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ABSTRACT

This issue of a research journal on gifted education explores various aspects of the new talent-oriented approach to intellectual functioning and development. It examines the role of the family in talent development, career development of talented individuals, and the characteristics of ideal teachers for the gifted. Specific articles include: (1) "From Talent Recognition and Development to Creative Achievement and Expertise" (John F. Feldhusen), which describes the talent development of a gifted child through adulthood; (2) "The Ideal Teacher for Highly Gifted Students" (Jan B. Hansen), which discusses the importance of teacher competence, deep caring, and distinctive character in fostering social wellness, moral depth, and intellectual growth in highly gifted students; (3) "Understanding the Career Development of Talented Adolescents and Adults" (Kevin R. Kelly); (4) "Social Development in the Gifted" (Linda Kreger Silverman), which discusses the social development of gifted boys and girls; (5) "Highly Gifted Children in the Early Years of School" (Miraca U. M. Gross), which urges early ability identification and early enrollment of highly gifted young children; and (6) "Families: The Source of Gifts" (Joan Freeman), which discusses family influences on giftedness. (Chapters include references.) (CR)

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Associate Editor's Preface

Dr. John F. Feldhusen, guest editor of *MRJ # 43,* is one of the most respected educators and writers in the field of education for the gifted and talented. We are proud to welcome him as our very first guest editor and we heartily thank him for devoting his effort and his precious time to compiling this issue.

Dr. Feldhusen is a Distinguished Professor Emeritus at Purdue University, a Fellow of the American Psychological Association, and a Distinguished Scholar in the National Association for Gifted Children. He recently received the A. Harry Passow Award for Leadership in Gifted Education by the World council for Gifted and Talented Children. His research interests have been focused most recently on the identification and development of specific talents as well as their links to career development and expertise.

Among his many awards, he had received the Mensa Education and Research Foundation Award for Excellence in Research. You may recall his article in *MRJ # 41.*

As always, *MRJ* welcomes readers' comments and suggestions. Write to *Mensa Research Journal,* 1229 Corporate Drive West, Arlington, TX 76006-6103, USA.

Francis Cartier
Associate Editor

Intelligence and Talent

Introduction to this special issue

John F. Feldhusen, Ph.D.
Purdue University

The professional fields of psychology and education and much of the general public continue to have a great deal of interest in intelligence and its linkage to performance in school and the world of work. At any point of measurement in general or selected populations measures of intelligence show wide variability from person to person or student to student. The Bell Curve (Herrnstein & Murray, 1994) is a reality even though the concept is disdained and rejected by educators who boldly assert that all children can learn, even to the highest level, and mental ability as a limitation is a myth.

Of course, the basic issue is, in part, the question of heritability. Major research in the United States by Plomin (1994), Bouchard (1994) and others suggests that to a great extent intelligence unfolds or develops in individuals as a result of genetic determination, and the roles of environment and specific educational efforts may be minimal or modest at best.

Thus, we have really four issues to deal with. The first is framed by the question, "Is intelligence a broad, general condition, like the psychologist's *g*, determining cognitive ability or skills?" The second is, "Is there bell curve-like variation in intelligence among groups of children or adults?" Third, "Is level of intelligence mainly a product of genetic determination (inherited) or is it the product of a broad range of environmental effects such as family interactions, schooling, peer relations, or intellectual resources?" Closely related to the last question is the question of whether intelligence is a product of the mutual interaction of genetic predispositions and environmental influences, each impacting on and influencing the other (Wachs, 1992). And fourth, "Does it make any difference in ability to learn?"

Early in the historical development of theory and research on intelligence psychologists began to question the generality of intelligence as a unitary and pervasive cognitive determiner of intellectual functioning. Is it *g* plus some other factors (Spearman, 1927) or is it a set of separate factors such as quantitative skill, verbal facility, and/or visualization abilities? Thurstone's (1938) pioneering work with factor analysis clearly led to the latter picture of intelligence as multifactorial. Subsequent research by a host of psychologists culminated first in Guilford's (1959) "discovery" of hundreds of factors and Carroll's (1993) more recent gigantic factor analyses that yielded a more manageable set of factors.

Thus, we are at a point in time when we cling to and find useful the concept of general intelligence and at the same time have been reminded forcefully by Gardner (1983) and Sternberg (1988) and others that we can better understand

and serve youth and adults with a more analytical approach to their cognitive abilities. We are also pressed by Ericsson (1996) to see that intellectual skills may be more malleable and trainable than we once thought.

The concept of talents and talent development (Feldhusen, 1998; Gagné 1993) has also emerged as a viable and productive approach to human abilities. Talents abound in the areas of academics, arts, athletics, vocational and technological pursuits, and personal-social interactions. The latter are well represented in Gardner's intra-personal and extra-personal intelligences.

The papers presented in this special issue of the *Mensa Research Journal* deal with various aspects of the new talent-oriented approach to intellectual functioning and development. There is no need for me to summarize each in this introduction. Each speaks well by itself for the issues it addresses from Freeman on the role of family in talent development to Kelly's focus on talent and career development. We can understand better the role of general intelligence and specific factors, aptitudes, or talents as a result of the ideas presented by the authors. Hopefully we will use their insights to provide better nurturance and program services at home, in school, and in our communities.

References

Bouchard, T.R. (1994). Genes, environment, and personality. *Science*, 264:1700-1701.

Carroll, J.B. (1993). *Human cognitive abilities: A survey of factor-analytic studies*. New York: Cambridge University Press.

Ericsson, A. (1996). *The road to excellence*. Mahwah, NJ: Erlbaum.

Feldhusen, J.F. (1998). A conception of talent and talent development. In R. C. Friedman & K. B. Rogers (Eds.), *Talent in context: Historical and social perspectives* (pp. 193-209). Washington, DC: American Psychological Association.

Gagné, F. (1993). Constructs and models pertaining to exceptional human abilities. In K.A. Heller, F. J. Monks, & A. H. Passow (Eds.), *International handbook of research and development of giftedness and talent* (pp.69-87). New York: Pergamon Press.

Gardner, H. (1983). Frames of mind: *The theory of multiple intelligences*. New York: Basic Books.

Guilford, J. P. (1959). Three faces of intellect. *American Psychologist*, 14, 469-479.

Herrnstein, R. J., & Murray, C. (1994). *The bell curve*. New York: Simon & Schuster.

Plomin, R. (1994). *Genetics and experience*. Thousands Oaks, CA: Sage Publications.

Spearman, C. (1927). *The abilities of man: Their nature and measurement*. New York: Macmillan.

Sternberg, R. J. (1988). Intelligence. In R. J. Sternberg & E. F. Smith (Eds.), *The psychology of human thought* (pp. 267-308). New York: Cambridge University Press.

Thurstone, C. L. (1938). *The primary mental abilities*. Chicago, IL: University of Chicago Press.

Wachs, T. D. (1992). *The nature of nurture*. Newbury Park, CA: Sage Publications.

From Talent Recognition and Development to Creative Achievement and Expertise

John. F. Feldhusen, Ph.D.
Purdue University

Andrew is a psychological researcher at a major U.S. university where he specializes in a major area of psychological research. (Actually this biographical picture of Andrew is a synthesis and composite portrait of several people whom I will refer to as an individual). He is widely recognized as a leader in his specialty as well as in the field of psychology in general. He has been highly successful in getting grants from both federal funding sources and from private foundations. He regularly supports 6 to 10 graduate students, several technicians, and two secretarial-clerical workers in relatively spacious facilities. He is a Fellow of the American Psychological Association. His research is published in leading technical journals, and he is the author of two books. He has broken new ground in his area of specialization.

The major signs of precocity or talent that Andrew displayed in childhood, in addition to generally high intelligence, were verbal and linguistic. He learned to talk and to read much earlier than most children. He loved books as a child, and he was considered socially gregarious. Through the elementary, middle and high school years his grades and test scores were always excellent. He had good friends throughout his school years, but he continued to read a lot, he watched very little TV, and he excelled on writing tasks in high school. He took the Scholastic Aptitude Test in 7th grade and scored 680 on the verbal and 590 on the quantitative scale. When he neared high school graduation he took the SAT again and scored 800 verbal and 710 quantitative. He was admitted to one of the best Ivy League schools for his baccalaureate studies. In his sophomore year he took his first psychology course and was almost immediately hooked on psychology as a domain of study.

Andrew is clearly an expert in his domain of research, and he is one of the top 20 people in the field of psychology (Csikszentmihalyi, 1997). His achievements are in the realm of "greatness" (Simonton, 1994) although we would not describe him as eminent yet. That may come later if his creative work comes to be seen as a major breakthrough in the field of psychology. So once again we ask the question, "What interactive combination of genetic endowments, environmental influences and resources, and people interacting with us produces the expert, the creative achiever, or the eminent individual?"

Andrew started life by selecting his parents wisely to enhance his potential for high intelligence (Plomin, 1997). His father was a research chemist and his mother a professional writer. Both devoted much time and attention to Andrew,

talking to him about his childhood activities, reading to him, and constantly encouraging exploration and attention to the world around him. The family traveled a lot and both mother and father attended professional meetings and often took Andrew along. However, Andrew lamented the fact that his father was away on professional travel so much or so busily engaged in work at his laboratory that he often had little time to share with Andrew. Later during childhood and adolescence Andrew met and interacted with his parents' professional friends. Two of the friends were psychologists.

Andrew attended excellent suburban public schools and was identified for special gifted classes in the third grade. There he was surrounded by challenging peers, many of whom became his close friends. In high school he was enrolled in at least one or more honors or Advanced Placement courses every semester. He starred on the high school tennis team and participated in debate. He dated quite often but never had a "steady."

Several of Andrew's high school teachers recognized his talents and tried to get him interested in their disciplines. The counselors also noted his very high level talents, motivations, and achievements and urged him to think about entering an Ivy League school. Andrew graduated number nine in a graduating class of 189 seniors. As noted earlier he scored 800 on the Scholastic Aptitude Test given to graduating seniors. He had decided to go and was admitted to an Ivy League university.

Andrew's university career was marked by steadily increasing interest in psychology after taking the introductory course in his sophomore year. Subsequent psychology courses introduced him to professors who modeled high level knowledge and creative activity in psychology, and, through avid reading in the field of psychology, he began to develop the massive knowledge base that would later characterize his role in his area of specialization in psychology. In his senior year he selected to work with a professor of psychology on a research project in what became for him a true mentoring experience. Andrew was particularly amazed at the intensity of the professor's motivation and devotion to his project ("flow" as described by Csikszentmihalyi, 1997). The professor was greatly impressed with Andrew's work on and contributions to the project and urged him to enroll for graduate study. For a variety of reasons, some fortuitous, Andrew ended up at a major west coast university and began graduate study that would lead to a Ph.D. and career as a psychologist who would do creative research and theory development.

Andrew's motivations and specifically his setting of specific goals concerning what he hoped to achieve from stage to stage in his life were surely major factors in his achievements. He exhibited a high degree of independence and capacity for self-direction throughout his adolescent and young adult years as well as remarkable tenacity and perseverance in pursuit of questions and/or problems in psychology. His regular appearance as a presenter of papers at major psychological conferences early at his career, his graduation to the role of

symposiast in theory-oriented sessions, and still later as major presenter at conferences, all attested to his rising star as a leader in his field and brought him into a world of peers in the field of psychology many of whom were at the cutting edge of creative developments.

There probably were many other factors that contributed to Andrew's creative achievements (Simonton, 1994). His family was patient when he spent long hours at work at the university and in his study at home; they also learned to cope with his absence when he was traveling to conferences, consulting, and off on another quest for grant money. His wife, an active and practicing professional herself, took major responsibility for the rearing of their two children (a boy and a girl) and was a loving and supportive partner throughout their lives. Andrew was also able to discuss his research, theorizing, and other professional activities with his wife and to derive insights from her about his work.

There were the several professors who recognized his talents and played mentor roles in his life. There was quite good health, massive amounts of energy, and good social skills that often helped in dealings with colleagues at the university and the quest for dollars to support his research. There was also the great good fortune to be working in an area of specialization at a time when it was ascending as a major new direction in the field of psychology.

Perhaps above all there was self determination, independence, drive, and commitment along with a lifelong sense of curiosity and enthusiasm to confront problems, solve them, and understand phenomena better (Csikszentmihalyi, 1990). Andrew set achievement goals and pursued them vigorously, often successfully. Thus, he was also reinforced in his quest for creative achievements. And finally chance often seemed to place Andrew at the right place and right time so that he could take advantage of new opportunities in his field, for which he was indeed well prepared, to be sure.

Summary

Andrew is a composite picture of several people who are high level, creative achievers in psychology. We are well aware, however, that the combination of environmental resources and experiences enjoyed by Andrew do not inevitably lead to high level creative achievement or expertise (Csikszentmihalyi, 1997). Many other individuals will settle for far more limited goals and for far lower level achievements and will exhibit little or no creative achievement. Those individuals and educators who seek guidance, make take heart, however, in knowing that biographical and observational studies confirm the presence of many factors found here in this biographical sketch of Andrew (Bloom, 1985: Csikszentmihalyi, Rathunde, and Whalen, 1993: Gardner, 1993).

References

Bloom, B. S. 1985. *Developing talent in young people.* New York: Ballantine Books.

Csikszentmihalyi, M. 1990. *Flow: The psychology of optimal experience.* New York: Harper Collins.

Csikszentmihalyi, M. 1997. *Creativity.* New York: Harper Perennial.

Csikszentmihalyi, M., K. Rathunde, and S. Whalen. 1993. *Talented teenagers.* New York: Cambridge University Press.

Gardner, H. 1993. *Creating minds.* New York: Basic Books.

Plomin, R. 1997. Genetics and intelligence. In N. Colangelo and G. A. Davis (Eds.) *Handbook of gifted education* (67-74). Boston: Allyn and Bacon

Simonton, D. K. 1994. *Greatness.* New York: Guilford Press.

The Ideal Teacher for Highly Gifted Students

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Introduction: A Window on the Problem

What makes a good teacher for highly gifted students? When John Feldhusen asked me to write this article for the *Mensa Research Journal*, I was reminded of a time in my life when I was surrounded by master teachers caring for children who varied radically from the norm. In 1979 I completed an internship in psychology as an assistant in public school classroom serving seven children with profound physical and mental needs. All functioned five or more standard deviations below average for their age-mates, all had conditions so severe that their families could not care for them — all were residents at a group home. None could speak, maintain eye contact or use a restroom, and not one was expected to live beyond teenage years. I loved those children and I still remember their names. There were seven adults caring for the class: A head teacher certified in special education, an assistant teacher certified in special education, and me, an intern in psychology. There were four specialists who served part-time in the classroom: A nurse, a speech pathologist, an occupational therapist, and a physical therapist. Our "team" was headed by a master teacher who shared her passion for special needs children, who was expert in individualizing instruction, and who served humbly in what was considered a leading school for special needs children who varied radically from the norm.

