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Greatest Potential, Greatest Need: Soaring Beyond Expectations

Institute for the Development of Gifted Education, Ricks Center for Gifted Children, University of Denver

Norma Lu Hafenstein
University of Denver

Ellen Honeck
University of Denver

Allison Tung
University of Denver

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Greatest Potential, Greatest Need: Soaring Beyond Expectations
Conference Proceedings and Selected Articles Focusing on
the Highly Gifted

Fall 2011

Editors
Norma Lu Hafenstein
University of Denver

Ellen Honeck
University of Denver

Assistant Editor
Allison Tung
University of Denver

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University of Denver
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Introduction:
Beyond Gifted, Applications and Relationships:
Serving the Highly Gifted

As an introduction, this article provides context for consideration of a special population of gifted children, the highly gifted. Justification for specialized service for this population, recommendations regarding various content area applications, and rationales for these students’ need to find a place of belonging are examined and discussed. Special considerations are given to the interactions between cognitive levels and affective intensities. The core materials for this volume originated with selected presentations from “Greatest Potential, Greatest Need: Soaring Beyond Expectations- a Conference on Highly Gifted Children” hosted by the Institute for the Development of Gifted Education, Morgridge College of Education, University of Denver, on October 7 and 8, 2009.

Highly gifted children are as different from gifted children as gifted children are from typical learners. And, as a reflection of their difference from the norm, they are highly unique individuals as well. The concept underlying many of these articles is based on Annemarie Roeper’s (1982) definition of giftedness: “Giftedness is a greater awareness, a greater sensitivity, and a greater ability to understand and transform perceptions into intellectual and emotional experiences” (as cited by Silverman, 2011, p. 20), and expanded upon by Linda Silverman: “The highly gifted have a different worldview” (p. 10). Recognition of these differences and subsequent needs is not only essential to serve this population, but also to
create environments that allow them to thrive. Those of us working with these children have no greater opportunity to impact the future than to care for and cherish these unique individuals.

**Beyond Gifted**

Silverman opens this monograph with a vivid description of highly gifted children—the sensitivities, the intensities, the challenges—and draws parallels with disabilities. She recommends that highly gifted students are grouped with others like themselves in order to facilitate their cognitive, social and emotional development. Silverman speaks to asynchronous development, which increases with higher intellectual capacity. She purports asynchrony as a concept less likely to invite envy. Dabrowski and Piechowski’s channels of heightened experience are presented to frame levels of intensity and/or overexcitabilities. Silverman strongly urges looking beyond “the narrow lens of competitiveness to grasp the deeper significance of giftedness” (p. 30).

Barbara Mitchell Hutton delves more deeply into asynchronous development, offering detailed descriptions and implications. Hutton suggests that the need for differentiation, while well documented in the literature, falls short of the mark. She closes with specific recommendations for parents and educators, and an encouraging “enjoy the journey.”

In considering developmental aspects and unique needs, Joan Franklin Smutny advocates for creativity in both approach and content. Creativity is the highest form of mental functioning and of greatest importance to highly gifted students. Smutny begins with a case description of a young highly gifted musician in Venezuela. She builds a rationale for why the highly gifted need creativity and gives specific examples within each creative modality. She
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further expands within content areas and quotes a highly gifted student, “The more I learn, the more I find a thousand other ways to learn” (p. 68).

Applications

Michelle Kane and Ellen Fiedler provide a designation for those considered as highly gifted, and identify challenges and concerns associated with providing appropriate educational experiences for this sub-group. They continue by recommending guidelines regarding curriculum planning, including a specified definition of “peers.” Multiple dimensions of approaches to curriculum planning are presented and discussed, including the learning environment.

From this context, Robert Seney offers direction for guiding the gifted reader as he describes their often early precocity and later need for personalized instruction, matching text to reader. He encourages providing reading experiences that will become the basis for lifelong reading habits, both personally and professionally.

From literacy to numeracy, Kim Haines proposes the benefits of math games for gifted students in the elementary classroom. She bases her ideas in the concept of Vygotsky’s zone of proximal development (p. 126) and identifies various current strategies utilized with this population. She suggests specific mathematical topics, including probability and logical reasoning, which engage students and facilitate growth.

Linda Silverman articulates multiple special needs present in secondary level gifted learners, which are applicable across all content areas. She states that “all students have the right to struggle; struggling is essential to growth” (p. 139). To address potential
underachievement in gifted students, especially the highly gifted, teachers are encouraged to follow these recommendations and modifications.

Relationships

In considering the friendships of highly gifted, Deirdre V. Lovecky acknowledges the consistent theme of exceptionality and difference. She examines multiple factors influencing the ease of making and keeping friends, including asynchrony, expectations, development, introversion and extroversion, and motivation. She provides intervention suggestions for parents, teachers and other adults, and recognizes the importance of friendship for these children.

Ellen Honeck and Shannon Jones detail the profile of a highly gifted student and build support for strategies that go beyond differentiation. They quote Lewis (2002), the “more highly gifted the (child), the less likely they are to fit into a prearranged profile” (as cited by Honeck & Jones, 2011, p. 191). Honeck and Jones give the broad view of this population and tie it to an individual in search of belonging. They describe the student’s journey through elementary and middle school, and close with an example of the student’s creative writing, reflective of ability and intensity.

Conclusion

Clearly highly gifted students need “opportunities for fuller realization of their predispositions and interest” (Pufal-Struzik), in Honeck and Jones (p. 183). At the same time, we are reminded of Hollingworth’s statement that “the really difficult problems of adjustment to
life and to people come to those [highly gifted, and] ... as there are so very few of these children, parents and teachers are seldom called upon to consider their needs. Thus when one does appear, he or she is more likely to be misunderstood” (p. 182). It is our hope that, through this monograph, information and resources have been provided to better serve those with the greatest potential and greatest need. It is our opportunity to heal the pain of exceptionality, to change lives and to impact the future.

Norma Lu Hafenstein, PhD
Director
Institute for the Development of Gifted Education
Ricks Center for Gifted Children
Morgridge College of Education
University of Denver
High levels of giftedness create a different organization of the Self. An unusual mind
coupled with unusual emotions leads to unusual life experiences throughout the life cycle.
Highly gifted children and adults feel cut off from the rest of society—out of sync. A gifted mind
is a relentless idea generator that creates more things to do than there are hours in the day.
Capable people are asked to assume the lion’s share of responsibilities, and life can quickly
deteriorate into an endless list of tasks to be accomplished. They often wear many hats and try
to juggle more than is humanly possible. All of it seems interesting and worth doing ... if only
there was an infinite amount of time. And the highly gifted set standards well beyond those of
others. They’re never satisfied doing a “good enough” job; they want to do everything to the
best of their ability.

The highly gifted have a different worldview. Impossible dreams are realized, unrealistic
goals achieved, insurmountable obstacles surmounted, by people whose vision is a more
powerful reality than the limitations that most of the world accepts as “real.” Peak experiences
and devastating lows often come with the territory. Rushes of energy at unpredictable times
drive highly gifted adults until they find “that note,” as Dustin Hoffman so aptly described it
during the 1996 Golden Globe awards. Describing the experiences of highly gifted adults,
(Roeper, 1991) writes:
Gifted adults are often driven by their giftedness. Gifted individuals do not know what creates the drive, the energy, the absolute necessity to act. They may have no choice but to explore, compose, write, paint, develop theories ... conduct research, or do whatever else it is that has become uppermost in their minds. They need to know; they need to learn; they must climb the mountain because it is there. This “drivenness,” this one-track-mindedness, may keep them from sleeping or eating, from engaging in sex or any other normal behavior, for the duration of their specific involvement. (p. 90)

Is this a drive to achieve? Not necessarily. “They need to know; they need to learn; they must climb the mountain because it is there.” The highly gifted are driven by both curiosity and the need for expression—in words, art, music, dance, visual models, mathematical formulas, whatever. Sometimes this drivenness results in accomplishments that everyone admires, but more often it concentrates on mundane activities that have significance only for the individual: an exquisite flower arrangement, a brilliantly executed chess move, a fabulous idea, a to-die-for chocolate sauce.... The elation that comes from finding “that note,” that word, that move, that brush stroke, that solution, is indescribable. It’s pure magic. At that moment, no external rewards matter. There is only the delicious appreciation of now. Csikszentmihalyi (1990) calls it “flow.”

Controlling an unmercifully creative mind is like trying to lasso a bull in an open field: It basically goes wherever it wants! It rarely stops to listen to what it already knows. However, when engaged, it has the capacity to observe or reflect with profound concentration. The emotions of the highly gifted person are just as unruly. Anything worth feeling is worth feeling
intensely. Nothing is simple, bland, or colorless. Everything is electrically charged with rich, multicolored layers of meaning.

We are not “normal” and we know it; it can be fun sometimes but not funny always. We tend to be much more sensitive than other people. Multiple meanings, innuendos, and self-consciousness plague us. Intensive self-analysis, self-criticism, and the inability to recognize that we have limits make us despondent. (American Association for Gifted Children, 1978, p. 9)

The Cost of Being Different

The highly gifted are a special-needs population who can pretend to be like everyone else. But this is not without cost. When too much emphasis is placed on the child’s fitting in with others, being normal is elevated to the number one goal in life. And the only alternative to normal appears to be “abnormal.” The dread of abnormality can be so overwhelming that they may feign normalcy, deny their differences, and hide their rich inner worlds from ridicule.

Some highly gifted children learn very early in life to play the game. They sacrifice their authenticity and pretend to be someone they are not so that they are more acceptable to others. In Elizabeth Drews’s (1972) words, “Our children are taught to don masks before they recognize their own faces. They are made to put their tender, pliable forms into prefabricated shells” (p. 3). Trying to fit in at the expense of one’s real self leads many highly gifted people to feel like aliens from a different planet (Wallach, 1995).

When I was little I used to stand and stare up at the stars and wonder which one of them held the solar system that was my real home.... Hey, up there on Home
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Planet, time to beam me up! Joke’s over. Experiment’s done. I want to come home now. Do you hear me? (Tolan, 1996, p. 13)

But what is normal? The highly gifted often hear:

- “Why do you make everything so complicated?”
- “Why do you take everything so seriously?”
- “Why is everything so important to you?”

The highly gifted are “too” everything: too sensitive, too intense, too driven, too honest, too idealist, too moral, too perfectionistic, too much for other people! Dr. Patricia Gatto-Walden calls these “the terrible toos.” So they live with the great secret, instilled from early childhood on, that there is something inherently wrong with being who they are because they don’t fit in.

Many of the problems that beset the highly gifted can be traced to the lack of awareness, understanding, and acceptance of the differences inherent in being developmentally advanced. It is emotionally damaging to be unacceptable in the place one must spend 6 hours of every day for 13 critical years of one’s development. For the highly gifted, life can be very lonely and complicated. But it need not be that way. With greater societal awareness, understanding, and acceptance, much of the pain and isolation of being exceptional can be healed.

Parallels between Developmental Advancement and Developmental Delay

There are many lessons to be learned about high levels of giftedness from a close examination of the way we view the other end of the intellectual spectrum (Zigler & Farber,
1985). Regarding giftedness as developmental advancement—the mirror image of developmental delay—provides an entirely new perspective. Society recognizes intellectual impairment as an organizing principle—a unique trajectory of development with atypical characteristics.

No one imagines that severe intellectual disability affects only learning rate; however, many believe that the gifted are just like everyone else except that they learn faster.

One of the difficulties in discussing the cognitive development of young [exceptionally and profoundly] gifted children is the assumption that they are just precocious. That is, we assume that how they think is older thinking done at an earlier age. ... However, if it were true that gifted children's advancement was only one of speed, then eventually everyone else would catch up. But if the way gifted children think about concepts is different as well as precocious, they are not only more mature in various cognitive abilities. They may also manifest these abilities differently than average people, perhaps even differently than more moderately gifted children. (Lovecky, 2007, p. 22)

Like its opposite, giftedness is a different ground that affects all of life's experiences. Just as developmental delay has a lifelong impact on all aspects of social and emotional development, academic achievement, home life, response of the community, and career goals, so does developmental advancement permeate all facets of a person's life in childhood and adulthood.

Investigation of the extremes of ability began in the field of psychology, as components in the study of individual differences. Alfred Binet, William Stern, Lewis Terman and Leta
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Hollingworth all contributed knowledge in both areas and understood the wide-ranging psychological manifestations of both syndromes. The educational needs at the extremes stem directly from their developmental differences and psychological needs.

Developmentally advanced and developmentally delayed children are both asynchronous: their development (e.g., cognitive vs. physical) is markedly uneven. They are out-of-sync withagemates and expectations of society for their age group. The more they veer in either direction from the norm, the greater the asynchrony, both internally (in terms of the unevenness of their development) and externally (in terms of their ability to fit in with agemates). Cognitive and emotional complexity also varies as a function of the degree of difference from the norm in either direction.

