adjust to this change in classroom structure and teacher expectations, academic failure may result (Ford, Moore, & Harmon, 2005). As many writers have noted in the gifted education literature, such programs require a commitment from the student, particularly in the higher grade levels, and a willingness to dedicate the time and energy needed to complete school assignments (Ford & Harris, 1999; Hébert & Olenchak, 2000).

In addition, some research suggests that placement of some students in gifted programs may result in them experiencing an increased level of psychological distress. For example, while some students may benefit from being separated from their "average-ability" peers, others may experience social isolation and frustration (Sapon-Shevin, 1994). This is of particular concern when placing minority students in gifted programs because the curricula in many of these programs do not include an emphasis on multiculturalism and, therefore, may not be relevant to their experiences and contribute to an inhibition in their learning (Ford & Harris, 1999). Flowers, Milner, and Moore (2003) also note that minority students may become disengaged from education if they are uncomfortable in an unfamiliar educational setting that is dominated by Caucasian and Asian students.

Commentary. Given the potential advantages and possible disadvantages of placing a student in a gifted education program, professionals who are involved in making placement decisions have an ethical and professional responsibility to remain current in the scholarly literature pertaining to placement decision-making. This responsibility also includes being cognizant of the current research and scholarly literature addressing the best type of placement for students (e.g., acceleration, tutoring, peer mentoring, individual instruction), and the literature pertaining to the social, emotional, and academic implications of placing students—particularly those from underrepresented groups—in gifted education programs. In addition, professionals in this area have an obligation to work in the best interests of those students whom they are considering for placement. It is therefore important that these professionals have sufficient knowledge of the social and emotional development of students being considered for placement, as well as their motivational levels, to ensure that placement is the appropriate choice. Moreover, with regard to placement decisions for students from culturally diverse groups, it is the responsibility of those professionals making these decisions to consider the academic and psychosocial needs of the students. As Callahan (2005) has indicated when making placement decisions regarding underrepresented students, failure to consider their individual educational needs is to "engage in educational malpractice" (p. 103).

Counseling Issues

In addition to the many unique challenges facing professionals in accurately identifying, assessing, and making placement decisions regarding gifted and talented children, challenges are also faced by those professionals who provide mental health counseling services to these children and their families. Although there is a paucity of research in the areas of gifted student counseling and the counseling of families having a gifted student, the available scholarly literature suggests that in comparison to the

general student population, gifted children present unique characteristics, stressors, and needs that should be considered in counseling (e.g., Colangelo, 1991; Genshaft, Greenbaum, & Borovsky, 1995; Silverman, 1993). For example, although some studies have found that gifted children are as well adjusted as their nongifted peers, these children have also been found to have many common personality characteristics that may lead to social or emotional problems (Bain & Bell, 2004; Lovecky, 1992; Robinson & Noble, 1991) The most common characteristics include perfectionism, excitability, questioning of authority, heightened sensitivity, intensity, and a desire for recognition in their environment (e.g., Lovecky, 1993; Silverman, 1993). A variety of difficulties may present themselves as a result of these personality characteristics, such as feeling detached, isolated, or rejected from their respective nongifted peers; development of externalizing or internalizing behavior problems; low tolerance for frustration; under-achievement in school; and feelings of conflict and related stress between achieving certain academic goals versus having one's social needs met (e.g., Clasen & Clasen, 1995; Lovecky, 1993; Yoo & Moon, 2006). These unique personality characteristics and potential social/emotional difficulties should be taken into consideration when determining whether a particular child is in need of counseling services, and what the most effective counseling approach might be with this person.

The presence of these personality characteristics and possible social/emotional difficulties in a gifted child may also negatively influence his or her family's function-ing and related interactions between family members. This situation could also lead to distress among family members and this should be taken into consideration when a gifted student is seen in counseling (Colangelo, 1991). Other issues that may impact a gifted child's psychological well-being are having parents who may misunderstand giftedness, have unrealistic expectations about their child's ability or talent, and/or be overinvolved with their child's education. There may also be power struggles between a parent(s) and the gifted child, and problems with sibling rivalry—particularly if the sibling(s) is of average ability (Enright & Ruzicka, 1989). In such cases, family therapy may be necessary (e.g., Moon, Kelly, & Feldhusen, 1997).

Commentary. Given the possible unique counseling needs of gifted and talented children and their respective families, as well as the ethical responsibilities of coun-selors and other mental health professionals who provide counseling services to these students, it is important that these professionals work in the best interests of the child. The public also expects the counseling professional to be competent and knowl-edgeable not only in the delivery of counseling services but also in providing such services to gifted children and their families. In this regard, counseling professionals should be cognizant of the major social, emotional, familial, and academic issues that typically confront gifted children and their families, and be familiar with the vari-ous therapeutic techniques that have been shown to be useful with these children. If, on the other hand, the counseling professional does not feel adequately trained or knowledgeable in this area, then he or she should refer the child and/or family to a mental health professional in the community who is skilled in providing such coun-seling or therapy services. The counseling professional is also under an ethical and professional obligation to stay current regarding the scholarly literature surround-ing the social, emotional, familial, and academic challenges that gifted and talented children encounter, as well as the various counseling techniques and methods that have been shown to be effective with this population. For example, recent literature has suggested that social, emotional, and related adjustment issues may change as

gifted or talented children develop and mature; consequently, the counseling needs of these children may change at different ages (e.g.,Yoo & Moon, 2006). In this regard, Silverman (1993) and Yoo and Moon (2006) have indicated that adolescents may have the greatest need for counseling, possibly because adolescence is already a period in which youth of all intellectual abilities feel emotional or social distress, and the social and emotional effects of giftedness may exacerbate these problems.

Summary and Conclusions

In this chapter, we have reviewed the various ethical and professional issues that may arise in the delivery of services to gifted and talented students. One of the first issues that was addressed involved the definition of giftedness, and how such definitions are becoming sufficiently broad nationally to include students having exceptional abilities and talents, such as leadership potential, creativity, and musical or artistic talents. Although the broadening of the definition of giftedness is certainly lamentable, this situation has also created potential reliability and validity problems—and related ethical and professional practice issues—in the assessment and identification of gifted students, as well as in the decision-making associated with the placement of and type of curriculum provided these students. Professionals who evaluate these students must be sensitive to the various ethical and professional issues that may arise when providing assessment, identification, and placement services to them. They also need to be sensitive to the unique social, emotional, familial, and academic adjustment issues that may occur in these children. Awareness of these issues is also important if the decision is made to refer gifted children and/or their parent(s) for mental health counseling services. Such referrals, however, may become problematic if the counseling professional seeing a child and/or her or his parent in therapy is not competent to work with gifted students and their families. In this regard, consistent with sound ethical practices it is our position that counseling professionals need to have sufficient training and supervised experiences in this area before they accept gifted children and/or their families as clients.

Being sensitive to the various ethical and professional practice issues that may arise in the delivery of educational and related counseling services to gifted and talented students will contribute appreciably to the improvement and enhanced quality of such services.

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Helping Gifted and Talented Adolescents and Young Adults

Make Informed and Careful Career Choices

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Introduction

Being gifted and talented is a set of evolving characteristics that are an asset or limitation depending on the situation. These characteristics vary widely and impact the career choices of adolescents and young adults in high school and college. On the surface, it might appear that the more gifted and talented one is, the easier it is to make occupational, educational, and employment decisions. Unfortunately, giftedness does not always translate into effective career decision making. The same giftedness and talent that can make it easy to succeed academically can also contribute to more difficult career choices.

This chapter examines the *career development challenges* and related *career interventions* designed to assist *gifted* and *talented adolescents* and *young adults* in making informed and careful *career choices*. After discussing the key terms presented above, the theoretical approach used to examine challenges and interventions is described. The majority of the chapter is devoted to a theory-based examination of specific challenges and career interventions associated with the career choices of gifted and talented students.

Career Development

Career development involves the implementation of a series of integrated career choices over the life span (Peterson, Sampson, Lenz, & Reardon, 2002; Sampson, Reardon, Peterson, & Lenz, 2004). Specific challenges for gifted and talented students can be identified that relate to various aspects of career development. Specific career interventions related to these problems can be identified as well. Challenges and

interventions can be identified in relation to: clarifying knowledge of self, enhancing knowledge of occupational, educational, and employment options, understanding the process of decision making, and understanding the metacognitive skills associated with effective decision making.

Challenges and Related Career Interventions

The characteristics often associated with giftedness and talent lead to some unique *challenges* in making informed and careful career choices. In other ways the challenges that gifted and talented students face are no different from the challenges faced by students who are not identified as gifted. A variety of *career interventions* are available for adolescents and young adults who are preparing for future career choices (such as classroom-based exploration of occupations for middle school students), as well as adolescents and young adults who are making a current career choice (such as selecting a postsecondary program of study). Career interventions can be proactive or reactive in nature. Proactive interventions anticipate the need for assistance with career choice and provide opportunities for learning linked to specific development goals. An example of a proactive intervention would be the clarification of values and interests using job shadowing programs for eighth grade students. Reactive interventions are provided to adolescents and young adults at a time when they themselves perceive the need for career assistance. An example of a reactive intervention would be a high school student attending an information program on the college admissions process. Reactive career interventions vary considerably in the amount of assistance provided, from the minimal assistance provided to help students locate and use self-help resources in a school library to the maximum assistance provided by a school or college counselor in delivering individual career counseling.

Giftedness and Talent

The career interventions included in this chapter are designed for persons who are *gifted* and *talented*. Robinson (2002) observed that some writers differentiate "giftedness" from "talent" in that giftedness refers to broad aspects of high ability, and talent refers to advanced ability in a relatively specific domain. Feldman (1999) characterized "gifts" as more general, systemwide capabilities and "talents" as specific, within-domain capabilities. In their analysis of conceptual models, Kaufman and Sternberg (2008) characterized the position of Gagné as follows: giftedness is potential and talent is the end product. Feldman (1999) emphasized that gifts and talents are interactive in nature. The perspective we take in this chapter is that giftedness and talent are overlapping constructs with the vast majority of individuals identified as gifted or talented having some elements of both. Attempting to differentiate between giftedness and talent in designing career interventions is difficult and likely unproductive given the current state of theory and research. We assume that both gifted and talented individuals have some unique characteristics that need to be recognized in designing interventions. We also realize that there is considerable diversity in the nature and extent of both giftedness and talent. The observations and recommendations we make in this chapter are based on generalizations that may be inappropriate for a specific adolescent or young adult. However, the chapter does provide a starting point for students, parents, counselors, psychologists, teachers,

and school/college administrators to discuss and plan career interventions for students on an individual or group basis. (For the sake of simplicity, the term *students* will sometimes be used in place of *adolescents* and *young adults*.)

Focusing on Gifted and Talented Adolescents and Adults

The focus of this chapter is on gifted and talented *adolescents* and *young adults*. While numerous interventions are provided for elementary school children, most career interventions are delivered to adolescents in middle and high school, and young adults in postsecondary education. These interventions are designed to help individuals make a successful transition from one level of education to another (middle/junior high to high school and high school to postsecondary education), and then from the highest level of education attained to employment. The education-to-work transition can be from high school to employment, from undergraduate study to employment, or from graduate study to employment. In each of these transitions, distinct choices need to be made; either transitioning to the next level of education or transitioning to employment. While there is substantial literature on the challenges and career interventions for adolescents and adults who are not gifted, there is relatively little literature on the challenges and career interventions available to support gifted and talented individuals. As a result, this chapter focuses on the challenges and career interventions for gifted and talented adolescents and young adults who are making a series of occupational and educational choices that will lead to their first job.

Career Choice

Career choice is a broad term that encompasses problem solving and decision making. Problem solving involves a series of cognitive processes where information about a problem is used to formulate a plan of action necessary to remove the gap between an existing and a desired state of affairs. The conclusion of problem solving is a choice that resolves the gap previously identified. Decision making includes problem solving, along with the cognitive and affective processes necessary to develop a plan for implementing the solution to the problem. Decision making also involves taking risks involved in following through to complete the plan of action. Successful decision making occurs when individuals engage in the behavior necessary to solve their problem. Intuition and emotions are important elements of both problem solving and decision making (Peterson et al., 2002; Sampson et al., 2004). The chapter begins with an overview of the CIP approach followed by an examination of the challenges specific to gifted and talented adolescents and young adults, and career interventions related to these challenges.

A Cognitive Information Processing Approach to Career Problem Solving and Decision Making

This chapter presents career interventions that are designed to help gifted and talented adolescents and young adults make informed and careful career choices. These career interventions take into account the specific challenges that can result

from being gifted and talented. The Cognitive Information Processing (CIP) Approach to Career Problem Solving and Decision Making (Peterson et al., 2002; Sampson et al., 2004) will be used to link challenges and career interventions to the content and process of career choice.

Two key constructs in the CIP approach are the Pyramid of Information Processing Domains (the *content* of career problem solving and decision making; what individuals need to *know* to make an informed career choice) and the CASVE Cycle (the *process* of career problem solving and decision making; what individuals need to *do* in order to make a careful career choice). An informed career choice relates to the Pyramid of Information Processing Domains while a careful career choice relates to the CASVE Cycle. Readiness for career choice is also a key element of the CIP approach. The following sections present selected elements of the CIP approach. (For the sake of simplicity, the term *career choice* will be used in this chapter to include *career problem solving* and *career decision making*.)

The Pyramid of Information Processing Domains

The CIP approach specifies that effective career problem solving and decision making requires the effective processing of information in the self-knowledge, occupational knowledge, decision-making skills, and executive processing domains. Self-knowledge and options knowledge are at the base of the Pyramid, decision-making skills in the middle, and executive processing at the top (Peterson et al., 2002; Sampson et al., 2004).

Self-knowledge includes an individual's perceptions of his or her values, interests, skills, and employment preferences. *Values* motivate people to work. *Interests* are activities (behaviors) that people enjoy. *Skills* are activities (behaviors) that people perform well. *Employment preferences* are characteristics people seek in their job (such as opportunities for travel) or seek to avoid (such as lifting heavy objects).

Options knowledge includes knowledge of occupations, educational opportunities, and employment options, as well as knowing a schema for organizing information and knowledge of specific options. Individuals need to understand the *characteristics of specific options*, such as the educational requirements, job outlook, and skills required for a specific occupation. Information on educational opportunities and employment options may also be necessary, depending on the type of choice being made by the student. Given the numerous options typically available in making a career choice, learning a *schema* for organizing options helps individuals to be more confident that they can manage the process of exploration. For example, the Holland hexagon (Holland, 1997) categorizes thousands of occupations in a way that facilitates exploration of occupations with similar characteristics.

Decision-making skills are generic information processing skills used to solve problems and make decisions. The CASVE Cycle is one schema for the problem-solving and decision-making process. The cycle is described in the following section.

Executive processing includes metacognitions, such as self-talk, that control the selection and sequencing of cognitive strategies used to solve a career problem. *Self-talk* is an evaluative judgment individuals make about their progress in making a choice. Positive self-talk helps individuals to remain motivated to complete the process necessary to make a choice. Negative self-talk reduces motivation as a result of an increasing conviction that individuals do not have the capacity to be effective problem solvers and decision makers.

The CASVE Cycle

As stated previously, decision-making skills are generic information processing skills used to solve problems and make decisions. The cycle includes the five phases of Communication, Analysis, Synthesis, Valuing, and Execution (Peterson et al., 2002; Sampson et al., 2004). In the *communication* phase, individuals become aware of a gap between an existing and a desired state of affairs as a result of external cues (positive or negative events or input from one or more significant others) or internal cues (client perceptions of negative emotions, avoidance behavior, or physiological changes).

The *analysis* phase involves conceptualizing a mental model of a career problem and perceiving relationships among the components, e.g., relating self-knowledge with occupational knowledge to better understand the necessary characteristics of the occupation, education, or employment being sought.

In the *synthesis* phase, individuals expand and narrow the options they are considering. In *elaboration*, individuals generate options from their personal experience, recommendations from significant others, career assessments, and computer-assisted career guidance systems. In *crystallization*, self-knowledge and options knowledge are considered to reduce a list of alternatives by eliminating options that are incongruent with the values, interests, skills, and employment preferences of the individual.

The *valuing* phase involves considering the costs and benefits of each of the two to three options identified in synthesis – crystallization. Options are considered in terms of the costs and benefits to the individual, significant others, his or her cultural group, and his or her community or society in general. The outcome of the valuing phase is a tentative choice that is implemented in the execution phase that follows.

In the *execution* phase, individuals establish and commit to a plan of action for implementing the tentative choice made in the valuing phase. Depending on the nature of the choice, the plan can include selecting a program of study, reality testing an option through work experience, or seeking employment.

Readiness for Career Choice

The CIP approach also specifies variables that influence readiness for career choice. *Readiness* is defined as the *capability* of an individual to make informed and careful career choices while considering the *complexity* of family, social, and economic variables that influence an individual's career development. Capability represents internal factors and complexity represents external factors that influence career choice (Sampson et al., 2004).

Capability refers to the cognitive and affective capacity of individuals to engage in effective career choice. Individuals have a higher level of readiness for career choice if they have the following characteristics: (a) *motivated* to expend the effort necessary to clarify self-knowledge and enhance knowledge of occupational, educational, and employment options, as well as fully engage in the career problem-solving and decision-making process; (b) *thinking clearly* about themselves, their options, and what they need to do in order to make an informed and careful career choice; (c) *confident* they will be able to make an informed and careful choice and then take the actions necessary to implement their choice; (d) *accepting responsibility* for making a career choice; (e) *aware* of how negative thoughts and feelings can limit the ability to think clearly and remain motivated to make a career choice; and (f) *willing to seek*

assistance when they perceive that personal or external barriers are limiting their ability to choose.

Complexity refers to contextual factors, originating in the family or society that makes it more (or less) difficult for individuals to process information necessary to make career choices. *Family factors* can contribute to or detract from readiness for career choice. Individuals with supportive family members typically have more resources for making a career choice. Individuals from dysfunctional families may receive inadequate or unreliable support in making choices, or the input they receive from an overfunctioning parent may contribute to low motivation and reduced willingness to assume responsibility for making a choice. *Social factors* can also contribute to or detract from career choice readiness. Social support from modeling and networking, as well as caring from significant others, can provide resources and a positive environment that can contribute to successful progress through the CASVE Cycle and positive self-talk. Stereotyping on the basis of group membership, such as disability status, ethnicity, gender, immigration status, nationality, physical characteristics, race, religion, sexual orientation, and social class, may limit individuals' perceived options in education and employment, compromise progress through the CASVE Cycle, and contribute to negative self-talk. For example, the negative sense of self-worth that often results from school bullying can have a negative impact on self-esteem which can contribute to negative self-talk about the capacity to make choices. (For the sake of simplicity, the term *parents* will be used for all individuals who care for adolescents and young adults, such as other relatives, foster parents, or guardians.)

Individuals who have a high level of decision-making capability and a low level of life complexity generally have a higher level of readiness and experience less difficulty in making choices. Individuals who have a low level of decision-making capability and a high level of life complexity generally have a lower level of readiness and experience more difficulty in making choices. Individuals with a high readiness for making a career choice tend to need less assistance (such as self-help or classroom-based interventions), whereas individuals with low readiness tend to need more assistance (such as individual or longer-term group counseling). If individuals with low readiness for career choice are not identified and provided an appropriate level of service, they may make a forced choice when an absolute time limit is reached (a default choice), or they may fail to select a better occupational, educational/training, or employment option when such an option was available (Sampson, 2004; Sampson et al., 2004).

Challenges and Related Career Interventions for Gifted and Talented Adolescents and Young Adults

The challenges that gifted and talented adolescents and young adults face in making career choices are similar to adolescents and young adults who have not been identified as gifted and talented. For example, the importance of self-awareness is shared by both groups. However, enough differences exist to warrant specialized career interventions for gifted and talented students. Being gifted and talented can make career choice easier or more difficult. For example, highly developed verbal ability can make it easier to learn from the use of career information resources, while intense pressure to succeed from overfunctioning parents can make career choice more difficult.

The following sections of this chapter will identify challenges and related career interventions for gifted and talented students who are making career choices. These sections are grouped by two broad factors. Personal factors for gifted and talented students include the following: (a) misperceptions about the uniqueness of being gifted and talented, (b) self-concept, (c) multipotentiality, (d) assessment of values in clarifying self-knowledge, (e) motivation, confidence, and acceptance of responsibility, (f) perfectionism, and (g) negative career thoughts. Contextual factors include: (a) stereotyping, (b) overemphasis on rationality, (c) career exploration and the development of occupational knowledge, (d) inadequate reality testing, (e) parental involvement, (f) limited integration of career development in school enrichment programs, and (g) mentoring.

Misperceptions About the Uniqueness of Being Gifted and Talented

Students sometimes view their own struggles with giftedness and talent as an experience that only they have. Peterson and Moon (in press) noted that psychoeducational information can be valuable in normalizing the experience of being gifted and talented. Colangelo (2002) suggested that students have the opportunity to discuss their concerns about multipotentiality with the hope they understand that they are not alone. Many gifted students struggle with career indecision (Maxwell, 2007). In terms of the CIP approach, misperceptions about the uniqueness of being gifted and talented, makes it difficult to accurately clarify self-knowledge.

Career intervention. Discussion of the potential difficulties associated with giftedness and talent, should include problems in making career choices that are identified in this chapter as appropriate. Career interventions should also include appropriate mental health and family issues. This effort will require collaboration among teachers in gifted education programs in schools and the psychologists and counselors who support these programs.

Self-Concept

Self-concept can be characterized as a global aspect of self-knowledge. Specifically, self-concept is the aggregation of perceptions about one's capacity to succeed at various behaviors. In terms of career choice, relevant behaviors include performance at school, such as grades or performance on standardized tests, as well as anticipated performance at work, such as solving applied mathematical problems on a project or making a public presentation. Neihart et al. (2002) noted that positive self-concept is associated with challenge-seeking, willingness to work hard, take risks, and accurately evaluate one's performance. Maxwell (2007) noted that a low self-concept is common among gifted students. If a gifted adolescent or young adult does not have a positive self-concept, career planning is more difficult and potentially less effective. According to Chickering and Reisser (1993), a clear sense of self is the foundation for clarifying plans and aspirations. Although gifted students tend to have higher self-concept in academic domains, in interpersonal areas they are lower than their nongifted peers. Self-concept also tends to decrease from elementary to high school—as gifted children progress in school they often become more anxious and isolated. Career success generally has as much to do with interpersonal relationships as intelligence, so an increase in positive self-concept should lead to greater ease in career decision making

(Neihart et al., 2002). In terms of the CIP approach, having a poor self-concept may compromise the self-knowledge of gifted and talented students as a result of their underestimation of current or future skills.