A few years later in 1984, a baby was born who was a likely candidate for the type of classroom I just described. Born 10 weeks early at 2 pounds 14 ounces, William was as big as his mother's hand and spent the first seven weeks of his life hospitalized in intensive care. At that time, his parents' only hope for him was that he would live. He did live, and despite his premature birth, William's early development was marked with milestones that seem almost unbelievable. He learned the alphabet at 12 months, by age 3 was engrossed in second grade books, and at 7, read as an adult and had mastered algebra. I met William in 1989, and could not resist loving this well-rounded, happy, and kind young boy who simultaneously carried on a lively conversation while he silently counted the number of his quickly paced steps as we walked. He was profoundly gifted, having an extrapolated IQ score more than five standard deviations above the average for his age-mates.

Most special education teaches recognize mild, moderate, severe, and profound degrees of cognitive and physical impairment and design their students' Individualized Educational Plans (IEP's) accordingly. In contrast, many teachers

working with gifted students do not recognize different degrees or types of giftedness, and base their identification procedures and curricula on the assumption that what works for moderately gifted students will work for highly gifted students. Although this misperception has been challenged, many teachers remain unfamiliar with the vast range of ability within the group of gifted students. As Silverman (1989) stated, highly gifted students need teachers who accept that they are "those whose advancement is *significantly beyond the norm of gifted students*" (p. 71, emphasis added), and who will design opportunities based upon their degree of giftedness.

Like the multiply-handicapped students I worked with in 1979, William's condition was so extreme (although on opposite sides of the norm), that his parents sought advice on how to educate and care for him. Initially, four adults from various places in the United States were involved in planning. One was William's highly gifted second grade teacher, who cared deeply, and was expert and entrepreneurial in her competence to help him. Another was a psychologist renowned for counseling families of highly gifted children, one more a prime mover of a regional talent search, and me — an educational psychologist specializing in gifted education. This "team" joined William's parents, a radiation oncologist and a professor of engineering, to help plan for William. The team's ability to see this child as vulnerable, and its concomitant reflex to protect and plan for him, reminded me of the same qualities of the staff assigned to the class of profoundly handicapped students I worked with in 1979. Both "teams" were characterized by deep purpose and passion for serving children with rare needs, expertise in specific areas, and humility to serve.

William did well in second grade with his exceptionally gifted teacher and his links to outside mentors. But those planning for William were concerned about the future. Unlike the staff for the multiply-handicapped students, William's team had no federal guidelines or certification requirements to assure that classroom teachers would have met minimal standards of training. We knew that although he was diagnosed as a special needs student, William was likely to have teachers with little or no special training and perhaps nothing more than passing interest in gifted children, if that. Unlike the staff for multiply-handicapped students, there was no place where specialists would congregate to plan or teach this child. Although he was enrolled in a gifted program, there was no specialist prepared to work with highly gifted students. And although he attended school, William's "real" school was virtually the world.

An Ideal Teacher: The Research

What does research say about an ideal teacher for highly gifted students? This question is difficult to answer because (a) there are few research studies on teachers of highly gifted students, and (b) the studies focus on so many variables related to good teaching that it is confusing to determine which are most

influential. For example, I conducted a synthesis of research on teaching of gifted students (Hansen and Feldhusen, 1994). This list of traits may appear overwhelming to some who may give up hope that such perfect teachers are created, let alone, are available to teach. A clearer answer to the question, "What makes an ideal teacher for highly gifted students?" is needed. To that end, I analyzed

Figure 1

General Qualities of the Teacher of Gifted Students

Trait	The Teacher:
Has High Intelligence	Shows ability at least as high as the highly gifted student
Understands Subject Matter	Has clear expertise; exudes a palpable competence
Has Broad Cultured Background	Expresses wisdom outside main interests
Is Confident	Promotes a world-view where the teacher has a vital role
Shows Enthusiasm	Builds momentum with expertise and contagious spirit
Is Mentally Flexible	Is energized by connections, dexterous with details
Uses Higher Level Thinking	Demands elegant and creative student responses
Expects Student Responsibility	Seeks student input; gives student a vital role
Offers Depth in Activities	Resolves big questions through in-depth study
Speeds up Instruction	Paces instruction according to needs of learner
Uses Theoretical Bases	Shares complexities and details guided by theories
Individualizes Instruction	Designs special assignments based on the individual
Connects to Field	Introduces students to professional networks
Gives Meaningful Feedback	Relates patterns in student responses to expert views
Expands Student Interests	Capitalizes on interests by building on the "next step"
Links Academic/Nonacademic	Connects traditional and nontraditional applications
Promotes Acceleration	Promotes above-level tests, testing out, and acceleration
Has Ability to "See"	Recognizes overt and subtle signs of extreme giftedness
Meets Personal Needs	Cares deeply and promotes friendship and belonging
Takes Responsibility	Takes responsibility for influence on students

15 studies that investigated effective teachers in both regular and gifted classrooms and extrapolated the findings for application to highly gifted students. I will focus on three qualities that came through time and again as the most notable traits of an ideal teacher, and they are (a) competence, (b) deep caring, and (c) distinctive character (Traina, 1999). Further, I propose that these three traits have the most power to foster social wellness, moral depth, and intellectual growth in highly gifted students.

Competence

Research acknowledges that high intelligence and expertise are considered to be two of the most powerful factors in competent teaching (Hollingworth, 1942; Hansen and Feldhusen, 1994; Traina, 1999). While it is uncomfortable and unpopular to suggest, it is critical that teachers be at least as intelligent as the students they work with. Further, I believe that the mismatch of highly gifted students with average or moderately gifted teachers is a major cause of the difficulties experienced by highly gifted students such as William.

In addition to being extremely intelligent, teachers of highly gifted students must also have subject matter expertise and know much more than the student knows (Hansen and Feldhusen, 1994; Traina, 1999). While this is generally not a problem in special education classrooms with mentally and physically handicapped students, this is daunting in classrooms with highly gifted students. Imagine William's first grade teacher who read his exposition on torque when presented with a multiple-choice test item pertaining to simple machines. While his teacher found his response amusing and noted that he inappropriately wrote on his test sheet, she admitted she was at a loss and consequently discounted his interest in physics. Without exposure to someone with expertise in the subject, William's growth was thwarted as he was pressured to fit the traditional mold of a first-grader.

In contrast, William's second grade teacher saw clearly that William needed expertise beyond what she could provide, and so she matched William with a math instructor at the middle school. Despite good intentions and willingness to go outside the normal school boundaries, the relationship between William and the math instructor was strained. It was not until two years later, at age 10, that William achieved a degree of satisfaction in his studies when he was invited to work with a high school math teacher who taught him advanced calculus. Along with five other highly gifted students (seven years older than he), William was exposed to a teacher who could present him with insights that were apparent to few, and who appreciated William's speed, clarity, and quality of thought that were undeniably rare. Teacher expertise, discounted by many at William's elementary school, proved to be a critical component for William's growth.

Competent teachers of highly gifted students need to show that they can "move around the subject" and can show dexterity with details as well as the

main tenets of the subject (Gross, 1995; Hansen and Feldhusen, 1994; Silverman, 1989). Quality teachers must be adept enough to evaluate what the highly gifted student already knows, and to build upon that knowledge in a meaningful way. Mental flexibility is critical in order for the teacher to use teachable moments to link their students' understanding with pertinent concepts, complex details, and related topics. For example, when William was 12, he was introduced to university teachers who showed command of the subject matter and could move William beyond a linear understanding of the subject toward a holistic, complex, and more expert understanding.

Another aspect of expertise deals not with the subject, but with familiarity in gifted education. Ideal teachers need to be well acquainted with three areas not commonly understood by general educators: early entrance and grade advancement; testing-out procedures; and above-level testing. The importance of familiarity with these areas cannot be overstated. Although many educators are fearful of acceleration or grade advancement, it has been proved critical for both academic growth and the social wellness of highly gifted children (Feldhusen, Proctor, & Black, 1986; Gross 1995). The ideal teacher recognizes the social and psychological benefits of acceleration, can communicate those benefits clearly, and is an advocate for such practices especially in school cultures that resist such accommodations.

The ideal teacher is familiar with compacting at the elementary levels, and with all testing out procedures at the secondary levels, including Advanced Placement, and College Level Examination Program. At the elementary levels, advanced opportunities may take the form of summer or Saturday programs, mini-courses, or camps that focus on specialized and advanced learning. At the secondary levels these opportunities may include higher specialized courses, mentorships, community opportunities, Talent Search, college programs, and graduate study.

The ideal teacher understands ceiling effects and promotes above-level testing for highly gifted students. Ceiling effect is described as scores that cluster at the upper limit of a test (90th percentile or above) and prohibits interpretation about what the student does not yet know. Group achievement tests are simply too easy for highly gifted learners, and the ceiling effect renders it impossible to diagnose educational achievement or to plan further instruction based on test information. The ideal teacher for highly gifted students is knowledgeable about the advantages of above-level testing, introduced by Dr. Leta Hollingworth in 1916 when "Child E" breezed through the entire Stanford Binet Intelligence Scale. Although Child E was 8 years old at the time, he responded with relative ease to the adult tests, and convinced Hollingworth of the need for above-level tests. Like Hollingworth, the ideal teacher understands ceiling effects, and sees the sense of administering above-level tests intended for older students or adults in order to reflect the full abilities of highly gifted students. Further, she can interpret test data in order to understand academic strengths and weaknesses of

highly gifted students (Hansen, 1995).

While it is not easy to locate teachers with these traits, William's parents initiated relationships with competent, expert teachers, professors, mentors, and researchers at a variety of schools and universities around the United States. While their key focus was time together as a family with a healthy and stable home life, they found musicians, mentors, and coaches who taught William before or after school, during some weekends, and during summer school breaks. As a result, William benefited from a variety of programs suited for him. Like William's parents, most parents of highly gifted students will find that the brunt of responsibility to locate appropriate teachers for their children will fall largely on their own shoulders.

Deep Caring

As simple as it sounds, the ideal teacher must care deeply. The foundation for deep care is the teacher's attitude that being highly gifted is primary, not secondary to the student's identity. Like teachers for the special needs children I worked with in 1979, teachers of highly gifted students must look at students holistically, from an entirely different base of experience than average students and even moderately gifted students. Teachers must see students through the window of their extreme abilities in order to get a clear and full picture.

We have all known teachers who have acted as if they didn't care. Dull lessons, ordinary materials, and displays of annoyance at student requests are the hallmarks that have prompted students, including highly gifted ones, to disengage from learning. Recent research has shown that students are particularly vulnerable when it comes to regular classroom teachers who believe the myths that gifted students will "succeed on their own" and that 'their own actions as a teacher will have little impact" (Kennedy, 1998, p.2). Belief in these myths prevents teachers from seeing students' need for intellectual and social growth and from seeing students in such a way that they can be helped. This problem is exacerbated with highly gifted students. In her article, "*Seeing* the Difference and Making the Difference for Highly Gifted Students' (emphasis added), Gross (1995) offered a poignant example of a teacher who could not *see* a highly gifted and spirited punster as anything but rude and disobedient. At the same time the teacher could not see a moderately gifted child as anything but compliant and intelligent. Gross (1995) warned educators that only when they "see" highly gifted students as having cognitive needs that are different from moderately gifted students, are they able to respond effectively on their behalf.

To present a concrete example, one educator at William's elementary school simply could not relate to his extreme abilities. She encouraged William to befriend another gifted child at the school who was "just like him," but failed to see that the other child was younger, years behind him in the school curriculum, and several standard deviations below him in achievement. She did not support

William's study with a secondary math teacher, and did not see his intellectual loneliness as a problem. Her misperceptions regarding William stemmed from her own view that gifted students were all the same. She claimed general empathy for highly gifted students, but her lack of personal experience with extreme giftedness prevented that empathy from being translated into support for William.

But a teacher must not simply acknowledge the central role of giftedness, she must then care enough to act on what she acknowledges. The ideal becomes "abundantly available," seeking to build firm and caring relationships with highly gifted students where trust and persistence can be fostered. Like the teachers with special interest in multiply-handicapped students, teachers for highly gifted students are available for students with special and extreme needs. The ideal teacher does not resent the intrusion upon her time or energy when asked to make accommodations for highly gifted students. Instead, she invites contact with students and their families, and initiates deep exchanges of information. In short, she treats the relationships with her highly gifted students as if something important were on the line and she makes no apologies for her availability or her role in the formation of their worldview.

Traina (1999) studied 125 highly gifted and prominent Americans who described their ideal teachers as ones who not only "saw accurately," but also as ones who insisted that the student try hard and "take pride in his work" (p .34). They stated that their most effective and memorable teachers were those who "cared deeply about me and my successes" (Traina, 1999, p. 34). The ideal teacher of highly gifted students cares enough to teach them to try hard. This can be particularly difficult in schools where highly gifted students are applauded for outperforming their age-mates as they sail through the "one-size fits most" curriculum, and even the advanced curriculum, with little or no effort. Sometimes highly gifted students go so long between rewards for genuine effort that they disassociate effort and school, as though the two have little in common, leaving them very vulnerable to the misperception that their abilities will somehow actualize despite their lack of effort. In contrast, ideal teachers urge highly gifted students to persist under a variety of conditions including unfavorable ones. An effective teacher who designs difficult and frustrating tasks, can consequently reward and encourage highly gifted students for their genuine efforts. Implicit in this "fix" is the assumption that the teacher is able, motivated and interested in creating such tasks.

In addition to seeing highly gifted students accurately, being available to them, and fostering effort and persistence, ideal teachers take responsibility for their impact on students. Ideal teachers see the impact of caring behavior on students, and attribute some degree of both student successes and failures to teaching. This leads to high levels of student motivation and performance. Less effective teachers on the other hand, tend to attribute student performance to factors out of their control, and thereby distance themselves from responsibility. Of par-

ticular concern are teachers who take credit for students' successes but blame students for their failures. To present a concrete example, the administrator in charge of William's math acceleration when he was in second grade proudly took credit for his understanding of algebra, which he had mastered at home over a year prior to acceleration. At the same time, the administrator was quick to blame William for his "deficiencies," such as disorganized papers, backpack, and "childlike" behaviors in class. The administrator's eagerness to take responsibility for William's success which had nothing to do with her, and to condemn him for typical second-grade behavior which she could have helped him improve, was self-serving and led to low motivation and lack of effort on his part. In contrast, William's second grade teacher eagerly praised William for his part in doing well and at the same time, worked him to strengthen areas of deficiency. William valued the interdependent relationship and showed high levels of motivation and effort.