For example, profoundly gifted and profoundly delayed children have a very difficult time learning the art of dishonesty. Most highly gifted children and adults have gotten in trouble at some point in their lives for being “too honest.” Friends, even jobs, have been lost over telling the truth. We admonish children to be honest, but if they actually followed that dictate, they would be “positively maladjusted,” using Dabrowski’s (1964) term, in a dishonest society.

It is as laborious for a profoundly gifted child to master the fine art of dissemblance as it is for an intellectually disabled child. Children with extreme developmental delays have insufficient cognitive complexity to make up an untruth. Children with extreme developmental advancement have so much cognitive complexity that they see the interconnectedness of all experience, and a lie—even a “white lie”—radically disrupts the sense of order of the universe that they have worked so hard to create. Highly gifted children have logical imperatives, very
much like moral imperatives, which ensue from their complex thought processes (E. Maxwell, personal communication, June 5, 1991). They expect the world to make sense and they react very strongly when it doesn't. This is not to say that the gifted are always truthful; complete honesty would elicit ridicule and rejection. However, many gifted people, particularly the profoundly gifted, have a passionate attachment to the truth. They abhor inconsistency in themselves and others, and they find it hard to justify to themselves any misrepresentation of the truth as they understand it.

In her research on children with IQ scores above 180, Leta Hollingworth (1942) noted that Child D showed a "refusal to lie" (p. 121). Freese (2007) described a similar situation:

That was it—these kids had a severe case of asynchronous development! Why, hadn't I seen six-year-old Bill memorize the periodic table with all the atomic numbers (and teach it to a sixth-grade girl) and then refuse to sing "I'm Getting Nothing for Christmas" in the school program because he thought the teachers were teaching the kids to lie since the teachers knew the kids were really going to get something? (p. 85)

Highly gifted children who pretend to be interested in Barbies when they actually hate them, or who spin imaginative tales to see others' reactions, or who rationalize their behavior to avoid being wrong, often feel ashamed at their lack of authenticity. If they have intentionally lied, they often experience guilt at their dishonesty because they recognize that they have jeopardized a trust relationship. They also have difficulty incorporating their deception into their developing sense of Self.
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When we look at the normal curve of intelligence, we see that the vast majority of the population (68%) is within one standard deviation of 100 IQ. Each standard deviation in either direction puts the child at risk for peer rejection and a lack of fit with the rate of learning in the regular classroom. Students whose abilities fall between one and two standard deviations below the norm (nearly 14%) are considered “slow learners”; they usually receive remedial services throughout their school career. They are also slow in picking up jokes and in other social interactions.

At 2 standard deviations below the norm (approximately 70 IQ), children qualify for special education. A little over 2% of the population is considered to have social and emotional, as well as academic, needs so clearly differentiated from the norm that they are protected by federal and state mandates. Individual intelligence tests, comprehensive psychological assessment, staffing, individualized educational plans, certified teachers, modified curriculum and due process are all required by law for students more than 2 standard deviations below the mean. At 3 standard deviations below the mean (approximately 55 IQ), even greater intervention is needed. There is a continuum of services depending upon whether a child’s abilities fall in the mildly, moderately, severely, or profoundly delayed range. Yet, children who are 2, 3, 4, even 5 standard deviations above the norm are often placed in regular classrooms with no modifications of any kind, and no recognition of the differences in their social and emotional needs (Silverman, 1993b). At the very least, highly gifted students need to be grouped with others like themselves in order to facilitate their cognitive, social and emotional development.
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Significant differences are not simply statistical artifacts; the life experience and awareness of anyone who differs significantly from the norm will be qualitatively different from that of the average person. The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*, the Bible of the mental health industry, indicates that differences of this magnitude can create “significant limitations in adaptive functioning [in areas such as] communication [and]... social/interpersonal skills” (APA, 1994, p. 39).

Hollingworth (1940) compared the psychological isolation of highly gifted children with that of children significantly below the norm. She noted that isolation occurs at both extremes of the IQ continuum, but not at the same degree of difference. It tends to occur at 30 points below the norm (about 70 IQ), but not until 50 or 60 points above the norm (about 150 IQ). Isolation occurs in developmentally delayed children at the point at which their differences are perceived by others; it does not begin to take effect on the gifted until it is experienced by the child him- or herself.

There are many other parallels between the two extremes, such as the need for early identification, the fact that these differences affect the child and the family 24 hours a day, 7 days a week—not just during school hours—and the impact of these differences in development throughout the lifespan. These similarities are not clearly grasped. The sense of isolation is an ever-present risk for the highly gifted of any age. Both groups must be compared with their own group rather than with societal norms.

It is interesting that no other exceptionality but the gifted is challenged to live up to its potential, nor is the rationale for funding based on the population’s potential to contribute to
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society. While the highly gifted can contribute enormously to society, and many do, they should not bear the burden of that obligation. Too many have not survived that pressure.

A Definition Designed for the Highly Gifted

Our lack of understanding of the psychological, social and emotional aspects of giftedness comes from our over-reliance on achievement models of giftedness. Nearly all of the models of giftedness, from Sir Frances Galton's *Hereditary Genius* in 1869 to present views, focus on achievement or the potential for achievement. Our attention is called to what individuals can do rather than on who they are in their totality. This perspective diminishes our capacity to grasp the dynamic inner experience of the highly gifted.

Achievement, particularly recognized individual achievement, is culturally determined (Silverman, 1996). In some cultures, individuals shun personal recognition; instead, they value moral courage or collective prosperity for generations to come, and use their gifts for the good of the group.

Another way of understanding giftedness is to see it as developmental advancement. In every culture, there are children who develop at a faster pace from early childhood on, are inquisitive to a greater degree than their agemates, generalize concepts earlier than their peers, demonstrate advanced verbal or spatial capacities at an early age, have superb memories, grasp abstract concepts, love to learn, have a sophisticated sense of humor, prefer complexity, are extraordinarily insightful, have a passion for justice, are profoundly aware, and experience life with great intensity. While these traits may or may not propel the individual to world renown, they appear to correlate with moral sensitivity in childhood (Silverman, 1994)
and ethical development in adult life. Their sensitivity, intensity, awareness, and, often, their moral courage set these individuals apart.

Annemarie Roeper’s (1982) definition of giftedness is the only one that recognized the emotional foundation of giftedness:

Giftedness is a greater awareness, a greater sensitivity, and a greater ability to understand and transform perceptions into intellectual and emotional experiences. (p. 21)

Annemarie’s wisdom, along with the insights of Kazimierz Dabrowski, led to a new way of perceiving giftedness. In 1991, the Columbus Group offered a definition of giftedness that highlights the complexity of the individual’s thought process, the intensity of sensation, emotion, and imagination, and the extraordinary awareness that results from this fusion. Asynchrony also involves uneven development and feeling out-of-step with societal norms. All of these factors contribute to the highly gifted child’s feelings of vulnerability. This definition highlights the intensification of experience that occurs in the highly, exceptionally and profoundly gifted ranges.

Giftedness is asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm. This asynchrony increases with higher intellectual capacity. The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching and counseling in order for them to develop optimally. (The Columbus Group, 1991, italics added)
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This is a phenomenological rather than a utilitarian perspective; that is, it focuses on the inner experience and vulnerability of the gifted rather than on their usefulness to society. Asynchrony literally means out-of-sync, and highly gifted children are out-of-sync both internally and externally. Internal asynchrony is due to differences in their rates of physical, intellectual, emotional, social, and skill development. Uneven development is mirrored in external adjustment difficulties since the highly gifted person often feels different from, or out of place with, others. External asynchrony, then, is the lack of fit of the gifted child with other same-aged children and with the age-related expectations of the culture.

Uneven development is a universal characteristic of giftedness. Gifted children, in any cultural milieu, have greater discrepancies among various facets of their development than average children (Silverman, 1993a; 1994). The clearest example of this unevenness is the rate at which mental development outstrips physical development. Binet constructed the mental age as a means of capturing the degree to which a child’s mental abilities differ from those of other children his or her chronological age (Binet & Simon, 1908). The concept of mental age has proved enormously helpful in our understanding of severe developmental delay. We recognize the inherent difficulties of having a 17-year-old body with a 9-year-old mind. However, we still do not understand that it is equally problematic to have a 17-year-old mind trapped in the body of a 9 year old. This type of asynchrony doesn’t arouse much sympathy.

A child’s mental age predicts the amount of knowledge he or she has mastered, the rate at which the child learns, sophistication of play, age of true peers, maturity of the child’s sense of humor, ethical judgment, and awareness of the world. In contrast, chronological age predicts the child’s height, physical coordination, handwriting speed, emotional needs, and social skills.
The greater the degree to which cognitive development outstrips physical development, the more “out-of-sync” the child feels internally, in social relations, and in relation to the school curriculum.

The intelligence quotient, originally named the “mental quotient” by William Stern (1910), is simply the ratio of mental age to chronological age multiplied by 100. Like Stern, Binet never claimed that the IQ test could measure the totality of intelligence. He viewed intelligence as a rich, complex, multifaceted gestalt—a myriad of dynamically interrelated abilities. Emotion and personality also played critical roles in his conception of intellectual ability. He believed that intelligence was highly influenced by the environment, and that it could be improved through appropriate instruction. From Binet’s developmental perspective, intelligence is a continuously evolving process, not a static amount of raw material, which stays the same throughout life. Yet, intelligence testing is viewed today as a method of rigidly determining the limits of one’s abilities—quite different from Binet’s intent. Consistent with Binet’s philosophy, the IQ should be seen as a minimal estimate of asynchrony—the extent to which cognitive development (mental age) diverges from physical development (chronological age).

Miraca Gross (1993) provides a graphic illustration of how the ratio between mental age and chronological age indicates varying degrees of asynchronous development. A child with an IQ of 135 has a nine-year-old body and a 12-year-old mind, while the exceptionally gifted child, with an IQ of 170, has a 15-year-old mind. Asynchrony also increases with age. At 6 years old, the child with an IQ of 135 had a mental age of 8, and at 12, the same child will be mentally 16. The child with an IQ score of 170 was four years advanced mentally at the age of 6, and at the
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age of 12, this child will be eight years older mentally than physically. So asynchrony cannot be thought of as static; it is dynamic, constantly changing.

The situation becomes even more complicated when it is understood that, psychologically, the child is an amalgam of many developmental ages (Tolan, 1989) and may appear to be different ages in different situations:

In terms of development, chronological age may be the least relevant piece of information to consider. Kate, with an IQ score of 170, may be six, but she has a “mental age” of ten and a half.... Unfortunately, Kate, like every highly gifted child, is an amalgam of many developmental ages. She may be six while riding a bike, thirteen while playing the piano or chess, nine while debating rules, eight while choosing hobbies and books, five (or three) when asked to sit still. How can such a child be expected to fit into a classroom designed around norms for six year olds? (p. 7)

This was published three years before the new definition came out. Another precursor was a letter Kathi Kearney (1992) received from a parent of an exceptionally gifted child:

At 14 [Max] can display a ferocious insistence for justice with the passions and tenacity of a 3-year-old .. .this gets confusing! We were told that at age 9 he displayed “cognitive reasoning skills way beyond his years.” I wish he came with a blinking sign on his forehead to let me know just who I am dealing with: the 3-year-old, the 14-year-old, or the 25-year-old.

Last summer an ill-placed golf ball landed in the bedroom of a house adjoining a picturesque lighthouse. (Remind me to ask how this boy could ignore
the physics of playing golf in a densely populated suburban neighborhood.) ... I heard myself asking Max, again and again, “What were you thinking?”

That’s the thing—they think when you least expect them to, and go blank at the most inopportune times. My guess is that it’s the tension of being caught between all those ages I just mentioned. But I don’t think my theory would be supported in a textbook, even though I live by it every day in order to give some organized definition to what’s going on. (Estes, 1992, cited in Kearney, 1992, pp. 1, 8).

There is still another form of asynchrony that needs to be mentioned: the condition of dual exceptionality. The most asynchronous child is one who is both highly gifted and learning disabled. A remarkable number of highly gifted children have either recognized or undetected learning disabilities, such as auditory processing weaknesses (Silverman, 1989), writing disabilities (Silverman, 1991), visual perception difficulties, spatial disorientation, dyslexia, and attentional deficits (Lovecky, 1991). Giftedness masks disabilities and disabilities depress IQ scores, so that the child appears average (Silverman, 1989). The subtest scatter of highly gifted children with learning disabilities clearly demonstrates their asynchrony. The subtests most loaded on abstract reasoning tend to be much higher than those loaded on sequential memory or processing speed. Thankfully, twice exceptional learners are beginning to be recognized and special programs are being developed in many school districts to identify and respond effectively to these complex children.

Defining giftedness as asynchrony is less likely to invite envy. Asynchrony is not a competitive concept. More asynchrony is not better. Asynchrony is gaining in popularity...
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because it offers a pathway to understanding the inner experience of the gifted—especially those in the higher ranges of giftedness. It reminds us that gifted children are vulnerable and at-risk, and that we are obliged to respond to their differences with supportive parenting, teaching and counseling.