Career intervention. Work experience programs that are designed to foster career exploration can have a positive impact on self-concept. While self-concept exercises can help adolescents and young adults better understand the importance of a good self-concept, directly affirming student adequacy and worth is less effective than providing students with opportunities to gain "real-world" life experience and receive positive feedback on their performance from respected individuals. Designing career interventions that provide students with "small, success-oriented experiences" can be crucial in enhancing the self-esteem of gifted and talented students. Having a successful experience in making a subsequent career choice can further contribute to an enhanced self-concept. Parents who discourage optional participation in work experience programs in favor of their child concentrating on academic coursework, are constraining the self-concept and career development of their son or daughter.

Multipotentiality

Multipotentiality is another factor that can impact the career choices of some gifted students. The concept of multipotentiality has been defined as "the ability to select and develop any number of career options because of a wide variety of interests, aptitudes, and abilities" (Kerr, 1990, p. 1). This concept is consistent with low differentiation of interests and ability in Holland's (1997) theory of vocational choice (Rysview, Shore, & Leeb, 1999). Although it is seemingly a positive aspect of giftedness, multipotentiality can be a mixed blessing (Delisle, 1982; Maxwell, 2007). Multipotentiality can complicate career planning because the broad range of choices actually increases the difficulty of decision making and often delays career selection (Kerr, 1990). The tendencies for academically talented college students to experience frustration with multipotentiality, to delay career decision making, and to change majors more often than the average student, have been documented in the case of National Merit Scholars (Watley, 1968), Presidential Scholars (Kaufman, 1983), and graduates of gifted education programs (Kerr, 1985).

However, the evidence to support the existence and impact of multipotentiality is mixed. Achter, Benbow, and Lubinski (1997) challenged the existence and utility of the notion of multipotentiality based on their examination of widely varying patterns of specific abilities and interests in a large sample of gifted adolescents. They questioned the ubiquity of low differentiation or high flat interest profiles (Rysview et al., 1999). Achter et al. found that only 5% of 1000 gifted students truly displayed multipotentiality when high-level assessments of abilities are used. Even though there is a lack of empirical data to support the concept of multipotentiality, it is a generally accepted concept (Colangelo & Assouline, 2000). Despite the criticisms of this concept, anecdotal clinical evidence shows that some students who are multipotential have this characteristic (Frederickson, 1979; Sanborn, 1979), and for these students their multipotentiality can make career choice more difficult and should be addressed in career interventions. In terms of the CIP approach, multipotentiality may make it more difficult for gifted and talented students to use their self-knowledge of interests and skills in making a career choice.

Career intervention. For those students who do show evidence of multipotentiality, a combination of career assessment and experiential interventions can be potentiality helpful in promoting informed and careful career choices. Emphasizing values assessment with the use of tests, card sorts, and exercises, as well as work experience programs, provide good opportunities for values clarification. Values focus on motivation to work while interests, skills, and abilities focus more on performance. Since multipotentiality is more concerned with performance than motivation, the assessment of values is more likely to differentiate potentially appropriate occupations. A further discussion of the importance of values assessment is provided in the following section.

Assessment of Values in Clarifying Self-Knowledge

Interest inventories are the most commonly used resource to assess self-knowledge in career choice (Watkins, 2005). Values are less frequently assessed in career interventions. Values-based career counseling has been identified as an essential element in helping gifted and talented students make informed and careful career choices. Boyd, Hemmings, and Braggett (n.d.), Colangelo and Zaffrann (1979), Greene (2005), and Miller (1981) suggested that effective career counseling for talented students should focus on values rather than on interests or abilities. Colangelo (2002) recommended that career counseling should focus on broad categories of life satisfaction. Clinical evidence dating from Leta Hollingworth's (1926) [Is this a secondary source?] case studies of children with IQs over 180 suggested that among these very gifted students, the quest for a sense of purpose and meaning in life occurs as early as junior high school. In a study by Kerr and Erb (1991), the impact of a values-based career counseling intervention on the identity development of multipotential college students was examined. The experimental group who received values assessment gained significantly more than a control group in the development of identity. In terms of the CIP approach, the assessment of values by gifted and talented students is a key component of the Analysis Phase of the CASVE Cycle.

Career intervention. An intervention for multipotential high school students that encouraged goal setting based on values and needs was effective in promoting specific information-seeking behavior and use of career services (Kerr & Ghrist-Priebe, 1988). While the assessment of values is crucial, the assessment of interests should not be neglected given the importance of this construct in satisfaction with work. For young adults who have work experience, the assessment of skills is also important since the opportunity to apply skills successfully in work contributes to job satisfaction for achievement-oriented individuals. Career interventions can provide multiple opportunities to clarify self-knowledge, including self-reflection on: (a) important life experiences, (b) previous and current paid work experience, (c) previous and current volunteer experience, (d) previous and current leisure experience, (e) previous and current academic experience, (f) appropriate feedback from significant others, and (g) assessments of values, interests, skills, and abilities.

Motivation, Confidence, and Acceptance of Responsibility

A key element of motivation, confidence, and acceptance of responsibility for career choice is the self-perception that an adolescent or young adult has the resources

and opportunity to make a satisfactory career choice. Resources can include information about options and support from significant others. Opportunity refers to the student's ability to ultimately make a choice after they have received input from significant others. In terms of the CIP approach, being poorly motivated, lacking confidence, and being unwilling to accept responsibility for career choice negatively impacts the Capability Dimension of Readiness for career choice.

Career intervention. Gifted and talented students need an appropriate context for making informed and careful career choices. The counseling and career services offered in schools and colleges can provide the resources, including the support of counselors when needed. Parents and mentors need to clearly communicate that gifted and talented students can be capable decision makers, as well as allowing students the freedom to make mistakes, if these students are to be motivated, confident, and responsible for their career choices.

Perfectionism

This section on perfectionism will address self-knowledge, hypervigilance, and procrastination.

SELF-KNOWLEDGE.   The same perfectionism that creates unrealistically high expectations for academic performance can create similar expectations for making the "perfect" career choice (Colangelo & Assouline, 2000). While perfectionism provides a high level of initial motivation to perform, as unrealistically high goals are not subsequently achieved, anxiety increases. With an increased level of anxiety, the capacity for learning decreases, leading to further anxiety and reduced performance. Some gifted and talented students are perfectionistic with regard to their performance in general and their career choices in specific. Unrealistically high standards can lead to frustration and perceived failure, leading to the development of negative self-knowledge related to anticipated problems in the development of skills. Interests can also be compromised as students lose interest in activities where failure is perceived likely. Perfectionism detracts from the decision-making confidence that is necessary for career exploration and career choice. Peterson and Moon (in press) and Greene (2002) observed that significant others contribute to perfectionism among some gifted students. In terms of the CIP approach, failure to meet unrealistic performance goals can lead gifted and talented students to develop inaccurate self-knowledge, where individuals misperceive their actual level of achievement.

Career intervention. Interventions using cognitive restructuring of negative career thoughts related to perfection, can potentially help gifted and talented students to identify, challenge, and alter perfectionistic thinking (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996, 1998). These interventions can be conducted on an individual or group basis. Career interventions also need to stress the importance of positive uncertainty (Gelatt, 1989) in making career choices. Positive uncertainty is an attitude that allows an individual to be uncertain about the future and yet feel positive about the uncertainty. Gelatt stated, "Being positive and uncertain allows you to be able to act when you are not certain about what you are doing" (p. 14).

HYPERVIGILANCE.   The same perfectionism that negatively impacts self-knowledge can also have a negative impact on decision making. One element of self-talk that can have negative consequences is the thought, "I will not be successful unless I make

the perfect career choice." Hypervigilance is a strategy that gifted and talented students can use to cope with the anxiety resulting from perfectionism in career choice. Hypervigilance involves very high levels of stress; and generally results in an ineffective search for alternative courses of action (Janis & Mann, 1977). Hypervigilance goes beyond motivated and diligent career exploration to frenetic and ineffective exploration. In terms of the CIP approach, hypervigilance keeps gifted and talented students from effectively applying their decision-making skills.

Career intervention. Hypervigilance is best identified by observing students as they use career information. Hypervigilant students often appear anxious and use information resources quickly and haphazardly. Once identified, these students should receive the interventions described in the previous section.

PROCRASTINATION. As stated previously, some gifted children and adolescents are perfectionists, always searching for one ideal occupational, educational, or employment choice. Varying degrees of perfectionism can lead to commitment anxiety, which refers to the inability to make a commitment to a specific career choice, accompanied by generalized anxiety about the outcome of the decision-making process (Sampson et al., 1996, 1998). This anxiety about the need to make the "one best choice" tends to perpetuate career indecision. Procrastination becomes a de facto career choice strategy. By delaying a decision long enough, only one option remains which eliminates the need to choose. However, since procrastination is an intentional behavior, a choice has still been made. This strategy can be characterized as "career choice by default." Instead of "moving toward a career choice," the individual "backs into a career choice." An example would be delaying submission of college applications until only one college application deadline can be met. The ultimate use of procrastination is to delay making a choice so long that no options remain. This strategy can be used demonstrate that the individual has failed. Since the individual has failed, it makes little sense to try and choose again only to fail a second time. Choosing not to choose is also a defense mechanism, in that the individual can say, "I would have succeeded if I had really tried." Using this defense mechanism is more likely as perfectionism increases. This strategy can be characterized as "passive failure." An example would be delaying submission of college applications until all deadlines have past. Both decision-making strategies are also an example of a self-defeating behavior (Cudney & Hardy, 1991). In terms of the CIP approach, procrastination makes it difficult for gifted and talented students to examine the costs and benefits of options in the Valuing Phase of the CASVE Cycle.

Career intervention. Gifted adolescents and young adults need to have a clear understanding of the process of career choice, especially the elements of actually choosing and making a commitment to a choice. Students need to be helped to understand that a choice at this point is only tentative and can be changed if reality testing or experiencing an educational program indicates that a choice needs to be reconsidered. Helping students apply Gelatt's (1989) concept of positive uncertainty can help reduce commitment anxiety. Positive uncertainty was described in the section of this chapter on perfectionism and negative self-knowledge.

Negative Career Thoughts

Negative career thoughts can compromise the career choices of gifted and talented students. One element of negative career thoughts is decision-making confusion, which refers to the inability to initiate or sustain the decision-making process as a

result of disabling emotions and/or a lack of understanding about the decision-making process itself (Sampson et al., 1996, 1998). In terms of the CIP approach, negative career thoughts reduce the confidence of gifted and talented students to make informed and careful career choices. As negative self-talk about career choice increases in the Executive Processing Phase of the CASVE Cycle, gifted and talented students are also more likely to be confused about how to proceed in decision making.

Career intervention. Gifted and talented students can have undiagnosed mental health problems that keep them from thinking clearly enough to learn effectively. Learning is an essential element of making informed and careful career choices. Alternatively, students may have diagnosed mental health problems, but the practitioners providing health care may be unaware of the need for the career counseling necessary to effectively deal with the integration of career and mental health issues. The cognitive restructuring intervention described in the previous section of this chapter on perfectionism and negative self-knowledge also applies to negative thoughts and career choice.

Stereotyping

This section on stereotyping will address gender, knowledge of occupational options, and knowledge of educational options.

GENDER.   Examination of self-knowledge among gifted and talented students shows significant gender differences in occupational interests consistent with a sex-stereotyped model (Oppler et al., 1993). In one study, academically talented seventh graders were asked to rate the appeal of a variety of occupations. Boys tended to rate quantitative, scientific, and vocational occupations higher than did girls, while girls rated teaching and the arts higher than did boys. The fact that the sample used was seventh graders demonstrated that these stereotypes come into play quite early in life. Although just as capable, gifted women fall behind men in salary, status, and promotions throughout their working lives (Kerr, 1985; Maxwell, 2007). Kerr also noted that females do not always have career goals and aspirations that are consistent with their abilities. Since many gifted students make career choices at a young age (Wai, Lubinski, & Benbow, 2005), the fact that girls are so strongly influenced by stereotypes argues for career interventions in middle schools that will address this problem. In terms of the CIP approach, gender issues make it more difficult for gifted and talented girls/women to gain and maintain accurate self-knowledge in comparison with boys/men.

Career intervention. In order for girls to have a better chance of reaching their potential, Kerr recommends career planning that emphasizes rigorous academics, encouragement in math and science, maintaining high goals, and identifying internal and external barriers to achieving these goals (Kerr, 1985). A program was developed by Lynn Fox at Johns Hopkins University to change junior high girls' attitudes toward science and mathematics (Fox, 1976). This program consisted of a 3-month course taught by female instructors that emphasized the way math could be used to solve social problems. The program was successful in challenging the girls to higher achievement in math initially, but over a 3-year period the interest dropped off. Without any further encouragement from female role models, gains from the experimental treatment declined. The authors concluded that there was a need for lifelong exposure to and encouragement

from female role models who succeeded in the math and science fields. The need for such programs for gifted minority students may be especially important given the additional barriers faced by these adolescents and young adults.

KNOWLEDGE OF OCCUPATIONAL OPTIONS.   Reis and Hebert (2008) noted that important differences existed in boys' and girls' perceptions about occupations . As stated previously, boys were more interested in quantitative, scientific, and vocational occupations, while girls were more interested in teaching and the arts. It is likely that these stereotypes are influenced by a lack of occupational knowledge. This type of stereotypical thinking by gifted and talented students, limits the occupational, educational, and employment opportunities of both boys and girls. In terms of the CIP approach, stereotyping makes it difficult for gifted and talented students of both genders to gain accurate options knowledge necessary to make informed career choices.

Career intervention. The career interventions for girls described previously in this chapter should help to reduce the stereotypes that limit their career choices. However, boys also need career interventions that address stereotypical thinking. Career education programs can provide systematic exposure to a wide variety of occupations for men and women through the use of gender-neutral occupational information, work experience programs, and information interviews with employed men in both traditional and nontraditional occupations.

KNOWLEDGE OF EDUCATIONAL OPTIONS.   A common, and mistaken, assumption held by many in our society is that a college degree is a prerequisite for a successful life. When parents, and their children, believe in this overarching stereotype, these adolescents and young adults have an artificially constrained list of options to consider. Given the high degree of diversity among gifted and talented students, a vocational/technical education may lead to more appropriate employment outcomes than the options available from attaining a traditional college degree. For example, an artistically gifted adolescent may choose a graphics design program in a vocational/technical school because it provides appropriate employment opportunities with minimal investment of time and money in education. A particularly harmful statement from a significant other would be, "Why do you want to be a licensed practical nurse when you are smart enough to be a physician?" This demeans the student's aspiration, as well as demeaning many gifted and talented nurses who are making important contributions and who prefer being an LPN over being a physician because of family and lifestyle considerations. In terms of the CIP approach, biases resulting from stereotyping limit the accuracy of options knowledge that gifted and talented students need to make informed career choices.

Career intervention. The interventions to deal with this type of stereotyping are similar to the strategies for dealing with occupational stereotypes, except that the focus is on type of education rather than gender. Also, resources for parents designed to help them promote the career development of their children need to include similar information content.

Overemphasis on Rationality

A misconception among some students, parents, teachers, counselors, psychologists, and school administrators is that good decision making is rational and

cognitive, as opposed to being intuitive and emotional. While these assumptions were given credence in the past, they are no longer credible. In comparison with rationality, intuition is "a different way of knowing," including cognitions that are outside of our immediate conscious awareness. Insights gained from intuition are just as valuable as insights gained from rationality and logic. Almost everyone uses both processes to some extent. Rationality and intuition are complementary, as opposed to being mutually exclusive. A perceived discrepancy between a rational and an intuitive conclusion may signal a need to explore the discrepancy before any final choice is made. Maxwell (2007) noted that many gifted students are intuitive. Given the often assumed gender differences that men are rational and women are intuitive, valuing rationality over intuition may encourage girls to perceive themselves as innately less effective decision makers. In terms of the CIP approach, overemphasis on rationality in career choice reduces the range of decision-making skills that are necessary for gifted and talented students to make informed and careful career choices.

Career intervention. Information resources on the process of making career choices need to explicitly recognize the legitimacy of both rationality and intuition, as well as cognition and emotion, in making career choices. Discussions about the nature of effective decision making should take place between and among gifted and talented boys and girls. Decision-making simulations for single- and mixed-gender groups, followed by mixed-group discussion, may also be helpful in raising awareness of the value of both rationality and intuition.

Career Exploration and the Development of Occupational Knowledge

Parents and teachers who encourage students to allocate all of their time to studying in order to maximize academic achievement, miss important opportunities for exploration that are essential in students' career development. Individuals without much paid or volunteer work experience have difficulty in articulating their likes and dislikes. In terms of the CIP approach, engaging in various career exploration activities can be helpful to gifted and talented students in enhancing occupational knowledge in the Analysis Phase of the CASVE Cycle.

Career intervention. Work experience programs need to be developed as an important element of gifted education. In addition to paid employment, gifted and talented students need to be involved in group and individual volunteer work, as well as a variety of student activities. This diversity of experience allows for maximum clarification of self and options knowledge. However, care needs to be taken to ensure that a diversity of work environments and tasks are available if maximum opportunities for clarifying self-knowledge are to be achieved.

Inadequate Reality Testing

As stated previously, some parents discourage their children from participating in elective work experience programs so that the student can focus maximum effort on academic performance. Using this type of strategy for success limits the opportunity for the gifted and talented student to clarify the appropriateness of their occupational, educational, or employment choice. If an untested choice subsequently proves inappropriate, the student and the family could have invested considerable time and financial resources with little return. In terms of the CIP approach, inadequate real-

ity testing of tentative career choices compromises the effectiveness of the Execution Phase of the CASVE Cycle.

Career intervention. Work experience programs that facilitate reality testing need to be integrated into career education programs for gifted and talented students, as well as career services offered in schools and colleges. Cooperative education, internships, summer employment, part-time employment, and volunteer work all offer potentially useful opportunities for reality testing a specific choice.

Parental Involvement

This section on parental involvement will address student involvement in their career choices and inappropriate parental involvement in the elaboration of options.

STUDENT INVOLVEMENT IN THEIR OWN CHOICES. Some gifted and talented students have limited involvement in their own career choices. At best, this is a missed opportunity for further development of problem-solving skills. At worst, these students can lose motivation to succeed in school because of their lack of personal involvement in decisions that have long-term employment consequences. Their confidence as a decision maker can be compromised as a result of their limited experience in making important choices. Finally, since the student has little involvement in their own career choice, they are less likely to assume responsibility for an imposed decision, leading to reduced motivation to perform in education and employment.

Parents have an undeniable influence on their gifted and talented adolescents and young adults. Some parents express anxiety that their child will "waste the gift" (Colangelo & Assouline, 2000). This can lead to confusion and conflict for the gifted child or adolescent. Parental disagreement about a student's occupational or educational aspirations, or even the unwillingness of the student to endorse a parent's suggested choice for them, can lead to external conflict. In terms of career choice, external conflict reflects the inability to balance the importance of one's own self-perceptions with the importance of input from significant others, resulting in a reluctance to assume responsibility for decision making (Sampson et al., 1996, 1998).

A common factor in limited student involvement in their own career choices is dysfunctional input from one or more parents. Dysfunctional family input decreases a student's readiness for decision making (Sampson et al., 2004). Overfunctioning parents sometimes make decisions for their children. While a parent's surface message is, "I care for you a great deal. I am helping you make this choice because I love you so much," the underlying, unspoken message is, "You're incompetent to make this choice." In some cases a parent is more direct and demeaning, saying "This is too important a decision for you to make on your own and you're likely to make a bad choice." When reacting to a student's stated aspiration, a typical disempowering, reactive comment is, "You want to be a_____. You're never going to make any money doing that and you won't like it anyway." Some parents have gone as far as telling a young adult in college that they will not pay their college expenses if the student changes his or her major from the option he or she was pressured into selecting. Greene (2005) and Maxwell (2007) observed that when significant others say things like, "They can be anything they want to be" or "They are lucky to have so many options," gifted students feel pressured to be someone different from themselves. Green goes on to say that another pressure experienced by some gifted

and talented students is to make their career choices at a young age. It is ironic that these parental behaviors often compromise the development of their children, which is the exact opposite of the parents' espoused wishes for the success of their child. Overfunctioning in children's career choices is a likely indicator of overfunctioning in other aspects of adolescent and young adult development. The treatment of choice in this situation would be family therapy in conjunction with career counseling. Unfortunately, it is unlikely that these types of services will be available. Few practitioners are trained to understand and deal with the interaction among career, family, and mental health issues. In terms of the CIP approach, dysfunctional family input negatively impacts the Complexity Dimension of Readiness for career choice.

Other families are very functional with parents providing their gifted and talented children with emotional support and the opportunity to discuss career options. The clear message given is that the parents will provide dependable assistance in making the decision, but the child is clearly responsible for making and implementing the choice. This collaborative approach to facilitating career choice contributes to the child's decision-making confidence and provides an opportunity for learning how to be a more effective problem solver. However, parents who would like to help their children often lack necessary information to help their children with the content and process of career choice. While some parent resources are available, few of these resources address the specific needs of children who are gifted and talented.

Career intervention. As stated previously, a lack of student involvement in their own career choice is a missed opportunity for further developing problem-solving skills. Sternberg (2005) noted that the use of creativity in decision making is a key element in giftedness. One potentially productive outlet for this creativity involves students using their problem-solving and decision-making skills to contribute to the design of their own career interventions. Boyd et al. (n.d.) recommended that students be actively involved in the creation of their own career services. Career interventions should be designed with enough flexibility to accommodate student involvement in shaping the nature of these services. For example, the Pyramid of Information Processing Domains and the CASVE Cycle can be described along with a case study of a typical gifted student. Students can then be asked what resources and assistance froom others would help this student in making an informed and careful career choice. Another option would be to provide a case study and then ask students to work individually, and afterward in a group, to describe the evidence that an informed and careful career choice had been made by the student in the case study.