Figure 2

The Ideal Teacher for Highly Gifted Students

Trait:	The Teacher of Highly Gifted Students:
Competence	
Is Extremely Intelligent	Is as intelligent as the student or the mean of the group
Is Expert in Subject Matter	Fully understands theories, tenets, concepts, and details
Knows Basics of Gifted Education	Sees benefits of acceleration, above-level tests, & testing out
Takes Responsibility	Takes responsibility for impacts of teaching and modeling
Deep Caring	
Understands Highly Gifted	Perceives extreme giftedness as central to students' identity
Is Abundantly Available	Prioritizes time to build relations with highly gifted students
Fosters Persistence	Allows students to struggle and build perseverance
Distinctive Character	
Is Rigorously Honest	Is genuinely honest in relationships and deeds
Serves Humbly	Meets the needs of students, humbly and without self-service
Is Courageous	Advocates for what is right even if unpopular

Distinctive Character

In order for highly gifted students to reach their full potential, they need teachers with distinctive character marked by rigorous honesty, humility to serve, and courage to do what is right. It may be argued that all students deserve such teachers, and I would be one of the first to promote that argument. However, highly gifted students' early ability to "identify" with the morals of the adults around them, and the palpable intensity with which they interact, make them especially vulnerable to the values of those adults, including teachers. And, because they are vulnerable so much earlier and in such different ways than their age mates, it is especially critical for the social, moral, and intellectual development of highly gifted students that their teachers are of distinctive character (Hollingworth, 1942; Silverman, 1989; Gross, 1995).

All children imitate adults, sometimes with embarrassing accuracy. A highly gifted toddler carries a briefcase and argues intensely like his mother, an attorney. A highly gifted teen cranks the amps and plays guitar with his left hand like Jimi Hendrix. But "identification" goes beyond imitation. The process of identification allows children to take on the traits of another person, sometimes in order to experience that person's victories, and to avoid feelings of personal incompetence. Identification includes the internalization of values — internalization of values long before they have direct meaning for the children who have adopted them. The highly gifted toddler may giggle when his mother tells of twisting the truth and of humiliating others in order to win a case. He feels the power of winning. The teen is delighted to read about large concerts and creative music. He feels the power of entertaining thousands. Through identification, the admired person's actions become a substitute for an action of one's own.

Very early on, highly gifted children have adult-like goals, yet are keenly aware that society says they are not ready to carry out those goals. To resolve the conflict between what they can do and what society will allow, they often identify with adults whom they perceive as successful. Their early responsiveness and potentially unrefined views of "success," their palpable intensity, and the power of their gifts, defines their need for teachers who are rigorously honest and will not take advantage of them as they strive to resolve that conflict. Highly gifted students need teachers whose victories are worth experiencing and identifying with. Highly gifted students need teachers whose model of servant leadership will humbly teach them to do what is right. Early identification with adults is a primary source of moral values, and it is schools' teachers' responsibility to ensure that highly gifted students have opportunities to identify with those of distinctive character.

It is no accident that as a young boy, William was exposed to persons of fine character. His parents exhibited nearly all of the qualities presented as ideal traits of teachers of highly gifted students. As parents, they provided William

with a stable family life based on a firm spiritual foundation. In addition, they worked very hard to connect their son with others who were not only brilliant, but who also showed deep spirituality and held fast to their faith and moral convictions. Finding brilliant teachers who were "beyond reproach" was not easy, nor comfortable, but was worth the effort. William will soon be 15, and within the next year, will graduate from a university in the midwest. He has his heart set on graduate work where he will learn to combine his dual interests in genetic research and medicine to help find a cure for cancer.

Conclusion

Three main qualities — competence, deep caring, and distinctive character — characterize effective teachers for highly gifted students. The hallmarks of competence are extreme intelligence, expertise in a specific area, and familiarity with gifted students, abundant availability, persistence in fostering highly gifted children's talents, and being able to develop a caring relationship. The hallmarks of distinctive character are rigorous honesty, humility to serve, and courage to do what is right. It may be argued that teachers fitting these descriptions are rare, and indeed that may be true. However, highly gifted students are also so rare, and they deserve no less.

References

Feldhusen, J.F., Proctor, T. B., Black, K.N. (1986). Guidelines for grade advancement of precocious children. *Roeper Review, 9* (1), 25-27

Gross, M.U.M. (1995). Highly gifted/highly talented: Seeing the difference and making the difference for highly gifted students. *Tempo: Texas Association for Gifted and Talented, 15* (1), 1-14.

Hansen, J.B. (1995). Discovering highly gifted students. *Tempo: Texas Association for the Gifted and Talented, 15* (1), 17-19.

Hansen, J.B. and Feldhusen, J.F. (1994). Comparison of trained and untrained teachers of gifted students. *Gifted Child Quarterly 38* (3), 115-121.

Hollingworth, L.S. (1942). *Children above IQ 180: Their origin and development.* New York: World Books.

Kennedy, D. (1998). Teaching teachers about giftedness is not easy. University of Wisconsin: *News From the Network, 7* (1), p.2.

Silverman, L.K. (1989). The highly gifted. In J.F. Feldhusen, J. VanTassel-Baska, & K. Seeley (Eds.) *Excellence in educating the gifted* (pp. 71-83). Denver: Love Publishing.

Traina, R.P. (1999) What makes a good teacher? *Education Week, 1* (20), p. 34.

Understanding the Career Development of Talented Adolescents and Adults

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Career is a hot topic, the focus of syndicated newspaper columns, books, talk shows, workshops, college courses, and on-line resources. The nascent information age economy has created unprecedented job growth (McGinn & McCormick, 1999). The demand for workers with technical skills outstrips the supply. Recruiters flock to college campuses; companies devise creative ways to hire and retain talented professional workers. However, contemporary interest in career is not merely an artifact of our booming economy. Recall the intense interest in career during the recession economy of the early 1990s. College students were advised how to compete for rare on-campus interviews and how to get an entry-level position. Professionals were advised to market themselves to their current employers in order to survive downsizing. The content of the career conversation reflects prevailing economic conditions.

Yet the fascination with career is more than a reflection of the desire to participate in economic prosperity or to avoid unemployment. I suggest that career interest is reflection of four fundamental forces. First, careers reflect the future. Because college graduates entering the job market today will work well into the middle of the 21st century, the career conversation is a way to speculate abut an uncertain future. Second, college attendance, now at an all-time high (Chronicle of Higher Education, 1997), is becoming a normative experience. Moreover, there is unprecedented participation by women and members of all racial and ethnic groups in the transformative college experience (Chronicle of Higher Education, 1997). Third, college attendance has become very expensive. It can cost thousands of dollars to correct poor choices of colleges or degree objectives. Finally, there is widespread recognition that advanced education is needed to prepare workers who can contribute to the information-age economy. These forces have moved discussion of career from academic circles to broad social discourse.

Popular discussion of career is skewed in its focus on career *selection*. In numerous articles on careers of the future and academic program rankings, the focus is on making the *right* selection. However, selection is just one facet of career *development*, which is the outcome of the complex interplay of individual genetic endowment and contextual factors. Rather than a single choice at a single point in time by a young adult, career development is the expression of one's individual abilities and efforts in one's family, position in society, culture, and historical era. The purpose of this article is to identify how these individual and contextual forces shape the career development of talented individuals. This

discussion will highlight possibilities from promoting career development and raise awareness of the constraints to change.

An Overview of Career Development of Talented Individuals

Career development is only one domain of identity development (Erikson, 1968); there are also religious, lifestyle, and political identity domains (Skorikov & Vondracek, 1998). Development of a differentiated and committed sense of self within each of these domains contributes to overall identity development. Interestingly, evidence suggests that vocational identity crystallization is the leading edge of overall identity development (Skorikov & Vondracek, 1998) and that vocational identity crystallizes early for talented individuals (Achter, Lubinski, and Benbow, 1996). A focus on educational options and career aspirations can be an opportunity for parents, teachers, and adolescents to discuss the adolescent's emerging identity.

It also should be noted that vocational identity development proceeds at different rates for different individuals. Early vocational identity crystallization is more likely to occur for those with interests in the sciences, engineering, and the musical and performing arts. Students with outstanding verbal ability may be delayed in their vocational identity development because there are less immediate and tangible connections between verbal talents and the careers in which this talent can be expressed. Slow progress in vocational identity crystallization for talented individuals is neither unusual nor cause for alarm.

Individual Variables

The subsequent discussion is presented with the acknowledgment that individual differences cannot be truly understood in isolation from the social context in which they develop and are expressed.

Ability

One of the most enduring findings in applied psychology research is that ability matters. In fact, ability is vital to career development. General ability is the most powerful predictor of level of attainment across a wide variety of careers (Austin & Hanisch, 1990; Ree & Earles, 1996). If you are responsible for hiring a worker who will learn quickly and perform well, intellectual ability is the one worker characteristic that you would want to know prior to a hiring decision. This is true for jobs ranging from window washer to scientist. The predictive power of ability has been borne out by hundreds of studies (Hunter, 1986).

There are reliable and meaningful differences in general, math, verbal, spatial, and musical abilities (Carson, 1998; Humphreys, Lubinski, & Yao, 1993;

Pariser, 1995; Winner, 1996). These differences appear relatively early in life and are related to subsequent career attainment and performance. Any consideration of career choice should be grounded in a realistic assessment of individual strengths and weaknesses.

Interests

Differential psychologists have studied career interests for much of the 20th century; gifted individuals often have been the focus of this research (e.g., Terman & Oden, 1947). Four conclusions can be drawn regarding the interests of talented individuals (Kelly, 1995). First, their interests may crystallize early in adolescence. Achter, Lubinski, and Benbow (1996) studied the career interests of 13-year olds in the Study of Mathematically Precocious Youth (SMPY). Their interests were well differentiated at age 13 and strikingly consistent with their interests 15 and 20 years later (Lubinski, Benbow, & Ryan, 1995; Lubinski, Schmidt, & Benbow, 1996). Therefore, counselors can fairly confidently assess the career interests of mathematically talented adolescents.

Second, several generations of highly able students have expressed interest in the physical and health sciences, engineering, and the law. Succeeding generations of gifted individuals have seen these professions as worthy outlets for the mature expression of their talents.

Third, the career interests of talented individuals appear to reflect contemporary societal values. For example, although the Terman study participants expressed great interest in writing and teaching professions (Terman & Oden, 1947), later cohorts of talented adolescents expressed relatively low interest in journalism and writing and very little interest in teaching (Kerr & Colangelo, 1988). The interests of talented adolescents appear to be influenced by societal values.

Fourth, the career aspirations of highly talented students appear to be less stable than the aspirations of average college students. For example, the aspirations of National Merit Scholars changed significantly between high school graduation and the completion of the second year of college (Holland, 1985). Similarly, a third of the participants in Albert's (1994) longitudinal study pursued careers that were markedly different than their adolescent aspirations. Rather than a manifestation of career indecision or identity diffusion, instability in aspirations may occur because talented students are not fully aware of their occupational alternative available until they are pursuing their college studies. Mentors introduce students to new career options. Talented individuals are also actively involved in forging new careers and academic disciplines.

Counseling Implications

One limitation of the differential psychology approach to career development

is the assumption that traits are ingrained and static. For example, math talent is seen as the inevitable unfolding of a fortuitous genetic endowment. In fact, there is considerable evidence of the plasticity of some abilities and interests.

There are three important points to understand from Ericsson's (1996) work on the acquisition of expert performance. First, some abilities, such as developing absolute musical pitch, can be developed by *almost* all children (Takeuchi & Hulse, 1993). Second, there are critical periods for developing abilities. Absolute pitch is best learned between the ages of 3 and 5; it may be impossible for older children and adults to develop this ability (Takeuchi & Hulse, 1996). Third, attainment of expert performance is highly correlated with practice hours. By early adulthood, world-class musicians have spent thousands of additional practice hours than have musicians at the next (lower) echelon of performance ability (Ericsson, 1996). According to Ericsson, there is potential for plasticity in diverse abilities and we should develop conditions supporting the early initiation and maintenance of deliberate practice.

There is similar plasticity in interests. Barak, Shiloh, and Haushner (1992) demonstrated that manipulating perceptions of personal ability and expectations of satisfying and successful outcomes of task involvement can raise interests. Granted, there is a limit to the plasticity of development of interests. Betsworth et al. (1994) demonstrated that approximately 50% of the variance in interests is due to heredity. However, abilities and interests are subject to change if this is the goal of families, schools, and society. Interested readers should consult Ericsson (1996) and Barak et al. (1992) for more detailed descriptions of how to build abilities and shape interests.

Contextual Factors

Imagine now that you have chosen a wider lens and are viewing the culture in which talent is developed and expressed. Individual development can be seen as nested within two sets of powerful systems (Vondracek, Lerner, & Schulenberg, 1986). The *microsystem* refers to the family of origin. The *macrosystem* refers to culture and society. The subsequent discussion focuses on the formative influences of the microsystem and the ways in which the macrosystem provides the stage for the mature expression of talent in a career.

The Microsystem: How the Family of Origin Shapes Career Development

According to Vondracek et al. (1986), family activities and relationships affect career development.

Family activities. Activity refers to the common interests and pursuits of family members, including sports, music performance and appreciation, religious and community service, and scientific study and experimentation. Bloom's (1985) case studies of world-class performers artfully describe the

formative power of family activity. For example, the champion tennis players were members of tennis-playing families (Monsaas, 1985). The same pattern was evident for musicians (Sosniak, 1985) and swimmers (Kalinowski, 1985).

There are two key aspects to shared family activities. First, the chosen activity is highly valued by the family; there is consensus that tennis/piano/swimming is important and meaningful. This shared value focuses individual attention and provides gauge for attaining status within the family. It is difficult to sustain activities not valued by the family. In fact, lack of family support for career aspirations is one of the most significant reasons for career indecision among gifted adolescents (Hall & Kelly, 1995).

The second aspect of family activity is material support. Families make decisions about how to allocate time and money. We are familiar with stories of world-class athletes whose families moved thousands of miles to give a child the opportunity to work with a world-class coach. Families that prize musical activity are committed to paying for expensive lessons and musical instruments. Family activity is a vital structure that supports the early development of career interests and skills.

Parent-child relationships. As activity describes the *structure* supporting career development, so then family relationships are the *processes* supporting development. Activity refers to *what* happens; relationships refer to how development happens. There are two distinct family process dimensions: *Support* and *autonomy* (Grotevant & Cooper, 1985).

First, parents must provide emotional support to children as they encounter the innumerable challenges of childhood and adolescence. It is important to distinguish relationship support from activity support. Whereas activity support means providing a piano and lessons, relationship support means being available to talk to you daughter about her frustration with reaching a plateau of musical performance. Relationship support involves encouragement as well as sensitivity to the unique needs of the child.