Overexcitabilities

Another aspect of the Columbus Group definition is heightened intensity. This is the heart of the definition of giftedness as asynchronous development. Cognitive complexity gives rise to emotional depth and intensity. Thus, the gifted not only think differently from their peers, they also feel differently. This intensity may be experienced in many ways.

Dabrowski and Piechowski (1977) described five channels of heightened experience or “overexcitabilities” (OEs): psychomotor, sensual, imaginational, intellectual, and emotional. The overexcitabilities can be thought of as an abundance of physical, sensual, creative, intellectual and emotional energy, which cause inner turmoil, but can result in creative endeavors as well as advanced emotional and ethical development in adulthood. Individuals endowed with greater capacity for vivid imagery, intellectual curiosity, compassion and empathy are more likely to experience anguish when faced with knowledge of the cruelty in the world. A young child who has heightened emotions coupled with advanced cognitive awareness of the suffering and perils in the world feels helpless and afraid.

Psychomotor OE refers to excess physical energy, workaholism, nervous habits (such as tics and nailbiting), rapid speech, love of movement, impulsivity and pressure for action.

Aesthetic appreciation is a function of acute sensitivity and capacity of discrimination of one or
more of the senses. In addition to responsiveness of the senses and aesthetic appreciation, Sensual OE also includes heightened sensuality and sexuality, and enjoyment at being the center of attention. Imaginational OE is the capacity to visualize events very well, inventiveness, creativity, fantasy, and poetic, dramatic or artistic abilities.

Intellectual OE includes probing questions, analytical thinking, reflectiveness, problem solving, interest in abstraction and theory. Emotional OE involves intense connectedness with others, the ability to experience things deeply, fears of death, embarrassment and guilt, and emotional responsiveness. Empathy is a handicap in a world that is blind to cruelty and apathetic to injustice.

The presence of OEs leads to potential for higher-level development in adult life. They may be difficult to live with in children, but they are the essential ingredients in the development of creative, passionate, morally aware adults. The marriage of cognitive complexity and emotional intensity, and the enhanced awareness and moral sensitivity born of that marriage, renders highly gifted individuals vulnerable. When advanced cognition brings information into awareness for which the child or adult is emotionally unprepared, vulnerability is the natural result. But we must be careful not to equate emotional fragility with immaturity. Most of world's treasures are delicate and need to be handled with care, like fine china, crystal, paintings, roses, orchids, and children. All delicacy is at risk in crude and aggressive environments. It is the vulnerability of the gifted that requires special provisions.

Dabrowski (1979/1994) found morally and emotionally advanced adults gentle, delicate, nonaggressive, likely to withdraw rather than retaliate, "heroic" in their sensitivity. He felt that because of their sensitivity and integrity, these individuals are capable of bringing humanity to a
higher set of values, but that they are at great risk of being destroyed by society because of their inherent differences. The values Dabrowski considered indispensable to harmonious living include: an empathic attitude toward others; tolerance (not aggression); responsibility for others and for self; a just attitude (treating everybody by the same standards); helping each other; giving thought to the harmed and humiliated, to invalids, to the sick, to the ineffectual and those devastated by their own loneliness; truthfulness; authenticity; and just social care. Although not all highly gifted individuals share these values, when they occur they are indicative of very high intelligence.

Characteristics of the Highly Gifted

The highly gifted have unique characteristics, such as the following:

- intense intellectual curiosity
- fascination with words and ideas
- perfectionism
- need for precision
- argumentativeness
- ability to perceive many sides of an issue
- metaphoric thinking
- ability to visualize models and systems
- learning in great intuitive leaps
- intense need for mental stimulation
- difficulty conforming to the thinking of others
- early moral and existential concern
- a tendency toward introversion

Intellectual and personality characteristics are intertwined. Extraordinary abstract reasoning ability leads to perfectionism as perfection is an abstract concept (Silverman, 2009).

The asynchrony of a child's development also feeds perfectionism: when the mind develops faster than the body, the reasoning and values of the child are more like those of his or her 27
mental peers than like those of agemates. The need for precision particularly characterizes the highly gifted (Kline & Meckstroth, 1985).

**Exactness** in all mental performances is characteristic, keen love of precise facts.

Allied to this is the perception of things in their multitudinous relationships, with frequent use of the phrase, “Well, that depends.” A young child who spontaneously utters the phrase, “That depends,” is sure to catch the attention of one who thoroughly knows gifted children. (Hollingworth, 1927, p. 4)

The necessity for the world and the people in it to be logical often results in argumentativeness. These children feel compelled to correct errors and to call attention to cases which disprove a particular statement. This demand for accuracy, exactness, precision of thought and expression often alienates highly gifted children from their classmates. Since they are predisposed to argue, Hollingworth (1939) developed a curriculum to train highly gifted children in the fine art of argumentation, including “argument with oneself ... argument with others in private, involving etiquette and the art of polite disagreement ... [and] argument in public” (p. 585).

An intense need for mental stimulation differentiates the highly gifted from their more moderately gifted peers. This trait shows up very early in life, catalyzed by high levels of curiosity and rapid learning rate. They cannot concentrate on schoolwork that is unstimulating; their minds take off on journeys that are beyond their control. A keen sense of justice and early concern with moral issues has been observed frequently in the gifted (Hollingworth, 1942; Passow, 1988). These traits intensify in the highly gifted and appear at earlier stages of development.
Do Highly Gifted Children Have Different Needs?

Appropriate Provisions

A combination of the following provisions would be suitable for highly gifted children, and, to some extent, moderately gifted children. Moderately gifted and highly gifted students can be grouped together, as long as the pace of the instruction is sufficient to challenge the highly gifted students in the group.

- Advanced Learning Plans
- Fast-paced, challenging courses that offer advanced material
- Acceleration
- Mentors
- University-based programs
- Self-contained classes
- Special schools or programs
- Private education
- Community enrichment opportunities
- Homeschooling
- Counseling

It is important to have an Advanced Learning Plan (ALP) for every highly gifted student in a school. Lewis (1984) explains why:

The higher the deviation above the mean, the greater the number of possible combinations and recombinations of abilities. No one highly gifted child can be expected to be like any other child with the same score. Therefore, no single-focus program ... can hope to adequately serve a population with such potentially complex profiles. (p. 134)

The diagnostic component of an ALP provides an assessment of the student’s strengths and needs, and the staffing component assures that staff members work collaboratively to meet those needs. The school psychologist should conduct a comprehensive individual
assessment, including an examination of intellectual capability, academic strengths, self-concept, social development, and student interests. The student should be interviewed prior to the staffing, since highly gifted students are often in the best position to tell what they need for their optimal development. Ideally, administrators, parents, teachers, the counselor, the school psychologist, support personnel and the student should all be involved in collaboratively planning the ALP.

Conclusion

The asynchrony that besets the highly gifted is both a blessing and a curse. If we view giftedness only within a competitive framework, then the most gifted among us are certainly the most cursed, because they cannot fit into society as it currently is, nor can they succeed by its standards. They are likely to be seen as defective in today’s world; they lack the competitive drive to win and they cannot comfortably “play the game” at school or work, ignoring the power plays and moral infractions. Advanced, asynchronous development is not an advantage in a race toward personal gain. It does not give the individual an edge in the competition. Rather, the cognitive and personality traits that comprise giftedness are disadvantages in a society in which those differences are not valued.

We need to see beyond the narrow lens of competitiveness to grasp the deeper significance of giftedness. When we look at the gifted from a global perspective, it is clear that the development of each person’s gifts benefits all of society. Every human being has a unique contribution to make to the whole. Kierkegaard has been quoted as saying that we all come into this world with “sealed orders” and we each must discover what those orders are and
Do Highly Gifted Children Have Different Needs?

Ifollow them (Tolan, 1995). Everyone's orders are different. What is the point of competing if we all have a different role to play? Highly gifted individuals come equipped with the exact combination of unusual strengths and weaknesses—the perfect asynchrony—to fulfill their own sealed orders.

We, too, who have been called to help these children develop, have been given sacred orders of our own. We know that some of the children in our care have come to lead us to a more humane, harmonious existence. We who cherish gifted children have been entrusted with guiding and guarding the future of our planet. With our help, these children's gifts will become blessings to themselves and to the Universe.
References


Columbus Group. (1991, July). Unpublished transcript of the meeting of the Columbus Group, Columbus, OH.


Freese, L. (2007). “So you’re a teacher of a profoundly gifted child” (And then there was Bill). In K. Kay, D. Robson, & J. F. Brenneman (Eds.), *High IQ kids: Collected insights, information and personal stories from the experts* (pp. 82-89). Minneapolis, MN: Free Spirit.


Do Highly Gifted Children Have Different Needs?


Two Decades of Putting a Face on Asynchronous Development and the Highly Gifted

Barbara Mitchell Hutton, MBA
Helios New School, Palo Alto, CA

I really should have known better. After all, I knew what asynchronous development was. I saw it manifest every day in gifted students; its very definition was the foundation of Rocky Mountain School for the Gifted and Creative. Its nature was incorporated into our curriculum, as well as the basis for our individual education plans and individualized instruction and grouping practices. Every day I explained it to greatly relieved parents of gifted children who suddenly felt like a veil had been lifted between themselves and their child. But when it sat across from me at the kitchen table every morning, I was as bewildered as the next parent!

Which Chelsea woke up this morning? Is it the thoughtful, caring, sensitive child who is wise beyond her eight years and could read the unspoken emotions of those around her? Is it the child who would ask questions that would stump a philosopher? Is it the child who understands the relationship between addition and multiplication when she was four but still hadn’t mastered basic math computation by the time she was seven? The child who can’t pick out her own clothes in the morning or the child who “can do it myself” when attempting complicated tasks of manual dexterity, complex sequence and modest danger? The child reads at the sixth grade level but still wants a story read to her every night (actually four/five stories would be preferable but adults require sleep...)? Is
it the Chelsea who won’t share her things with her dearest friend one day or the one who wants to spend all her savings on something for that same friend for no other reason than she knows the friend would like it? Is it the Chelsea who will play an imaginary game for hours but can’t focus on her spelling words, other homework, or addressing school valentines for more than five minutes at a time? And, ah please, don’t let it be the one who questions every direction and request and follows her questions with her own alternative plan.

Nearly 20 years ago when I wrote the description above, first published in Highly Gifted Children, a publication of the Hollingworth Center for Highly Gifted Children, Volume XI, Number 2, Spring 1996, it seemed that my experience encompassed only the small group of families and applicants to Rocky Mountain School. I have come to understand that some iteration of my experience is the personal experience of nearly every parent of a gifted child. Further, this quandary presents itself in classrooms, and uninformed teachers know few strategies to cope with the asynchronous gifted student. Beyond that, the traditional structure of schools and emphasis on standardized test scores makes it difficult for even the most understanding of administrators to respond appropriately.

In 1991, the Columbus Group gave us a definition of giftedness that took us from the traditional performance-based achievement level of identification to the much more subtle and complex understanding of giftedness which permeates much of the literature now.

Giftedness is asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and [modes of] awareness
that are qualitatively different from the norm. This asynchrony increases with higher intellectual capacity. The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching, and counseling in order for them to develop optimally. (The Columbus Group, 1991; italics added)

Asynchronous development, advanced cognitive abilities, heightened intensity—the Columbus Group definition of giftedness provides a common language to talk about and with our gifted kids. The notion of asynchronous development, an uneven pattern of growth characterized by differing patterns and rates of intensity, interest and skill development, defies the typical singular dimension and linear developmental pattern so often described in parenting guides. More often, parents of gifted children must rip all the pages from the typical age-based developmental books and repeatedly reassemble them with pages from several ages and developmental criteria as our children grow. I suggest a three ring binder, holes punched in the pages so you can mix and match through the years.

The higher the child's IQ (in simple terms, the discrepancy between the child's chronological age and their mental age relative to the norm of 100 where there is assumed alignment of the two), the more likely it is that there will be asynchronous development. A child may have both very advanced math and science skills and comprehension, yet may struggle with transferring their thoughts onto paper due to a weakness in "written expression."

Moreover, like Chelsea, even though the gap may be in the dozens of points, the area in which the child struggles may still be in the "normal" range. They are asynchronous within themselves while synchronous with typical age peers. In these circumstances, the gifted child often does
not qualify for any special educational services because their high scores offset the lower scores, making their total profile appear above the norm.

This advanced cognitive ability presents its own challenges beyond grade placement and acceleration options. The content of a book, particularly fiction, that is written for children three or four grade levels above the gifted reader, may not have appropriate social content. The social, moral and ethical situations may be well beyond the reader’s experience.

To further complicate the effect of asynchronous development, I’ve observed that development changes over time as it’s influenced by both internal and external factors. These changes can be both short or long term and can impact cognitive, social/emotional and spiritual development. As a child’s experience and awareness expands, their internal spiritual, moral nature and sensitivities can become more prominent and influence a child’s response to her/his internal and external environment. Issues of fairness and justice become more important.