Stephens (2005) presents an example of an information resource to help parents understand how to provide effective assistance to their children in making career choices. School programs for gifted and talented students offer an opportunity to deliver these resources. One option is for career choice to be briefly discussed with parents during annual review of students' IEPs. Follow-up career information resources can then be delivered via the Web with appropriate support provided by school counselors. Specialized workshops can be provided by school counselors for parents who are interested in helping their children with postsecondary education choices.

INAPPROPRIATE PARENTAL INVOLVEMENT IN THE ELABORATION OF OPTIONS.   Some gifted and talented students experience pressure from their parents to choose an occupation based on prestige, as opposed to values or interests (Colangelo & Assouline, 2000).

Kerr and Colangelo (1988) found that 50% of intellectually gifted college-bound students in their study selected majors from only three areas, engineering, health profession, and physical science, even though they were presented with almost 200 possibilities and had identified broad extracurricular interests. Fredrickson (1982) noted that multipotential students showed less variability in occupational choice in comparison with students who were not identified as multipotential. Parents who pressure their gifted and talented children to consider only prestigious occupations, can cause these students to prematurely foreclose potentially viable options. In terms of the CIP approach, inappropriate parental input can make it more difficult for gifted and talented students to elaborate their options in the Synthesis Phase of the CASVE Cycle.

Career intervention. The interventions presented in the section above on "Student Involvement in Their Own Choices," also apply to inappropriate parental input in the elaboration of occupational, educational, and employment options.

Limited Integration of Career Development in School Enrichment Programs

School enrichment programs offer considerable opportunities for clarification of self-knowledge relevant to career choice. In reviewing the literature on gifted and talented students, career development does not appear to be well integrated into school enrichment programs. Most school districts have a learning center designed to fulfill the varying special needs of gifted and talented students. These centers are designed to inspire self-confidence, encourage interests, foster creativity, and enhance communication skills (Nieman EL Center website, 2005). The targeted skills are self-actualization, interpersonal skills, investigative and thinking skills, and technology. In high school, gifted and talented students have the option of taking honors courses that include enrichment areas that help gifted and talented students to continue developing these targeted skills. In terms of the CIP approach, integrating career development in school enrichment programs would help students to further clarify their self-knowledge.

Career intervention. Interventions that include career assessment and the use of career information need to be fully integrated into enrichment programs. Problem-solving curriculum elements already provided in these enrichment programs can be directly applied to career choice. By promoting more in-depth exposure to areas not typically covered in public education (archaeology, law, advanced technology, etc.), students are being exposed to more atypical career paths. The greater diversity of life experiences they receive through these programs can help students clarify their self-knowledge. However, the potential benefits of this enrichment will likely be lost if brief career interventions are not provided to help students reflect on their experience and assimilate what they have learned into knowledge of self and knowledge of options.

Mentoring

Some students receive substantial support from mentors who make substantive contributions to the development of these adolescents and young adults. Mentors have an important role to play in helping adolescents and young people recognize

that there is a career problem that needs to be solved by clarifying the gap between where the student is and where he or she wants to be. Bloom (1985) emphasized the critical role which mentors played in the development of children with exceptional capabilities. Several studies also noted the important impact that mentors can have on the personal and vocational success of gifted children and adolescents (Feldman, 1986; Bloom, 1985; Berger, 1990). Beck (1989) found that career development was the area most affected by a mentoring relationship. Biographical reports, self-reports, and interviews indicated that mentors exert one of the most significant influences on gifted individuals' success (Casey & Shore, 2000). Parents often report that mentors also have a maturing effect on their gifted child as a result of an increased focus on vocations. Mentors also provide a sounding board for discussing career pressures that adolescents and young adults may experience. The problem is that while mentoring is generally recognized as beneficial, not all gifted and talented students have access to a mentor.

Mentors can be especially advantageous for females (Maxwell, 2007). Lewis (1991) found that the impact of a mentor is particularly effective in ensuring that women remain in science. Reilly and Welch (1994) reviewed self-reported attitudes of 61 high school students (33 female and 28 male) who participated in a school-based mentoring program. Nearly three times more females than males reported they made career decisions as a result of their mentoring experience, indicating the strong influence a positive role model can have on a young female. In terms of the CIP approach, mentors can help gifted and talented students realize that a career choice needs to be made and that support will be available to make a choice.

Career intervention. Interventions in schools need to include mentoring programs. Mentorship is especially important for gifted and talented females as well as students who are disadvantaged. Students from dysfunctional families may particularly benefit from mentoring programs, assuming that the parent will allow their child to participate. Young adults in college, who tend to have more independence from their parents, may have greater access to mentors. Faculty members can be especially effective mentors as students collaborate on research projects and student activity programs. Casey and Shore (2000) recommend that mentoring begin in the upper elementary grades and be more closely tied to vocational decisions. Maxwell (2007) recommended that counselors be actively involved in creating mentoring programs.

Conclusion

Career development is a key component in the overall development of adolescents and young adults. Performance in education and work provides opportunities for adolescents and young adults to make use of their giftedness and talent. In turn, education and employment provide opportunities for the further development of students' giftedness and talent. The adolescents and young adults themselves, as well as our society, can greatly benefit from their capabilities. Effective career interventions are needed if these students are to make informed and careful career choices that help them achieve a full measure of their potential. It is in all of our interests that gifted and talented adolescents succeed in education and employment.

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Curriculum and Instructional Considerations in Programs for the Gifted

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Introduction

Several conceptions of curriculum have shaped the thinking of those working with gifted students. The roots of each of these conceptions can also be found in extant curriculum for the gifted; they represent strong philosophical orientations for what curriculum for the gifted might be. Sylwester (2003) suggests that students learn best when there is an emotional connection between the student, the teacher, and the content or curriculum. Given the intensities, precocity, and complexities of gifted students, the issues of emotional connections within curriculum and instruction are paramount. Researchers in neuroscience also suggest the importance of appropriate match of curriculum to students. Tomlinson and Kalbfleisch (1998, p. 54) explain that "[i]f a student engages in a curriculum that is well beyond that student's level of readiness, stress results, and the brain over produces key neurotransmitters that impede learning (Koob, Cole, Swerdlow, & le Modal, 1990). Conversely, if the curriculum is redundant for the child—beneath that student's level of readiness—the brain is not inclined to engage or respond and, consequently, does not release the levels of dopamine, noradrenalin, serotonin, and other neurochemicals needed for optimal learning. The result is apathy (Shultz, Dayan, & Montague, 1997)."

Affective needs of the gifted must also be addressed within the larger context of curriculum. Gifted students are more prone to perfectionism, underachievement,

and issues with peer relationships (Neihart, Reis, Robinson, & Moon, 2002). Their asynchronous development may cause additional frustration and warrant special understanding and targeted intervention from those working with gifted students. Due to gifted exceptionalities, implications for curriculum are numerous. Gifted students need an advanced curriculum targeted toward their needs; they need time to develop talents and pursue in-depth interests; and they need to be grouped with like intellectual peers in order to develop peer relationships with others who may be at similar development stages.

The basis for selecting and differentiating curriculum for gifted individuals should emerge from the differences in their characteristics and needs, which are reflected in formal test data and careful observation of performance behaviors. Curriculum design for the gifted can be distinguished from curriculum design for more typical learners by the research findings about gifted learners:

1. The capacity to learn at faster rates (Colangelo, Assouline, & Gross, 2004)
2. The capacity to find, solve, and act on problems more readily (Sternberg, 1981)
3. The capacity to manipulate abstract ideas and make connections more readily (Gallagher & Gallagher, 1994; VanTassel-Baska & Stambaugh, 2006)

Considering this orientation to gifted learners and their needs, this chapter will (1) examine the philosophical underpinnings of curriculum for gifted learners, (2) discuss the research base of various curriculum models, (3) examine embedded affective curriculum options for gifted learners, (4) share ideas for evaluating the implementation and the effectiveness of curricular and affective components of an overall schoolwide system of service for gifted learners, and (5) describe implications for support personnel like counselors and psychologists for working with gifted students.

Aspects of Curriculum Development

A Curriculum Philosophy for the Gifted

What one believes about the gifted is typically revealed in the orientation of the selected curriculum and philosophical models represented within. Historically there have been six specific dimensions or orientations to thinking about curriculum for the gifted learner.

1. *Curriculum as the development of cognitive process*. This orientation in the education of the gifted has focused on process skill development and has led to the adoption of curriculum materials organized around higher-level thinking skills. Having its roots in faculty psychology, it has fostered a content-independent model of curriculum that uses cognitive skills as the centerpiece of all learning activities. Implicit in this view is the assumption that learning cognitive skills will translate across, apply to, and enhance any field of inquiry a student may encounter. Research in the cognitive sciences on learning strategies and models of thinking has fostered such an emphasis over the past 20 years.

Many pull-out programs for the gifted, which historically have reflected this orientation, have emphasized critical thinking, creative thinking, and problem solving as the substance of curricula, treating these process skills as content dimensions in their own right. Research supports this orientation if there is also an emphasis on deep content knowledge and applying cognitive skills directly to selected content (Haskell, 2001).

2. *Curriculum as technology*. This view of curriculum is also process-oriented but focuses on the organization of curriculum into student inputs and outputs. This approach relies heavily on stated behavioral or performance objectives with measurable outcomes that can be tested in order to determine educational progress or achievement. The national and state standards developed in all states and by national groups attest to the current centrality of this curriculum orientation. It assumes that curriculum standards must be explicit, taught to, and tested for. This view of curriculum sees curricular effectiveness and efficiency realizable if a learning system is adopted by schools rather than piecemeal changes (Spady, 2000).

3. *Curriculum as personal relevance*. This orientation promotes a child-centered model that values curriculum experiences that are tailored to individual student needs. The interest of students in specific areas guides the curriculum. The goal of such curriculum is to be personally engaging and to offer appropriate experiences that will provide growth at each student's level of understanding. Several curriculum models in gifted education employ this orientation. Betts and Kercher (1999), Enerson (1996), and Renzulli, Gentry, and Reis (2003) favor this orientation because of its emphasis on self-directed learning. Gifted students become responsible for negotiating their own curriculum through contracts with a facilitator who assesses interest and ability. The interaction of student and facilitator in mutually agreed upon independent work forms the central core of curriculum experiences.

4. *Curriculum as social reconstruction*. This view of curriculum holds that the purpose of educational institutions is to be an agent for social change and that the content of curriculum should be viewed within the larger social and cultural realm. Topics to be studied are chosen to promote community action programs needed in a student's immediate environment and to promote individual and collective social responsibility. Engaging students in social action such as drafting a piece of legislation, taking a poll of neighborhood opinions regarding nuclear energy, or organizing a school antipollution campaign typify curricular experiences as social reform. Work in the education of the gifted that best exemplifies this orientation is an emphasis on multiculturalism. This orientation has spawned an interest in creating a more culturally responsive curriculum, one that attempts to help students learn how to create a better world (Banks, 1995; Ford, 2002).

5. *Curriculum as academic rationalism*. This curriculum orientation has its roots in the Western tradition of rational humanism. Specifically, it adheres to an ideal of education as a way of providing students with an understanding of great ideas and an ability to analyze and synthesize past achievements. It recognizes a canon of work as central to our evolution as a culture (Hirsch, 1989). It further espouses a belief in the structure of knowledge as embodied in the organization

of academic and artistic fields of inquiry, and seeks to instruct students within those content disciplines. Most of the "durable" curriculum that has been used in gifted programs flows from this general orientation. The special National Science Foundation curriculum projects in mathematics, science, English, and social studies that were developed in the 1960s were all rooted in this orientation. Packaged curricula like *Junior Great Books* and *Philosophy for Children* also adhere to this view. More recent curriculum development funded by the Javits Program also uses this orientation linked to the architecture of the standards movement.

6. *Curriculum as a precursor to career/professional life*. This view of curriculum has its roots in both the professional school and vocational school models that have influenced curriculum offerings over the last several decades. A strong focus on the practical and the utilitarian has been a preoccupation at secondary and postsecondary levels. In the field of the gifted, this orientation may best be seen through career education models (Greene, 2003) that have appeared to help students view curriculum as a preparation for their future professional work. Work experience programs for the gifted, loosely termed *mentorships* and *internships,* also have a utilitarian "real-world" focus. In these programs, students relate to the practicing professional in his or her domain and come to understand and appreciate their own potential as future practitioners of a particular craft. New conceptions of curriculum, influenced by the National Standards, also include a strong emphasis on developing the skills, attitudes, and traits of professionals (VanTassel-Baska & Little, 2003).

Although educators are free to choose among these curriculum philosophies, the most effective curricula incorporate all of them to some extent. Whereas the academic rationalist's view has guided most long-term curriculum efforts, it currently is being seriously challenged by the social reconstruction orientation. This view holds that curricular decisions reflect social and economic biases. Thus, any attempt to differentiate curriculum for the gifted may be seen, according to this orientation, as an elitism fostered by the educational forces that would oppress the poor and the minority members of our school community (Oakes, Gamoran, & Page, 1991).

The curriculum as technology viewpoint has also led many school personnel to flee from issues of curriculum differentiation for the gifted to a more moderate position of higher curriculum standards for all learners that may include the best features of curriculum for the gifted. In the face of high-stakes assessment, curriculum has become a pawn to be controlled, using standards as the lever.

Another serious challenge to academic rationalism comes in the form of a cognitively based orientation that places the importance of procedural knowledge above declarative knowledge. Cognitive science learning approaches that are research-based such as concept mapping, metacognition, and teaching for understanding presage even more emphasis on this orientation.

Curriculum Dimensions for the Gifted

One's orientation to the philosophical beliefs of how curriculum for the gifted should be structured and delivered has implications for choosing explicit curriculum models. Although research on curriculum for the gifted provides limited evidence

regarding effectiveness, three relatively distinct curriculum dimensions have proven successful with gifted populations at various stages of development and in various domain-specific areas. The three dimensions are: content mastery, higher-level process and product development, and the study of overarching concepts and themes. The content dimension emphasizes the importance of learning skills and concepts within a predetermined domain of inquiry. Gifted students are encouraged to move as rapidly as possible through the content area; thus, content acceleration dominates the application of this model in practice. When a diagnostic-prescriptive instructional approach is utilized, students are pretested and then given appropriate materials to master the subject area segments prescribed. The instructional approach has proved effective in controlled settings (VanTassel-Baska & Stambaugh, 2006).

Higher-level process and product development includes advanced graphic organizers and the design of real-world products that are organized around specific intellectual content outcomes and feature in-depth examination of such content. One such process example is Paul's Reasoning Model. Paul's Reasoning Model is an advanced process template that guides students through the examination of a content-based, real-world issue to help them examine the major themes, implications and consequences, key assumptions, various points of view of different stakeholders, and inferences based on evidence gathered or provided. This advanced model may also be used when helping gifted students cognitively process life situations related to issues associated with their giftedness such as perfectionism or peer relationships.

Finally, third dimension is the concept component of the model. This component provides an overarching framework in which students examine the content through the lens of change, systems, power, patterns, or cause and effect. For example, using the overarching concept of change, students may examine changes over time in a scientific experiment, random or predictable changes throughout history, or man-made or natural changes occurring within the context of a piece of literature.

Research-Based Models of Curriculum for the Gifted

The following models represent both accelerative and enrichment approaches to working with the gifted (VanTassel-Baska, 2003). Each model has some research to support its use, although all of the models suffer from the lack of studies to support the efficacy of the total model conceived.

THE STANLEY MODEL OF TALENT IDENTIFICATION AND DEVELOPMENT.   The overall purpose of the Talent Identification and Development Model, developed by Julian Stanley, is to educate for individual development over the life span. Major tenets of the model include: (1) the use of a secure and difficult testing instrument that taps into high-level verbal and mathematical reasoning to identify students, (2) a diagnostic testing-prescriptive instructional approach (DT-PI) in teaching gifted students through special classes, allowing for appropriate level challenge in instruction, (3) the use of subject matter acceleration and fast-paced classes in core academic areas, as well as advocacy for various other forms of acceleration, and (4) curriculum flexibility in all schooling.

The research work of this model has been strong over the past 27 years. Findings of multiple studies have consistently focused on the benefits of acceleration for continued advanced work in an area by precocious students (Stanley, Keating, & Fox, 1974), a clear rationale for the use of acceleration in intellectual development

(Keating, 1976), and the long-term positive repeated impacts of accelerative opportunities (Benbow & Arjmand, 1990). Longitudinal data, collected over the past 20 years on 300 highly gifted students, have demonstrated the viability of the Stanley model with respect to the benefits of accelerative study, early identification of a strong talent area, and the need for assistance in educational decision making (Lubinski & Benbow, 1994). A 50-year follow-up study (1972–2022) is ongoing with 6000 students in the sample. A recent review of longitudinal studies on acceleration continues to demonstrate the positive results of accelerative practices and the lack of negative consequences such as knowledge gaps or loss of interest (Swiatek, 2000). A major national report has also documented the evidence of the use of various forms of acceleration that can be applied in curriculum for the gifted (Colangelo, Assouline & Gross, 2004).

A strong body of research evidence exists supporting the use of advanced curricula in core areas of learning at an accelerated rate for high-ability learners. Moreover, recent meta-analytic studies and reports continue to confirm the superior learning effects of acceleration over enrichment in tandem with grouping the gifted (Colangelo et al., 2004; Kulik & Kulik, 1992).

THE SCHOOLWIDE ENRICHMENT MODEL.   The Schoolwide Enrichment Model (SEM) evolved after 15 years of research and field testing by both educators and researchers (Renzulli, 1988). It is the combination of the previously developed Enrichment Triad Model (Renzulli, 1977) with a more flexible approach to identifying high-potential students, the Revolving Door Identification Model (Renzulli, Reis, & Smith, 1981).

In the SEM, a talent pool of 15–20% of above-average-ability/high-potential students is identified through a variety of measures, including achievement tests, teacher nominations, assessment of potential for creativity and task commitment, as well as alternative pathways of entrance (self-nomination, parent nomination, etc.). High achievement test scores and IQ scores automatically include a student in the talent pool, enabling those students who are underachieving in their academic schoolwork to be considered. Once students are identified for the talent pool, they are eligible for several kinds of services including interest and learning style assessments, curriculum compacting, and various enrichment experiences described below.

Type I Enrichment consists of general exploratory experiences in order to expose students to new and exciting topics, ideas, and fields of knowledge not ordinarily covered in the regular curriculum. Type II Enrichment is designed to promote the development of thinking, feeling, research, communication, and methodological processes. In Type III Enrichment, the most advanced level of the model, the learner assumes the role of a firsthand inquirer: thinking, feeling, and acting like a practicing professional, with involvement pursued at a level as advanced or professional as possible, given the student's level of development and age.

There have been a wide range of studies conducted on the effects of SEM including evaluation (Olenchak & Renzulli, 1989), longitudinal studies (Delcourt, 1993, 1994; Herbert, 1993), research focused on compacting (Reis & Purcell, 1993; Reis, Westberg, Kulikowich, & Purcell, 1998), student behaviors such as creative production (Baum, Renzulli, & Herbert, 1995; Burns, 1988; Schack, Starko, & Burns, 1991), and underserved gifted populations (Baum, 1988). These studies have documented mostly positive results of the SEM model on student motivation and sustained interest in learning.

THE PURDUE THREE-STAGE ENRICHMENT MODEL FOR ELEMENTARY GIFTED LEARNERS (PACE) AND THE PURDUE SECONDARY MODEL FOR GIFTED AND TALENTED YOUTH.   The concept of a three-stage model, initiated by Feldhusen and his graduate students, was first introduced as a course design for university students in 1973. It evolved into the Three-Stage Model by 1979. It is primarily an ordered enrichment model that moves students from Stage I (development of divergent and convergent thinking skills) to Stage II (creative problem solving) and to Stage III (application of research and independent study skills) (Feldhusen & Kolloff, 1986). The Purdue Secondary Model is a comprehensive structure for programming services at the secondary level. It has 11 components supporting enrichment and acceleration options: (1) counseling services, (2) seminars, (3) advanced placement courses, (4) honors classes, (5) math/science acceleration, (6) foreign languages, (7) arts, (8) cultural experiences, (9) career education, (10) vocational programs, and (11) extra-school instruction (Feldhusen & Robinson-Wyman, 1986).

Research has documented student learning gains in the enhancement of creative thinking and self-concept using the Three-Stage Enrichment Model for Elementary Gifted Students (Kolloff & Feldhusen, 1984), and one study was conducted documenting limited long-term effects of the elementary program PACE (Moon & Feldhusen, 1994; Moon, Feldhusen, & Dillon, 1994).

THE SCHLICHTER MODELS FOR TALENTS UNLIMITED INC. AND TALENTS UNLIMITED TO THE SECONDARY POWER (TU2).   Talents Unlimited was based on Guilford's (1967) research on the nature of intelligence. Taylor, Ghiselin, Wolfer, Loy, and Bourne (1964), also influenced by Guilford, authored the Multiple Talent Theory, which precipitated the development of a model to be employed in helping teachers identify and nurture students' multiple talents. Talents Unlimited features four major components:

- a description of specific skill abilities, or talents, in addition to academic ability that include productive thinking, communication, forecasting, decision making, and planning
- model instructional materials
- an in-service training program for teachers
- an evaluation system for assessing students' thinking skills development (Schlichter, 1986)

Due partially to the strong emphasis on teacher training, the model has been used most effectively as a classroom-based approach with all learners. Research has documented the model's effectiveness in developing students' creative and critical thinking (Schlichter & Palmer, 1993), with young children in an English setting (Rodd, 1999), and the enhancement of academic skill development on standardized achievement tests (McLean & Chisson, 1980).

STERNBERG'S TRIARCHIC COMPONENTIAL MODEL.   Sternberg's Componential Model is based on an information processing theory of intelligence (Sternberg, 1981). The interaction and feedback between the individual and his or her environment within any given context allows cognitive development to occur. In the model, the following three components represent the mental processes used in thinking: (1) the executive process component which is used in planning, decision making, and monitoring performance, (2) the performance component processes which are used in executing

the executive problem-solving strategies within domains, and (3) the knowledge-acquisition component which is used in acquiring, retaining, and transferring new information.