Autonomy is quite different from support. Families also have the obligation of raising children with unique identities who are able to function autonomously and to solve their own problems. Not every developmental challenge can be met through the family support. Children also need to learn to think, feel, and act independently; they need to find ways to express their unique identities in their work.

Csikszentmihalyi, Rathunde, and Whalen (1993) studied adolescents from supportive, autonomous, and complex families. Supportive families were highly encouraging and responsive to their adolescents. Autonomous families encouraged their adolescents to be independent and demonstrated respect for individual interests, opinions, and decisions. Complex families were able to simultaneously provide support and encourage autonomous functioning by family members. Different outcomes were associated with these distinct family types.

First, students from supportive families received the highest grades and were

rated most likable and socially competent by their teachers and coaches. These students appeared to be quite adept at navigating the social demands of high school. Teachers and coaches rated students from the autonomous families as most talented, even though they did not receive the highest grades. This suggests that autonomous students were respected more than liked by teachers. Students high in autonomy also appear to have been less adept or willing to meet the academic and social requirements involved in attaining high grades.

The adolescents from complex families spent the most time practicing in their talent areas and in completing homework and the least amount of time watching television. They also reported the lowest levels of boredom during the school day and while engaged in homework assignments.

According to Csiskzentmihalyi et al. (1993), anxiety and boredom are the two most important impediments to productive activity. Anxiety is inherent in the growth process and inhibits learning. Boredom is endemic to school experience. Family support helps to minimize the anxiety that interferes with learning and skill acquisition. On the other hand, students from autonomous families are taught that they are responsible for their own boredom. "It's not your teacher's fault that you are bored. If you are bored, do something about it!" Rather than disengaging from boring tasks, these students learn to challenge themselves. Csikszentmihalyi et al. (1993) described the *autotelic* person as one who is able to calm oneself when anxious and challenge oneself when bored. Both skills are derived from family relationship processes.

The Macrosystems: How Broad Social and Cultural Forces Shape Career Development

Intriguing and challenging perspectives regarding macrosystem or contextual influences on career development model can be drawn from Vondracek et al. (1986) and the biographical research of the Goertzels (Goertzel & Goertzel, 1962; Goertzel, Goertzel, & Goertzel, 1978). Contextual factors include social and educational policies, economic conditions, and technological advances. The affect of the macrosystems can be readily apprehended by consideration of the following question: Would Bill Gates be a world-famous innovator and entrepreneur if he had been born in 1930, decades before the invention of microcomputers created need for software applications? Or in the year 1990, well after creation of universally applied software systems? It seems highly unlikely that his genius would have been fully expressed and recognized if he had not come of age simultaneous with the advent of computer technology. Let us briefly examine the influence of sociocultural context, economic conditions, and social and educational policy.

Sociocultural context. In the course of history, each significant cultural advance has been associated with the participation in dual cultures. For example, nearly one half of eminent contributors to American science, industry, or

culture were first-or second-generation immigrants (Goertzel & Goertzel, 1962; Simonton, 1996). The intellectual stimulation of two cultures and the tension between adhering to one's home culture and assimilating into the new culture provides the background for scientific and artistic excellence. Achievement motivation is also related to striving for family status within the new host culture. In contrast, politically repressed societies have generated few meaningful contributions to world civilization (Simonton, 1996).

Economic conditions. Because an extended period of acquisition of scientific knowledge precedes creative scientific accomplishment, eminent scientists in western society are likely to come from the middle and upper socioeconomic strata (Goertzel & Goertzel, 1962; Goertzel et al., 1978). Most eminent scientists of the 1800s, for example, were independently wealthy or supported by affluent families. This extended incubation period for scientific genius is easily disrupted by economic misfortune. Eminent scientists have also tended to come from stable families that did not experience premature parental death or divorce.

Social and educational policy. The successful Sputnik launch by the Soviet Union is a significant landmark in the history of American science. The funding and social policies that were instituted in response to Sputnik supported the development of a generation of scientific and engineering talent. The proposed government funding of the Internet II is a contemporary social policy that could affect the career development of a new generation of computer scientists.

Expression of talent *at the highest levels* occurs within a cultural context. If you were to design a macrosystem that supports talent development, it would include democracy, freedom of expression, vigilant protection of equal rights for all of its members, prizing of education, openness to immigrants of diverse ethnic origin, and a surging economy.

Conclusion

Serious study of career development reveals that eminent achievers were gifted in their individual genetic endowments and the fortunate member of families and a culture that supported the development and expression of their talents. This understanding not only heightens our appreciation of the complexity and fragility of career development, it also suggests that we can create conditions to promote greater talent development of all individuals. Such changes will require the wisdom to distinguish between those factors that are beyond our control and those that can be changed to yield more fulfilling and productive career development for those all along the ability spectrum.

References

Achter, J. A., Lubinski, D., & Benbow, C. P. (1996). Multipotentiality among the intellectually gifted: "It was never there and already it's vanishing." *Journal of Counseling Psychology, 43,* 65-76.

Albert, R. S. (1994). The achievement of eminence: A longitudinal study of exceptionally gifted boys and their families. In R. F. Subotnik & K. D. Arnold (Eds.), *Beyond Terman: Contemporary studies of giftedness and talent* (pp. 282-315). Norwood, NJ: Ablex.

Austin, J. T., & Hanisch, K. A. (1990). Occupational attainment as a function of abilities and interests: A longitudinal analysis using Project TALENT data. *Journal of Applied Psychology, 75,* 77-86.

Barak, A., Shiloh, S., & Haushner, O. (1992). Modification of interests through cognitive restructuring: Test of a theoretical model. *Journal of Counseling Psychology, 39,* 490-497.

Betsworth, D. G., Bouchard, Jr., T.G., Cooper, C. R., Grotevant, H. D., Hansen, J. C., Scarr, S., & Weinberg, R. A. (1994). Genetic and environmental influences on vocational interests assessed using adoptive and biological families and twins reared apart and together. *Journal of Vocational Behavior, 44,* 263-278.

Bloom, B. S. (1985). *Developing talent in young people.* New York: Ballantine.

Carson, A. D. (1998). Why has musical aptitude assessment fallen flat? And what can we do about it? *Journal of Career Assessment, 6,* 311-328.

Chronicle of Higher Education Almanac (August 29, 1997). *The nation: College enrollment trends.* Washington, DC.

Csikszentmihalyi, M., Rathunde, K., & Whalen, S. (1993). Talented teenagers: *The roots of success and failure.* Cambridge: Cambridge University Press.

Ericsson, K. A. (1996). The acquisition of expert performance: An Introduction to some of the issues. In K. A. Ericsson (Ed.), *The road to excellence: The acquisition of expert performance in the arts and sciences, sports and games* (pp. 1-50). Mahwah, NJ: Lawrence Erlbaum Associates.

Erikson, E. H. (1968). *Identity: Youth and crisis.* New York: Norton.

Goertzel, M. G., Goertzel, V., & Goertzel, T. G. (1978). *Three hundred eminent personalities.* San Francisco: Jossey-Bass.

Grotevant, H. D., & Cooper, C. R. (1985). Patterns of interaction in family relationships and the development of identity exploration in adolescence. *Child Development, 56,* 415-428.

Hall, A. S., & Kelly, K. R. (1995). Effects of academic achievement, sex, and community of residence on four types of career indecision. *Journal of Secondary Gifted Education, 7,* 293-302.

Holland, J. L. (1985). *The Self-Directed Search professional manual.* Odessa, FL: Psychological Assessment Resources.

Humphreys, L. G., Lubinski, D., & Yao, G. (1993). Utility of predicting group membership and the role of spatial visualization in becoming an engineer, physical scientist, or artist. *Journal of Applied Psychology, 78,* 250-261.

Hunter, J. E. (1986). Cognitive ability, cognitive aptitudes, job knowledge, and job performance. *Journal of Vocational Behavior, 29,* 340-362.

Kalinowski, A. G. (1985). The development of Olympic swimmers. In B. S. Bloom (Ed.), *Developing talent in young people* (pp.139-192). New York: Ballantine Books.

Kelly, K. R. (1995). Career Development: A synthesis of talent and identity development. *Gifted and Talented International, 10,* 9-14.

Kerr, B. A., & Colangelo, N. (1988). The college plans of academically talented students. *Journal of Counseling and Development, 67,* 42-48.

Lubinski, D. L., Benbow, C. P., & Ryan, J. (1995). Stability of vocational interests among the intellectually gifted from adolescence to adulthood: A 15-year longitudinal study. *Journal of Applied Psychology, 80,* 196-200.

Lubinski, D. L., Schmidt, D. B., & Benbow, C. P. (1996). A 20-year stability analysis of the Study of Values for intellectually gifted individuals from adolescence to adulthood. *Journal of Applied Psychology, 81,* 443-451.

Monsaas, J. A. (1985). Learning to be a world-class tennis player. In B. S. Bloom (Ed.), *Developing talent in young people* (pp. 211-269). New York: Ballantine Books.

McGinn, D., & McCormick, J. (February 1, 1999). Your next job. *Newsweek,* 42-45.

Pariser, D. (1995). Lautrec - gifted child artist and artistic monument: Connections between juvenile and mature work. In C. Golomb (Ed.), *The development of artistically gifted children* (pp. 31-70). Hillsdale, NJ: Lawrence Erlbaum Associates.

Ree, M. J. & Earles, J. A. (1996). Predicting occupational criteria: Not much more than g. In I. Denis & P. Tapsfield (Eds.), *Human abilities: Their nature and measurement* (pp. 151-165). Mahwah, NJ: Lawrence Erlbaum Associates.

Simonton, D. H. (1994). *Greatness.* New York: Guilford.

Skorikov, V., & Vondracek, F. W. (1998). Vocational identity development: Its relationship to other identity domains and to overall identity development. *Journal of Career Assessment, 6,* 13-35.

Sosniak, L. A. (1985). Learning to be a concert pianist. In B. S. Bloom (Ed.), *Developing talent in young people* (pp. 19-67). New York: Ballantine Books.

Stevens, G., & Cho, J. H. (1985). Socioeconomic indexes and the new 1980 census occupational classification scheme. *Social Science Research, 14,* 142-168.

Takeuchi, A. H., & Hulse, S. H. (1993). Absolute pitch. *Psychological bulletin, 113,* 345-361.

Terman, L. M., & Oden, M. H. (1947). *The gifted child grows up.* Stanford, CA: Stanford University Press.

Vondracek, F. W., Lerner, R. M., & Schulenberg, J. E. (1986). *Career development: A life-span developmental approach.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Winner, E. (1996). The rage to master: The decisive role of talent in the visual arts. In K. A. Ericsson (Ed.), *The road to excellence: The acquisition of expert performance in the arts and sciences, sports and games* (pp. 271-301). Mahwah, NJ: Lawrence Erlbaum Associates.

Social Development in the Gifted

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Abstract

Socialization means adapting to the needs of the group, whereas social development indicates positive self-concept and concern for the welfare of others. The former may result in alienation from one's inner self, while the latter leads to self-actualization. Gifted children have positive social development when they are respected in their families; when their parents value the inherent worth of all human beings; when they find true peers of similar ability at an early age; and when they interact with the mainstream after they have developed a strong sense of their own acceptability.

Social Development vs. Socialization

There has been a remarkable emphasis in American education on the process of socialization, as if this were the primary responsibility of the schools. This emphasis has intensified in the last 10 years at the expense of learning, particularly in the middle school philosophy. The students who love learning the most, and who are capable of learning the fastest, are the ones who have paid the highest price for this agenda.

It is generally assumed that unless the gifted are grouped with students of diverse abilities, they will "never learn to get along with others." Therefore, all provisions for gifted students — ability grouping, acceleration, pull-out programs, full day programs, special schools, homeschooling — are held suspect on the grounds that they will "seriously interfere with social adjustment." Contrary to popular beliefs, an immense amount of research accumulated over the last 70 years indicates that gifted children tend to enjoy greater popularity, greater social competence, more mature social relations, earlier psychological maturity, and fewer indications of psychological problems than their less gifted peers (Silverman, 1993). Almost all of this research was conducted with students involved with special provisions, such as acceleration or special classes. In their recent comprehensive review of the literature, Nancy Robinson and Kate Noble report:

> Perusal of a large group of studies of preadolescent children revealed [that]...as a group, gifted children were seen as more trustworthy, honest, socially competent, assured and comfortable with self, courteous, cooperative,

> stable, and humorous, while they were also seen as showing diminished tendencies to boast, to engage in delinquent activity, to aggress or withdraw, to be domineering, and so on. (N. Robinson & Noble, 1991, p. 62)

Clearly, then, socialization does not suffer when special provisions are made for these students' learning needs. And there is no evidence that regular classroom placement enhances the socialization of gifted students to a greater degree than grouping them for instruction with others of similar abilities, level of mastery, and readiness to learn advanced content.

Terms such as *socialization* and *social development* are used interchangeably in the gifted education literature, but these actually are very different concepts. *Socialization* is defined as adapting to the common needs of the social group (Webster, 1979, p. 1723) or acquiring "the beliefs, behaviors, and values deemed significant and appropriate by other members of society" (Shaffer, 1988, p2.). Gifted youth do have the inclination to adapt to the group, but at what price? If one works very hard at fitting in with others, especially when one feels very different from others, self-alienation can result. In their desperation to belong, many "well-adjusted" gifted youth and adults have given up or lost touch with vital parts of themselves.

Social development is a much broader concept than socialization; it may be thought of as awareness of socially acceptable behavior, enjoyment of other people, concern for humanity and the development of mutually rewarding relationships with at least a few kindred spirits. Lasting friendships are based on mutual interests and values, not on age. Self-acceptance is a related goal, as people who like themselves are more capable of liking others. When framed in this way, social development becomes a precursor to self-actualization, whereas *socialization is merely the desire to conform, which may inhibit self-actualization.* If the aim for gifted young people is social development rather than socialization, they need to be provided with true peers who are their intellectual equals, a program of humanitarian studies to enhance their awareness of global interdependence, and counseling for greater understanding, acceptance and appreciation of self and others.

The Foundation of Social Development

A parent who had just learned that her son was highly gifted remarked fearfully, "But I want my child to be a good neighbor!" She was worried that if her son was placed in a self-contained program for the gifted, he would not be able to get along with anyone except other gifted children — a familiar concern. His IQ score was beyond the norms in the test manual, estimated in excess of 170. His parents were not prepared for their son to be this bright; his mother wanted more than anything for him to lead a "normal life."