Likewise, external factors such as family dynamics, death of a grandparent or pet, change in a friendship, the discovery of a new area of interest or passion, a natural or man-made disaster such as the earthquake in Japan or the events of 9/11, can drive development by refocusing the child’s attention away or toward a new area. Our increasing understanding of brain development adds one more layer to asynchronous development. The frontal lobe of the brain where executive function, judgment and organizational skills reside is now believed to fully develop until at least the mid 20’s

http://www.hhs.gov/opa/familylife/tech assistance etrainin adolescent brain Development/prefrontal_cortex/index.html. That gap between knowledge and wisdom isn’t likely to narrow until one reaches the middle 20’s. Many parents and teachers of gifted children recognize only
Two Decades of Putting a Face on Asynchronous Development and the Highly Gifted

too well that gap between the logical/cognitive self and the social/psychological/spiritual self from a young age


Heightened Intensity

In my experience, the parents or teachers of gifted children who haven’t been exhausted trying to live with the gifted children in their lives are few and far between. Michael Piechowski describes it this way.

One of the basic characteristics of the gifted is their intensity and an expanded field of their subjective experience. The intensity, in particular, must be understood as a qualitative distinct characteristic. It is not a matter of degree but of a different quality of experiencing: vivid, absorbing, penetrating, encompassing, complex, commanding—a way of being quivering alive. (Piechowski, 1992, p. 181)

Quiveringly alive. What a magnificent, visual, insightful description. Can you see these children exuding excitement about a new find, an understanding that they suddenly develop, a connection they just made, a new friendship, a new skill acquired, a sunset, a disappointment, a hurt feeling, a misunderstanding, a lady bug? You have your own list.

The emotional intensities, or what we have come to refer to as over-excitabilities described by Dabrowski as a foundation characteristic of gifted (Piechowski, 2009, p. 6), and their intense responses to moral and social injustices can overwhelm parents, teachers and friends. These intensities can be a barrier to developing a broad social network and friendship
circle. "It takes one to know one" applies to many of our gifted children. The match of intensities makes for passionate friendships and shared interests. Friendships with and between gifted kids are not for the faint of heart. It takes energy and a commitment to the friendship. Not only can this result in incredibly creative play, work and problem-solving, the intensity can result in powerful emotional responses to disagreements and hurt feelings. Parents and teachers must be equipped to help these young souls in working through their feelings and emotions so they have greater self-awareness, acceptance, compassion and understanding.

Most often parents who inquire about Rocky Mountain School sought out the school because their children were not challenged in other schools. This intellectual intensity often sets students apart from their age peers, with whom they were grouped for class. Gifted learners want to learn at a faster pace and understand in more depth. Because of their high abstract reasoning ability, they see and understand relationships and connections; consequently, they ask questions. Many questions. In a typical classroom where teaching is, unfortunately, often targeted to success on the standardized tests, the inquisitive and challenging minds of gifted learners go unappreciated. The intellectual curiosity and intensity just isn’t matched in the classroom. Many parents of gifted learners supplement their child’s education themselves or by enrolling their children in afterschool programs. Able to "keep it together" during school hours, many gifted students frequently fall apart at home. Those who can’t manage their intense emotional response to being under-challenged or misunderstood often find themselves in the principal’s office identified as a behavior problem, or worse.
Interestingly, in my experience, some gifted learners seem to hyper-focus on some academic areas of development for a period of time then drop that interest and move on to another area. Based on 20 years of experience, I perceive this to be a reflection of synchronous development. It is as though they have learned all they need or want to know about the subject or skill AT THIS TIME. They move onto other areas. At some time in the learner’s future, they often come back to a subject or skill and delve into it further with the same passion they had earlier. This also happens with sports and musical instruments. I learned too late to lease the instruments, not buy them. For parents, this can be disturbing. Often parents view these changes in interest as a regression. I suggest that, frequently, it is that some new need or interest has simply become a higher priority than already developed interests or skills. Parents and educators should support these new developments without anxiety.

It is important to remember that gifted people don’t have a unique claim to asynchronous development. All people have some asynchronicity. I suggest that the range of asynchrony between the lower and higher levels of development is what sets gifted children and adults apart from others. The fourth grader whose development ranges between third and fifth grade is much different from the fourth grade student whose development spans between third and eighth grade. Whereas the former can be accommodated with minimal adjustments in a regular classroom, the teacher will be hard pressed to accommodate the needs of the latter. If these differences include social/emotional development plus cognitive development, it is that much more complicated.
What does this look like in a real gifted child? Consider this person: At seven years old, identified as gifted with an IQ of 207; at ten, extraordinary development in math and science; very sensitive to the dilemmas of others (in the abstract); college level reading and comprehension; and very high global awareness. At the same time, this youngster was highly disorganized and unkempt, commanded few social skills, poor motor skills, was clumsy, and had no apparent awareness of his impact and interaction with those around him. Because this learner lacked the social and organizational skills to maneuver in a larger social and physical environment, this student was not a candidate for acceleration into high school classes which certainly could have offered more appropriately challenging content. However, with substantial support from parents, teachers and others, this student developed the skills to learn independently, increased social awareness, graduated from high school early and enrolled in a college offering early entrance for gifted students. College graduation will come before the age of 20.

The child (or adult) with asynchrony lives in a world of contradiction. Teachers often expect the student to perform at their highest level of development in all things. When there are relative weaknesses, learners are frequently thought to be not “working hard” or being lazy; The very identification of giftedness can come into question. Within the extended family, the
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Ousin or grandchild who "acts their age" instead of the mental age associated with their cognitive development is often frowned upon and the parents questioned about why, if the child is so smart, they act like all the other kids their age. Counselors, unless knowledgeable about and experienced with gifted children, often interpret some of the characteristics of the gifted—perfectionism, anxiety, high energy for areas of passion—as pathology, and treat and counsel from that perspective.

Perhaps the contradiction that is most difficult, unrecognized and the one with the greatest consequences, in my view, is within the Self of the gifted child. I mentioned earlier that the Columbus Group definition of giftedness provides a language to talk with our kids about being gifted. In my experience, often the gifted child is recognized only by the academic or cognitive prowess they posses. They take on this perception themselves. Subsequently, when gifted learners can't do everything as well as they can in those areas in which they excel, self-doubt and questions of competence arise. The conflict and confusion that young people have about their asynchrony can become debilitating.

What does all of this mean for the educator? The need for differentiation for all students is well documented in the educational literature. There are models that propose tiered lesson planning and that suggest levels of differentiation. In my view, these fall short of the mark. They are incomplete. These models focus on differentiating the content of curriculum—what is being taught; process—how it is being taught; and product—tangible results produced based on students' interests and abilities http://www.gifted.uconn.edu/nrcgt/newsletter/spring98/sprng985.html. In 1997, Renzulli added the classroom and teacher to these elements. Gifted learners are complex and
developing on many levels simultaneously. In order to truly differentiate, as educators and parents, we must take that complexity into account. Consequently, we are called to differentiate for a moving target.

*Developmental Differentiation*, an approach first introduced by Kathi Kearney and this author at the National Association for Gifted Children annual convention in 2008, proposes a differentiation model that takes into account the dynamic aspects of the emerging individual.

is simultaneous differentiation across each individual's immediate developmental spectrum. Further, it is not just about curriculum and instruction. It reflects both the quantitative assessment typical of identifying a gifted child and a qualitative assessment of the child's essence—values, ethics, morals, and spirit.

If you will, envision a Rubik's Cube. The exterior parts move in many directions and patterns. “Explode” that Rubik's Cube so that each individual cube is six-sided. Add the interior of each side. All of the parts can move, connected to and independent of each other. There you have the visual and physical model of Developmental Differentiation. It is a much more accurate depiction of complex human development.

The developmental differentiation approach means the teacher and parent must look beyond the curriculum and instruction goals and look at the child. We must consider their social and emotional development. We must look at their interests, passions, concerns, hopes, learning style, personality type, family structure, and friendship patterns along with the typical considerations for curriculum and instruction. This is a model driven by the whole of an individual child's development, not by scores and test results.
No doubt the large class sizes and focus on achievement and test scores can be a real
arrier to accomplishing this in the typical classroom. However, within the individual classroom,
teachers can take small but important steps. First, know your students well. Learn about
them as people. Be aware of their inner drive and life. In the words of Annemarie Roeper (1990),
"How can we educate without knowing who the person is? ... Parents and teachers, with the best of
intentions, put the greatest emphasis on the child's ability to perform, on what he can do,
forgetting that who the child is influences what the child can do. We rarely ask who this total
person is, or who we think and feel he is, and even less, who the child thinks he is.” (p. 10)

Secondly, consider grouping students differently. Many factors should be considered,
among them: social skills, interests, decoding level, reading comprehension level, teacher
relationships, physical development, family relationships, sensory integration needs,
introversion/extroversion, visual spatial/auditory learner, abstract reasoning ability, maturity,
self-confidence, math computation, math comprehension, level of independence, peer
relationships, writing skills and emotional development. Approaching education, and parenting,
from the developmental differentiation model assumes that asynchrony is a basic fact of the
human experience. The higher the IQ, the more likely it is to be in effect and the more
necessary a developmentally differentiated approach needs to be adopted. Teachers must be
prepared for the student who struggles with a concept one day, masters it the next day and
needs new material on the third. More than likely, that could happen in a pretty random
pattern. The student, the subject, the skill, and the application were probably not outlined in
the lesson book for the week.
Greatest Potential, Greatest Need: Soaring Beyond Expectations

SOME FACTORS TO CONSIDER WHEN APPLYING DEVELOPMENTAL DIFFERENTIATION

- Learning style
- Introversion/Extroversion
- Outstanding physical attributes
- Cognitive Asynchronies
- Preferred way to show "knowing"
- IQ (subtests)
  - Processing speed
  - Abstract reasoning ability
- Vision challenges
- Writing styles/challenges
- Learning strengths
- Leadership profile
- Learning pace
- Level of independence
- Twice Exceptionalities (2E)
- Sensory Integration
- OT needs
- Acceleration Opportunities
- Complexity of concepts/projects
- Family circumstances
- Emotional profile (OE's)
- Spiritual development
- Emerging situational circumstances
- Friendship patterns
- Self concept
- SELF awareness
- Intellectual curiosity
- Culture
- Passions
- Interests
- Hobbies
- Career interests

Mitchell-Hutton, 2009

As parents and educators, there are a number of direct actions we can take to guide our children through their growth into adulthood.

- Recognize and accept asynchrony as reality.

- Recognize, discuss and embrace your own asynchrony. It is important that children understand that you too have been a work in process.

- Discuss your child’s or student’s asynchrony with them. Help them understand your pattern of growth, the areas in which you struggled and survived, and the choices that as an adult you were able to make to accommodate your asynchronies. Being asynchronous as a child is much more stressful than being an asynchronous adult. How
many of us have chosen a path on which we are expected to devote energy to those areas in which we have little interest or ability?

- Know which response is appropriate for the situation and the individual. Not every child will have the same response to a dead cat on the side of the road or being served a vegetable they don’t like.
- "Scan" the whole child when differentiating.
- Check in frequently with the learner with eye, ear and heart all on alert for changes.
- Ask what they already know; ask what they want to know.
- Encourage and support the pursuit of passion for its own value, and as a means to other learning.
- Differentiate, differentiate, differentiate. Whether it in the classroom, the soccer field, the ski slope or at home, not all children are the same.

Whether you are a teacher or a parent, stay flexible. The student who was challenged in math at the beginning of the year may rightfully claim to be bored with his progression by mid-year. Jump him ahead a year in math. The student who struggled with reading/decoding suddenly “gets it.” Change the book list! One student develops an interest in migration patterns of nomadic people and develops an independent project that could last a week or a lifetime!

Another student recognizes a pattern in religious conflicts during the past 3,000 years and last night’s news. She develops her leadership abilities as she organizes a school-wide effort to provide books, food and clothing!
Greatest Potential, Greatest Need: Soaring Beyond Expectations

It's a wonderful thing to sit down at the breakfast table or enter your classroom knowing that the course for the day and the path you will walk with your child or students is still up for grabs. Enjoy the journey.
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References


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The Importance of Creativity in Encouraging and Enabling Highly Gifted Students

Joan Franklin Smutny
Center for Gifted at National-Louis University

"The truly creative mind in any field is no more than this:
A human creature born abnormally, inhumanly sensitive.
To him...
a touch is a blow,
a sound is a noise,
a misfortune is a tragedy,
a joy is an ecstasy,
a friend is a lover,
a lover is a god,
and failure is death.
Add to this cruelly delicate organism the overpowering necessity to create, create, create - - - so that without the creating of music or poetry or books or buildings or something of meaning, his very breath is cut off from him. He must create, must pour out creation. By some strange, unknown, inward urgency he is not really alive unless he is creating."