Initial studies have shown the effectiveness of the triarchic model with students learning psychology in a summer program (Sternberg & Clinkenbeard, 1995), while more recent work conducted in studies using psychology as the curriculum base shows growth patterns when assessment protocols are linked to measuring ability profiles (Sternberg, Ferrari, Clinkenbeard, & Grigorenko, 1996). Other studies include the validation of the STAT (Sternberg Triarchic Abilities Test), and the use of triarchic instructional processes in elementary and middle school classrooms (Sternberg, Torff, & Grigorenko, 1998a, 1998b) which suggest slightly stronger effects for triarchic instruction over traditional critical-thinking approaches.

VANTASSEL-BASKA'S INTEGRATED CURRICULUM MODEL. The VanTassel-Baska (1986) Integrated Curriculum Model (ICM) was specifically developed for high-ability learners, based on existing research about "what works" with gifted students in classrooms and the literature on individual differences. It has three dimensions: (1) an advanced content focus in core areas, (2) high-level process and product work in critical thinking, problem solving, and research, and (3) intra- and interdisciplinary concept development and understanding. VanTassel-Baska (1986) has used the ICM as a basis to develop specific curriculum frameworks and underlying units in language arts, mathematics, and social studies content areas that are aligned with state standards yet differentiated for high-ability students.

Quasi-experimental and experimental research have been conducted to support the effectiveness of these curriculum units with gifted populations within a variety of educational settings. Findings indicate that:

- Significant growth and educationally important gains in literary analysis and interpretation, persuasive writing, and linguistic competency in language arts have been demonstrated for experimental gifted classes using the developed curriculum units in comparison to gifted groups not using them (VanTassel-Baska, Johnson, Hughes, & Boyce, 1996; VanTassel-Baska, Zuo, Avery, & Little, 2002).
- Use of the problem-based science units embedded in an exemplary science curriculum significantly enhances the capacity for experimental students in integrating higher-order process skills in science regardless of the grouping approach employed, over comparison students with moderate effect sizes (VanTassel-Baska, Bass, Ries, Poland, & Avery, 1998).
- Positive change occurs in teacher attitude, student motivational response, and school and district change as a result of using the ICM curriculum in both science and language arts over at least 3 years (VanTassel-Baska, Avery, Little, & Hughes, 2000).
- The language arts units are successful with low-income students, can be used in all grouping paradigms, and learning increases with multiple units employed (VanTassel-Baska et al., 2002);
- Use of the social studies units significantly impacts critical thinking and content mastery for experimental students over comparison groups (Little, Feng, VanTassel-Baska, Rogers, & Avery, 2006).

- The language arts units show significant and important gains for all groups of learners in Title I schools including gifted learners, promising learners, and typical learners, on measures of critical thinking and reading achievement (Bracken, VanTassel-Baska, Brown, & Feng, 2007).
- Teacher growth in differentiated classroom behaviors is significantly and importantly enhanced across 2 years of unit implementation and teacher training (VanTassel-Baska & Bracken, 2006).

Evidence suggests that curriculum developed on the ICM model is effective with all learners, given certain teaching modifications.

Affective Components in a Gifted Curriculum

Regardless of the conception or philosophy of gifted, those who are charged with selecting a curriculum specific to gifted learners need to consider the affective issues of the gifted and ensure that there is an affective component or link within the curricular model. Curriculum development in the affective realm needs to consider the affective characteristics of the gifted in addition to the cognitive ones in the design process. Therefore, attention to the characteristics of intensity, perfectionism, and asynchrony should guide curriculum considerations. Such curriculum emphases should serve as an appropriate catalyst for enhancing student productivity through the types of strategies employed.

Specifically, an affective curriculum for gifted learners would contain the following components: an emphasis on psychosocial development, self-assessment, philosophy of life, bibliotherapy, a talent development plan, and an emotional intelligence curriculum. In addition, the development of counseling skills, writing about emotions, reflection regulation, the promotion of affective development, sanctions and rewards, incorporation of the arts, and problem-based learning are processes that could easily be embedded within the larger curricular context for gifted students.

PSYCHOSOCIAL DEVELOPMENT.   Researchers, teachers, and counselors have observed a rather consistent set of issues that plague gifted students. Strop (2002) found that a group of seventh- and eighth-grade Talent Search students worried most about universal concerns, performance, and getting along with others. Using these concerns as a basis for organizing special sessions or mini-units for discussion and writing with gifted students across both elementary and secondary levels of schooling would enhance psychosocial development by providing a chance to talk through the concerns with other gifted students to have such sessions facilitated by an empathetic person.

SELF-ASSESSMENT.   A key to strong social-emotional development is understanding how one fits with respect to predisposition, temperament, and ability. Helping students understand their abilities in light of their personalities, aptitudes, and interests is a critical component of any effective social-emotional emphasis in a gifted curriculum. Consequently, giving a battery of relevant tests and interpreting test results in achievement, ability, aptitude, and vocational interests would seem prudent. Not all gifted people can become anything they want to be, based on predispositions, values, and personality (Achter, Lubinksi, Benbow, & Eftekhari-Sanjani, 1999). Thus, helping them understand optimal matches early is a special need.

PHILOSOPHY OF LIFE.   Helping students discern their true values and beliefs, espe-
cially in the preteen years, can ward off problems during adolescence with excessive
experimentation. Students need to start addressing the large questions of: How do I
define "meaning" for myself? What do I believe and value? What are my life themes?
Such questions then can lead to creating reflective journals where ideals are readily
shared in a number of written and graphic forms. Opportunities for students to study
great thinkers at elementary and secondary levels provide a vocabulary and a set of
thinking processes to promote such philosophical study.

BIBLIOTHERAPY.   Much has been written about the use of bibliotherapy for
gifted learners. Yet continued use of both targeted literature and biography to help
students understand themselves through characters and role models can be a use-
ful tool at any age. Issue-based current fiction that has bright children or adults
as protagonists can be an effective tool for deep discussions, personal awareness,
self-talk, and proactive decision-making. Halsted's work (2002) is an exceptionally
effective resource to promote affective insight into problems. Halsted has organized
affective themes and assigned them to grade level considerations and particular
texts which she has arranged for easy use by readers. An example of developmental
issues for gifted students to discuss in middle school include achievement, alone-
ness, arrogance, creativity, differentness, drive to understand, identity, intensity,
introversion, moral concerns, perfectionism, relationship with others, sensitivity,
and using ability. Books for each of these issues are recommended.
    Halsted (2002) suggests that books for bibliotherapy must be engaging and
complex enough for gifted students to become involved with the text and associate
themselves with the affective issues of the protagonist. Complex novels allow gifted
students to see themselves in the fiction and to discuss affective issues of develop-
ment at a safe distance.

TALENT DEVELOPMENT PLAN.   One way to ensure metacognitive control over the
development of social-emotional areas of a student's life is to encourage the develop-
ment of her own personal talent plan (Moon, 2003). Students need to develop goals
at each year of development, monitor progress across a year, and assess outcomes at
the end of a year. Keeping a journal might be a part of recording worthwhile crys-
tallizing experiences that occur during the year and linking them to a goal of the
plan. Many schools for the gifted require student portfolios to demonstrate cognitive
growth; these plans could exemplify affective growth across the same span of time as
well. Goals could be affective, cognitive, and/or aesthetic with clear implementation
strategies and resources.

EMOTIONAL INTELLIGENCE.   While much rhetoric about emotional intelligence has
not progressed to the level of sustained research, the work of Salovey and Mayer
(1990) (see also Mayer & Salovey, 1997; Mayer, Salovey, & Caruso, 2000) has. Their
continued work to develop a theoretical framework for understanding emotional
intelligence and a test to assess it provides an important avenue for gifted curricu-
lum developers to proceed with curriculum emphases in this area at each relevant
stage of development. Salovey, Bedell, Detweiler, and Mayer (2000) define emotional
intelligence as "the ability to perceive and express emotions, to understand and use

them, and to manage emotions so as to foster personal growth" (p. 504). This type of emphasis on emotional intelligence feeds into our concerns about gifted learners' development in this area and uses a metacognitive orientation to enhance student growth. Because it is defined well within a framework, approaches to assessment can be readily developed, and the overall structure supports existing gifted programs well, dispelling some of the more common criticisms leveled against including such an emphasis in a gifted program.

DEVELOPMENT OF COUNSELING SKILLS. Peterson (2003) has suggested that specific counseling skills might be useful to teachers in working with gifted students on social-emotional concerns. These include a major emphasis on effective listening, validating feelings, summarizing what the student is saying, and being nonjudgmental. These skills would also be useful to parents in many ways to engage their child in meaningful dialogue about school and related situations.

WRITING ABOUT EMOTIONS. Newer research suggests that writing and talking about emotional trauma can minimize its detrimental effects. Pennebaker (1997) has shown that disclosing emotional traumas in writing has numerous beneficial effects. These can be achieved by writing just once to a few times over several weeks, and writing can be anonymous. Benefits include fewer health center visits and improved grades among college students, enhanced immune system functioning, and in some cases fewer self-reports of physical symptoms, distress, and depression. These have been replicated many times in diverse populations. Outward linguistic expression appears to facilitate the coping process, whereas internally ruminating over a negative event makes things worse (Salovey et al., 2000). Thus, the lesson designs are structured to encourage written and oral communication about emotional issues.

REFLECTIVE REGULATION. One of the most advanced skills in the reflective regulation of emotions is the ability to ameliorate negative emotions and promote pleasant emotions. A further component of reflective regulation is the ability to understand emotions without exaggerating or minimizing their importance (Mayer & Salovey, 1997). Truly satisfying experiences consist of *doing*, not just *having*. What fills life with happiness is the process of accomplishment, not simply accomplishments. Control over consciousness is not simply a cognitive skill. At least as much as intelligence, it requires the commitment of emotions and will (Csikszentmihalyi, 1991).

STRATEGIES FOR PROMOTING AFFECTIVE DEVELOPMENT. Several strategies can be employed by relevant adults to enhance such affective development. A few of these are inferred from the major components delineated, such as being a discussion leader for a bibliotherapy session or serving as a facilitator of talent development planning. However, it is also crucial that school personnel assume more overt stances in promoting this type of development. If counselors know students well with respect to personality, interests, and needs, then they can better help promote self-understanding, acceptance, and teach coping skills most relevant for life events (Cross, 2000; Olenchak, 1999).

USING SANCTIONS AND REWARDS.   One strategy that can help students take safe risks in the environment is to reward students for displaying openness to sanctioning "closed" behavior. Educators can be proactive about requiring students to be flexible in their thinking, communicating with others about ideas that may not be fully formed. Encouraging open communication about ideas and pressing for fluency in expression all contribute to reducing perfectionistic behaviors. Swiatek (1998) suggests the use of the proactive strategy of various grouping approaches to promote emotional well-being and acceptance, again encouraging social coping mechanisms that include communication.

USING THE ARTS.   The arts become a wonderful tool to promote affective development, both in the appreciation and the performance areas. They provide students the opportunity for key expression of feelings, so necessary to maintaining mental health. They also are provokers of emotional response, encouraging the openness to experience that marks the talent development process. Finally, the arts lead to affective awareness and then sophisticated reflection on major issues and problems in the world, creating both a buffer and a reality check for gifted students.

USE OF PROBLEM-BASED LEARNING.   Another key to helping gifted learners develop affective skills is problem-based learning. A strategy originally used to create empathy in the professional world between doctor and patient and between teacher and administrator, it makes students both think and feel about real-world situations that require an acknowledgment of the undercurrents of emotion that drive real-world decision-making.

Educators may also wish to include an emphasis on moral and ethical dilemmas that frame real-world decision-making. Similar to problem-based learning, dilemmas force students to invest in an issue and grapple with its essence. Problem-based or dilemma-based learning emphasizes taking a perspective as a stakeholder in a problem, thereby engaging students' motivational level and providing a challenging venue for their understanding of emotion in themselves and others.

Tailoring Affective Curriculum and Instruction for Low-Income and Minority Students

When considering affective needs and strategies as part of the curriculum, counselors and psychologists must pay special attention to low-income and minority students. Gifted students who are low income and/or of a minority status are at a greater risk for underachievement (Colangelo & Davis, 2003; Ford, 2002). Additional, and more targeted interventions are needed for them to overcome certain societal barriers. The use of constructivist approaches in curriculum encourages safe risk-taking, discussion in small collaborative groups, and group research, which all address the research-based needs of this population for tailored curriculum. Additional special features of the curriculum that especially match learning characteristics and research on these populations are the following:

- Use of creative expressive and open-ended activities

  Curriculum that employs the use of inquiry, that promotes student question asking, that evokes curiosity and interest in these students to generate original responses has proven effective in many contexts.

- Use of concept mapping

    Curriculum that provides these students a scaffold for learning provides important access to the elevation of thinking and hence performance in core domains of learning.

- Use of metacognition

    Curriculum that emphasizes reflection and planning for future learning, reinforces the processes of how to become self-directed as learners in these students.

- Use of multicultural readings and materials that emphasize multiple perspectives.

    Many low-income students are also minority students who respond well to positive portrayals of their culture and individuals within it. The use of readings and current events that allow students to explore different cultural responses to the world enhances interest and deepens thinking.

- Use of hands-on and real-world applications

    Low-income and minority students benefit from concrete experiences as the building block for intellectual and academic work. Such experiences provide the "stuff" to think about, the bridge to more abstract problem-solving. Real-world emphases also play to their strengths of practical intelligence, employed to survive difficult daily life encounters (VanTassel-Baska, 2003).

Evaluating Curriculum and Instruction for Gifted Learners

Those involved in curriculum planning, whether affective or cognitive, must evaluate the outcomes as they relate to student performance and growth. The real test of a gifted curriculum, both cognitively and affectively, is how it answers the guiding question: "What have students learned as a direct result of being in a gifted program over one or more years?" Documentation and student data used to answer this question must be collected annually and provided by the program coordinator and by each teacher and counselor who has responsibility for instructing these learners. Adjustments to the curriculum or social and emotional outcomes should be based on evaluation findings and used to improve student performance or coping skills for the next year.

Evidence of program success is needed over time in order for gifted education to become an institutionalized part of a school system (VanTassel-Baska & Stambaugh, 2006). Long-term evaluation of curriculum, including strategies for data collection and analysis, requires a careful evaluation plan to be put in place so that systematic data are available at key stages of the program. A thorough evaluation of the curriculum should occur every 3 years and would include several steps. VanTassel-Baska and Stambaugh (2006) suggest the following:

1. A review of existing curriculum documents, including texts, units of study, and other supplementary materials that frame the substance of content delivery.
2. An analysis of classroom instructional practices that reveal patterns of use of higher order instructional strategies such as critical thinking, problem-solving, creative thinking, and research.
3. A trend analysis of gifted student outcome data including performance-based assessments and portfolios that document cognitive and affective concerns. (p. 357)

The nature of questions to be asked in an evaluation of a curriculum for the gifted over time matters as much as the data sources used to render judgments (VanTassel-Baska & Feng, 2004). The following questions may be useful in considering the design of such an evaluation:

1. *What are the patterns of growth in students in the areas that the gifted program focuses on?* A strong gifted program must show evidence of student growth in those areas in which it has chosen to put resources. Thus, if the program has decided to emphasize product development, then the processes underlying the product and the products themselves should demonstrate incremental growth over time.

2. *What are the predominant instructional strategies used by teachers of the gifted to deliver a differentiated curriculum?* Teachers should be employing the higher-level strategies for which they have received training in the curriculum areas for which they have responsibility. Evidence of more differentiated strategy use should be documented in these classrooms in comparison to regular education classrooms. Over 60% of the instructional time of gifted learners should be used in the pursuit of higher-level advanced activities.

3. *What evidence exists that the curriculum is appropriately tailored to the needs of gifted learners?* A curriculum base for the gifted must be effectively differentiated with respect to level, processes emphasized, and products expected. The curriculum should be described in ways that suggest it extends beyond the regular school curriculum in ways that match the needs of gifted learners. The curriculum should be well-defined in written form on which reviewers could make judgments.

4. *What is the relationship of the gifted curriculum to the standard one?* The curriculum for the gifted should be designed in relationship to state and local standards. Thus, it should reflect desirable learning in the areas identified as important in those standards. However, there is an obligation for the curriculum to go beyond the standards with respect to advanced learning that focuses on higher-order skills and processes, and that emphasizes creative work.

5. *What are stakeholder perceptions about the efficacy of the curriculum?* How educators, parents, and students themselves view the curriculum is a critical part of curriculum evaluation. Results should suggest commonality across groups with respect to curriculum efficacy, with teachers of the gifted and students often reflecting the most positive reactions to it.

6. *What evidence exists that gifted learners are academically successful when they leave the school district and beyond?* The long-term impact of a gifted curriculum should be seen by the time students graduate from a district. It should be reflected in higher GPAs, higher test scores on relevant off-level assessments like Advanced Placement and International Baccalaureate examinations, and on entrance into prestigious universities based on multiple criteria judged to reflect excellence.

7. *What evidence exists that gifted learners are receiving appropriate affective counseling differentiated for their unique needs?* Many times affective needs are individual. Still, evidence of proactive attempts to accommodate gifted students, especially during transition years (e.g., elementary to middle school, middle school to high school, and high school to college), should be evident. Data on individual student planning and small group goals including documented outcomes

should also be examined as part of an overall program. Unfortunately, based on the authors' experiences with program evaluations, few districts assertively include this necessary component within the larger context of gifted services and curriculum.

Implications for the School Psychologist and School Counselor

Applying philosophical orientations to the curriculum selection and evaluation of programs has specific implications for what school psychologists, counselors, teachers, and parents can do to effectively meet the needs of gifted children. Stambaugh and Stambaugh (2002) designed a hierarchical model intended for counselors, psychologists, and school personnel who counsel or assist gifted students. This model is outlined in Figure 18.1. There are four levels of increasing intervention and intensity that should be prescribed as part of an overall plan for gifted students.

Level One: Normalizing and Awareness. The first action for those working with gifted students is normalizing behaviors and explaining what gifted means. Many times this proactive intervention will help gifted students and their families become aware of unique needs and situations. Normalizing behaviors associated with gifted learners including an increased awareness of what giftedness is, how it is identified, and unique issues encountered by gifted students are a necessary and ongoing introduction to services for these learners and those involved with them including teachers, counselors, and family members. Talent development research explicitly links the role of the family's involvement in and recognition and support of a gifted child's talents and gifts as an integral part of developing giftedness and future success (Bloom, 1985; Csikszentmihalyi, Rathunde, & Whalen, 1993).

Level Two: Academic Accommodations. Once gifted students, their families, and their teachers become aware of the issues and characteristics associated with giftedness, they must act accordingly. This means that families must advocate for their gifted children, and schools must practice research-based approaches when planning instruction for them. As previously discussed in this chapter, the following are catalysts in developing appropriate instruction for gifted learners: (1) appropriate selection of an advanced content-based curriculum, (2) options to pursue and develop talents including interest-based pursuits, mentorships, or internships, and (3) grouping with like peers for instruction. This level of intervention is the most essential component of the model. Experience using this model has shown that behavioral and affective issues of gifted students may subside once the strategies at this level have been effectively implemented over time.

Level Three: Proactive Small Groups. During critical times in development or transitional times in school, as well as when specific issues arise, gifted students need small group instruction to help them build self-awareness, decide on career options, or deal with peer relationships or perfectionism. These groups may include a cognitive component such as bibliotherapy session or book clubs as well as more counseling-specific measures such as self-assessment inventories, discussion of cognitive distortions, and coping skills. It is recommended that gifted students work in homogeneous, small groups for this type of intervention so they have the freedom to discuss relevant issues with other students who understand them and who have experienced similar situations.
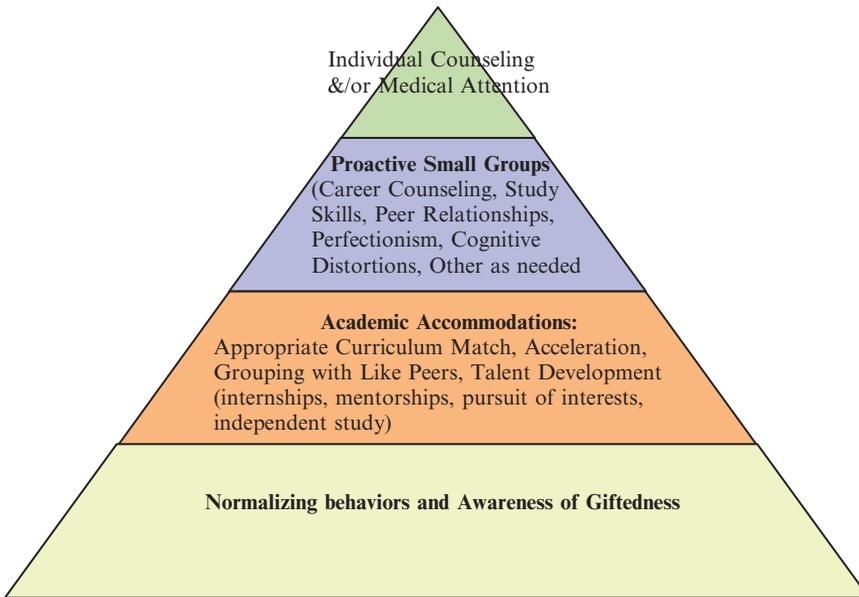
Figure 18.1. Hierarchical model for social, emotional, and cognitive development of academically gifted students.

Level Four: Individual Counseling and/or Medical Attention. If the first three interventions do not work with gifted students or if additional attention for a specific problem is needed due to interference with daily living, academics, individual counseling, or a medical evaluation may be needed to screen out additional issues or dual diagnoses.

The assumption that gifted students will make it on their own is erroneous as is the belief that all gifted students will become eminent adults (Arnold & Subotnik, 1994). However, school faculty, counselors, families of gifted, and psychologists can become more aware of the special needs of gifted students in order to normalize their unique behaviors, advocate and provide for their academic needs, be proactive in planning small group interventions, and recognize when individual counseling may help students become more academically and affectively adept. Similarly, additional strategies and processes to accommodate the model can be incorporated, including the following.