For this child's parents, as for so many other children's, "being normal" means having the ability to get along with people from all walks of life. This is an important value for most people, particularly parents of the gifted. How does

the gifted child learn to do this? There appear to be four key factors involved in gifted children's social development:

(1) a responsive home environment in which the child is respected;

(2) parental respect for individuals of all backgrounds and socio-economic status;

(3) opportunities to relate to other gifted children — particularly during the early years, when self-concept is being formed;

(4) opportunities to relate to the mainstream during adolescence.

Children are sponges, absorbing all that their environments have to offer — language patterns, attitudes, values, impressions of themselves. They usually begin life trusting, affectionate, exhilarated with each new discovery. If children are cherished by their parents, they come to cherish themselves and feel secure. A child whose ideas and needs are respected at home is likely to respect the needs of other children. Children also imitate the way their parents talk about and act toward others. When parents genuinely appreciate people of all backgrounds and abilities, their children usually do the same.

Due to their expert ability to pick up social cues, girls are better than boys at imitation. Therefore, it is important for them to be in an environment where imitation is conducive to growth. If they live in a home filled with kindness, they learn to be kind. If they live next door to children who call each other names, they learn how to swear. And if a girl who is mentally 8 years old is placed in a kindergarten with only 5-year-olds, she will imitate the behavior of 5-year-olds.

Many gifted children receive a good foundation for self-esteem within their families. Then something happens: they meet other children. By the age of 5 or 6, openness and confidence are frequently replaced with self-doubt and layers of protective defenses. Being different is a problem in childhood. Young children — even gifted ones — do not have the capacity to comprehend differences. They have difficulty understanding why other children do not think they way that they do. They equate differentness with being "strange" or unacceptable, and this becomes the basis of their self-concept. It's difficult for a child who has been wounded continuously by peers to feel generosity toward others. It takes positive experiences with children like themselves to build the self-confidence needed for healthy peer relations. Later, when their self-concepts are fully formed, they are better equipped to understand differences, to put negative feedback of age peers in perspective, and to gain appreciation of the diversity of their classmates. But acceptance precedes positive social values.

Children only learn to love others when they have achieved self-love. The process usually involves the following stages:

(1) self-awareness

(2) finding kindred spirits

(3) feeling understood and accepted by others;

(4) self-acceptance;

(5) recognition of the differences in others; and, eventually,

(6) the development of understanding, acceptance and appreciation of others.

Self-awareness includes being aware of how one is like others and how one is different from others. Gifted children are, in fact, different from their age-mates in many ways. They tend to be ashamed of these differences and try to hide them unless they find kindred spirits early in life. These kindred spirits help normalize their experiences and provide the safety for them to be who they really are. They provide the acceptance, understanding, and give and take on an equal basis that is required for true, lasting friendships to develop. When children find friends who accept them they become able to accept themselves. From this strong foundation, they can see how others are different from themselves without needing to imitate the norm.

When a solid base of self-esteem is developed in early childhood, gifted students are better equipped to branch out and make friends with others who are unlike themselves. Adolescence is developmentally the most appropriate stage for these widening horizons of social interaction. Gifted adolescents select their closest friends from among their mental peers, but they can also participate in team sports, band, extracurricular clubs, church and community activities, and social events in which they have opportunities to interact with students who have a wide range of abilities. With a support system of gifted friends and classmates, they can join in other groups without fear of rejection, and they are most likely to gain respect and assume leadership positions.

Social Development of Gifted Boys

Young gifted boys have extreme difficulty relating to children who are not at their own developmental level. They think the games of average children are "silly" or "babyish." A gifted 5-year-old boy with an 8-year-old mind gets angry when the other children do not follow the rules; he is unable to comprehend that his age-mates are not mentally ready to understand the meaning of rules. His own games tend to be highly organized and sophisticated. If the other children cannot relate to his games, or if they laugh at him or reject him, he concludes that there is something wrong with him (Janos, Fung & Robinson, 1985). Because he is unusually sensitive (Lovecky, 1991), he takes the teasing and criticism of others to heart and begins to develop a protective veneer. This thin layer doesn't really protect him — underneath it he is as vulnerable as ever — but it manages to place some distance between himself and other children in hopes that they can't hurt him as easily. This scenario is even more likely in the sensitive, artistic boy who is perceived as "feminine" and teased mercilessly for his lack of "manliness."

If a child is perpetually exposed to a hostile environment, he will withdraw more and more from social interaction. He will come to see himself as awkward and unloveable, incapable of making friends. He will distrust not only children who make fun of him, but most other children as well. He will expect to be laughed at and rejected even by strangers. A child who has had too many early negative experiences with others grows into an alienated adult, one who may

withdraw permanently from social contact. Too much risk is involved.

Fortunately, there is an antidote to this fate. If the child has early contact with others like himself, he does not come to see himself as different or "weird." He is able to make friends easily with others who think and feel as he does, who communicate on his level and share his interests. Association with true peers prevents alienation. Roedell (1985, 1988, 1989) has studied the social development of young gifted children. She stresses the immense importance of true peers and suggests that a major function of programs for highly gifted children is to help them discover their true peers at an early age. "The word peer refers to individuals who can interact on a equal plane around issues of common interest" (Roedell, 1989, p. 25). Many gifted children have different sets of peers for different activities (Roedell, 1985, 1989). Gifted preschoolers and kindergarten-aged children define themselves through their first social interactions, and if the gap between their development and that of their playmates is too great, they have difficulty adjusting.

> While adaptation is important, gifted young children also need the give-and-take of interactions with others of equal ability, where they can find acceptance and understanding, the keys to the development of successful social skills and positive self-concept. (Roedell, 1989, p. 26)

As the child gets older, he grasps the concept that not everyone is alike. He can take another's point of view and figure out how to make friends with children who are different from himself. With the inner security gained from positive social interactions, he perceives himself to be a friendly person and expects others to like him. Instead of becoming a social snob, holding everyone less gifted in disdain, he is more likely to become a humanitarian, recognizing that all human beings have value. His giftedness predisposes him to concerns about justice and ethics (Roeper, 1991). He will be equipped to be a good neighbor and a good friend, perhaps even a leader, because of his solid base of self-esteem and inherent values of fairness and empathy.

Disdain for others is a sign of low self-esteem. Of course, it also can be learned behavior. Snobbery is a problem related to socioeconomic rather than intellectual differences (Silverman, 1992). If people are devalued at home, it will be difficult for the child to learn to respect others. But when a child is respected at home and by his friends, respecting other people is a natural consequence. Good social adjustment is a reflection of early positive social experiences.

Social Development of Gifted Girls

The problem of imitation is even more acute for gifted girls than gifted boys. Because of their enhanced ability to perceive social cues, and their early programming as to the critical importance of social acceptance, girls learn more easily than boys how to modify their behavior to fit into a group. If the girl's

social group is mentally much younger than she is, she will frequently don the mental attire of her friends, and soon be imperceptible from them in thought, manner, and achievement. The girl's chameleon qualities are her saving grace in social situations, but they are also her greatest handicap in the development of her abilities (Kerr, 1985). What is to be gained for a girl in becoming an achiever? According to the girl's reports, very little.

Researchers consistently have found that girls with high ability feel compelled to hide their intelligence (Bell, 1989; Buescher & Higham, 1989; Kerr, 1991; Reis & Callahan, 1989). Bright high school girls are often less popular than boys (Casserly, 1971). Boys value the reputation of being an intellectual to a much greater extent than girls (Coleman, 1961). Fox (1977) found that highly capable junior high school girls would not leave their friends for the opportunity to accelerate in their coursework. Women who use their intellect often do so at the expense of social relations (Bachtold & Werner, 1970).

Even more disturbing are the findings from the research on self-concept and achievement. Locksley and Douvan (1980) discovered that girls with high grade point averages were significantly more depressed, had more psychosomatic symptoms and had lower self-esteem than boys with high grade point averages. Petersen (1988) has found that self-image scores in high achieving junior high school girls increase as their grades decrease, whereas the opposite is true for boys. A large-scale study of 3,000 students documents an alarming loss in self-confidence and achievement in girls as they move from childhood to adolescence (AAUW Educational Foundation, 1992). These losses are not matched in boys.

Essentially, the gifted young woman is faced with a Sophie's Choice: if she chooses to be true to herself, to honor her drive for achievement and self actualization, she breaks some unspoken rule and faces disconnection (Gillgan, 1988), taunts and rejection from both male and female peers. If she chooses to give up her dreams, to hold herself back, to redirect her energies into the feminine spheres — preoccupation with boys, clothes, appearance, observing her tone of voice, choice of words and body language, remaking herself to become attractive to the opposite sex — she is accepted and rewarded for her efforts (Silverman, 1995). Since there is little immediate value in choosing achievement over social acceptance, a girl would have to have incredible self-assurance to make that choice.

For these reasons, it may be particularly critical for gifted girls to associate with mental peers early in life. Without the encouragement of the social group to develop their talents, much of their ability may be permanently lost. The amount of waste of talent from atrophy and lack of development is incalculable. Since life goals and attitudes toward achievement are often formed before school-age, the earlier positive intervention occurs, the more likely that girls will be able to value and develop their intellectual capabilities without loss of social status.

Roedell reminds us of the essential link between cognitive, social and emotional development:

> When parents and teachers understand the implications of the differentness inherent in being gifted, they can create conditions that will support the child's positive social and emotional growth. The first step is to realize the inextricable link between social and cognitive development... If the child also makes the discovery that communication with classmates is difficult, and that others do not share his/her vocabulary, skills, or interests, peer interactions may prove limited and unsatisfactory. We cannot ignore the gifted child's need for intellectual stimulation and expect social development to flourish. (Roedell, 1988, pp. 10-11)

Elitism

There is a pervasive myth that if gifted children are told they are gifted, they will gain "swelled heads" and hold everyone else in disdain. In fact, the opposite is true. Children who are never told about their giftedness often think that they are average, and if they understand something, everyone else *should* understand it just as well. When gifted children are given the opportunity to discuss as a group what it means to be gifted, they understand themselves better and have greater compassion for others. Gifted children from various parts of the world have shared in such groups that they believe everyone has equal worth, regardless of ability. Giftedness does not mean "better than"; instead, it means "different from." When these specific differences are talked about, instead of hidden, children develop healthy attitudes about themselves and about others. Many gifted children want to help, want to be of service, and are eager to support others. They do not adopt elitist attitudes unless these are modeled by adults. Being placed in classes with other gifted children curbs arrogance, rather than fostering it. Perhaps for the first time, the child realizes that someone else is more advanced in mathematics, is reading harder books, and knows more about dinosaurs or space. It can be a very humbling experience to a child who thrives on being the "best" in the class.

Conclusion

Gifted children need acceptance and respect from their families. They need parents who truly believe that everyone on the planet is of equal value and worthy of respect. Parents with humanitarian values, who work for the common good, who are involved in community service, will teach through example how to use one's gifts for the good of all. Gifted children need to find other children like themselves as early as possible so that they feel accepted and understood. This will form the basis of lasting friendships and true social development. They need teachers to look for and develop their strengths, rather than focus on their weaknesses or equalize their abilities. And they need experience with the mainstream when they have formed a strong enough self-concept so that they are not dependent on acceptance from age-mates who might not understand them. Only then will they grow to be healthy, compassionate global citizens.

References

AAUW Educational Foundation. (1992). *The AAUW Report: How schools shortchange girls. Executive summary.* Washington, DC: American Association of University Women Educational Foundation.

Bachtold, L., & Werner, E. (1970). Personality profiles of gifted women: Psychologists. *American Psychologist, 25,* 234-243.

Bell, L. A. (1989) Something's wrong here and it's not me: Challenging the dilemmas that block girls' success. *Journal of the Education of the Gifted, 12,* 118-130.

Buescher, T. M. & Higham, S. J. (1989). A developmental study of adjustment among gifted adolescents. In J. Van Tassel-Baska & P. Olszewski-Kubilius (Eds.), *Patterns of influence on gifted learners. The home, the self, and the school* (pp. 102-124). New York: Teachers College Press.

Casserly, P. L. (1979). Helping able young women take math and science seriously in school. In N. Colangelo & R. T. Zaffrann (Eds.), *New voices in counseling the gifted* (pp. 346-369). Dubuque, IA: Kendall Hunt.

Coleman, J. S. (1961). *The adolescent society.* New York: Free Press.

Fox, L. H. (1977). Sex differences: Implications for program planning for the academically gifted. In J. C. Stanley, W. C. George, & C. H. Solano (Eds.), *The gifted and the creative: A fifty year perspective* (pp. 113-138). Baltimore: The Johns Hopkins University Press.

Gilligan, C. (1988). Prologue: Adolescent development reconsidered. In C. Gilligan, J. V. Ward, & J. M. Taylor with B. Bardige (Eds.), *Mapping the moral domain: A contribution of women's thinking to psychological theory and education* (pp. vi-xxxix). Cambridge, MA: Harvard University Press.

Janos, P. M., Fung, H. C., Robinson, N. M. (1985). Self-concept, self-esteem, and peer relations among gifted children who feel "different." *Gifted Child Quarterly, 29,* 78-82.

Kerr, B. A. (1985). *Smart girls, gifted women.* Columbus, OH: Ohio Psychology.

Kerr, B. A. (1991). Educating gifted girls. In N. Colangelo & G. A. Davis (Eds.), *Handbook of gifted education* (pp. 402-415). Boston: Allyn & Bacon.

Locksley, A., & Douvan, E. (1980). Stress on female and male high school students. In R. E. Muuss (Ed.), *Adolescent behavior and society: A book of readings* (3rd ed., pp. 275-291). New York: Random House.

Lovecky, D. (1991). The sensitive gifted boy. *Understanding Our Gifted, 3(4),* 3.

Peterson, A. (1988). Adolescent development. *Annual Review of Psychology, 39,* 583-607.

Reis, S. M., & Callahan, C. M. (1989). Gifted females: They've come a long way — or have they? *Journal for the Education of the Gifted, 12,* 99-117.

Robinson, N. M., & Noble, K. D. (1991). Social-emotional development and adjustment of gifted children. In M. C. Wang, M. C. Reynolds, & H. J. Walberg (Eds.), *Handbook of special education. Research and practice. Volume 4: Emerging programs* (pp. 57-76). New York: Pergamon Press.

Roedell, W. C. (1985). Developing social competence in gifted preschool children. *Remedial And Special Education, 6 (4),* 6-11.

Roedell, W. C. (1988). "I just want my child to be happy": Social development and young gifted children. *Understanding Our Gifted, 1 (1),* 1, 7, 10-11.

Roedell, W. C. (1989). Early development of gifted children. In J. VanTassel-Baska & P. Olszewski-Kubilius (Eds.), *Patterns of influence on gifted learners: The home, the self, and the school* (pp. 13-28). New York: Teachers College Press.