-Pearl Buck-

In the town of Barquisimeto, Venezuela, a highly gifted boy, Gustavo Dudamel, might easily have disappeared in the tough culture of the streets that surrounded him. But, because he grew up in Venezuela, he found himself drawn to one of the hundreds of music schools of the National System of Children and Youth Orchestras of Venezuela, founded in the 1970s by pioneer musician and economist, Jose Antonio Abreu. Early on, Dudamel wanted to follow the footsteps of his father, a trombone player in a salsa band, but his arms were too short. So he took up the violin at age four, later switching to the baton and conducting for the first time at age 12. Dudamel revealed his heart's true passion early in life when he arranged the toy
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soldiers his mother had given him into an orchestra and immediately began conducting them (Harrell, 2007).

What made Gustavo Dudamel’s remarkable story possible was an educational system that not only gave him the musical training he needed, but also allowed his ability to set the learning pace and prepare him for challenges rarely experienced by a boy so young. As an expressive art, music also transported him from the harsh realities of the streets to a universe of beautifully articulated and complex sound. In a 60 Minutes interview, he candidly revealed the power of such an arts program: “The music saved me. I’m sure of this. With all these bad things around you, you are exposed to these things ... up close. Music gave me a way to be far, far away from these things” (CBS, 2008). Dudamel thrived in the nurturing atmosphere, the demanding schedule, and the thrill of learning and making orchestral music. The rules were simple: students receive an instrument as soon as they can hold one; tuition, trips and music are free for any child who promises to play in one of the ensembles; students commit to a rigorous schedule of three to four hours of practice a day, six days a week.

Such a schedule for young children seems unimaginable in our society. But in the barri of Venezuela, it is time away from the streets. For a highly gifted child like Gustavo Dudamel, three to four hours of practice a day suited his passion and drive. Had he lived in any other country, it is a question whether the little boy who loved to conduct toy soldiers would ever have become, at the young age of 18, the musical director of the internationally renowned Simon Bolivar Youth Orchestra of Venezuela. But the classes he took imposed no limits on his mind and heart. He didn’t have to wait for other students to catch up or adjust to a process t
stricted the pace of his learning or his own interpretive powers in playing and conducting music. His abilities and maturity guided his education.

Why the Highly Gifted Need Creativity

It's important to recognize that creativity by itself does not go far enough in engaging the minds and hearts of highly gifted learners. To stimulate real growth, highly gifted students need both a faster-paced, more demanding intellectual challenge and the creative process. To take the example of Gustavo Dudamel, his interpretive gifts and creative expression could only come to fruition because he had also received a rigorous program of advanced musical instruction.

For a number of highly gifted students, the urge to create is as strong as the urge to accelerate the pace of their academic learning. The tendency to separate creativity from academics ignores the fact that these students often do both simultaneously and at a level far beyond their peers. For highly gifted learners, creativity requires an advanced level of knowledge and skill to reach its full potential. “Individuals need knowledge in order to be creative; finding problems of increasing sophistication demands increased understanding of the domains in which the problems are found” (Starko, 1995, p. 126). As anyone who works in this field knows, the most gifted minds in our schools will never be content to simply follow the tracks laid by others. They will want to lay track of their own—through a new insight or realization, a discovery or interpretive response.

The artificial separation between academics and creativity ultimately leaves highly gifted students—and all students for that matter—with an impoverished education. Alfred
North Whitehead put it nicely: “Fools act on imagination without knowledge; pedants act on knowledge without imagination” (Parnes, 1967, p. 7). The importance of creativity becomes apparent when we look closely at the circumstances in which gifted students thrive intellectually and emotionally. Almost always, they involve projects where high intellectual demand and creativity work together, and where students bring the creative dimension to their mastery of a subject. This “dimension” may entail different kinds of mental processes—divergent thinking, invention, and intuition, or the “sensing” abilities that guide the earliest discoveries of young gifted learners.

Creativity enables highly gifted students to bring more of themselves to the learning process. Consider the following:

- **Through creativity and the arts, gifted children make strong personal connections with the subject they’re learning.** Gifted students feel a dramatic shift from passively receiving information to active engagement; imagining, inventing, wondering, intuining and improvising assume greater importance.

- **Students make discoveries.** Whether a teacher designs an open-ended thinking process in a math class or uses art media to inspire poetic composition in a language arts class, the creative dimension stimulates new ways of approaching an assignment and enables gifted students to innovate and originate.

- **Students with different learning styles can engage in higher-level thinking.** Because of the rich variety of processes involved and materials used, creativity can more fully address a wider range of learning styles and also differences related to socioeconomic and cultural backgrounds.
The Importance of Creativity in Encouraging and Enabling Highly Gifted Students

- Students can develop a sense of artistry and depth of feeling. Through regular exposure to the arts and the creative process, gifted children focus and revel in their keen sensibilities, exploring such phenomena as the beauty of numbers, the dazzling array of intricate patterns in nature, or the richness of imagery and meaning in stories or poems.

It should be pointed out that highly gifted students can only experience these benefits if the classroom environment supports the creative process. Research has proved that classroom environment—particularly in its influence on motivation and creative expression—plays a central role in the degree to which high-ability students can become independent, innovative, imaginative thinkers (Amabile, 1996; Hennessey, 2004). When extrinsic pressures such as competition, evaluation, and external rewards outweigh other concerns, students tend to approach the learning process as a means to an end, undermining creativity and self-determination (Hennessey, 2004). Incorporating the creative dimension nurtures the intrinsic motivations of children—inner curiosity, imagination, and passion—giving birth to the inventor, the mad scientist, the storyteller, the artist.

The following chart uses the metaphor of gardening to illustrate how to nurture creativity in the classroom (Smutny, Walker & Meckstroth, 2007, pgs. 40-41).
Greatest Potential, Greatest Need: Soaring Beyond Expectations

Guiding Creative Learners

Preparing the Soil

• Openly share your own creative passions with your students.
• Fill the classroom with art, music, and a rich variety of enticing supplies.
• Design work spaces that beckon the creative muse in your students.
• Applaud originality, whenever and wherever expressed.
• Protect students from saboteurs: criticism, censure, premature judgment.
• Celebrate risk-taking and bold endeavor.

Planting the Seeds

• Awaken imagination and artistic sensibilities through example and exposure to creative people and their works.
• Create open time for creative exploration.
• Share jewels of wisdom about the creative process.
• Point out the hidden, less-traveled paths; warn against set patterns.
• Celebrate the beginning steps of children’s own creative processes.

Watering and Feeding

• Design activities that engage the whole child: touching, feeling, imagining, listening, sensing, composing, combining, writing, improvising, constructing, molding, shaping.
• Provide for advanced learning in a variety of fields.
• Assign work that requires creative and imaginative thinking.
• Nurture boldness in vision and endeavor.

Weeding and Growing

• Teach strategies for constructive criticism and evaluation.
• Impart coping skills to deal with peer judgment, crippling perfectionism, and frustration with the creative process.
• Support students’ trust in their own creative power.
• Give them opportunities to correct errors, refine visions, rewrite, re-create, improve, and elaborate.
• Find venues for students to show/demonstrate/perform/exhibit for real audiences in the community.
Creative Modalities

Reviewing scholarship on creativity over the past five decades, Clark noted that the “cognitive, rational view of creativity” has been the one most researched in the literature (Clark, 2002, pg. 78) with a great deal of focus placed on cognitive processing models such as problem-solving. There are advantages and disadvantages to this, as Clark observes: “Limiting creativity to a cognitive view allows it to be more easily measured, researched, and taught; however, it does not capture the complexity or bring understanding to the other dimensions of creativity.” (pg. 77).

Part of the problem is that the creative process itself remains an enigma. Researchers can document the stages that take place before a new discovery, but not the means by which it appears. For example, French mathematician Poincare had worked earnestly for many days on a solution to a problem, then put the matter aside and drank a cup of black coffee. According to his own account, he then discovered “Fuchsian functions.” Ideas rose up into his mind and he saw the stable combinations take form seemingly of their own accord (1913, p. 37).

How do artists, inventors, and scientists discover their ideas? What guides their unconventional meanderings, sudden leaps of faith, and risky experiments? While there is no answer to this question, certainly providing a variety of modalities gives students more opportunities to make discoveries. The following chart provides some ideas on how the different creative domains can open up the classroom for highly gifted learners.
### COGNITIVE SENSING/INTUITING IMAGINATIVE ARTISTIC

<table>
<thead>
<tr>
<th>Divergent reasoning</th>
<th>Depth of feeling</th>
<th>Visualizing processes and possibilities (not in evidence currently)</th>
<th>Responsiveness to visual and performing arts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexible thinking</td>
<td>Keen sensing</td>
<td>Vivid imaginings</td>
<td>Originality in artistic expression</td>
</tr>
<tr>
<td>Experimenting</td>
<td>Intuiting</td>
<td>Daydreaming</td>
<td></td>
</tr>
<tr>
<td>Improvising</td>
<td>Heightened</td>
<td>Other-worldliness</td>
<td></td>
</tr>
<tr>
<td>Fluency</td>
<td>sensibilities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Examples—**

- Responses to nature
- Sensory exercises
- Free association
- Imaginative processes using arts

**Examples—**

- Composing stories and poems
- "What if?" questioning
- Role playing
- Divergent production (e.g., fractured fairytales)

**Examples—**

- Chamber theater adaptations
- Paintings and drawings
- Collage that combines visual media with text
- Arts as catalysts for creative writing

### The Cognitive Domain

Over the past 80 or more years, a number of cognitive models supporting the creative process have evolved, based largely on observation and study of those who invent and create.

In the 1920s, for example, The Wallas Model patterned itself on the process that Poincare used—preparation, incubation, illumination, and verification (Wallas, 1925). Other researchers focused on processes believed to stimulate divergent thinking. As a result of Guilford’s scholarship (1968), and Torrance’s research and testing instruments (1974, 1979), teachers today still associate the following processes with creative production:

- *fluency* (generating many ideas)
- *flexibility* (creating different thought patterns)
- *originality* (producing unique, unexpected ideas)
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- **elaboration** (extending ideas, embellishing, implementing ideas)
- **transformation** (changing/adapting an idea or solution into a different one)
- **evaluation** (assessing the viability and usefulness of an idea)

A pioneer in creative problem solving, Osborn (1963) also founded a five-step model. Briefly, the steps in his Creative Problem Solving Model involved the following activities:

- **Fact finding**—list all known facts about problem
- **Problem finding**—consider different ways of defining problem
- **Idea finding**—generate ideas through divergent-thinking and brainstorming
- **Solution finding**—establish criteria for evaluating ideas
- **Acceptance finding**—apply solution to individuals/organizations involved in decision-making.

Updated by Parnes (1981) as well as by Treffinger and Firestien (1989), this model emphasizes both divergent thinking (generating many different ideas) and convergent thinking (choosing the most promising or inspired possibilities). A further model (Isaksen, Puccio, & Treffinger, 1993) addressed criticisms that the process was too linear and failed to address the artistic dimension.

Strategies for increasing a child’s ability to generate and apply new ideas therefore have given teachers a wide repertoire of techniques to use at specific points in a unit or lesson. Here is how a science teacher used leading questions to help gifted children discover possible solutions to declines in North American bird populations:

Several gifted students in a cluster group did a project that focused on the sharp declines in migratory bird populations in the United States and what could be done about it. Each student chose a specific focus to research (which they shared with others). One chose scarcity of food sources, another habitat loss, another habitat degradation, and another flight patterns that bring them in contact with buildings. When they pooled their research, they wrote down on index cards the most important data they felt accounted for why the birds' numbers are in decline. The teacher posed questions: Is there one major reason why these birds are declining? What seems to be the most critical problem right now? Based on declines over the past five years, what
do the students predict will happen if changes do not occur? Which threat to the birds is easiest to address in their opinion? At first, the students couldn't agree on which factor was the most threatening to the birds because different species had different problems. Then one student asked, "Is it even possible for humans to share the world with birds?" This question opened up new lines of thinking. Another student said that perhaps they should explore bird habitat needs and human habitat needs and see where they conflict. Another student mentioned that they should make a distinction between human needs and human wants because people often confuse the two. And so on.

The project became exciting because instead of simply gathering and synthesizing a great deal of information, the children were actively inquiring into the question of solutions and weighing their ideas against the findings of experts. In the process, some students selected interesting lines of inquiry. One student, for example, focused on the problem of one billion birds dying per year through collisions with glass windows in North America and discovered that in Chicago, a few architects were considering ways to use bird-safe windows (i.e., windows designed to be visible to birds). This led her to consider the increase in migratory bird populations that would occur if all the major cities in America were able to retro-fit their buildings with these windows (Fifth grade teacher, personal communication, 2009).

This kind of process appeals to highly gifted children because they love to solve problems related to human or animal welfare. And in the above example, they can combine their research abilities with their imagination to create a solution that has at least some level of validity.

The Sensing/Intuiting Domain

In gifted education, the sensing/intuiting aspect of creativity rarely has as much merit as other aspects. In Western culture, we tend to think of feeling and sensing as somehow un-intellectual or unworthy of serious attention. Engaging the senses in something tangible—the natural world, visual art, music, rhythm, or sculpture—sharpens the insights and intuitive understandings of gifted students. The presence of beauty (in a painting, the natural world, a
mathematical formula) — the depth, breadth, richness and variety of texture, pattern — is a gift for the gifted.