Conclusion

The use of a carefully thought out curriculum and instructional plan remains a major element of the overall program for gifted and talented students. One must be aware of the philosophical orientation of the curriculum selected and how that curriculum impacts students. Honoring the affective development of the gifted is integral to a comprehensive, balanced curriculum view. Students need to understand their own exceptionality, their intensity and sensitivity of feelings, and their need for coping strategies to help them deal with their own

perfectionism and vulnerability. Gifted students also can benefit from teachers, parents, counselors, and psychologists who are sensitive to their needs and can respond to their psychological profiles.

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Giftedness in Nonacademic Domains*

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To put it simplistically, there are several ways to approach giftedness. The term *gifted* itself is problematic, as it has a connotation of elitism. Few adults would dare to call themselves gifted, but they have no hesitation in labeling children as such. In 1993, the U.S. Office of Educational Research and Improvement removed the term *gifted* and replaced it with *outstanding talent* in its position paper called *National Excellence*. This followed on the heels of Feldhusen's (1992) groundbreaking editorial in *Gifted Child Quarterly,* which called for a consideration of talents rather than gifts, and for identification within domains rather than by IQ.

Creativity research, on the other hand, focuses on the PERSON—who is creative? the PROCESS—what happens when one is being creative?; the PRODUCT—what does the creative person make?; and the PRESS—what is the environmental pressure on person, process, product? One judges a product "creative" and then looks at the person who has produced that product, to see what forces operated in the creation of that product, what that person is like. Another approach tests a child through paper and pencil or through observation, pronouncing him or her potentially or really more creative than others, on a presumed normal curve of creativity, as a construct which supposedly exists within everyone to some degree or another. My approach has been to look at the creative person, and the creative press.

This chapter looks at characteristics in childhood of persons who have produced creative products in domains not usually considered when talking of giftedness— visual artists, musicians, actors, and dancers. What are their backgrounds, their personalities, their experiences, and their ways of looking at the world?[1]

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*The text of this article is, to a great extent, adapted from Chapters 6 and 7 of my book, *Talented Children and Adults: Their Development and Education,* 3rd edition (Prufrock Press, 2007).

Domain-based giftedness/creativity studies have recently been featured by such researchers as Kaufman and Baer (2004). Giftedness/creativity in domains was also prominently featured in the *Encyclopedia of Creativity* (Runco & Pritzker, 1999). Of course, the Institute for Personality Assessment and Research (IPAR) in the 1950s (Barron, 1968; Mackinnon, 1975, 1978) and the Bloom (1985) studies preceded these, and stand as a landmark in the thinking about giftedness in domains that are nonacademic.

When one looks at the development of talent, one notices certain patterns that are common to those who enter the same field. In *Talented Children and Adults* (1994, 1999, 2007), I called these *predictive behaviors*, for even early in life, practitioners of giftedness in a certain domain have undertaken certain practices that are common. Along with these predictive behaviors are certain crystallizing experiences (Feldman, 1982). Crystallizing experiences are unique to the individual, while predictive behaviors are common to the field. The crystallizing experience lets the person know that this domain is the one for him and sets him on the path.

I have developed a model called the Piirto Pyramid of Talent Development. This model has guided my work on talent in domains (Piirto, 1994, 1995a, 1995b, 1998, 1999, 2000, 2002, 2004, 2005, 2007). It is a contextual framework that considers person, process, and product, as well as environmental factors. (See Figure 19.1) The following are the basic assumptions of the Piirto Pyramid.

- Creativity is domain based.
- Environmental factors are extremely important.
- Talent is an inborn propensity.
- Creativity and talent can be developed.
- Creativity is not a general aptitude, but is dependent on the demands of the domain.
- Each domain of talent has its own rules and ways in which talent is developed.

These rules are well-established and known to experts in the domain. Talent is recognized through certain predictive behaviors. Coaches of athletics know this (body type, dexterity, physicality, etc.). Musicians know this (matching pitch, dexterity, tonal quality of voice, etc.). Each domain has its predictive behaviors that are, for the most part, evident in childhood.

Children Talented in Visual Arts

Because one cannot produce a work of visual art without talent, it is logical that early talent would be recognized and nurtured and predictive behaviors noted. Visual arts-talented children may or may not have high test scores on intelligence and achievement tests. They will, perhaps, score high on the spatial portions of ability tests. Visual art talent is made up of visual-figural intelligence in both Guilford's terms and spatial intelligence in Gardner's terms. Guilford (1977) said that figural intelligence is "concrete intelligence" (p. 16). Gardner (1983) said that spatial intelligence is necessary but not sufficient for visual arts achievement. Spatial intelligence is necessary in the sciences and in mathematics as well as in visual arts. The person with spatial intelligence possesses the ability to see imagery. In fact, chess ability is the "single area" most illustrative of the need for spatial intelligence. Gardner

Sun of School

Sun of HOME

Sun of COMMUNITY and CULTURE

Sun of CHANCE

Sun of GENDER

5. The Environmental Aspect — the 5 "suns"

***The Talent Becomes a "Calling," or "Thorn" ***

4. The Aspect of Talent in Domains

3. The Cognitive Aspect

2. The Emotional Aspect: Personality

1. The Genetic Aspect

*

** Arts Music Visual Theater Science Writing Athletics Entrepreneurship

** Math Dance Social Invention Academics Mechanics Business Spiritual etc.

Specific Talent in a Domain

Minimum Intellectual Competence For functioning in chosen domain ***

Drive
Passion
Self-discipline
Intuition
Creativity
Curiosity

Openness (naivete)
Imagination
Risk-taking
Perception
Insight
Tolerance for Ambiguity

Perfectionism
Volition
Resilience
Androgyny

Persistence
Overexcitabilities (intensities)
Intellectual
Emotional
Imaginational
Sensual
Psychomotor

PERSONALITY   **ATTRIBUTES**

Genes   *Genes*   *Genes*   *Genes*

© 2001
**Piirto's Pyramid
of Talent Development**
first appeared in T*alented Children
and Adults* (1994). It was subsequently
revised for the 2nd (1999) edition, and for the 1998
edition of *Understanding Those Who Create*. This is Version 4.

Fig. 1.1 Pyramid of Talent Development.

said, "The ability to anticipate moves and their consequences seems closely tied to strong imagery" (p. 192). The spatial ability necessary for visual (plastic) arts seems to be a "sensitivity to composition" found in both connoisseurs of arts and artists themselves (Gardner, 1983, p. 195).

Al Hurwitz (1983), himself a visual artist, noted that certain behavioral and work characteristics are common for visual arts-talented children. The following list gives the predictive behaviors of visual arts talent:

1. *Interest*: Interest in visual arts begins early, and emerges through drawing.
2. *Precocity*: The young visual artist often moves through the stages of drawing rapidly, just as young musicians move through the mastery of music rapidly. This is called precocious development, and when the child is between 9 and 11, she often begins to become frustrated with her development, as she begins comparing her efforts with images from mass media.
3. *Ability to concentrate*: Another behavioral indication the young visual artist displays is the ability to concentrate for a long period of time on an artistic problem, as well as a preference for being alone while doing art.
4. *Works on own time*: The child is self-directed, and does art on her own, away from the art room.
5. *Draws for emotional reasons*: Hurwitz (1983) commented that the visual arts-talented person may not fit the common perception of creative people, especially with regard to the personality aspect of risk taking, for the talented young person has "invested a great deal of themselves in developing mastery" and thus, "they are unwilling or unable to experiment in new areas" (p. 34). The child may use art as a retreat, drawing for comfort.
6. *Fluency:* There is also an indication of fluency in the talented young artist, that is, the child often has more ideas than there is time to enact them. The work has details that other children miss, and the child will often do multiple drawings.
7. *Communication*: The child may use a drawing to illustrate a point, because drawing to the talented young visual artist is like talking or writing to the verbally talented student.

Characteristics of Artwork of Visual Arts-Talented Children

Winner (1996) said that "the core ability of the visually artistic child is a visual-spatial precocity that makes it possible to capture the contour of three-dimensional objects in two-dimensional space" (p. 74). Winner (2004) noted that their drawings are like those of older people in these ways: (1) shapes that are recognizable; (2) lines that are fluid and confident; (3) volume and depth; (4) drawing objects in difficult positions; (5) composition shows dynamic proportion; (6) realism; (7) ability to master the drawing customs of their own culture; and (8) ability to tell stories in pictures. Hurwitz (1983) also listed the characteristics found in the artwork of visual arts-talented children:

1. *Realistic representation, or verisimilitude*: Talented young artists also are able to control their compositions, blending and mixing colors, and consciously linking forms and experimenting. Junior and senior high school students will begin to surpass their teachers in realistic representation; they may draw detailed comic strips with narrative structure.
2. *Use of detail*: Even in young children, the use of detail in drawings is extraordinary.
3. *Visual and kinesthetic memory:* They use their visual memories to enhance the artwork they make. Their extraordinary visual and kinesthetic memories show up at an early age, and they are able to use such recall in filling three-dimensional space, as when playing with clay.

4. *Use wide variety of media:* Talented young artists practice for hours, and use a wide variety of media, not just pencil and paper. They are curious about the possibilities of other media.
5. *Improvisation*: They are doodlers, improvising with shapes and lines, seeing patterns that appear from negative space. Hurwitz said, "Art functions as an extended conversation between form and imagination" (p. 57).

Like Gardner (1983), Hurwitz (1983) also differentiated between visual arts talent and critical sensitivity to the arts, saying that the latter is also a visual perception talent, but that it relies more on verbal ability.

Interest in the identification of artistic talent began early. In 1926, Florence Goodenough theorized that intelligence can be measured by drawing. In 1939, Norman Meier wrote a monograph on factors in artistic aptitude. Other researchers have been Clark and Zimmerman (1983, 1984, 1986, 1987). Clark, in 1989, published his Drawing Abilities Test. The point is that the children are identified by behaviors related to the talent. The researchers have also advocated the use of observation, portfolio, nomination, and interviews. Clark and Zimmerman were awarded a Javits grant in the mid-1990s to continue their work in identifying and serving visual arts talent. The project was called Project ARTS. The Visual Memory Drawing Scale (Guip & Zimmer, University of Toledo, Toledo Museum of Art) is also an instrument that has been developed. Another program for the identification of visual arts talent in the general elementary school population is Oreck's PROJECT START-ID, which was a Javits Gifted and Talented grant in the early 2000s to the Ohio Department of Education. Project CREATES in Tulsa, Oklahoma, administered by Diane Montgomery of Oklahoma State University was another that focused on the identification of arts talents in the general education population. Identification of these youth should be keyed to the characteristics discussed in this section. The drawing production tests mentioned earlier can also be administered. No IQ cutoff score should be required.

Visual artists have a specific path of development in their middle years, and this often takes them to special high schools, conservatories of art, or to the college of art in the larger university. Summer programs for young artists at Governor's Institutes and such programs as that at the University of Indiana at Bloomington are also important in finding and nurturing young artistic talent. One necessity in the recognition of such talent is the development of a portfolio. However, looking at what a student has done and applying principles of development in art talent is a more sure way to identify talent.

In the middle years, the visual artist often comes to a realization that the talent is there. Sloan and Sosniak's study of sculptors in the Development of Talent Research Project (1985) showed that many times, their talent was not recognized in high school; in fact, some of the sculptors took no art in high school. Specialists in the field had not noticed them. Their serious study of art began in college with a "hazy goal" of doing something in the arts. They had been building, sketching, drawing, molding throughout their adolescent years; these predictive behaviors alone differentiated them and foretold that they would go on to study art. "Making art was a natural part of their lives" (p. 117). They had been recognized by peers and adults for their competence, and had built a sense of self-esteem about their talent. They had not become enamored with anything else, and may not have felt especially competent in any other areas.

The sculptors were late to come to art, and had undergone a process of self-scrutiny before deciding to study art seriously. They began to encounter teachers who were also artists, and this had a profound effect on them. One artist said, "He was an artist first, and he did teaching second. He was treated like an artist. Somehow that appealed to me" (Sloan & Sosniak, 1985, p. 121). Their teachers were "absolutely committed to what they were doing" (p. 121). They influenced their impressionable students to work with intensity and commitment. The young artists acquired peers who were as intense as they were, and the path of their development had crystallized. They learned the language, the vocabulary of art; they learned to function in the competitive climate of art school; they learned what it took to market their work. They learned to be professionals.

Characteristics of Children Talented in Music

Musicians practice. They take private lessons. They play alone. They play in groups. Even if they are in school groups, choirs, bands, or orchestras, they must take private lessons in order to further themselves in their music. Schools have the responsibility to identify students who are musically talented, and to serve them in music programs, but no child who has musical talent will proceed very far unless she has private teachers. This could be said to be true for visual arts talent as well, though nowadays few young talented visual artists take private lessons. Today, few young talented creative writers take private lessons from writers. Few young talented scientists and mathematicians take private lessons, although all young people who are talented in music must, and do.

Much has been written on musical talent, and much of that has been autobiographical and biographical. Gardner in 1983 named musical intelligence one of his "frames of mind." Musical intelligence is a cast of mind that requires acute hearing ability, or audition, as well as the ability to understand the organization of rhythms. Many have associated musical intelligence with mathematical intelligence, but Gardner said that this ignores the emotional impact of music, and of the musically talented person's ability to evoke emotion.

Musical talent often shows up early, and if a family has a keyboard instrument, the musically talented child will probably be picking out tunes at a young age. Musical prodigy, or the ability to perform at an adult professional level, shows itself as more complex and more advanced at a young age than simple musical talent. Winner (1996) noted these characteristics of young music precocity: (1) a "rage" to make music; (2) astonishing memory for music; (3) improvisational behavior; (4) making the work harder by challenging oneself; (5) early and strong pleasure in music; (6) ability to transpose music; (7) ability to change focus while interacting with music, from listening to one's own playing, to the notes on the page, to the whole sound of the group if one is in a group, to paying attention to the whole structure of the piece.

Japanese and Chinese Views of Musical Ability

There are cross-cultural differences in attitudes toward talent. In Japan, for example, talent is not thought of as arising in a child; talent is trained. Shin'ichi Suzuki, in *Nurtured by Love* (1983), advocated that musical talent could be trained from

early infancy, in a system of talent education called the Suzuki method. He was not interested in definitions of talent: he said any child who learns to speak can learn music. Repetition, as in learning a foreign language, is necessary; he said, "ability is one thing we have to produce (or work for) ourselves. That means to repeat and repeat an action until it becomes a part of ourselves."

With the Suzuki method, a parent, usually the mother, works closely with the children in the acquisition of the rudimentary musical skills necessary to playing the violin. Mothers of infants are first taught to play one piece, and the children listen to recordings of the piece. The children do not play; the mother plays on a small violin. The child then asks for the violin, and the training begins. The more the child practices, the better the child gets. The first song is "Variations on Twinkle, Twinkle Little Star." This, it is to be emphasized ,is a training method, and follows the philosophy that musical intelligence can be taught. Asian education utilizes drill and practice to the point of mastery, and Westerners might wonder whether such education creates automatons or maestros.

Suzuki called such practice essential to the development of talent: "If you compare a person who practices five minutes a day with one who practices three hours a day, the difference, even though they both practice daily, is enormous. Those who fail to practice sufficiently fail to acquire ability" (p. 97). He went on to say that the person who practices five minutes a day will have to work for nine years to accomplish what the person who practices three hours a day accomplishes in one year. He also advocated memory training early in a child's schooling. He said, "Children of high scholastic standing at school are simply ones whose memory skill is unusually well developed, and I believe that inferior students are merely ones who have not acquired memory skill" (p. 92). For example, even in preschool, children are taught to memorize 53 haiku in the first term, 64 haiku in the second term, 45 haiku in the third term. He said, "Children who at first could not memorize one *haiku* after hearing it ten times were able to do so in the second term after only three or four hearings, and in the third term only one hearing" (p. 93), and such memorization enabled the children so that they "spontaneously" made up their own haiku, "expressing things they have noticed."

Hein (2003) noted several advantages and disadvantages of Suzuki instruction for talented young musicians. Advantages are that children can start music instruction very young, that group lessons and public playing opportunities abound, that parents and children can bond in the daily practice modeling that parents do. Disadvantages are that Suzuki's "literal transfer of language acquisition to musical study" sacrificed musical literacy to imitation. Students often resist being taught to read music, and even when teachers insist, they play by ear rather than decode the notes. Another disadvantage is the limited nature of the musical repertoire that is taught to the students. The continuous repetition and drill are often deadening, and not liberating, as Suzuki first intended. Hein (2003) said, "Many children, especially gifted children, learn in huge, apparently random gulps. Dr. Suzuki's progressive sequence of pieces and skills leaves no room for this important learning style" (p. 22).

Characteristics of Music Talent in Children

The Western way is to notice, to observe, whether a child has certain characteristics. Following are some common predictive behaviors and characteristics of early musical talent (adapted from the *Music Educators' Journal*, March 1990).

CHARACTERISTICS OF MUSICALLY TALENTED CHILDREN

1. Spontaneous response to rhythm and music
2. Love for singing familiar and made-up songs
3. Relative or absolute pitch and strong feelings for tonality
4. Highly developed ear
5. Ability to associate pitch with visual symbols
6. Memory for music heard
7. Chooses music to express feelings
8. Ability to match pitch
9. Appreciation for the aesthetic structure of music
10. Ability to discriminate among contrasting phrases and sections of song and musical compositions
11. Wants to take music lessons or play an instrument
12. Concentrates on music; stops to listen to music

Schools should never use IQ tests as a screen in identifying music talent, but might try the musical aptitude measures that have been validated over the years. These can be used to identify talent in youth from musically deprived families, where the school is the agency that identifies the child. In the United States and Great Britain, standardized tests have been developed to identify music talent in young people. These are such tests as the Seashore Measures, which were developed for the Eastman School of Music in 1919, the Gordon Musical Aptitude Tests (MAP), the Gordon Primary Measures of Music Audiation (PMMA) developed in 1979, and the Gordon Intermediate Measures of Music Audiation (IMMA) developed in 1982. Haroutounian (1993) listed other measures, but these are the most commonly used. The Musical Characteristics scale of the Scales for Rating the Behavioral Characteristics of Superior Students (SRBCSS) (Renzulli, Smith, White, Callahan, & Hartman, 1976) also points out domain-based predictive behaviors and characteristics of musical ability.

Haroutounian (2002) talked about when and why to begin private instruction with elementary school-age children. She gave three guidelines:

(1) The child must show a strong interest in the lessons. A child who continually uses music as a playtime activity, singing, moving, possibly trying to pick out a tune on an available musical instrument, is a prime candidate for lessons. …
(2) The child must have developed the physical coordination and capability to play the instrument. … small muscle coordination requires independence of the fingers and the ability to do several things at once. …
(3) The child and parent must realize that music lessons require practice. … The role of consistent practice is an essential part of private instruction. (pp. 230–231)

Bamberger (1986) said that young musically talented children go through a "midlife crisis" in their adolescent years. Young musically talented children approach music holistically, using many strategies quite naturally as they approach music. The crisis comes when the child comes to consciousness, becomes more self-critical and reflective about music. This time is a "period of serious cognitive reorganization" (p. 411). This transition from the promise of prodigy to the artistry of the adult musical artist is developmental, and Bamberger likened it to Piaget's concept of disequilibrium falling to equilibration and then to a reorganizing of schemata. Feldman (1986) in

discussing musical prodigy showed that even though prodigies perform at an adult level of competence, stepping into an adult career, with all the savvy that entails, is a different story.

Examples and Studies of Musical Talent

Sosniak's study (1985) of concert pianists in the University of Chicago Development of Talent Project (Bloom, 1985) revealed several predictive behaviors and characteristics of the development of musical talent in the early years:

1. They came from homes where music was respected, even valued, and often there were amateur players in the household.
2. Music lessons were considered a necessary part of growing up, and the children were expected to take lessons. Their parents scheduled lessons for the children, and the children went.
3. The teachers were such that the children liked going to music lessons. The families chose individuals who were good teachers and who conveyed a love of music to their students.
4. The families expected the young musicians to practice, to spend time in preparing their piano lessons. It was part of the family script, the "family mythology" (Piirto, 1992/1998, p. 296). Once the commitment was made, and the students were found to be talented, the family expected they would practice. Other children of their ages spent a lot less time at lessons. The students also liked the piano and liked practicing. Often siblings were also given music lessons, but the ones with the most drive were the ones who achieved the most.
5. The lessons began early enough that the routine of practice had been made part of the family schedule before the other activities normal to young children came up, before the scout troops and the sports teams and the other lessons. Their practice was already a set part of their days.
6. The young pianists were called such, and got the label of "pianist" by their friends, by adults in the community, and by audiences, even before they were teenagers.

Sosniak (1985) pointed out the importance of these early years in developing habits of motivation, discipline, and self-concept in the young pianists. Their aspirations to become pianists had a foundation in the family commitment to the playing of the piano as worthwhile and valuable, and in the family's physical, financial, and psychological support of that commitment.

Rock and popular musicians also followed this developmental path to some extent. Boyd (1992) interviewed 75 contemporary musicians for her study, *Musicians in Tune*. B.B. King, the blues guitarist, grew up in poverty in the Mississippi Delta. Boyd said, "Music was integral to the rural African-American culture from which B.B. King emerged" (p. 26). King said, "For some reason I was always crazy about the guitar," and by the time he was a teenager, he played with several quartets and sang gospel. He also listened to his aunt's records of blues artists. The Irish singer-songwriter Sinead O'Connor came from a musical family, as did the songwriter Randy Newman, the new age flutist Paul Horn, the drummer Terri Lyne Carrington, and the rock singer Rod Stewart. Some musicians can switch easily from classical to popular,

for example, the Indian sitar maestro Ravi Shankar, who also comes from a musical family. The Marsalis family of musicians is world-renowned. Aretha Franklin sang gospel in the choir in her father's church. Country singer Hank Williams was the father of country singer Hank Williams, Jr.