Roeper, A. (1991). Focus on global awareness. *World Gifted, 12(4),* 19-21.

Shaffer, D. R. (1988). *Social and personality development* (2nd ed.). Pacific Grove, CA: Brooks Cole.

Silverman, L. K. (1992). Scapegoating the gifted: The new national sport. *Images, 6(2),* 1, 3-5.

Silverman, L. K. (1993). Social development, leadership and gender. In L. K. Silverman (Ed.), *Counseling the gifted and talented.* Denver: Love.

Silverman, L. K. (1995). To be gifted or feminine: The forced choice of adolescence. *Journal of Secondary Gifted Education, 6,* 141-156.

Webster, N. (1979). *Webster's deluxe unabridged dictionary* (2nd ed.). New York: Simon & Schuster.

Highly Gifted Children in the Early Years of School

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A couple of years ago, while shopping in my local supermarket, I noticed, with delight and amusement, a small boy aged about 3 whose mother was wheeling him along the aisles in the shopping cart, and who was entertaining himself, as she shopped, by reading aloud the text on the cereal packages. He was already a fluent and articulate reader and pronounced phrases such as "excellent Swiss formula" and "tasty combination of nuts, raisins and wheat-germ," with no difficulty at all and, indeed, with a certain elan. He seemed to savour the sound of the words. However, when he came to the word "nutritious" he made a couple of attempts to pronounce it, wiggled his nose, and then said, "Mum, how do you say this?" She read it aloud for him and then explained its meaning. "Oh good," he said, and carried on reading.

This little dialogue was conducted quietly; there was no pretentiousness in either the child or the mother, and certainly no attention seeking. I must admit that, as a researcher with a special interest in highly gifted young children, I was sorely tempted to ask the mother a few questions about her delightful young companion, but I held back. It would, after all, have meant interrupting a private conversation!

Another shopper, however, had no such scruples. As the mother and child (followed closely by the fascinated author, eavesdropping enthusiastically!) moved along the aisle, a woman passing leaned over to the mother and admonished her sharply with, "Why are you pushing him! Let him be a child!" The mother blushed scarlet, and the little boy faltered in his reading and stared up at her. He looked at the lady who, having fired her shot, was now sailing triumphantly ahead towards the checkout. "What did that lady mean?" he asked in a small voice. He did not understand, but he knew that the woman's tone was disapproving and certainly knew that she was not referring to his being pushed in the shopping cart!

In Australia, as in America, children who are gifted in sports or athletics are permitted, and indeed encouraged, to display their physical precocity. Even a 3- or 4-year old who can run faster, jump higher or throw a ball more accurately than his or her age-peers is likely to be warmly and publicly praised. By contrast, children whose gifts are of the mind, rather than the body — children who can speak more articulately, read more fluently, or count more accurately -- are treated with suspicion and wariness and are discouraged from displaying their skills too frequently or too overtly.

The case of Emma and society's double standards

One of the most remarkable examples yet recorded of extreme intellectual precocity coupled with extreme physical precocity is the case of Emma who lived, until recently, in a country area of Australia. Now 4 years old, Emma showed remarkable physical precocity from earliest childhood; the nursing team in the maternity ward recorded that she had 85% head and upper body control from the moment of birth. She sat up alone at 4 months, walked (and talked) at 8 months and was running around the house before her first birthday.

One afternoon when Emma was 11 months old, she and her mother were watching, on television, the Melbourne Cup — Australia's equivalent of the Kentucky Derby. Emma became immensely excited, jumping with delight and shouting "Go, go, go" to the horses. When her father arrived home that evening she greeted him urgently with, "Me ride! Me ride!"

Emma laid siege to her parents over the next three months, nagging and begging them daily for riding lessons. Eventually, with the intention of showing her that she really was much too young to ride a pony and would have to wait a few years, her parents took her to the local riding school for trial lessons.

The riding instructor was astonished by Emma's natural balance and coordination — and by her remarkably swift and full comprehension of instructions. At the end of the ride she told Emma's mother that although 3 or 4 was the more usual age to begin riding lessons, she would accept Emma for training in recognition of her remarkable physical and intellectual precocity. Emma adored the lessons and went from strength to strength. At the age of 17 months she became the youngest child ever to compete in an Australian gymkhana event and won second place in a competition against 12 other junior riders aged between 3 and 7.

As stated earlier, Emma's precocity is intellectual as well as physical. By the time she was 10 months old she was already using two and three-syllable words, and by 13 months she had a vocabulary of more than 80 words, including complex words such as flower, raining, sunshine, spaghetti and pineapple. Now, at 4, she is extremely articulate, with the vocabulary, syntax and grammar that one would more readily expect from a 7- or 8-year-old.

However, by the time Emma was 3, her mother Lea was noticing radically different attitudes, among neighbors and other community members, towards Emma's physical and intellectual gifts. At the riding school and in the junior gymnastic class she attended, her talents were praised and valued, she mingled happily with the older children and was accepted by them without question, and she was encouraged to develop her remarkable skills to the fullest. However, at the play-school she attended each morning, the teachers refused to allow her to join the sessions for 4- and 5-year old children, insisting that she stay with the 2- and 3-year olds who were her age peers.

This led to several problems. Like many highly gifted children, Emma's play

interests have always resembled those of older children (Gross, 1993). She found her age-peers "babyish" and had little interest in their company. Equally, the 2- and 3-year olds had little interest in Emma; she didn't like their games and they didn't understand hers! Her teachers insisted, however, that is was important for her to learn to socialize with her "peers" and refused to allow her access to the children whose company she preferred. Eventually, in an attempt to gain the acceptance of the younger children, Emma reverted to "baby-talk" and began to mimic their play and social behavior.

Emma's mother believes that even at this early age Emma had already noticed, and internalized, the different responses to her two areas of talent. "At riding school," she says, "it is expected that she should be a gifted rider, and that is exactly how she is behaving. At play-school it was expected that she should be immature, and that it is exactly how she has learned to behave there. When she was with children of her own age she adopted their vocabulary and their speech patterns. When she was at the riding school she spoke normally. *By the time she was 3, she had been taught that it's okay to stand out physically but that intellectually you have to conform.*"

Just before Emma's fourth birthday, her parents decided that, if Emma were to receive an education at all commensurate with her ability, they would have to seek a school with a special interest in gifted children. With much regret, they left their home in its quiet country setting and enrolled Emma, at 4 years 2 months, in a private school in the major city of their state. She is in a special class of intellectually gifted 4- and 5-year-olds selected on a range of identification procedures, including individual IQ testing.

It will be interesting to see whether, in this more facilitative environment, Emma's intellectual and physical gifts will be allowed to flourish equally.

Levels of Giftedness

Emma, and almost certainly the young man in the supermarket, are *highly* gifted children. The cognitive and socio-affective characteristics and needs of these children differ, often quite remarkably, from those of more moderately gifted students. Ironically, however, it is our most highly gifted children who are most poorly served in our schools.

In general this arises from teachers' lack of familiarity with highly gifted students and their consequent unsureness of exactly what to *do* with them. The problem is compounded by a reluctance among teachers — even with a genuine interest in gifted students — to acknowledge and respond to the different *levels* of giftedness within the gifted population.

We should not, however, blame these teachers too hastily. Whereas teachers of other "special needs" groups, such as hearing impaired or intellectually disabled students, are shown, as an integral part of their training, how to recognize and respond to different levels and degrees of the condition they are working

with, teachers of the gifted are generally given no such training. Consequently, many educators, for lack of better knowledge, work on the assumption that gifted children are a relatively homogeneous group.

Silverman (1989) defines the highly gifted as children whose intellectual ability is significantly beyond the norm of the gifted, and suggests that any child who scores three standard deviations above the mean on an individual IQ test should be termed highly gifted: that is, children of IQ 145 or above. Such children appear in the population at a ratio of fewer than 1 in 1,000. They need a curriculum which is significantly differentiated in level, pace and content from what might be offered to moderately gifted students — and the inclusion classroom may not be the place for them! Yet highly gifted students are often at risk from teachers who are not trained in how to work with them and who may even, quite wrongly, assume that their academic advancement comes from having been "pushed" by their parents.

Developmental Precocity in Highly Gifted Children

For more than 80 years, studies of intellectually gifted young children, and particularly the highly gifted, have shown that they display significant differences from the normal developmental patterns of early childhood. The unusually early and swift development of speech, movement and reading are extremely powerful indicators that the child may be intellectually gifted. Of course, not every child who speaks, walks or reads early is gifted, but when these skills appear at extremely early ages, and particularly when they appear together, they are generally linked to unusually advanced intellectual development.

Early Development of Speech

An unusually early development of speech seems to be typical of intellectually gifted young children (Terman, 1925; Gottfried, et al, 1994). Whereas the average age at which a child can be expected to utter her first meaningful word (other than "mamma-dadda" babble) is around 12 months, gifted children begin to speak, on average, some two months earlier. Not only do they start earlier, but the stages of speech development are passed through more rapidly than in children of average ability. By 18 months the average child has a vocabulary of 3 to 50 words but makes little attempt to link them in short phrases until the age of 2; however, in gifted children, linking words into phrases can commence as early as 12 months. Jersild (1960) noted that by the age of 4 ½ the average number of words in a sentence spoken by average children was 4.6 words, while for the gifted it was 9.5.

Studies of highly gifted children record instances of linguistic precocity far beyond even that of the moderately gifted. Since 1983 I have been engaged in a longitudinal study of Australian children of IQ 160+ (see, for example, Gross,

1993; Gross, 1998). The average age at which these 53 children uttered their first word was 9 months. Eleven children spoke their first meaningful word by age of 6 months. Barbe (1964) studying children of IQ 148+, noted that the average age by which these children were speaking in full sentences was 16 months as against 2 years in the normal population.

The speech of some highly gifted children demonstrates quite remarkable fluency and complexity. Adam, one of my own subjects of IQ 160+, uttered his first word at 5 months and by two months later was talking in 3 and 4 word sentences. Roedell and her colleagues reported a 2-year-old who regularly used such complex sentences as "I'm trying to figure out where I left my dancing shoes" and "I want to take a look at this story to see what kinds of boys and girls it has in it." (Roedell, Jackson and Robinson, 1980). Ian of IQ 200, could sing "My Grandfather's Clock" from start to finish by the age of 23 months — a remarkable feat of memory — and at 2 years 4 months surprised some family friends by commenting, "You know my father is a mathematician and my mother is a physiotherapist."

Kearner (1992, p. 9) tells the remarkable story of Andrew, aged 2, who, just like the young man I described at the start of this article, was being pushed by his mother, in her grocery cart, along the cereals aisle of the local supermarket. Andrew, who had a passionate interest in the nutritional values of different foods (an example of the love of counting and classifying which often characterizes the highly gifted) noticed, to his concern, that a group of three middle-aged women were selecting cereals that he knew were nutritionally deficient. He stood up in the shopping cart and called, "Put these back! Put these back! Don't you realize *that* cereal is bad for you? It's mostly sugar and it contains artificial flavors and colors!"

Occasionally the speech of highly gifted children may be delayed, as in the case of two brothers in my own study who did not speak until 18 months and 21 months respectively. In these situations, however, when speech does appear, it often bypasses the "single words" stage and arrives in the form of phrases of even short sentences.

Early Development of Mobility

The remarkable early mobility and coordination displayed by Emma is astonishing when compared with age-peers, but less astonishing when one becomes aware of the tendency for highly gifted children to demonstrate as rapid a progression through the stages of mobility as through the stages of speech development.

Even moderately gifted children learn to stand alone, walk and run earlier than their age-peers, but highly gifted children display even greater precocity in movement. One young boy in my own study, Rick, of IQ 162, was sitting up by himself at 4 ½ months, running at 11 months and riding a two-wheeled bicycle

unaided at age 3.

In Cathie Harrison's book *Giftedness in Early Childhood* the father of Amman, a highly gifted young boy, describes his son's remarkably early development of mobility which was paired with the intense curiosity and determined pursuit of anything that interested him, which parents of highly gifted young children often report as one of the most striking characteristics of their children.

> "Although only 13 weeks old, Amman was able to somehow propel himself along the floor. We would place him on the blanket as other parents of young babies would. Their children would remain in the same spot, but Amman would be off in some corner of the room staring at some object which has obviously caught his interest." (Harrison, 1999, p. 23.)

Early Development of Reading

The research literature on intellectual giftedness suggests that it is early reading that most clearly differentiates between moderately and highly gifted children. Even in the 1920s, researchers such as Terman (1925) and Hollingworth (1942) were recording quite remarkable examples of early reading. Studies undertaken in the last 30 years, when print has become much more accessible to young children through television and the other advertising media, show even greater incidence of reading among gifted children in the early years. More than 90% of the children of IQ 160+ in my Australian study were reading before the age of 5. The research literature on the highly gifted contains a wealth of information on extremely gifted children who learned to read either with no assistance or with minimal assistance from their parents.

Many highly gifted young children develop a passionate love of reading which stays with them throughout their lives. Surveys of the hobbies and interests of intellectually gifted children consistently show reading as the pastime most enjoyed, far beyond television viewing, sport or computer games (see, for example, VanTassel-Baska, 1983; Gross, 1993); indeed, for some, reading can become almost an obsession! Several parents of children in my study described the difficulties that can arise when a child becomes so absorbed in the book she is currently reading that she refuses to be parted from it.

> "Some of my friends tell me about the difficulties they have in getting their children to read. The problem we have with Alice is to get her to stop reading long enough to do anything else — like going to the shops or doing her piano practice! If we go out, no matter for how short a time, a book or a couple of books go in the car with us. It's very difficult to (estimate) the amount of time she reads because very often we find her reading at the same time as doing something else." (Bianca, mother of Alice, aged 8, in Gross, 1993, p. 158)

There are two important outcomes of highly gifted children's unusual precocity in speech, movement and reading.

Firstly, early mobility allows highly gifted children to explore their surroundings several months earlier than other children of their age, while their very early speech enables them to express their ideas, seek information and interact with their parents and family members at an age when other children are only beginning to experiment with speech. Their early reading gives them access to an information bank not usually accessible to children until several years after school entry.

Secondly, highly gifted children's difference from their age-peers is identifiable from an early age, not only to their parents but to neighbours and other members of the community. It is difficult either to ignore or to conceal a child such as Emma, Andrew, or my young friend of the supermarket. As discussed earlier, while physical precocity is forgiven, or even admired, precocity in speech and reading is often attributed to the child having been "pushed" by ambitious parents.