A gifted fourth-grader who took a summer ecology class wrote the following passage in his journal:

The silence. That is what I notice first. But then, not so silent, for the cicadas are united in a chorus and I feel like I've snuck into their rehearsal. The grasshoppers leap over my shoes as I sit here in my field, wondering why I've wasted so much time not sitting here. Tree swallows on a bug hunt swoop and soar, swoop and soar and I watch in silence. There is, after all, a silence. It is I who am silent, who have nothing to say, but so much to hear and see and feel, here in my field (creative writing class, 2010).

The Imaginative Domain

Gifted students in accelerated programs also need opportunities to use their imaginations. The imagination presents a realm beyond the known facts, concepts, theories, where children can visualize new possibilities, invent fictional worlds. Often seen as the domain of fantasy or the unreal, in a broader sense, imagination is merely the power to form an image or concept of something that isn't present. Leonardo Da Vinci used imagination when he designed his extraordinary flying machines from what he knew about the science of bird flight. Here is an example:

A third grade teacher wants her cluster group to understand how literary elements and techniques such as metaphor, simile, imagery, rhythm convey meaning in poetry and decides to have them compose poems of their own. She provides not only poems for them to read, but posters, prints, paintings, musical recordings, sound effects and other sources as a way of stimulating ideas. She poses questions about what they observe/hear/feel about the painting or recording, what they imagine is happening, how they would feel and what they would do if they could put themselves in the painting/print/musical recording, what figures of speech they might use to communicate the images in their minds.

The students soon become immersed. They explore the sensations, textures, smells, sights, and sounds in as specific language as they can. They try their hands at similes and
metaphors (e.g., the night as the earth’s “cape of troubles;” the thunder on the plains “rolling like waves of buffalo herds long past”). They discover the power of imagery to communicate deeper meanings as this student did in composing her poem:

**Freedom**

A crystal lake, surface smooth as glass,  
Suffocated by the foreshadowing mountains.  
White strips of clouds, claw marks, tear tracks, decorate the sky.  
Shadows reflect on the desolate lake.  
Stones at the bottom of the pit look longingly,  
Wishing for the mountain to shift, for an open road.  
Wishing for freedom.  
---Alexandra, grade 6

**The Artistic Domain**

The artistic domain offers the largest creative bounty for a teacher not only because of its wide applicability to the curriculum and to the different learning styles in the classroom, but because of the extraordinary benefits for highly gifted students achieved by this. The arts are a powerful resource for creative work, enhancing sensitivity, self-expression, and creative responses to complex problems (Seeley, 1989). Goertz (1990/2001) observes that artists sharpen observation, abstract thinking, and problem analysis when they work. Students with theatrical gifts examine and improvise with situations and problems from multiple points of view, often considering “what if?” scenarios. Musical students express their sensitivity to sound and rhythm in creative writing (both poetry and prose); they perceive patterns and sequences in bird song, and analyze hidden structures in the relationships between species.
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Links Between the Arts and Academics

Deciding how to use the arts in the classroom depends on finding the links between, for example, visual art and science, or theater and social studies, or creative movement and mathematics. Whether teachers use the arts as a catalyst to begin a new unit or as another dimension for an advanced study project, they first need to examine their effectiveness as a resource for teaching highly gifted learners. The following examples show how different art forms relate to four academic subjects—mathematics, science, language arts, and social studies.

Music and Sound

- **Mathematics.** The world of music and sound evokes rhythms, patterns, pacing and auditory structures of all kinds. Focusing on music and sound opens their ears to the things they hear all the time but rarely notice. Whole notes, half notes, drills, pauses, footsteps, crashes, hums. Do crescendos and diminuendos have a symmetry, a shape? Students can create mathematical operations from the sounds they hear; they can translate operations into sounds or music.

- **Science.** Shifting into science, students can examine the process that makes it possible for them to hear, exploring sound waves, the speed of sound, the intricate process of hearing. They can estimate direction and distance of sound. They can inquire how it is that owls have depth hearing but humans do not. Or, they can examine how music and sound communicate science concepts of velocity, space, and dimension.

- **Language Arts.** I have used music and sound recordings in writing classes to evoke mood and atmosphere. In a study of an author from a different time, the class has sat in rapt attention, listening to the sounds, exploring the images that bubble up into their minds, letting their imaginations roam. Recordings of songs and other musical compositions often become catalysts for writing ideas. Attending to sound and music not only cultivates sensitivity so that students actually hear what they hear, but also spurs imaginative thinking.

- **Social Studies.** In similar ways, music and sound connect to the study of history and culture (to name a few subjects in social studies). Music traditions, the sound of street vendors, voices, traffic, and animals not only transport the imagination but stimulate inquiry. Questions arise about the language, about the time period, the sound of old trains, the feeling of a huge market place packed with people, the song of an...
unidentifiable bird. This sort of exercise where students seek clues, reason together, a try to figure out the geographical region from sound sources promotes higher level thinking right away.

Dance and Movement

• **Mathematics.** Dance and movement, particularly for younger students, open the mind to mathematical inquiry and understanding. Many math concepts can be explored in movement—from the exploration of shape, line, circumference, and ratio to the fundamentals of counting, multiplying, and dividing. How many geometric shapes can three students make? How many quick hops can be executed within one long jump? How many different ways can students physically demonstrate a math problem without saying a word?

• **Science.** Like math, science also lends itself to kinesthetic explorations of such topics as gravity, centrifugal and centripetal force, velocity, space, sound waves, light waves, and so forth. At any time in a lesson, they can embody a concept to show what they understand or pose new questions they might not have thought of otherwise. Gifted students relish the challenge of staging a movement piece that represents the revolutions of the planets in our solar system. Almost every natural phenomenon lends itself to a dance-like composition. Students can mime the birth of a volcano, the gene of a storm.

• **Language Arts.** Dance or movement can add another dimension of analysis and interpretation to many language arts units. To create a movement, mime or dance piece requires close reading, discussion, exploration of themes, symbols, motivations, and meanings. It asks students to sift through all these elements and compose their own interpretive dance/movement piece to share with the class. This could include, for instance, miming short poems or stories, a choreographed narration of a news column, or a longer composition that focuses on one theme woven through a variety of texts (e.g., a novel, a biography, a report).

• **Social Studies.** As in language arts, the social studies also invite kinesthetic interpretations accompanying music, sound effects, or narration. For many students, composing movement pieces in and of themselves can be daunting, especially if they have no experience. However, combining movement/dance/mime with narrated text, allowing students to add other elements such as lighting, props, or even slides can inspire some creative choices. All of these add dimension and depth to their learning.

Theater

• **Mathematics.** Theater extends from dance and movement. Dramatizing math problems enables students to express their understanding in a kinesthetic way, but also opens door to extending these problems to higher levels of complexity. They can translate
math operations into dramatic scenes which they can then embellish from their imagination. They can stage improvisations in which students enter and exit the “stage” and the viewers represent what they see in the form of written math operations.

- **Science.** Is it possible to dramatize science? Absolutely. One popular way is to imagine life as another organism—a hooded chameleon, a baobab tree, or a carpenter ant. Students learn and research about a particular animal or plant and put themselves into that life in the way they would adopt the role of a character in a play. Gifted students love the process, for it allows them to imaginatively explore, for instance, what it would be like to have an eye on each side of their head looking at different things at the same time, or standing immobile, rooted to the earth for hundreds of years.

- **Language Arts.** Theater and movement go hand in hand. Students deepen their understanding of stories and novels when they can explore them through Readers’ Theater. Poetry comes alive through oral interpretation, combined with other elements students may add such as video and sound recordings. Assuming a character’s point of view inspires students to search for clues about his/her motivation and thought. and then interpret an event in the story or novel from that viewpoint. It also enables students to imaginatively walk in the shoes of real people in current events or in history, a process that immediately leads to new questions, new ideas about a situation.

- **Social Studies.** In social studies, theater can expand the study of history, politics, economics, and culture by dramatizing the people—their lives, struggles, and perspectives. Students love to impersonate famous historical figures. They can give speeches or be interviewed by another student, responding to questions submitted by the class. The interview and/or speech can become part of a podcast. Debate is another way to dramatize an important issue, event, or conflict. The class could have a debate or could stage a news show with students representing different points of view. For gifted students, the combination of researching the issue or event and translating it into a live show or production is the kind of challenge they need.

**Visual Art**

- **Mathematics.** In visual art, mathematics plays a significant role. Concepts such as perspective, ratio, shape, and dimension, to name a few, permeate painting, drawing, photography, and collage. For example, students can analyze ratios and dimensions, explore how artists use them in their work, and find shapes, lines, and points in different art traditions. They can research the genesis of Cubism in painting and translate their own knowledge of geometry into artistic renderings of their own.

- **Science.** Visual art allows students to explore light and shadow and the expression of such natural phenomena as wind, rock, mountains, and animals. Artists delve into science all the time, as they examine the skeletal structure and muscle groups of...
animals. They study proportions, calculate the angle of the sun and the shape and length of the shadows it creates, and so forth. Students can benefit from exploring this in artists' work, but they can also interpret their scientific discoveries in art pieces of their own. A student once did a study of trees and created a design piece that represented the overlapping shapes of the wood on the outer layer of the trunk.

• **Language Arts.** A favorite activity of the author is to use a wide variety of visual art work (photography, collage, painting, sketches, and posters) as a catalyst for student writing. Visual images spur student thinking with immediacy. In poetry classes, students can select a print of their choice and compose a free-verse poem of their own. A few open-ended questions about the image is often enough to get them started. Chris Van Allsburg’s *The Mysteries of Harris Burdick* are still among the most intriguing story starters for gifted students. The images with the enticing one-liners never fail to get their pens furiously moving across the page (http://www.chrisvanallsburg.com/writestory.html).

• **Social Studies.** Visual art provides another lens on history, culture, current events, and so forth. Students can use artistic representations of other times or cultures. They can research the development of an art movement during a particular time, and connect this movement to other social or political forces. They can track and collect political cartoons around a current or past event and analyze them. They can study map design or collaborate on a mural that highlights key themes in an immigration unit.

Experiences that develop visualization, intuition, and imagination help students create more original work. A teacher of writing exposed her students to a wide range of resources—books, magazines, photographs, posters, recordings, paintings, and web sites to name but a few. Children imaginatively walked into castles, met Mayan artisans in a market, and sat with an old woman feeding birds on a plaza. Students composed little anecdotes around these images and discussed them with each other. Sometimes, the teacher added music and sound the visual catalysts. Combinations of sound and sight pushed the imagination even further. Occasionally, the teacher had the students shut their eyes and place themselves in Toulouse-Lautrec’s bold, rusty-red dancing scene, or in the center of O’Keeffe’s orange flower. They wrote down a jumble of words and phrases without any conscious effort to form sentences.
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make sense. Next, they arranged them into four or five phrases and offered at least two possible interpretations to their writing through dramatic readings. It was in these readings that students discovered the flexibility of words and in this way that an hour of prolific poetry writing had begun.

Highly gifted students love to discover things on their own. A math teacher started his seventh and eighth grade students building paper models of the Archimedean solids. They cut orange pentagons, folded the flaps, stapled these together, and found that 12 pentagons fit together nicely to form a three-dimensional object (called a dodecahedron). The teacher then gave them triangles to cut out and fit together into three different regular solids. One of the children suggested putting triangles and pentagons together, which formed a solid called icosadodecahedron. The children took great pleasure in discovering the various solids, which were then hung on the wall and labeled with the name given to them by Archimedes 2000 years ago. Since these solids form the basis for all crystal structures and for the arrangement of atoms in molecules, building them helps children develop the three-dimensional image so necessary in the study of geology or chemistry.

Another math project designed around finding number patterns began with the class looking for patterns that would then enable them to determine the number of straws needed to build a four-dimensional triangle. They built the model out of straws. The students next found that a one-dimensional triangle would need one straw, a two-dimensional triangle three straws, a three-dimensional triangle six straws, and a four-dimensional triangle ten straws. Students quickly saw the pattern and determined that it would take 15 straws to build a five-dimensional triangle and 21 straws to build a six-dimensional triangle. One highly gifted child
actually constructed on his own a model of a six-dimensional triangle which the teacher had never seen before.

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Perhaps more than any other students, highly gifted students understand the kind of isolation and monotony that result from being held back and forced to repeat tasks they learned long ago. Bit by bit, they begin to lose their vital connection to the interests and passions that drew them into the world as young children. Certainly, greater academic challenge, with its offering of a more advanced curriculum, provides the fresh air they crave—new terrains of knowledge, mysterious problems to solve, and complex ideas just beyond one’s grasp. But does this alone give them back the world they have lost? As one highly gifted student said, “The more I learn, the more I find a thousand other ways to learn.”