The classical pianist Gary Graffman is another example of a musician who came from a musical family (Graffman, 1981). His parents were Russian immigrants who left Russia during the Russian Revolution and who, like many Russian Jews, finally ended up in New York City. His father was a violinist who had attended the St. Petersburg Conservatory with Jascha Heifetz and Dmitri Prokofiev, who became a faculty member at the Mannes School of Music when he got to the United States. Gary's father started him on violin at age 3, but then switched him to piano, where he demonstrated his ability early. The famous piano teacher Isabelle Vergerova, who had also attended the St. Petersburg Conservatory, took him on as a student. By the time he was 8 years old, he was giving several recitals a year. Of his father, he said, "He knew that just because I happened to play extremely well for an eight-year-old, it was by no means ordained that I would therefore grow up to be a concert pianist," and his father made sure that Gary had a good general education so that "when I finished school I would have options" (Graffman, p. 46). By the age of 12, Graffman was able to give a concert at Town Hall.

In identifying those with musical potential, the schools should rely on experts in music, and those who are identified should be encouraged to seek private study. Scholarships should be made available for those who have potential and not enough money. Special schools that emphasize musical education exist in many large urban areas. These are both public and private. A family might consider moving if a child has demonstrable talent.

Children Talented in Acting and Dancing

Two of Gardner's "frames" of intelligence (1983) are *bodily-kinesthetic* and *intrapersonal*, and these are what actors and dancers exhibit. Guilford called these abilities *figural* and *behavioral*. Athletes exhibit bodily-kinesthetic intelligence also, but it is intrapersonal intelligence that enables actors and dancers to interpret the world through their bodily actions. Actors also have talents in the use of the voice to mimic and to project. Bodily-kinesthetic intelligence is skilled use of the body, which has evolved in humans over millions of years. Westerners have divorced the mental from the physical, and have spoken of the body as separate from the soul, or the heart. Recent thought has attempted to reconcile the two, as people have been urged to exercise, and research has shown that physical activity is positively related to longevity.

Actors

The most admired and highest paid creative people are certain movie stars, some of whom command millions of dollars for a few scenes in a motion picture. Yet one of those, the late Marlon Brando, was quoted (Schickel, 1986) as saying he thought acting is not a profession worthy of a man.

Like singers, actors' instruments are their voices and their bodies, but unlike singers, their material is other people, and not notes on a page. The director Peter Brook said: "Acting begins with a tiny inner movement so slight that it is almost completely invisible" (1969, p. 225). He went on to say that stage actors have an awareness of this tiny inner movement because of what is required with a live audience, but film actors often have to act with a camera as an audience. That is why stage actors can be film actors, but film actors often have difficulty becoming stage actors. The camera lens is able to pick up the tiny inner movement much more acutely than a live audience is.

Brook said that this flicker, this tiny movement, is often present instinctually in young actors. Child actors "can give subtle and complex incarnations that are the despair of those who have evolved their skill over the years." Then something happens, and later on, the child actors "build up their barriers to themselves" and find that touching the essential is difficult if not impossible (p. 226). This would seem to relate to Bamberger's developmental theory of music talent fulfillment, and the presence of the "midlife crisis" in adolescent performers, as discussed earlier.

Special schools for the arts have auditions for young actors, and there are some audition-related tests, but there are no known tests such as divergent production tests that are any good for the unearthing of such talent. Again, the quality, the spark, seems to be recognizable by experts. When I was a principal of a school for intellectually gifted children in New York City, casting agents would often visit. They liked their verbal precocity, and were often there seeking a particular "look" in a child. They would peek from the doorway room to room, and they would point at a child who had the "look" they sought. A talented child who did not have the right demeanor would not be invited to audition. They would contact the parents to see whether the children would be permitted to audition. The "look" came first; then the assessment of potential talent followed. This was true for theater, film, and television casting.

Theatrical children often come from theatrical families. The Redgraves, the Fondas, the Bernhardts, and the Culkins are examples. Again, the home milieu is a prerequisite for the nurturing of the predisposition for talent, and the skilled expert is necessary for the identification of potential. Most often, however, the child actor does not become the gifted adult actor. What should also be considered here is the "stage mother" phenomenon. Many parents impose on their children their own desire for fame and fortune by submitting them to auditions and tryouts. Judy Garland's mother is an example; she permitted Judy to be administered amphetamines and depressants in order that movie schedules be met (Edwards, 1975). Patty Duke's parents are another example. They changed her name from Anna to Patty in order to conform to studio wishes (Duke & Turan, 1987). Both actors suffered from mental difficulties later in life.

What do biographies reveal about the childhoods of people who became known as actors during their adulthood? The actor Marlon Brando has been recognized worldwide as both the consummate stage actor and the consummate film actor. His role as Stanley Kowalski in Tennessee Williams's *A Streetcar Named Desire* framed the role for all actors for all time. His role as the Godfather in the movie of the same name did likewise. Brando was born in Nebraska and after the family had moved several times, to California and back, they settled in Libertyville, Illinois. His father was a salesman and his mother was active in community theater in Nebraska; her talent was recognized by Henry Fonda, who acted in the same community theater. Brando

had two older sisters who were also inclined to follow the arts. Brando was a rebellious child, and had difficulty getting along with teachers and others in authority. His biographer, Bob Thomas (1973), said, "In his early years, Marlon displayed an actor's sense of mimicry. 'Who can sound the most like a train?' he would ask at the dinner table, and then provide the best imitation" (p. 8). He was very competitive with his sisters, and would often run away when they took care of him. One of his friends in Evanston, Illinois, where they lived for a few years, was the child Wally Cox who later became an actor. Thomas said, "Wally and Marlon formed a friendship that would extend for a lifetime. They shared a common fear of being uprooted from friends and family surroundings; Cox's family moved many times before he was grown" (p. 10). In one of his movies, Marlon Brando said of his character's childhood [which Bates (1987) said paralleled Brando's own childhood], "My father was a drunk, a screwed-up bar fighter. My mother was also a drunk. My memories as a kid are of her being arrested. … I can't remember many good things" (p. 63).

The actor John Wayne's family also moved often. Biographies of actors often show they had childhood turmoil and no special academic outstandingness, perhaps because teachers did not care for their attitudes (Piirto, 1992, 1998, 2004). In *The Way of the Actor* (1987), Bates said that actors, when they are young, often adopt the role of humorist to deal with taunts and teasing. Many adult actors experienced, in their youths, frequent changes in their lives such as moving, divorce, and illness. Bates said actors' stories of their youths often "have in common the experience of being an 'outsider'. Different. Struggling to belong. And while it would be facile to accept them as representative accounts of the actors' childhoods, it is striking that they have such a similar theme" (p. 50). The "outsider" role could be imposed from without or within; the actors could have been conscious rebels, such as Marlon Brando or Jack Nicholson, or could have been painfully shy and rejected by peers, as were Meryl Streep and Dustin Hoffman.

Bates said that traditionally actors have been, by definition, outsiders: "In traditional societies, being an outsider was not only a common experience for the future actor. It was obligatory. … People who became shamanic actors had one thing in common. They invariably had a difficult time growing up; and troubled childhood and adolescence" (p. 51). The young actor may act as a way of healing hurts.

Kough, in 1960, came up with a list of characteristics that may mark acting talent in elementary school.

Characteristics of Dramatic Talent in Young Children

1. Readily shifts into the role of another character
2. Shows interest in dramatic activities
3. Uses voice to reflect changes of idea and mood
4. Understands and portrays the conflict in a situation when given the opportunity to act out a dramatic event
5. Communicates feelings by means of facial expression, gestures, and bodily movements
6. Enjoys evoking emotional responses from listeners
7. Shows unusual ability to dramatize feelings and experiences
8. Moves a dramatic situation to a climax and brings it to a well-timed conclusion when telling a story
9. Gets a good deal of satisfaction and happiness from play-acting or dramatizing

10. Writes original plays or makes up plays from stories
11. Can imitate others. Mimics people and animals (p. 20)

Renzulli et al. (1976) also made a Dramatics Characteristics scale in their Scales for Rating the Behavioral Characteristics of Superior Students. This contains 10 characteristics such as "Volunteers to participate in classroom plays or skits," and "Handles body with ease and poise for his particular age," or "Is able to evoke an emotional response from listeners—can get people to laugh, to frown, to feel tense, etc." This is a Likert scale, with a weighted total.

Performance assessment is the method for the ArtsConnection Program in New York City. One of the assessors, who owns and acts in an improvisational theater, described what she looks for in assessing talent in elementary school children (Piirto & Oreck, 2004). She described what acting talent in a young child looks like.

> What I look for is some kind of physical awareness. There's a physical awareness in theater. It's not just idea related. You can tell by looking at them how the character feels or what their background is. Also, an imagination—they'll do things that surprise you, or they can imagine how someone else feels. They can also imagine what will happen next. Also, an ability to work together. And a desire to do it is important. To really focus on it even when you're tired. To be able to sit and watch someone else rehearse their lines.
>
> One boy in this class of fourth graders, and he's like this [she gyrates]; he's very unfocused, thinks with his body. The setting was the jungle and someone had come in, and gone like, Oh, it's a snake, and someone else had come in and said, Oh, it's a snake, and they'd jumped behind a pillar that was there, and so we said, it's a snake in a tree, and we said, "Ashton, go in," and we had to explain it because he hadn't been listening, and he said, "I don't know what to do," and we said, "All you have to do is to go in and use one thing. He drove in in a jeep, got out, opened up the trunk, got out a kit, took out a whip, hit the snake, took it, tied it around a pillar—this is all in mime, and—milked the venom. He'd done all this silently, and he'd walked around the jeep and everything, and I came in and I said, "Oh. Thank you for the snake venom. I'm sorry I'm unable to pay you today, I'll pay you on Thursday." And he picked up that imaginary whip and went ee-chew [she makes a motion of cracking a whip]. So in his mind he had all this physical stuff and it was real, and he used it, and he used it in different ways, I mean, he tied the snake around the tree!

Special high schools exist for the performing arts, in which acting is one of the specialties that students might emphasize. At the LaGuardia High School for the Performing Arts in New York City, students who are emphasizing acting take such courses as makeup, pantomime, and movement, as well as traditional general education courses. College majors in theater are also common, with opportunities for participation in all levels of acting performance. Sometimes a potential actor may have a choice between attending a large school where he might study with someone famous, or a small school where he might have a chance to perform in a large number of shows. Auditions for roles at large schools are highly competitive, and the student might choose a schoool where there is opportunity for many roles rather than the chance for a few bit parts.

Of course, the time comes when the actor graduates and the move must be made to a center where theater is practiced. This is usually an urban center, with Los Angeles and New York City being the two cities in the United States where actors gather. Chicago, Minneapolis, San Francisco, and Toronto are also lively theater

centers for aspiring actors. Many actors continue taking lessons from drama coaches. The struggle to make a living is a real one in the young actor's world, and many of the good-looking waiters in New York City, if asked, are really struggling actors.

Dancers

The life of the ballet dancer is brief, a flame ignited before adolescence, at the age of 8 or 9, and extinguished in her twenties or thirties, when, if she has had any success at all, she goes back home to the Midwest and opens a ballet school in her hometown to teach the hopeful children with the same dreams as she had. Of course, there have been exceptions, such as Martha Graham, who did not dance until she was in her twenties. Modern dancers seem to have longer professional lives than classical ballet dancers. Some continue dancing through their forties and into their fifties. Even more than the actor, who has voice and speech, the dancer must rely on gesture, extension, and physical being to tell a story. The music is the framework, but the dancer is the frame.

The ballet, begun in the sixteenth century, is the most formal form of dance in the Western world. The dancer needs a classic body, a certain shape of neck and curve of the arch of the foot. The dancer must not be too tall or too short, although those limits are currently being stretched. The product of the actor is a role. The product of the dancer is a role. The product of the musician is the performance of a piece. The role, in order to be enacted with perfection, demands that the person enacting it has been trained, and training in dance is difficult and demanding, as it is in all creative domains.

Potential for dance achievement is recognized by experts in the domain. Body type, strength, and determination are the keys. Perhaps the latter is the most important for realization of dance ability. Suzanne Farrell, a dancer with the New York City Ballet from the 1960s through the 1980s, is an example. Her 1990 autobiography, *Holding on to the Air*, described this.

Farrell was born and raised in Cincinnati, in a family of women. She described her life with her two older sisters as being that of a daring tomboy. They lived in a small four-room house, and Suzanne, for play, would walk the beams and pipes of the construction site of a nearby subdivision being built. This was a girl slated to become one of America's premier ballerinas.

She started dance lessons at the College Conservatory of Music in Cincinnati. Her two sisters also danced, but Suzanne's unique talent was recognized early. The three girls shared a bedroom, and one of their favorite games was called "Ballet." One would be the Teacher, one would be the Mother, and Suzanne would be the Student.

What she liked about her early ballet lessons were the acrobatics they performed for the first 15 minutes, and the tap dancing for the last 15 minutes. Farrell said that early on she "loved the way the clicks and the rhythms overtook my body and made it move." She also had a girlfriend who was as obsessed about dance as she was. The two girls would talk on the phone and give each other combinations to do, writing them down in the dark, using flashlights: "Glissade, jete, glissade, jete, pirouette … and then we'd both put the receiver down and get up and slide, jump, slide, jump, turn before reconvening on the phone to discuss the difficulties and changes necessary" (p. 32).

School was not her favorite activity, and she said, "I wasn't stupid, but I had a hard time sitting still in class and was always being reprimanded for fidgeting. Nonphysical concentration was simply boring." A few years later, she was chosen to be the girl in the *Nutcracker*, and was noticed by Diana Adams, a New York City Ballet scout for George Balanchine. Her mother took her and her sister to New York City when Suzanne was 16, and Suzanne attended two high schools, but her dance schedule at the New York City Ballet was so strenuous and the tour schedules were so demanding that she never did graduate from high school. She said, "I have never felt lonely when I was dancing, even dancing by myself." Farrell's life as a ballet dancer was typical of that of many. The concentration and dedication necessary must come early.

Development of Dancers

Barron (1972) studied 32 dance students at a dance school. Twenty-seven of them planned to dance professionally. They had already experienced years of rigorous professional training, had "made the cut" so to speak, in being encouraged to continue to study dance and to fulfill their aspirations. They were flexible, spontaneous, and had what Barron called "a lot of steam" (p. 111). They had high standards for themselves and their work, and expected their teachers to set such standards. The most respected teachers were those who had solid knowledge and background in dance, teachers who loved teaching and the dance, teachers who were interested in the students and who interacted with them, but who were still very strict, perfectionistic, and demanding.

A good dance class was, likewise, "demanding, arduous, and challenging" (p. 90), leaving the dancer with fatigue, exhilaration, and a sense of accomplishment from having a "thorough workout," increasing body strength and skill. Good dance students were those who were self-critical about their dance, students who were able to work hard, long, and with great perfectionistic demands on their abilities. Discipline was a trait that the dance students admired in each other.

When asked the question "Why dance?" the dancers expressed that dance gave them a feeling of joy and elation and an uplifting release of emotions. They liked that they could use their bodies for self-expression; that they had honed their bodies to such responsiveness that they could express complex emotions with small movements. They also liked to dance because their dancing gave pleasure to others: "Some students felt as though they were giving a gift to others; they liked to make people happy, to create beauty for others, and to please" (Barron, 1972, p. 94). Dance was closely connected with emotion: "whatever mood was experienced, it seemed to carry over into the dance, expressing, relieving, or changing the dancer's original state of mind, making dance more enjoyable" (p. 94).

Physical factors affected their dance; when they were tired or sick, their dancing was less resonant. The dancers said that their extensions were not as high, their limbs did not respond to their minds, and they were more prone to injury, and as a result they experienced "an overall loss in creativity, bounce, and eagerness" in their dancing. The experiencing of tension in their outside lives also affected their dance, and they often experienced "deficits in control and concentration" (Barron, 1972, p. 96). However, several of the dancers said that dancing even when fatigued or under

tension created a release of these and a feeling of well-being after the dance class. Barron said that the young dancers were very intrinsically motivated and viewed dance as necessary for their very existence.

Dance students considered dance a form of art that helps society and helps the dancer to creative expression: "The purpose of art in general and dance in particular was to provide forms for the expression of universal principles of life, oneself, spirituality, that would allow the artist to share his experiences with others, enriching their lives as well as his own" (Barron, 1972, p. 110). Some studies have shown that the parents of dancers (and actors) are involved in the arts and that the dancers (and actors) as children engaged in imaginative play related to the arts (Kogan, 2002).

Gender differences in dancers revealed that the female dancers were open, generous, energetic, and quite excitable, while the male dancers were even more so: "he is much like his female counterpart, though more complicated, conflicted, and flamboyant" (Barron, 1972, p. 111). Male dancers were more "impulsive," more "show-off" and their humor sometimes had a "hostile quality," while their external behavior was "mischievous, rebellious, zany, frank, flirtatious, and pleasure-seeking." They were also good-looking. Both male and female dancers were quite ambitious; they described themselves as "determined, ambitious, and capable," with a will to succeed (p. 111).

Biographical Example of Talent in Dance

Autobiographical accounts by dancers are interesting evidence of the rigor necessary for achievement in dance. Gelsey Kirkland, who followed Suzanne Farrell as a lead ballerina for George Balanchine's New York City Ballet, began in 1969, at the age of 17, to be partnered with such dancers as Peter Martins, Mikhail Baryshnikov, Jacques d'Amboise, and Ivan Nagy. Like Farrell, Kirkland dropped out of high school in order to dance with Balanchine's company. She wrote her autobiography, *Dancing on My Grave*, with the collaboration of her husband, Greg Lawrence, in 1986. In describing the influence of Balanchine's body standards on the development of ballet in America, Kirkland said that Balanchine insisted he "must see the bones":

> I was less than a hundred pounds even then. Mr. B. did not seem to consider beauty a quality that must develop from within the artist; rather, he was concerned with outward signs such as body weight. His emphasis was responsible in part for setting the style that has led to some of the current extremes of American ballet. … He did not merely say, "Eat less." He said repeatedly, "Eat nothing."
>   The physical line of a ballerina seemed to have been ordained. A thin body carried the most definition. A slender figure was supposed to be the prerequisite for movement. … Mr. B's ideal proportions called for an almost skeletal frame, accentuating the collarbones and length of the neck. Defeminization was the overall result, with the frequent cessation of the menstrual cycle due to malnutrition and physical abuse. A fulsome pair of breasts seemed the only attribute with which a ballerina could assert her sexuality. (p. 56)

Kirkland revealed that she had silicone implanted in her breasts during her teenage years, and noted that the Balanchine standards "have been adopted by virtually every ballet company and school in America." Those who refuse to go along are more likely not to find employment as dancers or teachers. Kirkland said that a "concentration camp aesthetic" was emphasized, and that many of the dancers she knew abused diet pills, went on "quack" diets, and became anorexic, bulimic, or both.

Another caution that Kirkland made to dancers was about the dangers of narcissism that came from staring at oneself in the dance studio mirror. During her early career, "the mirror was my nemesis, seductive to the point of addiction." In the mirror, she found "a double who exposed all of my flaws and pointed out all of my physical imperfections," a person incapable of meeting the "refined ideal of physical beauty" (p. 72).

Kirkland found that when she devalued the mirror and worked without it, she was able to get past the fascination with her image and to create more original steps and dances. She said, "Classical virtuosity is more than technique, line, proportion, and balance." The spectator and the dancer must come together, holding "a bird with a broken wing," and the bird is healed when the performer achieves "empathy through movement." This requires of the dancer "the most demanding kind of inspiration," the inspiration of love felt by both performer and audience (p. 72).

The path of male dancers often begins later than that of females. While many little girls take dance lessons (ballet, tap, modern), few little boys do. One world-class dancer said that college was the place where he decided to dance, and his dance training began because of his love for athletics. He was one of the teaching artists in Project StartID, interviewed in 2004 (Piirto & Oreck, 2004). Here is how he became a dancer:

Tony went to Ohio University where he had a double major in studio art and dance. "I always loved moving, I loved athletics of any kind. There were no athletics that I didn't like. I loved to play physical games and I loved to be creative." As a child he loved games such as creating miniature golf courses and haunted houses and putting on little imitation rock band and theater shows. "Though I didn't have any formal training in theater or anything like that." He came to dance late. In college he missed athletics, and so he began taking sports classes—first diving, and then gymnastics. These led to classes in ballroom dancing and modern dance.

He loved modern dance. "All dancing was very exciting. I loved modern dance for its creative aspects." He thought of getting a teacher's certificate in dance, but was tired of college, and wanted to get out into the world. After graduating he went to New York City, where he joined the Nikolai dance company. One of his teachers at Ohio University had been a member, and so he had a connection and got a scholarship. "So there was sort of destiny. I loved that work and ended up being a primary proponent of that work." This was a company of dancers "that dealt with the play of light on the figures and full abstracts of the figure in motion." They danced "the traditional bag dance where a dancer would get inside a lycra bag and do sculptural shapes." This was an invention in modern dance which is "now standard," he said.

After that he joined the technical staff of the Murray Lewis Dance Company, and he auditioned for the Phyllis Lamhut Dance Company. He then auditioned for the Paul Taylor Dance Company, one of the premier modern dance companies, and made it. He spent 8 years touring the world with them. My male athletic talents were highly featured. And I really shined in that work. I traveled the world. I received critical acclaim and exposure.

Summary

It is evident, as Gruber and Davis (1988) found, that the seeds of adult achievement are within the young. The predictive behaviors of these youths are evident early. Young creative writers read and write; young visual artists think visually and

draw; young musicians demonstrate their auditory talents; young dancers and athletes like to move; young scientists have oddly classified collections; young mathematicians often think in algorithms. Young inventors tinker. Young entrepreneurs are enterprising. Young actors would seem to be the ones in whom it would be most difficult to find predictive behaviors, although the two checklists provided earlier seem helpful. Family support and approval is necessary in the families of all these talented youths. Tying the identification measures more closely to the specific domain behaviors expected would seem to be the logical choice for school districts who want to identify those with talent. However, personality traits are extremely important in the realization of potential, so it would seem, at the elementary school level, that the development of personality traits such as risk taking, assertiveness, androgyny, flexibility, imagination, and intuition should be part of the curricular agenda. How to develop such aspects of personality is the instructional challenge.

But noting who is talented is just the beginning. After these behaviors are duly noted and recognized, individual programs for talented youths should be created. These may take the form of special pullout options for small groups of children of like talent; however, the basis for the educational intervention should be a detailed look at the strengths of the individual child. The days of placing children with verbal or art talent into an accelerated class for mathematically precocious youths just because they are identified as talented should be long past.