Teachers, in particular, tend to assume that a child who enters school already reading must have been taught to read by her parents and, unfortunately, many teachers resent this. Parents of several of the early readers in my study reported that when their children's teachers become aware that these first graders could already read at third, fourth or fifth grade level, their comments centered not on the pleasing quality of the child's reading but on the presumed "coaching" by the parent. Comments such as, "It's not fair to hothouse her like that," "Let him be a child; he'll have to grow up soon enough," and "There's no point in pushing her like that; the others will catch up anyway," were common, and many of the parents expressed their concern that the teachers felt free to make these highly critical comments *in the presence of the child!*

The Onset of Underachievement

Teachers sometimes use the term "underachievement" rather loosely. When we describe a child as "underachieving" we are not comparing her with the standard we would expect for a child of her age; rather, we are assessing her against the standard she is *capable* of achieving. For example, we should not describe a slow learning or intellectually disabled third grade student as an "underachiever" if he is not performing, in the classroom, at third grade level. It might well be that the child is striving eagerly to do as well as he can and is, indeed, achieving to full extent of his ability.

Similarly, we should not assume that a gifted child is achieving to the full extent of *her* capacity simply because her performance exceeds that of other students in the class. The in-class performance of many highly gifted children, even in the early years of school, is several years below the level of their tested achievement (Gross, 1993). More than 50 years ago the great psychologist Leta Hollingworth noted that children of IQ 140 wasted half their time in the regular classroom, while children of IQ 170 wasted all their time. In the United States,

with the "dumbing down" of curriculum during the last 20 years and the disestablishment of many programs for the gifted during the last decade, this situation has deteriorated rather than improved.

Underachievement in gifted children can be *imposed* or *deliberate*. Imposed underachievement arises from factors which lie outside the child, and usually outside her control, such as socio-economic disadvantage, having a learning disability such as dyslexia, or membership of a culture which undervalues or discourages individual achievement. Underachievement is often imposed by a teacher who is unaware of the full extent of the gifted child's potential or who is unable to develop a differentiated curriculum responsive to her needs.

The curriculum of the mixed-ability classroom is almost invariably set at a level and pace responsive to learning need of the average child in the group. All too often the young, highly gifted child who enters school already reading is required to undertake reading readiness exercises with the other children; the math skills of the 5-year-old who is already able to add and subtract are ignored and she is "introduced" to the concept of number. Because the average child needs several exposures to a new concept, or a new skill, before it is firmly grasped, the gifted child is likely to sit through five or six repetitions of work he understood, *and demonstrated that he understood,* on the first or second exposure. Flanders (1987), surveying math textbooks used in elementary schools, found that more than 60% of the work of the second grade math curriculum was work which the children had already covered in kindergarten or first grade! Indeed, one of the first things a highly gifted child learns in school is that he will be "taught" very little that he does not already know. As Hollingworth put it, "With little to do, how can these children develop powers of sustained effort, respect for the task, or habits of steady work?" (Hollingworth, 1942, p. 299).

Parents of young highly gifted children who approach the school to discuss their children's high abilities are very often disbelieved. When the mother of Adam, of IQ 162, approached his kindergarten teacher to let her know that Adam was a competent and enthusiastic reader and had been so since the age of 3, she was treated with polite disbelief.

> "She smiled at us as if what we had said was a social pleasantry rather than a piece of information that might help her with his education, and we soon found out that this was, indeed, the attitude taken by the kindergarten staff. Matters were complicated by the fact that Adam had already passed through the stage of having to read aloud, and now preferred to read silently, so when the teachers did notice him poring over a book, they assumed he was simply looking at the pictures." (Gross, 1993, p. 220)

Teachers are often unaware of the degree to which gifted children engage in *deliberate* underachievement for peer or teacher acceptance. Many gifted children recognize, as early as 3 or 4, that they are different. This stems partly from the comments of adults and children around them which, as we discussed, are

not always complimentary; a major factor, however, is that gifted children engage in social comparisons significantly earlier than their age-peers. Highly gifted children of 4 or 5 may already have learned to compare themselves with the other children around them, whereas this capacity does not develop, in the average child, until 7 or 8 years old.

This awareness of difference, however, rarely leads to conceit or feelings of superiority. Rather, highly gifted children may feel acutely uncomfortable and act swiftly to change their behavior in order to conform to the social norms of their age-group. Emma, as related earlier, learned to mimic the speech and behavior of her classmates. Hadley, of IQ 178, who had been reading since the age of 18 months, entered school at age 5 ½ with reading capacities of a 10-year-old but promptly began to mimic his classmates by selecting picture books, or books with only a few words of text, from the classroom bookshelves.

During his first months at school, Ian, of IQ 200, particularly disliked having to read aloud, and would mumble and stumble over words to the extent that his teacher remained quite unaware that only a few months previously he had been assisting his pre-school teacher by reading aloud in class. One day, when Ian was in second grade and had fortunately been identified as a gifted student, I was chatting to him and, not for the first time, I was struck by the richness and maturity of his vocabulary, the breadth of his interests and the depth of his knowledge of the many fields he had explored in books. I was curious to know how his first grade teacher had not recognized, from his vocabulary and his almost adult mode of expression, that she was dealing with a child of quite remarkable ability. I tried, as tactfully as I could, to ask him why this had happened.

In the most matter-of-fact way, Ian explained the situation. "Well, I didn't use my normal vocabulary at school," he said. "I used my camouflage vocabulary." And then he explained how, after a very few weeks at school, he had decided that the only way to protect himself from the resentment and derision of the other children was to conceal his difference as best he could. Thus, at age 5, Ian had developed two quite distinct and separate vocabularies to avoid detection. His "normal" vocabulary, as he termed it, which he used with his family and close adult friends, was that of an informed and articulate adult. His "camouflage" vocabulary, which mimicked brilliantly the speech and syntax of his age-peers, was reserved for use at school with his teachers and classmates; it was designed to conceal, from people whom he did not trust, his shameful secret of having the mentality, interest and speech of a person twice his age.

Identifying Intellectually Gifted Young Children

The procedure most commonly used in primary and elementary schools to identify intellectually gifted children is teacher nomination. Unfortunately, this procedure, used alone, is probably the least effective method of identifying gift-

ed children in the early years of school. Betts and Neihart (1988) estimate that as many as 90% of young children nominated as "gifted" by teachers are verbally articulate teacher-pleasers who make friends easily with other children and who are cooperative in the classroom.

Research studies have repeatedly shown that parents are much more successful than teachers in identifying giftedness in the early years. It is during the first three years of life that cognitive development proceeds most swiftly, and the changes in the child's behavior are most visible, and most dramatic. By the time the teacher enters the scene, developmental changes have become more gradual. Furthermore, the parent sees a much wider range of cognitive and affective behaviors than does the teacher who operates in a setting which imposes greater uniformity of conduct upon the children she teaches. At home, the gifted young child feels no need to modify his behavior for peer acceptance whereas, as discussed earlier, highly gifted children such as Ian, Hadley or Emma may learn to camouflage their abilities within the first few weeks of school.

Ability and Achievement Testing

The most effective method of identifying highly gifted children in the middle years of school is through standardized tests of ability and achievement, particularly when the tests that are used have a high enough ceiling to discriminate between children at different levels of giftedness, or when off-level testing (using a test normed on older children) is employed to identify children who possess truly exceptional abilities in specific subject areas. However, many teachers or building principals refuse to refer a young child for psychometric assessment. They are aware that the reliability of IQ tests is somewhat less accurate when a child is 4 or 5 years old than at around 7 or 8 and they may even believe, quite wrongly, that this early testing will result in an inflation of the young child's scores. On the basis of this, they will recommend that testing be postponed until the child is in second or third grade (Gross, 1993), even when it is obvious that the child is very highly gifted and will require early intervention and an individualized educational program. They are unaware that psychometric testing, even in the early years, is still a much more reliable identifier of high intellectual ability than teacher nomination — or even parent nomination!

Ironically, few of the early childhood educators who well-meaningly postpone the assessment of intellectually gifted young children would even think of counseling a delay in the assessment of children from any other "special needs" group. For example, the reliability of audiometric testing is considerably lower at age 4 or 5 than at 7 or 8, but if an early childhood teacher suspects that a young child is hearing impaired she will not delay assessment until an age when the test will have greater reliability! Rather, the child is audiometrically assessed as soon as her disability is suspected, and an intervention is designed and put in

place. The child is retested a few years later when the test is more reliable, and her program can be modified according to what are now seen to be her needs. Meanwhile, her early needs have been diagnosed and met!

An important factor in the reduced reliability of IQ testing of young highly gifted children is the "fatigue effect." The more highly gifted the child, the longer she takes to reach her ceiling on the test. It can take more than an hour to assess a highly gifted 4 or 5-year-old and few young children, no matter how gifted, can maintain full concentration for such lengthy periods. Both Robinson and Robinson (1992) and Gross (1993) found that the IQ scores of young highly gifted children are likely to *rise* over successive testings, whereas normally a decrease would be expected in this high-scoring population through regression towards the mean. Thus standardized testing of highly gifted young children is likely to result in an *under*-estimation of the child's true ability or achievement, rather than an over-estimation.

Early Enrollment of Highly Gifted Young Children

Parents of highly gifted young children should give serious consideration to early enrollment. It is one of the most carefully researched and evaluated educational interventions. Numerous studies have shown that when under-age gifted children are admitted to formal schooling on the basis of intellectual, academic and social readiness, they perform as well as, or rather better than, their older classmates. However, the guidelines for early school admission published by Proctor, Feldhusen and Black (1988), advise that there should be a comprehensive evaluation of the child's intellectual functioning, academic readiness and socio-emotional maturity, and that the teacher selected to have the young child in her class should have positive attitudes towards early admission, and be willing to help the child adjust to the new situation. Generally, young gifted children entering school early have little difficulty in forming sound social relationships with their older classmates; research has shown for many years that children form friendships on the basis of mental age rather than chronological age and, in consequence, gifted children generally gravitate to children who are a few years older than themselves.

Indeed, highly gifted young children's accelerated pace of learning, their unusually mature vocabularies, their advanced reading skills and reading interests, and their preference for older friends, make them ideal candidates for academic acceleration.

For some extremely gifted children, further acceleration may be necessary as they progress through school. In my own study, exceptionally gifted children who have been radically accelerated (a series of carefully spaced and monitored gradeskips resulting in acceleration by three or more years) display significantly higher levels of social and general self-esteem, higher levels of achievement motivation, and a wider and richer range of friendships, than do equally gifted

children who have been retained with age-peers in the regular classroom or who have been permitted a single grade-skip. Many of the exceptionally gifted non-accelerands display disturbingly low levels of self-esteem, are socially rejected by age-peers and bitterly resent the schools, and the teacher, who refuse to offer them curricula commensurate with their ability (Gross, 1993).

Unfortunately, many educators hold negative attitudes towards early enrolment. Interestingly, however, Southern, Jones and Fiscus (1989), in a study of teacher attitudes towards acceleration, found much more positive attitudes among teachers who had taught an accelerated student or who had experienced acceleration in their own family. These teachers had been able to observe, first-hand, the academic and social benefits for intellectually gifted students.

Conclusion

It is ironic that both American and Australian culture values, and seeks to identify and foster, exemplary performance in sports or athletics while regarding with wariness, and even apostrophising as "elitist," high-level potential or performance in the intellectual domain. It is disturbing that this dichotomy should influence, so strongly, our responses to young children who display abilities which we categorize as politically "correct" or "incorrect." Even in the early years, highly gifted children learn swiftly and effectively. All too often the message society conveys is that it is not quite acceptable to be academically gifted.

References

Barbe, W. B. (1964). *One in a thousand: A comparative study of highly and moderately gifted elementary school children.* Columbus, Ohio: F. J. Heer.

Betts, G. T. and Neihart, M. (1988). Profiles of the gifted and talented. *Gifted Child Quarterly, 32(2),* 248-253.

Flanders, J. R. (1987), How much of the content in mathematics textbooks is new? *Arithmetic Teacher, 35(1),* 18-23.

Gottfried, A. W., Gottfried, A. E., Bathurst, K. and Guerin, D. W. (1994). *Gifted IQ: Early development aspects.* The Fullerton longitudinal study. New York: Plenum.

Gross, M. U. M. (1993). *Exceptionally Gifted Children.* London: Routledge.

Gross, M. U. M. (1998). Fishing for the facts: A response to Marsh and Craven. *The Australasian Journal of Gifted Education, 7(2),* 15-28.

Harrison, C. (1999). *Giftedness in early childhood* (2nd edition). Sydney: Gifted Education Research, Resource and Information Centre, University of New South Wales.

Hollingworth, L. S. (1942). *Children above IQ 180: Their origin and development.* New York: World Books.

Jersild, A. T. (1960). *Child psychology.* London: Prentice-Hall.

Kearney, K. (1992). Life in the asynchronous family. *Understanding our Gifted, 4(6),* 1, 8-12.

Proctor, T. B., Feldhusen, J. F. and Black, K. N. (1988). Guidelines for early admission to elementary school. *Psychology in the Schools, 25(1),* 41-43.

Robinson, N. M. and Robinson, H. (1992). The use of standardized tests with young gifted children. In P.N. Klein and A.J. Tannenbaum (Eds.) *To be young and gifted* (141-170). New Jersey: Ablex.

Roedell, W. C., Jackson and Robinson, H. B. (1980). *Gifted young children.* New York: Teachers College Press.

Silverman, L. K. (1989). The highly gifted. In J. F. Feldhusen, J. VanTassel-Baska & K. Seeley (Eds.), *Excellence in educating the gifted* (pp. 71-83). Denver: Love.

Southern, W. T., Jones, E. D. and Fiscus, E. D. (1989). Practitioner objections to the academic acceleration of gifted children. *Gifted Child Quarterly, 33(1),* 29-35.

Terman, L. M. (1925). *Genetic studies of genius* (Vol. 1). *Mental and physical traits of a thousand gifted children.* Stanford, CA: Stanford University Press.

VanTassel-Baska, J. (1983). Profiles of precocity: The 1982 Midwest Talent Search Finalists. *Gifted Child Quarterly, 27(3),* 139-144.

Families: The Source of Gifts

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Everything that each one of us learns and uses in intellectual and creative activity has its beginning in the family. There are all sorts of families. Some children may be brought up by one mother and no father, while others in Africa may have many mothers and one shared father. Some grow up in communes and others in residential homes. Unfortunately, not all families are equally likely to produce a gifted child.

Adult development in the family is as important as child development: parents may be in their teens or forties, and their mental and educational outlooks may be quite different. The interaction between parents and gifted children is not just between them as individuals, but also between their capacities and needs, which change with age. For example, physical contact is most important in the first year of life, conversation and responsiveness in the second, responsiveness to the child's talk in the third, and from then on, more variety of contacts with a range of other adults. The picture is very complicated indeed.