There is a great need to include the creative dimension for highly gifted learners. Even classrooms where they can learn at the pace and level of their ability, they long for something more. Embarking on a creative adventure is a clear shift from a mode of receiving to that of giving. Even in a more advanced curriculum, highly gifted students may still spend too many hours responding to external demands, looking for finite solutions, staring at the clock. Creativity changes this. Through the creative dimension, they discover the possibility of a profound engagement, the lure of new paths yet to explore, and a journey out to some distant horizon where they can re-capture the world.
References


Into the Stratosphere: Providing Curriculum for Highly, Exceptionally, and Profoundly Gifted Students

Michele Kane, EdD
Northeastern Illinois University

Ellen Fiedler, PhD
Wings for Education, Inc.

Introduction

It was late afternoon in the principal’s office, and the distraught second grade teacher begged for help. “I don’t know what to do with him; he knows more than I do!” The focus of her concern was a profoundly gifted student – one who had tested at the 8th grade, 8th month level when he entered kindergarten. Due to lack of appropriate educational opportunities in school, by second grade he was at his wits’ end, and so were his teachers. He was wreaking havoc, and no one knew what to do with him.

Providing appropriate curriculum for highly, exceptionally, and profoundly gifted students is, at best, a challenge. At worst, it far exceeds the capacity of most teachers to respond at all, based on the dearth of knowledge provided by their pre-service and in-service training. Most teacher education programs offer little or no instruction on how to teach even typically gifted students — those whose intelligence places them somewhere around two standard deviations above the mean.

So, who are these “rare birds” whose minds soar far beyond those of others? By considering how they differ, intellectually, it may be possible to begin to understand why
teachers are often totally flummoxed about what to do. As Gross (2000) stated, “It would be simplistic to define intellectual giftedness solely in terms of IQ scores; nonetheless, the intelligence quotient is a useful index of the relationship (and in the case of the gifted child, the discrepancy) between mental age and chronological age” (Levels of Giftedness, para. 4). She provided the following definition, “Exceptionally and profoundly gifted children are children whose capacity to learn is significantly advanced even beyond the average for the intellectually gifted” (Gross, 2000, Introduction, para. 10), further clarifying that this is about academic potential, rather than performance in school. Her chart helps to see the prevalence of intellectually gifted students who are likely to be found at various levels in the population:

<table>
<thead>
<tr>
<th>Level</th>
<th>IQ Range</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mildly (or basically) Gifted</td>
<td>115 - 129</td>
<td>1:6 - 1:44</td>
</tr>
<tr>
<td>Moderately Gifted</td>
<td>130 - 144</td>
<td>1:44 - 1:1,000</td>
</tr>
<tr>
<td>Highly Gifted</td>
<td>145 - 159</td>
<td>1:1,000 - 1:10,000</td>
</tr>
<tr>
<td>Exceptionally Gifted</td>
<td>160 - 179</td>
<td>1:10,000 - 1:1 million</td>
</tr>
<tr>
<td>Profoundly Gifted</td>
<td>180+</td>
<td>Fewer than 1:1 million</td>
</tr>
</tbody>
</table>

(Gross, 2000)

For the purposes of this chapter, students who are at the three upper levels of this continuum will all be designated as “highly gifted.” Some generalizations apply to all those in the upper range. However, there are significant differences between highly gifted, exceptional gifted, and profoundly gifted that need to be kept in mind, as well.

A whole host of problems and concerns are associated with providing appropriately for highly gifted students. Kane and Fiedler (2007) identified the following issues:
Relative rarity of highly, exceptionally, and profoundly gifted students. Those in these categories are sometimes described as "statistically insignificant" (Meckstroth, 2007, p. 213), and the more highly gifted they are, the fewer of them there may be. However, their prevalence in the population may be more common than generally cited statistics would suggest (Sheely & Silverman, 2007). Kearney (1996) reported, “There are many more children above 170 IQ (Stanford-Binet Form LM and earlier editions) than the typical bell curve predicts. Although the estimated statistical occurrence of children in this range is one or two in a million, the actual incidence is much higher among English-speaking children, no matter when or where the studies were conducted” (What Do We Know About Highly Gifted Children?, para. 1).

Mass education/education of “the masses.” Public education in the U.S. has long been committed to educating all children—certainly an admirable goal. However, an unintended side-effect of this policy has been that highly gifted students are among those who are least likely to receive an appropriate education—i.e., one that is challenging enough to require them to learn something new in school. Highly gifted students are consistently robbed of opportunities to learn through real struggle. “Without regular encounters with challenging material, gifted students fail to learn how to learn and have problems developing the study skills they need for future academic pursuits” (Fiedler, Lange, & Winebrenner, 2002, p. 92).

Pressure on teachers to raise test scores for their schools. The ongoing emphasis on "accountability" as measured by high-stakes standardized testing has resulted in teachers'
focusing on struggling students. As a result of legislation such as “No Child Left Behind” and “Race to the Top”, the students most likely to be left out in the schools’ educational planning in the United States are the ones who are actually the most capable of advanced and complex thinking. The “one size fits all” mentality that emphasizes rote memorization and drill in order to increase group test scores often results in behavior or achievement problems among highly gifted students who are alienated by curriculum that is, for them, especially deadening.

**Teachers’ lack of knowledge/understanding/background/experience/education.** Very few teacher educator programs at the college or university level provide even a modicum of background information or instruction regarding the characteristics and needs of gifted students, let alone offer coursework that develops understanding of the diversity that exists within the gifted population, including students who are highly gifted. Furthermore, neither pre-service nor in-service training routinely offers adequate instruction that includes appropriate strategies for differentiation of curriculum and instruction for highly gifted students. These students become an invisible minority within the schools and suffer from having their needs neglected simply due to ignorance.

**Lack of administrative support.** The lack of administrative support for treating highly gifted students differently may be either real or perceived, despite the fact that these students also need to be considered as exceptional students with special needs. Lack of administrative support may be a factor at either the building or district level, or both. Furthermore, teachers are accountable to administrators who are as likely to be ill-informed about the characteristics
and needs of highly gifted students as they themselves are—administrators whose focus understandably may be on the majority of students who comprise the general population of their schools.

**Issues regarding elitism and concerns about "equity."** Sometimes people become overly concerned about treating any students differently, regardless of how different their needs might be, often expressing concerns about elitism. At the heart of this matter is a misguided notion that providing appropriate attention to the ways in which gifted students differ from others will create an elitist attitude. However, as Fiedler, Lange, and Winebrenner (2002) noted, “keeping one or two highly gifted students in a classroom of mixed abilities actually may have the effect of creating snobbery. Scattering gifted students throughout all of the classrooms in the school may lead them to feel far superior to their classmates and promote arrogance” (p. 88). With regard to equity, these same authors commented that “education in a free society should not boil down to a choice between equity and excellence. Providing for formerly disenfranchised groups need not take away appropriate programs from any other group” (Fiedler, Lange, & Winebrenner, 2002, p. 93). Clearly, highly gifted students are regularly disenfranchised in our schools and having educators respond appropriately to the ways in which they differ from others is no more elitist than providing educational opportunities to respond to other students’ special needs.

**Teachers and others’ feelings of inadequacy.** Regrettably, some adults feel threatened by students who are highly intelligent and often very knowledgeable. This may include administrators, teachers, and other school people who are uncomfortable with the ways in
which highly gifted individuals think and act. Because these students often see many more facets to any situation and may have accumulated in-depth knowledge about subjects that intrigue them, they often raise issues and ask questions that the adults in their lives have difficulty in responding to. They may be seen as impertinent, and sometimes they are, especially when encountering people who seem determined to “cut them down to size,” as suggested by Gross in her descriptions of tulips in Scotland and poppies in Australia being cut down when they become too much taller than the vast majority in the fields where they grow. Furthermore, as Gross said, “the group at greatest risk are the highly gifted” (Gross, 1999, Introduction, para. 6).

Distinguishing Characteristics of Highly Gifted: Implications for Curriculum

Tony was a whirlwind of activity. His day consisted of moving from idea to idea and only resting to investigate those novel ideas that he felt were worthy of his attention. He asked questions incessantly, and exhausted his parents and teachers with a myriad of observations which he wanted to discuss in great detail. Often oblivious of those around him, Tony lived in the world of ideas.

Contrast this learning profile with that of Sam. Sam’s approach to the world was deliberate and thoughtful. He could spend long periods of time engaged in examining and scrutinizing his environment. In fact, Sam rarely spoke unless he had a significant contribution to make to the conversation. He, too, lived in the world of ideas; however, Sam’s approach to learning was very different.

According to Van Tassel-Baska and Stambaugh (2006), “the basis for all differentiation in curriculum for gifted students should emerge from the differences in their characteristics and
needs, which are reflected in formal test data and careful observations of performance behaviors” (p. 18). In designing curriculum, the very specific needs of individual highly gifted children must be considered for an optimal educational plan to be developed. Each distinctive profile includes characteristics that are both cognitive and affective, and these aspects must be taken into account throughout the process of curriculum design and differentiation. These characteristics also should be used in considering which curriculum and instructional models would be best suited for the highly gifted learner.

The chart of characteristics that follows includes those that are often found among highly gifted students. Of course, not all highly gifted children will exhibit all of these characteristics. Nonetheless, those listed are common to this segment of the gifted population. The chart includes two columns for cognitive characteristics (acquisition of information and synthesis of information) and one for affective characteristics that encompasses both intra- and interpersonal connections.

It is essential that teachers gather information about the characteristics of their highly gifted students so they are able to tailor the learning opportunities to the specific needs of the learner. This is particularly important for highly gifted students since their asynchronous development requires significant modifications when designing an educational plan.
### Cognitive Characteristics:

<table>
<thead>
<tr>
<th><strong>Acquisition of information</strong></th>
<th><strong>Synthesis of information</strong></th>
<th><strong>Intra/Interpersonal Connections</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Unusual capacity for memory.</td>
<td>Unusual ability to perceive essential elements and underlying structures and patterns in relationships and ideas.</td>
<td>Unusual intensity and depth of feeling.</td>
</tr>
<tr>
<td>Extraordinary speed in processing information.</td>
<td>The desire for precision in thinking and expression resulting in the need to correct errors and extensively debate and discuss; argumentativeness.</td>
<td>A high degree of emotional sensitivity.</td>
</tr>
<tr>
<td>A long concentration span.</td>
<td>Ability to relate a broad range of ideas and synthesize commonalities among them.</td>
<td>Highly developed morals and ethics and early concern for moral and existential issues.</td>
</tr>
<tr>
<td>Rapid and thorough comprehension of ideas and concepts.</td>
<td>Early development of a high degree of ability to think abstractly.</td>
<td>Unusual and early insight into social and moral issues.</td>
</tr>
<tr>
<td>An extraordinary degree of intellectual curiosity.</td>
<td>Appreciation of complexity; ability to find myriad alternative meanings in even the most simple issues or problems.</td>
<td>Ability to empathically understand and relate to ideas and other people.</td>
</tr>
<tr>
<td>A fascination with ideas and words.</td>
<td>Ability to learn in an integrative, intuitively nonlinear manner.</td>
<td>An extraordinarily high energy level.</td>
</tr>
<tr>
<td>An extensive vocabulary.</td>
<td>Ability to perceive many sides of an issue.</td>
<td>Pressing needs for the world to be logical and fair.</td>
</tr>
<tr>
<td>-------------------------</td>
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<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Awareness of detail.</td>
<td>Ability from an early age to think in metaphors and symbols; a preference for doing so.</td>
<td>Conviction of the correctness of personal ideas and beliefs.</td>
</tr>
<tr>
<td>Advanced visual and motor skills.</td>
<td>Ability to learn in great intuitive leaps.</td>
<td>Difficulty forming congenial relationships with age-peers of average ability.</td>
</tr>
<tr>
<td>Ability to visualize models and systems.</td>
<td>Highly idiosyncratic interpretations of events.</td>
<td>Highly developed sense of interconnectedness of life.</td>
</tr>
<tr>
<td>Remarkably retentive memory; capacity for remembering in great detail</td>
<td>Unusual ability to make connections among multiple events taking place over long time spans; quickly and accurately integrate and convey obscure thoughts and feelings from diverse disciplines and experiences.</td>
<td>Spiritual seeking; search for meaning and purpose in life.</td>
</tr>
</tbody>
</table>

(Sources: Clark, 2008; Meckstroth, 2007; Gross, 2000; Lovecky, 2007)

Additionally, a more robust profile can be obtained by taking into account the interests of the child as well as learning preferences and learning strengths. Rogers (2001) has developed multiple reporting tools for parents, students and teachers that can assist in creating a holistic picture of the highly gifted student from varied perspectives. Contributions from each of these viewpoints also provide an opportunity for determining a cohesive method for the design of the curriculum combined with recommendations for the best instructional practices.
VanTassel-Baska (2007) recommended that the “guiding principles for judging the appropriateness of curriculum for the highly gifted are (1) the rate of learning must be flexible and sped-up and (2) the learning experiences must be complex enough to be challenging” (p. 151). It is interesting to note that these two principles are neatly aligned with the cognitive characteristics described as the acquisition and synthesis of information. Concurrently, the affective characteristics also influence curriculum design and must be joined with cognitive characteristics when contemplating next steps in the design process.