Alternative Assessment

Barry Oreck, of ArtsConnection in New York City, has, over the years, developed and validated a process and instruments which will identify children who have not had the opportunities other children have, but who still show talents. Several Javits grants have been awarded to explore these methods. Among them **was** Project CUE (Creating Urban Excellence) in the Bronx in New York City and Project Statewide Arts Talent (START) ID in Ohio, using their Talent Assessment Process (TAP). Teaching artists and classroom teachers conduct the assessment after receiving training in performance-based tasks that indicate talent to the trained observers (Oreck & Piirto, 2004). Students are called back systematically, after rater sheets are completed. Advanced level instruction is provided to those students who make it through the audition process. Many students who would not have been identified are found through this culture-free process. The process has been validated (Oreck, Owen, & Baum, 2003).

Multiple Intelligence Identification and Reporting

Several Javits projects used the Gardner classification of intelligences in trying to make programs be more equitable. Among them was the program in the Montgomery County Public Schools in Rockville, Maryland. They developed a checklist for identifying learning strengths according to multiple intelligences.

The various approaches to nonacademic giftedness have this in common: the child does not have to have a high IQ; the child should demonstrate certain predictive behaviors common to adult or mature creative producers in the domain; the child should be assessed through audition or display, and not with paper-and-pencil

instruments. These children are destined, with the right interventions, to be the enter-tainers, performers, interpreters, and life-enhancers of the world.

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Chapter **20**

Applicable Federal and State Policy, Law, and Legal Considerations in Gifted Education

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Introduction

"National attention to the recognition and development of gifted persons is intermittent, unevenly distributed, and inadequate in amount" (p. 1). This statement comes directly from a report issued by the White House Task Force on the Education of Gifted Persons under Lyndon B. Johnson's presidency in 1968; however, these words still hold true nearly 40 years later.

Once gifted children enter school, their parents soon realize the lack of accommodations that are available to address their children's unique educational needs. With no federal protection under the law and with permissive legislation in many states, gifted children are not afforded the same safeguards as those children protected under the Individuals with Disabilities Education Improvement Act of 2004 (IDEA).

Some parents have been compelled to take legal action in pursuing appropriate accommodations for their children. However, with limited, if any, protection under the law, schools typically prevail in such litigation. Frustrated and disgruntled, parents often seek relief by switching schools (public to private), homeschooling, and in some extreme cases, even relocating.

Why are the academic development and social-emotional nurturance of our nation's brightest students continuing to be neglected? Why has interest in this special population been so sporadic? These questions have persisted over the years as federal and state interest in gifted students has fluctuated.

This chapter will take a historical look at federal legislation impacting gifted child education and discuss the current status of gifted education across the states. The legal processes that parents can utilize in seeking appropriate identification and services for their gifted children will follow along with the role of the Office for Civil

Rights (OCR) in resolving disputes pertaining to gifted students. Future policy issues in gifted education will also be explored.

Federal Policy in Gifted Education

Federal attention to gifted education can be viewed as a pendulum which swings from interest to disinterest depending on the degree to which the nation feels vulnerable (Cohen, 1996). For example, many in the field of gifted education (Delisle, 1999; Haensly, 1999; Roberts, 1999; Stewart, 1999) have cited the launching of Sputnik by Russia in 1957 as a pivotal point in turning the federal government's interests toward increasing achievement levels of highly capable students in math and science. This phenomenon was clearly impacted by national uncertainty and discomfort or mere "fear and embarrassment" in trailing Russia in innovation (Delisle, 1999, p. 30).

Over the years, several key pieces of legislation have had both direct and indirect consequences for the gifted and talented. Educational reform movements, economic decline, and global competition have all driven legislation pertaining to gifted education at one point or another. A discussion of pertinent legislation follows.

National Science Foundation Act of 1950

Several years prior to Sputnik, Congress passed the National Science Foundation Act (1950), which provided federal support for research and education in math and science and created the National Science Foundation (NSF). Today, NSF continues to play a critical role in supporting research and promoting science and engineering education at all levels. At the core of NSF's mission is the belief that "[n]o single factor is more important to the intellectual and economic progress of society, and to the enhanced well-being of its citizens, than the continuous acquisition of new knowledge" (NSF, 2005, ¶ 6). This mission is aligned with current views in the field of gifted education in that the educational needs of our brightest students need to be nurtured in order to ensure the competitiveness of the United States in a global society.

In recent years, the issue of global competitiveness has gained national prominence with the publication of Thomas Friedman's book, *The World is Flat* (2005). Friedman warns that the United States is slipping behind other countries, particularly in math and science, and the nation must seriously start pursuing excellence in education in order to remain leaders in innovation.

President George W. Bush's 2006 American Competitiveness Initiative further demonstrates the cyclical nature of U.S. concern regarding our capacity to innovate and remain competitive with other countries, particularly in the areas of math, science, and technology. This initiative, with a focus on research and development in these critical fields, represents an investment of approximately $137 billion, an increase of more than 50%, and "the largest sustained increase since the Apollo space program in the early 1960's" (The White House, 2006, ¶ 3).

National Defense Education Act of 1958

The National Defense Education Act of 1958 was a direct result of the launching of Sputnik. The focus of this legislation was on identifying students gifted in math, science, and modern foreign languages.

As efforts to "sift and sort" (Eilers, 2004, p. 4) through students to find talent increased, so did school counselor programs. The legislation included money to develop school counselor training programs at universities and provided funds to both colleges and public schools to employ counselors. As the commotion spurred by Sputnik dissipated, so too did the interest in supporting programs that benefit gifted students.

Elementary and Secondary Education Act of 1965

The first and largest federal education legislation is the Elementary and Secondary Education Act (ESEA) of 1965. With an emphasis on students from low-income families, ESEA was originally authorized through 1970, but has been reauthorized every 5 years since its enactment. Though the legislation has undergone many changes since its inception, the basic premise of the law still exists today and ensures that students from disadvantaged circumstances have access to quality public education. Subsequent legislation pertaining to gifted and talented students have been including in amendments to ESEA.

Task Force on Gifted Persons of 1968

In 1967, President Lyndon B. Johnson commissioned a task force to study and make recommendations regarding the nation's capacity to identify and encourage citizens capable of making extraordinary contributions to the country. The task force considered the loss to society should such individuals be deprived the full development of their talents. Their report made the following recommendations to the President regarding what the federal government should do:

1. Direct the Secretary of Health, Education, and Welfare to establish a center for the Development of Exceptionally Talented Persons.
2. Appoint a National Advisory Council on the Development of Exceptionally Talented Persons—composed of men and women of high attainment in representative spheres of American life, both public and private.
3. Elicit the cooperation of the private sector in talent development efforts.
4. Convene a meeting of leaders in elementary, secondary, and higher education (including representatives of such specialized institutions as musical conservatories and schools of art).

Some of the recommendations of the task force have been realized. For example, in 1972, Dr. Julian Stanley initiated the first talent search at Johns Hopkins University by identifying seventh and eighth graders talented in math and science using the SAT (Swiatek, 2002). Today, four such regional talent searches exist and are based on Stanley's model for identifying academically talented youth and providing educational programs commensurate with their advanced abilities (Duke University's Talent Identification Program, the Center for Talented Youth at Johns Hopkins University, the Center for Talent Development at Northwestern University, and the Rocky Mountain Talent Search at the University of Denver). Additionally, the participants in Stanley's initial talent search spawned the beginnings of a 50-year longitudinal survey—the Study of Mathematically Precocious Youth (SMPY)—which studies the impact of various educational options on the development of gifted youth.

The task force's report is filled with compelling statements that are still applicable today:

…many of those who constitute the creative minority in our society have achieved their eminence in spite of, rather than because of, our educational system. (p. 9)

One may wonder how many great achievements have been lost to our society because brilliant individuals succumbed to conformity in an inflexible school system where scholastic measurements dominated all other indices to individual possibility. (p. 18)

…identifying superior ability must be a continuous process of investigating many possibilities at once in all children from early ages through the whole period of their development. (p. 22)

Marland Report of 1972

U.S. Commissioner of Education Sidney P. Marland's report to Congress in 1972 marks the first paradigm shift in the gifted education movement. Prior to his report, the nation was focused on recognizing gifted students as a group and providing them with a one-size-fits-all program to nurture their academic potential. The Marland Report shifted the existing paradigm to one focused on assessing each individual child and designing an educational program specifically tailored to his or her needs, much like the paradigm that exists for special education today (Cohen, 1996).

Marland's report to Congress included some appalling statistics regarding the state of gifted education and also provided the first federal definition of the gifted and talented:

Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:

1. general intellectual ability
2. specific academic aptitude
3. creative or productive thinking
4. leadership ability
5. visual and performing arts
6. psychomotor ability. (Marland, 1972, pp. 13–14)

Education Amendments of 1974 (P.L. 93–380)

In 1974, President Gerald Ford signed P.L. 93–380, which included provisions for gifted and talented students under the Special Projects Act. This legislation established an Office of Gifted and Talented at the U.S. Department of Education; created a National Clearinghouse for the Gifted and Talented; offered support through grants to states and local education agencies (LEAs) for gifted education programs; and provided grant monies for training, research, and model programs in gifted education. A mere $2.56 million per year for 3 years was appropriated for the program, and though funding was less than originally requested ($12.25 million), its passage was "a victory for gifted and talented education" (Harrington, Harrington, & Karns, 1991, p. 35).

Education of All Handicapped Children Act of 1975 (P.L. 94–142)

Enacted in 1975, P.L. 94–142 serves as the foundation for special education. Under this legislation, a free and appropriate public education (FAPE) was mandated for

children with disabilities. In addition, such students were ensured due process rights, education in a least restrictive environment, and individualized education plans (IEPs). Though gifted students were not specifically included in this legislation, some states do afford gifted students some of the same due process protections and rights to IEPs.

Gifted and Talented Children's Education Act of 1978

Establishing a separate category for gifted and talented education under Title IX of ESEA, the activities of the Gifted and Talented Children's Education Act of 1978 did not vary significantly from those under the Special Projects Act of the Education Amendments of 1974. However, the definition of gifted students was altered slightly.

> The term "gifted and talented" means children, and whenever applicable, youth who are identified at the preschool, elementary, or secondary level as possessing demonstrated or potential abilities, that give evidence of high performance capability in areas such as intellectual, creative, specific academic, or leadership ability, or in the performing and visual arts and who by reason thereof require services or activities not ordinarily provided by the school. (Section 902)

Though similar to Marland's 1972 definition, three major differences exist. First, specific reference to children and youth across periods of development (e.g., preschool, elementary, secondary) are highlighted in the 1978 definition. Second, "psychomotor abilities" are noticeably absent from the 1978 definition due to the fact that many equate "psychomotor abilities" with athletics, an already well-funded area in schools (Harrington et al., 1991). Third, this new definition indicates that gifted students require specialized services.

The Gifted and Talented Children's Education Act of 1978 was subsequently repealed when President Ronald Reagan signed the Omnibus Budget Reconciliation Act of 1981. As a result, the Office of Gifted and Talented was closed and authorizations for gifted education were combined with 29 other programs into a single block grant (Russo & Ford, 1993). Continued economic decline in the 1980s stifled gifted education efforts until 1988 with the passage of the Jacob K. Javits Gifted and Talented Students Education Act.

Jacob K. Javits Gifted and Talented Students Education Act of 1988

As concern regarding mediocrity in the U.S. educational system returned, so too did interest and support for gifted and talented programs. Named for Senator Jacob Javits of New York, the Jacob K. Javits Gifted and Talented Students Education Act (Javits) emerged as Congress began focusing on reforming America's school systems. After much debate between Senate and the House, the Javits bill was included as part of the Augustus F. Hawkins-Robert T. Stafford Elementary and Secondary School Improvement Amendments of 1988. Javits, with initial funding set at $7.9 million, reestablished the Office of Gifted and Talented in the U.S. Department of Education, established a National Research Center (originally housed at the University of Connecticut, the research center is now a collaborative of three universities: University of Connecticut, University of Virginia, and Yale), and provided funds for training teachers and for programs serving the gifted and talented. Program priorities of Javits have gravitated toward economically disadvantaged gifted students, limited English proficient students, and gifted students with disabilities.

Though Javits continues to be a significant piece of legislation for gifted education, Russo and Ford (1993) have identified two major shortcomings. First, Javits fails to mandate the creation of programs to serve gifted students, and second, it does not include any of the procedural due process safeguards that are afforded to students with disabilities under IDEA.

Javits funding has fluctuated from year to year since its inception. In recent years funding has been set as follows:

- 2000: $6.5 million
- 2001: $7.5 million
- 2002–2005: $11 million
- 2006–2007: $9.6 (Sisk, 2008)

At the time of this writing 2008 funding for Javits was pending. President George W. Bush has requested $0 for the program, though supporters are advocating for $11.5 million. Advocates for gifted education must communicate with Congress each year to encourage support and an increase in funding for this program.

National Excellence: A Case for Developing America's Talent (1993)

In 1993, the U.S. Department of Education's Office of Research and Improvement released the National Excellence report. At a time when educational reform efforts were focused on increasing rigor, this report helped to further substantiate the "quiet crisis" that many of America's youth were working well below their full potential (U.S. Department of Education, 1993, p. 5). National Excellence also provided yet another definition for gifted students.

> Children and youth with outstanding talent perform or show the potential for performing at remarkably high levels of accomplishment when compared with others of their age, experience, or environment.
> These children and youth exhibit high performance capability in intellectual, creative, and/or artistic areas, possess an unusual leadership capacity, or excel in specific academic fields. They require services or activities not ordinarily provided by the schools.
> Outstanding talents are present in children and youth from all cultural groups, across all economic strata, and in all areas of human endeavor. (p. 3)

For the first time, a definition of the gifted and talented addressed variances in how giftedness manifests across different cultural and socioeconomic groups, bringing attention to the need for better methods to identify such students.

No Child Left Behind Act

Signed into law on January 8, 2002, by President George W. Bush, the full impact of the No Child Left Behind Act (NCLB) on gifted students remains to be seen. The most sweeping educational reform initiative since ESEA, NCLB redefines the role of the federal government in K-12 education. Based on four principles—"stronger accountability for results, expanded flexibility and local control, expanded options for parents, and an emphasis on teaching methods that have been proven to work" (U.S. Department of Education, 2003, ¶ 1)—many experts in the field of gifted education feel that NCLB gives schools every incentive to continue to ignore the needs of gifted students.

Under NCLB, states must demonstrate that every child is performing on grade level. Therefore, it can only be expected that schools will expend the majority of their resources on bringing low-performing students up to proficiency by 2014. Those students already meeting or exceeding, as is the case for many gifted students, established standards are left waiting for a challenging, accelerated curriculum that addresses the advanced content they are ready to learn.

Gallagher (2004) indicates that NCLB reinforces the principle that has been driving educational policy for decades: equity. Though it is noble to assure "that every child has an equal opportunity to profit from education" (p. 121), we must not forget the second principle, excellence, by "creating conditions for all students to perform at the limits of their capabilities" (p. 121).

Individuals with Disabilities Education Improvement Act of 2004

The passage of the Individuals with Disabilities Education Improvement Act of 2004 marked the ending of a 3-year reauthorization process of IDEA and the first update to this significant legislation in 7 years (Klotz & Nealis, 2005). A key provision of the new legislation impacting gifted students is the elimination of the requirement to use the aptitude–achievement discrepancy model in identifying students with disabilities.

In response to this change in the legislation, the National Association for Gifted Children (NAGC) expressed this concern:

> … the discrepancy model is the only way NAGC knows of to identify students of exceptional capability whose achievement is being depressed by a disability. NAGC is extremely concerned that because districts are no longer required to utilize the discrepancy model as a determination of a specific learning disability and because there are no alternatives currently available for identifying learning disabled gifted students, gifted students with learning disabilities will not be identified for services. (NAGC, 2005a, ¶ 4)

It should be noted that while states may still accept the discrepancy model as a means for identifying students with disabilities, they are no longer *required* to use it as before.

State Policy in Gifted Education

Though the federal government can establish parameters that guide state educational policy, states have considerable leeway in setting their own policies that directly impact the education of gifted students. A disparity in services for gifted students exists across states, with some states having well-developed, sound policies regarding gifted students, while others have limited, if any, policies.

State of the States Report

The *State of the States Report* (NAGC, 2005b) is a publication of the Council of State Directors in Gifted Education and NAGC. It provides a biannual summary of the status of gifted education across individual states. An analysis of 2004–2005 state responses to the *State of the States* questionnaire reveals a number of issues impacting services for the gifted including: a lack of conformity and uniformity, limited service options, insufficient teacher training, inconsistent reporting and accountability measures, and lack of state funds.

Lack of Conformity and Uniformity. Even when states do have policy regarding the gifted, it is often unclear and lacks the specificity needed to effectively guide LEAs in establishing identification procedures and programs and services for gifted students. The 2004–2005 report indicates that "[c]oordination and uniformity are key to ensuring equity and access to high-quality educational programming" (p. v).

Data from the questionnaire highlight the severity of the conformity and uniformity issue: (1) 29 states mandate the identification of gifted students, but only 11 states provide funds to LEAs to specifically support this mandate; (2) 28 states do not require LEAs within their state to follow the same identification practices; (3) in 17 states the coordinator of gifted and talented education at the state education agency is a part-time position; and (4) only 15 states require LEAs to employ a district-level coordinator for gifted and talented education.

Limited Service Options. State laws and policies vary greatly regarding the types of services that are afforded to gifted students. At the pre-K, elementary, and middle school levels, resource rooms and the regular classroom are the top service delivery methods across states, while Advanced Placement (AP) courses are the most cited delivery model for high school students. Additionally, only 7 states have specific policies that permit early entrance to kindergarten, and 29 states have policies permitting students to be dually enrolled in high school and college with 26 of these 29 states making families responsible for the cost of college tuition for dual enrollers.

Insufficient Teacher Training. The inability of many regular classroom teachers to effectively provide programming for gifted students is a direct reflection of the lack of training in gifted education most teachers receive, both pre-service and in-service. Only 6 states require training in gifted and talented education in their initial teacher preparation programs, and only 3 states require regular classroom teachers to accrue annual professional development hours in gifted and talented education. While 23 states do require endorsement or certification in gifted education for those teachers working in specialized programs for gifted students, the number of credit hours needed to obtain such credentialing varies dramatically across states from 6 to 24 hours.

Inconsistent Reporting and Accountability Measures. Even when states mandate services and programs for gifted students, the quality of such programs is seldom monitored. Only 13 states require their LEAs to report gifted program effectiveness through some sort of state accountability guidelines. As the competition for federal and state funds increases, so too does the proof for program effectiveness, as policymakers want to direct funds toward programs with a proven, successful track record.

Lack of State Funds. Funds to support gifted and talented education are continually threatened as the security of education budgets fluctuates. Fourteen states spend less than $500,000 a year on gifted education, with eight states expending $0. While some states fund gifted education by mandate, others offer discretionary funding based on application, or provide monies to all LEAs as part of general funding to districts. It is then up to individual schools and districts as to how they choose to utilize the funds, and many will not choose gifted education.

For the most part, policy development in gifted education has been restricted to identification and programming issues (VanTassel-Baska, 2000). Though establishing such sound federal and state policy in gifted education is an important and laudable goal, policy itself is not the final solution in resolving issues in educating gifted students. Policy should serve as a point of departure, giving school systems something to work with, but also allowing them some flexibility in applying identification and

programming methods that are most effective for the students they serve. In contrast, policies that are too permissive can do more to hamper than help gifted education initiatives. Finding a balance is crucial.

The Legal Process and Gifted Education

While federal and state legislation have established policy regarding the education of gifted students, court cases and administrative hearings are another source of policy development (Gallagher, 2002). However, when there is a dispute between a family and a school, it is recommended that dispute resolution begin at the lowest level possible, with litigation being a final consideration. Negotiation, mediation, and due process are all alternate avenues to litigation in resolving disputes.

Negotiation

Negotiation is the informal process by which parties discuss a problem in an effort to reach a compromise. Typically, negotiation begins at the level where the dispute arises, which is often the classroom teacher (Karnes & Marquardt, 1997). If negotiations at this level are unsuccessful, parents may choose to meet with others up the administrative ladder—the principal, the superintendent, or even the school board.

In order to prepare for the negotiation process, parents must be well informed regarding the state and local rules, regulations, and policies that govern identification and programming for the gifted. Karnes and Marquardt (1997) also advise that parents keep detailed records of all meetings and correspondence with school and district personnel during the negotiation process. If negotiation is unsuccessful, mediation may be the next course of action.

Mediation

Mediation is a voluntary, nonadversarial process that allows disputing parties to meet with an impartial, third party facilitator in order to reach an agreement. In the 1997 reauthorization of IDEA, states were mandated to offer mediation as an option to individuals requesting a due process hearing.

According to the 2004–2005 *State of the States Report* (NAGC, 2005b), mediation is available for issues involving gifted education in 10 states. Four states (Florida, Kansas, New Mexico, and Utah) afford gifted students the same rights to mediation as those students who qualify for services under IDEA. Others (Hawaii, Kentucky, Louisiana, Nebraska, North Carolina, and Pennsylvania) require mediation for gifted students under state law separate from IDEA.

Provisions regarding mediation cited in the 1997 amendments to IDEA include:

1. Mediation must be voluntary and not delay or deny a parent's request for a due process hearing.
2. A qualified, impartial mediator who is trained in effective mediation techniques must conduct the mediation.
3. The state must maintain a list of qualified mediators who are knowledgeable in the laws and regulations regarding the provision of special education and related services.

4. The mediator must be selected at random from a list or the parties may agree on the selection of a qualified mediator.

5. The mediation sessions must be scheduled in a timely manner and held at a location convenient to both parties.

6. Discussions that take place during the mediation process must be confidential and may not be used as evidence in any subsequent due process hearings or civil proceedings.

7. The mediated agreement must be put in writing.

8. All costs related to the mediation process are the responsibility of the state. (IDEA, 1997)

There are a number of advantages in using mediation to resolve conflicts.

1. Reduced Cost: While mediation costs vary from state to state, they rarely exceed $1500, which is far less expensive than due process.