Values and Beliefs

It is not an easy matter to separate the effects of interaction between children and their parents from those with the wider culture, because each family provides its own unique mini-culture adapted from that of the greater society. This special context not only provides a guide for the childrens' development, but also largely defines the opportunities for each family member. For example, in some societies girls are not allowed to read; all information from the world outside the home is selected for them by the male members of the family. As far as we know, human parenting is not driven by instincts; every individual mother and father decides what to do, based on their own culture, experience and hopes.

What is taken as "common sense" in one home may bear little relevance to what is taken equally for granted by a neighbour. Common sense is what is common to one group, and may not be common elsewhere. Great works are made not solely as a result of talent, but as a function of talented people's values and beliefs, created individually in terms of originality and independence.

The family is different for each member

Nearly all research on the family tends to take a wide view of influences like social class or marital conflict. But although these are undoubtedly important,

they do not affect any one member of the family in the same way. Each one has a different personality and a different place in the family. We have a great deal of new evidence about the family from behavioural genetics. The reasoning is that if one can find the genetic influences then what remains is largely environmental. There are indications that the most influential environmental factors may be those which are different for siblings in the same family. These are termed non-shared environmental effects, and might, for example, include variations in how each child is treated differently by the same parent or brothers and sisters in the same family.

Not only do parents treat each of their children differently — because each of their children is different — but each of the children may perceive their parents' attention differently. Family members remembering shared experiences are often amazed how differently events were seen by the others. The variations are endless. To some extent, these differences are straightforward, such as birth order, age spacing, and gender. But speed of reaction, in child or parents, can affect relationships, in that quick people can be irritated by slow people. Even young children can shape the interactions with their families.

My own research has shown the effects of genetic factors on IQ scores. I found that gifted children, who scored in the top 1% on the (mostly culture-free) Raven's Matrices test of intelligence, sometimes scored at a relatively much lower level on the Stanford-Binet test (influenced by learning) when their environmental circumstances were poor. I had to conclude that genetic and environmental influences on the IQ score are not in the same proportion for all children. Instead, there is a sort of "sliding scale." This means that the brightest children are better able to extract intellectual benefit from whatever family environment they are in. In this way, bright children in a poorly cultured home environment can score the same IQ as less bright children in an educationally good home. By the same reasoning, bright children in a good family will be able to score as highly as their potential permits — an extremely high IQ.

Studies of twins separated at birth have provided a great deal of information about the varying effects of genes and the environment. Similarities are greatest among identical twins, and accordingly less among non-identical twins and siblings and adopted children. The genetic influence on intelligence appears to be indisputable — although there are some who do dispute it. In fact there are one or two psychologists who say that any child can do anything, given that the families support and provide appropriately. Personally, I do not believe that any baby taken at random from anywhere can become another Mozart or another Einstein. Not only are the genes important, but so are the circumstances of the times. What is more, in all history it has never been done.

The Minnesota study, begun in 1979, is by far the largest of the twin studies, having now enrolled hundreds of sets of both identical and non-identical twins from around the world, and has achieved wide publicity because of the striking similarities observed in reunited twins. The findings indicate that about 70% of

the IQ is accounted for by genes – the strongest correlation found for any characteristic. Genetic influences also appear to account for about 50% of personality differences and about 40% of differences in personal interests.

Discovering exactly how different kinds of influences are received by different kinds of children is extremely difficult. Parental divorce, for example, might either cause a temporary halt to a child's development or have life-long effects. Although the potential for talent may be present at birth, for most children it will "automatically" emerge over the course of time, unless the right conditions are present. Furthermore, without an eagerness to learn, children of high potential will not put in the thousands of hours of work that are needed to develop their talent to a level of recognizable achievement. Outstanding individuals, though, to appear unexpectedly in families of apparently low cultural level.

The measurements of certain aspects of learning in the first three years of life provide reliable guides to life-long attributes, such as advanced physical control which can predict gymnastic talent. The strongest early indicator, which can be traced from the age of 3 months, is verbal ability. The greatest overall intellectual stability appears to be at the extremes of the IQ range — both gifted and low -- which suggests that this intellectual development is qualitatively different from that of individuals with more average scores. Indeed, the parents of the exceptionally high IQ children in my follow-up study, compared with those of more average IQ children, reported very early signs of exceptional concentration, memory, and talking (Freeman, 1991). Clearly, early infancy is the time when family sensitivities and influences are the most vital means of developing potential giftedness.

Direct family influences on the development of gifts

Babies normally want to learn, but they can only go as far as their home environments will permit them. The most important aspect of family life, as far as the baby's growing intelligence is concerned, is communication. William Fowler's many years of work on enriching language for children has shown the vital importance of interaction (Fowler, 1990). Parents who tell their children what to do are not as effective in developing excellence as those who act as mentors, gently easing their children into thinking for themselves.

The secret is in taking turns at initiating and responding from the earliest days. This very early language development affects all types of later intellectual development, including mathematics and science. Even young gifted children seem to take great pleasure in playing with language, not only the words, but the structure of sentences and meanings. Fowler suggests that an advanced level of language in infants depends heavily on stimulation and practice from adults, such as being read to and talked with from the time of birth.

Interaction

Things that parents do together with their children have a far-reaching effect on the child's growing intellect: games, chatter, stories, working together, even arguments can be stimulating means of fostering the child's intellectual growth. The problem is knowing what results in what. A highly verbal and demanding child, for example, can affect parents' behaviour by stimulating them to have more conversation and read more stories aloud. On the other hand, parents who talk to children a lot are themselves verbal people.

Parents who have themselves been brought up in culturally impoverished circumstances may lack familiarity with easy verbal communication, which affects their children's intellectual growth. Those parents who give orders more frequently than explanations, are less likely to discuss daily events with their children. Where the children's questions are ignored or rejected, and play-material and psychological "permission" to play is scarce, their development will be accordingly narrowed, and bright children have to develop complex strategies to get good verbal interaction from their parents.

The intellectual poverty of children from unstimulating homes is already noticeable by the age 5. It is not so much a question of money as parental attitude; strictly economic differences between families have little effect on children's achievement when attitudes are similar, except in extreme cases. World leaders, as we know, have emerged from some very poor families.

Emotional development

Well before babies begin to produce words, they have been leading a rich social life. Conversations can be started by either baby or adult or with others in the family. For example, mother looks at baby and baby catches her eye; then she leans forward and says, "Who's a lovely baby then?" Baby purses his lips and coos. She copies. He does it again. And so on, until interest fades. The style of the mother-baby relationship can be set within the first few weeks.

Babies initiate as well as imitate, making their own mark on their world. For example, demanding babies may receive special family attention and resources, and if these demands are of an appropriate nature, they can stimulate the infant's intellectual development. But this option is not open to all babies — interaction is the key. It is only in families where the parents are good communicators that the baby's demands are likely to be beneficially effective. This implies a specifically active role for the baby, but one which positively involves the parents too. It is open to question, though, whether demanding babies are always those with the potential for high ability, and whether parents should stimulate passive babies into demanding more, on the grounds that this will encourage intellectual development.

Babies are highly sensitive to the kind of care they receive; by 2 weeks old,

they will respond to the mother's characteristics, such as voice and smell, and by 6 weeks, will become distressed if the social contacts between them are even slightly disturbed. Between 3 and 6 months, a baby starts to discriminate between the expressions on people's faces, and from 3 to 9 months, will search for clues from other faces. Very early development is also very rapid.

By 7 to 9 months old, all the basic emotions can be detected in a baby, and each is important in the way it contributes to intellectual growth. On the other hand, emotional deprivation, which may occur at any level of society, can severely damage both personal and intellectual development. It takes considerable energy for a child to remain emotionally balanced in an unstable psychological situation, where it is that much harder to focus on a specific endeavour, to concentrate and to be competent.

Language development can suffer, the child falling back into an earlier style of communication until the acute stage is over. Whatever a child's level of ability, when this emotional instability happens early in life, it can put a brake on learning how to learn. The results may be seen in school, where even children of high potential who are suffering emotionally do not reach the high levels that might have been expected of them (Freeman, 1998).

The carer's emotions can significantly affect the intellectual growth of the baby. Even infants of 10 weeks can recognize the difference between happiness, sadness, or anger. A mother's happiness encourages babies to explore, joy in one producing joy in the other, whereas her distress causes them to withdraw, her sadness producing sadness or anger. The implications are profound. A negative emotional atmosphere inhibits good learning, but positive emotions have an encouraging effect.

Any condition that causes stress to infants increases their need for their carers and decreases their urge to explore. What is more, when toddlers experience a series of anxiety-arousing experiences, the effect is cumulative. Sensitive parents are aware of times when the baby's attention begins to diminish and change their behaviour to keep interest, such as a change of voice or holding the toy in a different light. Infants cared for in this way are more likely to persist with their own explorations later on, especially as the tasks become more complex.

Perhaps those who are to be high achievers *need* to be stronger than most because their exceptionality makes them more likely to come up against some special problems. Sometimes the highly intellectual children construct complex psychological defenses against expected hurt. A common variety is to hide behind academic, intellectual walls of their own making, implying that they are too clever to have normal relationships with ordinary people. Alternatively, they may present themselves as being bored at school, and so never acquire the routines of learning discipline, which can be difficult to pick up later, and so this defensive boredom becomes a downward spiral, and potential somehow never seems to be fulfilled. There are some, though, especially in the arts, who seem to have an inbuilt impetus – a spark which overcomes all barriers, lighting up the world and bringing them great inspiration and success.

Promoting the will to learn

The major emotional family influence is probably self-esteem. It starts in infancy, when good feelings about themselves enable babies to take some control over their behaviour and expectations, and to associate learning with pleasure. There is evidence that 4-year-olds who have high self-concepts are not only more intelligent and socially responsible, but better able to plan ahead, which is a vital part of creative thinking.

Empowering children by giving them a feeling of competence and a goal to aim for (even examinations) generally increases both their keenness to study and the accompanying rise in level of work. On the other hand, too much adult control can undermine this by requiring constant dependence on someone else's decisions. If children see control of their learning as outside themselves, resting with the parent or teacher, then they well tend to be less involved and motivated to work. The urge to learn may also be improved when poorly motivated youngsters are empowered to help others, as when unsuccessful adolescents take on the role of tutors to younger children.

Both success and failure tend to perpetuate themselves. But a parent can alter feedback to give a child the feeling of success by slightly raising the challenge of the task, such as in learning to read, so that when the child succeeds, her outlook on learning is encouraged to be one of success and optimism. Emotional factors can be as important to high-level human accomplishment as intellectual ones. When children feel competent, it encourages them to exercise and elaborate their abilities. But if other people's responses are to be effective, they must always be genuine, whether good or bad; simply giving praise for every little effort is not as effective in producing feelings of success.

Yet despite the importance of feedback, the situation is not entirely controllable by parents or other adults. Children can interpret feedback in different ways, depending both on the psychological context and on the child's personality. Telling one child he is doing badly may be interpreted as an excuse to stop work because it does not seem worth the effort, while for another, the response may be an increase in motivation to prove "them" wrong. Paradoxically, too much praise, particularly in a system of close supervision, may tell a child simply that he is doing the bidding of the teacher, rather than personally exploring the area of study and so developing his own competence. This can undermine motivation, because it then becomes psychologically impossible for the child to feel in control of his own progress in learning.

All children, whatever their ability, want to feel effective and engaged by challenge, which must include a risk of failure. The gifted need challenge at least as much as any others. Experimental work has shown that if children are given a superficial reward, such as money or candies, they are far more likely to choose the easiest ways to succeeding, whereas if they are enjoying the activity for itself, they choose harder tasks, usually just above the level of previous suc-

cess. When children are interested in what they are doing, they seem to have a natural tendency to take on challenges that exercise and expand their limits of competence.

Positive feedback can be very effective. There is always something specific to praise, some form of recognisable success, and the possibility of offering a reward. Negative feedback, such as sarcasm, punishment, or detention, are much less effective. For emotional reasons the child may have been seeking extra attention, and the punishment may simply fulfill what was wanted and encourage more of the same behaviour.

Social understanding

Children's experiences in the family are used to develop the way they see others, as well as themselves. Actual social behaviour comes from children's involvement in a variety of social situations, and benefits from adult guidance. Being sensitive to the feelings of other people is more often shown by confident young children, especially if they are highly intelligent; these are also better at making use of adults as resources, and tend to play more imaginatively.

Leadership does not depend on an exceptionally high level of intelligence, since personality characteristics and social situations play a major part in developing it. Although it may seem reasonable for leaders to have a high level of social awareness, because they must understand the perspective of others to make changes, it has to be recognised that leaders can be removed from normal life, being both brilliant and evil. For instance, Hitler and Stalin dramatically influenced, controlled and led millions of people to disaster without any recognisably high level of either intelligence or social awareness

It is strange that highly intelligent children are often thought of as having poor social skills and therefore few friends, but in fact they tend to have sympathy, adaptability and compassion in abundance, and do not usually choose to be without friends. If they do not seem to want to make friends with others of their own age, it can be because they have a high level of self-sufficiency, which means that they are happier on their own for longer periods of time than other children — or they may have been discouraged from playing with other children by their parents letting their children know that they are too good to play with others — not in so many words, of course.

The crucial differences between families

What is it that makes the crucial difference in later behaviour between people who start out in life with much the same potential ability? We know it starts in the family, but the process is complex because parents and children each have their respective intellectual capacities, as well as their own personalities. But genuine and regular interaction between parents and children is decidedly effec-

tive in advancing children.

It is also clear that the way parents conduct their lives is a very powerful way of teaching their children. It was example and not expectations which made all the difference to children I have studied over many years as they grew up. Although parents act as models, in modern societies the children do not simply imitate them, nor swallow their ideas whole. Instead, each child absorbs and then evolves its own values from what has been seen and experienced.

It is essential for potentially gifted children to have the materials with which they can learn, both in terms of physical equipment and adequate tuition about how to use them. Would-be artists need far more than a few scraps of paper and a pencil stub, a mathematician needs a teacher, a linguist has to hear the language, and a budding violinist needs a violin. They need to be taught specific skills and be given the opportunities to practice them.

However, the ways which are the most likely to enhance children's high-level learning, and which will last through life, do not require a great deal of money. Parents do have to be both willing and able to make the effort if their children are to take advantage of the many opportunities that usually exist around them.

References

Fowler, W. (1990). *Talking from Infancy: How to Nurture and Cultivate Early Language Development.* Cambridge, MA: Brookline Books.

Freeman, J. (1991). *Gifted Children Growing Up.* Portsmouth, N. H.: Heinemann Educational.

Freeman, J. (1998). *Educating the Very Able: Current International Research.* London: The Stationery Office.

Plomin, R. (1990). The role of inheritance in behaviour, *Science*, 248, 183-1883

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