2. Expeditious Process: The mediation process is usually completed within 20–30 days. Mediation sessions are typically scheduled within a few weeks of filing and the majority of disputes are resolved with only 1 day of mediation.

3. Improves Relationships: Mediation helps reconcile differences between disputing parties and assists in enhancing communication.

4. Collaborative Resolution: In due process, decisions are made by a third party, and one or both parties may be unhappy with the outcome. In mediation, the participants themselves develop collaborative resolutions.

5. Confidential: Issues discussed in mediation remain confidential and cannot be admissible in any future legal proceedings.

6. Empowers Participants: Both parties determine who the participants are, who the mediator will be, where and when the mediation sessions will occur, and contribute to the creation of the final agreement.

7. Allows for Flexibility: Because mediation sessions are not limited by issues of law, parties can develop new, creative options that benefit the child. (Bar-Lev, Neustadt, & Marshall, 2002)

Both federal and state governments, encouraged by the effectiveness of alternative dispute resolution mechanisms, continue to provide financial support through legislation to establish mediation opportunities (Karnes, Troxclair, & Marquardt, 1998). However, if an agreement cannot be reached through mediation, then the next step, if available, is due process.

Due Process

Due process is a procedure by which an aggrieved party has an opportunity to be heard by an impartial hearing officer. Due process hearings have several common requirements across states. These include:

1. Timely notice to all parties involved that a hearing has been scheduled;

2. Opportunity to present evidence, witnesses, and oral arguments to an impartial hearing officer;

3. Opportunity to have counsel present;

4. An oral or written record of the proceedings; and

5. A written decision from the hearing officer based on the arguments presented at the hearing. (Karnes et al., 1998)

Locating hearing officer decisions is not an easy process. There is no federal mandate for the collection of such data (Ahearn, 2002). Furthermore, most states retain confidentiality of proceedings by deleting the names of the children, parents, and hearing officers involved.

The 2004–2005 *State of the States Report* (NAGC, 2005b) reveals that seven states (Colorado, Hawaii, Kansas, New Mexico, Tennessee, Utah, and West Virginia) offer the right to due process to the gifted under the same provision as afforded to students with disabilities under IDEA. Nine states (Arkansas, Florida, Georgia, Kentucky, Louisiana, Nebraska, Ohio, Pennsylvania, and Texas) cite the right to due process for gifted students by state law different from IDEA. Fourteen states (Alabama, Alaska, Arizona, Delaware, Maryland, Massachusetts, Michigan, Mississippi, Montana, New Jersey, North Carolina, Oregon, Rhode Island, and Virginia) do not require due process for the gifted. The remaining states did not respond to the question regarding due process on the *State of the States* questionnaire.

The National Association of State Directors of Special Education (NASDSE) reports that in 1999 and 2000 the total number of special education due process hearings *heard* declined, even though the total number of hearings *requested* increased (Ahearn, 2002). Since the 1997 amendments to IDEA require that states inform parties of the availability of mediation, it may be reasonable to assume that many individuals requesting due process hearings end up resolving their disputes through other avenues, like mediation (Karnes, Stephens, & McCard, 2008). The number of due process hearings heard is likely to continue to decline as the availability of other dispute resolution strategies increases (Ahearn, 2002).

Regardless of the availability of alternate dispute resolution strategies, parents report the need for increased information and support with regard to hearing and complaint procedures (Opuda, 1999). Parents also desire assurances that the due process system will not harm their long-term relationships with schools, as many may fear retaliation against their children by the school because of their use of the due process system (Opuda, 1999). Such fears may deter parents from utilizing any dispute resolution mechanism.

Litigation

As mentioned previously, litigation should be the last option pursued, as it is the most costly and time-consuming method for resolving a dispute. Court cases have addressed a wide range of issues such as tuition reimbursement, admissions, early entrance, appropriate programming, and compensation, to name a few.

Zirkel (2004, 2005) suggests that when reviewing case law regarding gifted students, two distinct categories should be considered: (1) "gifted alone," those students eligible for gifted education without any other special legal protection, and (2) "gifted plus," those students who are gifted, but are also eligible for other federal, legal protections (e.g., students with disabilities under IDEA, and minority gifted students under Title IV of Civil Rights Act).

In both instances "gifted alone" and "gifted plus," decisions have favored school districts with regard to gifted education provisions, particularly in those states with permissive gifted education legislation. In "gifted plus" cases, courts have had a tendency to focus on a child's disability rather than his or her academic or intellectual strengths (Zirkel, 2004). For the purpose of this chapter, "gifted alone" cases will be explored.

Federal Court Decisions

When cases involve constitutional or statutory challenges, the federal courts become involved. In *Student Doe v. Commonwealth of Pennsylvania* (1984), a plaintiff claimed that the use of an IQ test to exclude her from the gifted program violated the equal protection and due process clauses of the U.S. Constitution. The court dismissed the complaint and concluded "that use of a minimum cut-off score might not be the best procedure available but that the court could not conclude that such a method cannot be reasonably used" (Pennsylvania Department of Education, 2004, p. 58).

In Student Roe v. Commonwealth of Pennsylvania (1987), parents raised various statutory and constitutional challenges after their child, who scored 121 on an IQ test, was denied entrance into the gifted program. The court found that Pennsylvania's minimum cutoff score for eligibility into gifted programs did not violate the equal protection or due process clauses of the Fourteenth Amendment (Pennsylvania Department of Education, 2004).

State High Court Decisions

Two seminal cases regarding gifted students with contradictory outcomes are *Broadley v. Board of Education of the City of New Meridian* (1994) and *Centennial School District v.Commonwealth Department of Education* (1988). Subsequent courts have relied on the rulings from these two cases in reaching decisions.

Centennial was the first case involving gifted education to reach the state high court level. A school district in Pennsylvania objected to a hearing officer's decision requiring that they provide an appropriate individualized education program to a gifted student, apart from enrolling the student in the district's existing enrichment program. The hearing officer had concluded that the student needed not only enrichment, but also acceleration in certain subject areas. The high court affirmed the hearing officer's decision, indicating that regardless of an existing enrichment program, the district was not relieved of the responsibility of providing the student with an appropriate academic education (Stephens, 2000).

In *Broadley*, the second case involving gifted education to reach a state's high court, the Supreme Court of Connecticut found that the state's constitutional right to a free public education does not afford gifted students the right to special education.

The decisions of these two cases reflect the importance of state statutes that protect gifted students. The *Centennial* case occurred in Pennsylvania, a state that affords gifted students similar provisions as those protected by IDEA. In contrast, the *Broadley* case occurred in Connecticut, where there is a state mandate for identifying gifted students, but not a mandate for providing gifted students specialized programs (Stephens, 2000).

Tuition Reimbursement

Parents often look to colleges and private schools for appropriately challenging coursework for their gifted child. Thus, they have sought reimbursement from public schools to cover tuition for such learning experiences. Courts have generally ruled on the side of school systems, indicating that a district should not be required to offer coursework and services above and beyond their existing curriculum. Two Pennsylvania cases that demonstrate the courts' standing on tuition reimbursement

for the gifted are *New Brighton Area School District v. Matthew* (1997) and *Ellis v. Chester Upland School District* (1994).

In *New Brighton Area School District v. Matthew*, the court held that a school district should not have to pay for transportation or college courses beyond the district's current curriculum, because it would be more than a free appropriate public education. Though the state's regulations required each school district to create an IEP, it did not require the school district to act beyond the scope of their existing curriculum.

Likewise, in *Ellis v. Chester Upland School District,* the court held that gifted students were not eligible for reimbursement of expenses resulting from tuition or transportation to attend private schools. The decision also indicated that the curriculum available to a gifted student need not maximize the student's ability, but is only required to provide an appropriate program for the student.

Admissions

A New York case clearly demonstrates the importance of statutory law in litigation involving the gifted. In *Bennett v. City School District of New Rochelle* (1985), a father argued that his child's constitutional rights were violated after his child was not selected, via a lottery, to participate in the gifted program. The school district had identified 109 students who were eligible for the gifted program, but only had sufficient funds to allow 37 students to participate in the program. The district chose to conduct a lottery drawing among the qualifying students to determine which students would enroll in the program. The disputing father cited a New York statute that stated "school districts of this state should develop programs to insure that children reach their full academic potential" (Karnes & Marquardt, 1991, p. 45). The use of the word "should" instead of "shall" in the statute served as the basis for both the trial and appellate courts' rejection of the father's argument. In addition, the court indicated that New York law did not require districts to offer gifted programs, thus school systems were not obligated to offer such programs.

Early Entrance

Parents of young children have struggled to secure early entrance into school. Regardless of their efforts, states, for the most part, have left early entrance decisions to the judgment of local school boards. In *Wright v. Ector County Independent School District* (1993), a parent sought admission for her 5-year-old into the first grade, despite the Texas Education Code requirement that a child be at least 6 years of age. The court held that the Texas Education Code was intended to grant school boards discretion regarding the admission of underage and overage children, and the district's policy to exclude admission to the first grade to those children age 6 or under was within the board's discretion.

In Wisconsin, the state's highest court rejected parents who sought early admission to kindergarten for their gifted child (*Zweifel v. Joint District No. 1, Belleville*, 1977). The court found the matter to be at the discretion of the school board, and that the district's policy requiring students to be 5 years old "was not an abuse of this discretion" (Zirkel, 2005, p. 7).

Compensatory Education

There have been contradictory outcomes regarding whether gifted students are entitled to compensatory education. A legal term, compensatory education describes

future educational services that courts provide students as a result of them being denied a free and appropriate education.

The court discussed the remedy of compensatory education in *Brownsville Area School District v. Student X* (1999). Compensatory education was found to be an appropriate remedy for gifted children whose district failed to provide them with an adequate program that ensured they were afforded a free appropriate public education. However, compensatory education was limited to the education that was available within the school district's curriculum. As a result, the court held that an appeals panel could not require, as compensatory education, college-level instruction, private tutoring, or any education beyond that currently offered by the school district.

By contrast, in *York Suburban School District v. S.P.* (2005) the court ruled that the school district was required to provide an education that conferred sufficient educational benefit on the student and was tailored to the student's unique needs by means of an IEP. The court held that the school district's failure to attempt to customize coursework to a student's needs amounted to a failure to provide an adequate IEP, and entitled the student to an award of compensatory education.

Appropriate Programs

The largest volume of court cases pertaining to the gifted involve the delivery of appropriate services and educational program options. In two of the three cases discussed here, all from Pennsylvania, school systems have prevailed.

In *Central York School District v. Commonwealth of Pennsylvania, Department of Education* (1979), a school district, having lost their case at the due process hearing level, appealed to the Commonwealth Court of Pennsylvania. The district argued that its duty to provide programs to gifted students was contingent on reimbursement from the state for the cost of such programs. The court rejected this argument, citing that the provision of programs for the gifted "was a condition to its right of reimbursement rather than vice versa" (Zirkel, 2005, p. 9).

In another case, parents of a gifted high school student challenged the district's IEP for their son on the grounds that it did not provide a math course, an area in which their child had exceptional talent (*Scott S. v. Commonwealth Department of Education,* 1986). The district argued that the student had already exhausted all of the school's math courses, including the school's most advanced course, Calculus BC, where he had earned a grade of B. The parents requested that the district offer a classroom course in math beyond Calculus BC or reimburse them for the cost of a college calculus course. The school district argued that the student's acceleration in math had been to the detriment of his other coursework and that his IEP was appropriate. Citing the *Centennial* case, the court sided with the district, stating, "a school district is not required to devise an educational program which makes the best use of each student's abilities, but only to identify exceptional children and develop educational programs appropriate to their particular needs" (*Centennial*, 1986, p. 1094).

A change in gifted program options from the elementary to the middle school was the subject of another case prompting a parent to demand that his daughter receive an independent evaluation at the district's expense and that he be reimbursed for his attorney's fees pursuant to IDEA (*Huldah A. v. Easton Area School District,* 1992). The court affirmed the special education appeals panel's decision, which indicated that gifted children do not fall under the protections of IDEA; therefore, the Plaintiff

was not entitled to an independent evaluation at the school district's expense or the reimbursement of attorney fees.

Synthesis

It is interesting to note that the large majority of case law regarding gifted students derives from Pennsylvania, a state that affords gifted students many, but not all, of the same state and federal protections as those students covered under IDEA. Other states that regard gifted students in the same manner are Alabama, Florida, Kansas, Louisiana, New Mexico, Tennessee, and West Virginia (Zirkel, 2005). However, Pennsylvania remains the most active state regarding court cases and administrative hearings pertaining to gifted students.

An analysis of all cases involving gifted students reveals that there are far fewer "gifted only" than "gifted plus" cases (Zirkel, 2004, 2005). As such, there is a lack of legal precedence for "gifted only" students. The lack of legal precedence, the absence of a federal mandate, and permissive, if any, state legislation regarding the educational rights of gifted students, have all hampered parents through the litigation process and have resulted in decisions that have mainly favored school districts.

Office for Civil Rights

Some parents resort to the filing of complaints with OCR when they feel that their child is being discriminated against on the basis of race, color, national origin, sex, disability, and age in programs and activities receiving federal assistance. OCR works to ensure equal access to education and to promote educational excellence across the United States. Most of the complaints filed with OCR regarding gifted students pertain to Title VI compliance (nondiscrimination on the basis of race, color, or national origin) and involve underrepresentation of minorities in gifted education programs.

Three separate studies have analyzed OCR findings regarding gifted students. Karnes and Marquardt (1994) reported 48 letters of OCR findings regarding gifted students from 1985 to 1991. From 1992 to 1995 there were 38 letters of OCR findings involving gifted students (Karnes et al., 1998), and from 1996 to 2005 (Karnes et al., 2008) 56 letters of OCR findings were reported regarding the gifted.

In addition to investigating complaints, OCR works in other ways to represent and protect gifted students from underserved populations. For example, in 2000, OCR collaborated with a state educational agency to ensure that all students with outstanding abilities had access to gifted and talented programs. OCR helped the state determine that some districts were misinterpreting the provisions in the state identification guidelines. To rectify the problem, OCR was asked to participate in a statewide conference for gifted and talented program coordinators and provide them with information on how to evaluate their policies and procedures to ensure that all students have equal access to gifted programs (OCR, 2000).

In 2002, OCR commissioned a study by the National Academy of Sciences (NAS) entitled *Minority Students in Special and Gifted Education* (Donovan & Cross, 2002). This report examines the reasons why minority students may be underrepresented in programs for the gifted and makes recommendations for early intervention and changes in referral and assessment procedures.

Future Issues

Advocacy

The role of an advocate is perhaps more crucial with the gifted than with any other population of exceptional student. While parents and teachers have often served in this capacity, psychologists, school counselors, and others who provide mental health and related services to gifted students and their families must take on this role at times.

Parents often look to those who assess or test their children for guidance and advice. Gilman (2006) indicates that testers should serve as advocates for the child and should be able to write a report that emphasizes a child's strengths as well as weaknesses so that appropriate educational accommodations can be accessed. More importantly, assessment results help substantiate the requests that parents make to schools regarding programs and services for their child. Gilman states that it "tempers our conjectures with empirical analysis and allows us to arrive at meaningful conclusions" (p. 11) regarding a student's needs.

Psychologists, school counselors, and other mental health professionals need to be knowledgeable about the educational needs of gifted students. Such knowledge helps such professionals better assist gifted students and their families as they seek access to appropriate programs in their home schools.

Reform

The title of Tannenbaum's 1988 monograph, *The Gifted Movement: Forward or on a Treadmill*, captures the essence of what continues to frustrate gifted education advocates. While it is apparent that some progress has been made in the field, it is also evident that there is still much work left undone. There are several areas that must be improved if gifted education is to move forward.

A Consistent Definition

There must be a collective agreement in regards to how the gifted are defined. At present, numerous definitions exist constructed by a variety of entities (e.g., educational agencies, organizations, experts in the field), and they all explore the concept of giftedness from multiple perspectives. The importance of having a universally agreed upon definition is critical for maintaining consistency in how the nature and needs of gifted students are communicated with the general public. Without such a definition, advocacy efforts are considerably weakened (Stephens, 2006b).

Unite Forces

Gifted education advocates have, for the most part, worked independent of other education initiatives. Lone organizations and individuals have made tireless efforts to get both federal and state governments to support separate legislation for gifted students. As new educational policies are developed, regardless of their specificity to the gifted, supporters of gifted education need to shout, "Me too!" (Stephens, 2006a, p. 3). In other words, how can existing policies and legislation be expanded or modified to

address the needs of gifted students? With No Child Left Behind forcing states and districts to revisit many of their policies, it is now an ideal time to shout, "Me too!"

Public Relations

Myths and misconceptions have permeated society's perceptions of the gifted. Linda Gottfredson (2006) indicates that "Americans have always been ambivalent about talent: insisting that individuals should be able to advance as far as their abilities and effort take them but resenting those who outdistance everyone else" (p. 10).

It should be emphasized that the general public has a negative view toward the gifted, "not just benign indifference" (Sternberg, 1996, p. 168). According to Sternberg, many signs of society's prejudice against the gifted exist, such as the

1. instability of the Javits Act from year to year;
2. absence of funding for programs for the gifted;
3. lack of legal protection for the gifted;
4. phenomenon that gifted programs are the last programs to be put into place when money is available and the first to be eliminated when funds are scarce;
5. occurrence that many parents of gifted students have given up on public schools and have enrolled their children in private schools;
6. lowering of educational standards in many American schools whereby students can exert little effort to receive A's; and
7. unavailability of research and coursework regarding the gifted in the field of psychology.

How does one change public attitude and perceptions about a group who are viewed as "one of the loudest and least deserving" (Sternberg, 1996, p. 171)? Sternberg suggests that society needs to

1. view the gifted as a valuable natural resource;
2. acknowledge multiple kinds of giftedness;
3. recognize alternative learning and thinking styles;
4. take thinking and learning styles into account in teaching and assessing students;
5. support serious research and development on the gifted that puts theory into practice;
6. enhance and expand programs for the gifted;
7. evaluate existing programs to determine what works;
8. urge Congress and the President to support gifted learners; and
9. determine what the message is and communicate why supporting gifted learners is important.

Changing public perceptions and dispelling existing myths regarding the gifted is a surmountable task, but one that is necessary to garner public support. The need for organized public relations strategies in gifted education is evident in the numerous articles that have been written over the years (Besnoy, 2005; Karnes, Lewis, & Stephens, 1999; Karnes & Riley, 1991; Troxclair & Karnes, 1997). However, most of these articles have been addressed to teachers of the gifted. Parents, regular education teachers, administrators, counselors, psychologists, and other stakeholders must also advocate on behalf of the gifted to assist in changing public perceptions and organizing support.

Summary and Conclusions

Treffinger and Sortore (1994) assert that a paradigm defines "the orthodoxy or standard accepted views and practices of a field" (p. 40). The field of gifted education has progressed through three distinct paradigms. Cohen (1996) highlights the three paradigm shifts that have occurred in the gifted education movement:

Paradigm 1: Identify gifted individuals as a group (usually through IQ tests) and provide them with a one-size-fits-all program.

Paradigm 2: Programs and services are identified and developed and students are assigned to certain services based on their assessed needs.

Paradigm 3: Focus on potential for excellence and the development of many talents through multiple methods. Shift from the individual benefit of such programs to societal benefit.

Each of these paradigms is evident in how federal and state governments have responded to the needs of the gifted throughout history. In addition to the paradigms that are reflective of the social policies of the time, policy development in gifted education has been driven by world events, perceived crises, and even the economy. As a result, a reactive rather than a proactive approach to addressing the needs of gifted students has ensued.

Without a federal mandate for gifted education, the identification and availability of programs and services for gifted students is left to each individual state. Furthermore, few, if any, court cases have served to set legal precedence in how the needs of gifted students should be addressed in schools.

Gallagher (2002) states, "Public policy almost invariably reflects some of the fundamental values of the American society, and this is particularly true of the policies dealing with gifted students" (p. 7). As such, the debate between the values of *excellence* and *equity* persists in American schools. Those favoring equity believe that educating gifted students is "contrary to equity principles" (p. vii) and those supporting excellence feel that individual accomplishments are crucial to the development of society.

So, is gifted education moving ahead or stuck on the treadmill? It appears that many of the same policy issues from the twentieth century have been carried over into the twenty-first century for resolution. Identification (particularly of underrepresented minorities), placement, differentiated programming, program evaluation, and teacher support and development all continue to be works-in-progress. Gifted education must remain a "hot" issue among policymakers, so the unique educational and social-emotional needs of gifted learners will continue to be recognized and sustained in the years to come. As Resnick and Goodman (1994) so eloquently state:

> Gifted young people have emerged over the past century and a half, more as a challenge to the organization of the American system of education than as a special resource to be developed. … A way must be found to turn the constraints of the past into the opportunities of the present. (p. 118)

Resources

Websites

Center for Gifted Education Policy (CGEP)
www.apa.org/ed/cgep.html

Housed in APA's Education Directorate, CGEP generates public awareness, advocacy, clinical applications, and cutting-edge research ideas regarding children and adolescents with special gifts and talents.

Consortium for Appropriate Dispute Resolution in Special Education (CADRE)
www.directionservice.org/cadre

Provides technical assistance to state departments of education on implementation of the mediation requirements under IDEA '97. CADRE also supports parents, educators, and administrators in dispute resolution.

Genius Denied
www.geniusdenied.com/StatePolicy.aspx

Provides information about respective state policies in gifted education.

National Association of State Directors of Special Education
www.nasdse.org/index.cfm

Organization that helps state agencies promote and support specially designed instruction and related services for children and youth with disabilities.

National Research Center on Gifted and Talented Education (NRC/GT)
www.nrcgt.org

Funded by the Jacob K. Javits Gifted and Talented Students Education Act, NRC/GT is a nationwide cooperative of researchers, practitioners, policymakers, and other persons and groups that have a stake in developing the performance and potentials of young people from preschool through postsecondary levels.

State of the States Report
www.nagc.org

A biannual snapshot of how states regulate and support programs and services for gifted students.

U.S. Department of Education's Office for Civil Rights
www.ed.gov/ocr

Ensures equal access to education and promotes educational excellence throughout the nation through enforcement of civil rights.

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