Annemarie Roeper, co-founder of the Roeper School, added another dimension to the more standard approach to curriculum design when she explained:

We learn about a child’s giftedness not only through cognitive testing, but also through our own observation, communication, and our own emotional receptiveness. Giftedness is revealed in who children are, how they feel, how they approach the environment, and what they share in trusting relationships with empathetic adults. Only another human being is an instrument refined enough to recognize the inner world of a human being, and to experience the texture of innerness.

A test can only assess areas that are testable. (2007, p. 282)

She believes that assessing the emotions is integral to learning about the needs of the gifted child. Understanding the unique sensitivities, intensities and inner agenda of a child offers a deeper awareness of the needs of the highly gifted child and supplies a better roadmap when designing educational experiences.

Lovecky (2007) proposed that highly gifted children are natural philosophers. She described how many highly gifted children formed hypothesis, derived algorithms and
developed paradigms as a result of their qualitatively different cognitive abilities. Concurrently, many highly gifted children have a finely tuned sense of moral development and have highly developed concepts of moral justice, fairness and moral sensitivity (compassion). These qualities can create frustrating situations for highly gifted children when others cannot or do not live up to their high standards. They often will question rules and have exceptional expectations of moral behavior for themselves and others. Yet, as Lovecky (2007) noted, these highly gifted children may not recognize that some of their age peers do not possess these same understandings. Too often there is a sense of isolation when classmates cannot perceive or understand the emotional urgency that drives the highly gifted child. Social relationships may be compromised when there are few, if any, to share similar passions and interests.

Existential concerns about global issues, idealism and the search for meaning and purpose contribute to the angst that consumes many highly gifted children (Meckstroth, 2007). Highly gifted children who are invested in curing the ills of the world and generating solutions to age-old problems will need the support and encouragement of caring adults who recognize the depth of their compassion and their need to make a difference. This requires openness to developing the spiritual facets of the child and generating experiences to meet these needs.

**Planning Curriculum for Highly Gifted Students**

The first step in considering curriculum for highly gifted students is to establish goals that can be the focus of the learning experiences that are provided for them. More specifically, Fiedler (2004) has proposed the following:
To tailor learning experiences to the characteristics that distinguish students who are highly gifted from others. The characteristics of highly gifted students are significantly different from more mildly or moderately gifted students, as well as differing greatly from their more typical age-mates. Therefore, their learning experiences need to be personalized in order to be an appropriate match for who they are, what they are interested in (and passionate about), the unique constellation of their prodigious abilities, and for their specific curriculum needs based on the ways in which they differ from others.

To provide complex and stimulating learning experiences for highly gifted students. An especially relevant definition of giftedness has been developed by the Columbus Group:

"Giftedness is Asynchronous Development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm. This asynchrony increases with higher intellectual capacity. The uniqueness of the gifted renders them particularly vulnerable and requires modifications in parenting, teaching, and counseling in order for them to develop optimally." (The Columbus Group, 1991, as cited by Silverman, 1993, p. 3)

Therefore, by definition, gifted students are capable of stretching well beyond the learning abilities of others. The more highly gifted they are, the more vulnerable they are and the more they need the kinds of modifications recommended in this definition. The combination of advanced cognitive abilities and heightened intensity implies that complex and stimulating learning experiences are essential for them—experiences that would be overwhelming for others whose intellectual capacities are not at the same level. Without those provisions,
education becomes stultifying and mind-numbing for the highly gifted, often with devastating results.

To provide appropriately challenging work for highly gifted students. Because these students can master basic skills and/or acquire information faster than others, at the very least, they need a compacted and accelerated approach to the standard curriculum. It is not unreasonable to check to make sure that highly gifted students have mastered the core curriculum and acquired the basic skills in order to meet the standards that are expected of others. However, this only implies a sensible approach to assessment as a vehicle for determining what components of the core curriculum will be appropriately challenging, if any. It is entirely possible that some or all of the standards may have already been mastered. Kearney (1996) suggests the importance of considering Vygotsky’s “zone of proximal development” in relationship to providing appropriately for highly gifted students—an approach that would assure that learning experiences are provided which stretch them to grow beyond the upper edges of their current levels of intellectual development.

To make appropriate use of the wealth of knowledge and broader perspectives that highly gifted students bring to the classroom. These students have typically accumulated vast quantities of information and ideas about topics that they are interested in, and frequently have strong opinions about those topics. Often, the subjects that have fascinated them are not those that are covered in the standard curriculum, and teachers may not be aware of how much they know or what their thinking has been about those subjects. Opportunities for students to continue investigating ideas of interest to them should be built into the curriculum,
and teachers need to find appropriate ways for them to explore and share multifaceted aspects of what they have already learned and are continuing to learn.

To explore the content in greater breadth and depth, going wider and deeper in order to accommodate specific interests of highly gifted students. One relevant goal that is very much related to the previous one is to incorporate specific interests of highly gifted students into the content that is already being studied in the classroom. Oftentimes, the initial reaction to finding that highly gifted students have mastered most, if not all, of the regular core curriculum is to focus solely on accelerated curriculum. Acceleration is certainly a viable option and definitely should be used when feasible. However, it isn’t the only significant alternative that should be implemented with highly gifted students. Going wider and deeper into the content that is normally being studied by others at a particular age or grade level in school allows highly gifted students to learn in greater depth and breadth about topics that others are studying, as well as to immerse themselves in relevant sub-topics that are of interest to them.

To provide highly gifted students with meaningful learning experiences and opportunities to grapple with significant ideas and issues. All too often the standard curriculum has been simplified for the general student population. However, it tends to be overly superficial for those who are highly gifted, and when it is presented to them in the usual way it may well be discounted and ignored by them because they already know much more about what is being presented. “Yes, but ...” is a phrase often heard from highly gifted students when teachers are leading lessons that would be quite appropriate for typical students. Unless highly gifted students have opportunities to plunge into more significant aspects of the content
or to address ideas and issues that are meaningful to them, they often lose interest in the curriculum and in school.

To help highly gifted students use their time productively and maximize their capabilities in relevant ways. In her work with highly gifted students, Hollingworth noted, “In the ordinary elementary school situation, children of 140 IQ waste half of their time. Those above 170 IQ waste practically all of their time” (Hollingworth, 1942, cited by Kearney, 1996, Intellectual Accessibility section, para. 1). Furthermore, Kearney indicated that the more recent research continues to reveal that this situation has not changed in the intervening years. Therefore, highly gifted students are continuing to languish for outrageous amounts of their time in school, either physically, intellectually, and/or emotionally, with many of them becoming behavior problems or dropping out of school. Teachers are typically at a loss about how to reverse this situation, and how to allow highly gifted students to have learning experiences that are relevant to them and that enable them to make meaningful use of their capabilities.

To provide opportunities for meaningful interaction with others whose capabilities are appropriately matched to theirs. The importance of grouping highly gifted students together with others of like ability cannot be underestimated. Many reasons exist for this. For example, as Fiedler, Lange, and Winebrenner (2002) stated, “Gifted students who are a minority of one or who only have, at best, one or two classmates whose ability level approaches their own find themselves either feeling odd or arrogant” (p. 93). Highly gifted students need others who will challenge them—challenge their ideas and question their knowledge—others who are what might be called “worthy opponents” because their minds are a fair match for theirs. The joy of
feeling the impact of one fine mind on another can make life worthwhile for highly gifted students.

**Learning with Other Gifted Students: Grouping Options**

Jannie came to kindergarten reading. A self-taught reader at age three, she devoured books with a passion. Her self-selected reading ranged from “how-to” books on gardening, sophisticated fiction about animals, and texts on the kings and queens of England. Imagine her mother’s surprise when she brought home a pre-primer from the school library. As they began reading together, Jannie slowed her pace and read without enthusiasm, “The cat sat down.” Questioned by her mother about this turn of events, Jannie quickly replied, “But Mom, that’s how kids read in kindergarten.”

Gross (1996) reminded us of the “pressure to conform” that confronts highly gifted children when entering into pre-school and early kindergarten. Often these children are quick to recognize the differences between themselves and others. As one pre-schooler mentioned after continuous arguments with playmates in the building block corner, “Why didn’t anyone tell me they couldn’t read?” Some precocious youngsters will bow to social pressure and conform while others remain social isolates (Gross, 1996).

Being with others who are not only “intellectual peers” but also “idea peers” can bring the joy of discovery and the delight of intellectual pursuits. The following is an adapted version of a list of grouping options for gifted learners provided by Davis, Rimm, & Siegle (2011, p. 146). Descriptions of the positive and negative aspects of each type of group have been modified to relate specifically to issues for highly gifted learners.
<table>
<thead>
<tr>
<th>Type of Grouping Practice</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
</table>
| Individualization in the heterogeneous classroom | • Curriculum can be adjusted to individual needs/interests/abilities (e.g., compacting/subject acceleration)  
• Modifications for enrichment can be easily made | • Lack of motivation may ensue without consistent challenges  
• Few opportunities to interact with others of similar ability |
| Cluster groups in inclusive classroom | • Ensures that there is at least one other gifted learner in the classroom  
• Ability to work in small group setting | • Instruction may be planned for the “typically” gifted learner and not adjusted for highly gifted  
• Highly gifted student may adapt to blend in with the group or rebel |
| Self-contained classrooms for gifted | • More opportunities to work at appropriate pace and with content commensurate with abilities  
• Able to participate in age-based programs if appropriate (art, music, drama, physical education) | • May encounter challenge for the first time/struggle  
• May not want to be perceived as “different” |
| Separate school-within-a-school program for highly gifted | • Ability to interact with others of similar ability  
• Support may enhance ability to take intellectual risks | • May only be available during partial academic career (e.g., elementary but not middle school)  
• Teachers may fear an “us vs. them” climate |
| Special Schools for Gifted: Magnet schools | • Specialized content provided by content experts  
• Learn with others of similar ability/interests | • Transportation may be challenging  
• Loss of connection to neighborhood friends |
Finding a “good fit” may require some trial and error, and a grouping solution that works one year may not work the next. Parents and teachers need to remain flexible throughout the academic career of a highly gifted child and make necessary adjustments. Gross (2000) warned that highly gifted children who do not have sufficient intellectual challenges are often underachievers who mask their talents to gain social acceptance. Gross further noted that radical acceleration (multiple grade skipping) is one means to create a more conducive environment for the highly gifted learner, and students in these situations reported better social relationships along with curriculum which was better matched to their cognitive needs.

<table>
<thead>
<tr>
<th>Special Schools for Gifted: Governor’s Schools-Academies</th>
<th>Special Schools for Gifted: Private schools for gifted</th>
<th>Homeschooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Individualized learning plans can support asynchronous development</td>
<td>• Instruction is often skill-based rather than age-based</td>
<td>• Curriculum is provided based on available resources or student interest; may produce learning gaps</td>
</tr>
<tr>
<td>• Teachers with specialized training and understanding of highly gifted learners</td>
<td>• Openness to creative approaches to meeting learning needs (e.g. online learning, off-site learning)</td>
<td>• Flexibility in pace, content, and process</td>
</tr>
<tr>
<td>• Social and emotional development may not support living away from home</td>
<td>• Cost and transportation time may create additional pressures to succeed</td>
<td>• Home educator may need significant support to provide highly specialized content</td>
</tr>
<tr>
<td>• Independent learning skills may not be fully developed yet</td>
<td>• Teachers may be content experts and not aware of needs of highly gifted</td>
<td>• May have fewer opportunities to connect with age-peers</td>
</tr>
</tbody>
</table>

Greatest Potential, Greatest Need: Soaring Beyond Expectations
Promising Curricular Approaches for Highly Gifted Students

Several different approaches to curriculum for highly gifted students have been found to be particularly promising for highly gifted students. In 2006, VanTassel-Baska and Stambaugh reported on three dimensions of curriculum: 1) content, 2) process/product, and 3) epistemological concept.

The content dimension utilizes a diagnostic-prescriptive approach and typically employs advanced or accelerated curriculum differentiation. Used primarily with discipline-specific content, this approach emphasizes students progressing through content at their own pace. Their individual instructional plans begin with pre-testing, and then the material is adjusted to the learners’ needs. Each student is assisted by the teacher who functions as a facilitator (VanTassel-Baska & Stambaugh, 2006). The authors state that the content approach has been used successfully by Talent Search and world language programs. Affective goals are addressed with the emphasis on personal connection at the core. One example that might be employed with highly gifted students is an independent study or independent project.

The process and product dimension has a focus on the investigative aspects of problem-finding and problem-solving. This is typically a hands-on process that is centered on inquiry. In this approach the teacher and student function as a team with the teacher acting as a collaborator. Used often with the disciplines of math and science, the emphasis during learning experiences is to examine the process (e.g., the scientific method) through the creation of a product that examines a topic in-depth.
Greatest Potential, Greatest Need: Soaring Beyond Expectations

Affective learning goals are addressed by the selection of topics/problems that have personal meaning and relevance. Exploration can create opportunities for self-understanding and reflection on personal beliefs. The problem-based learning approach, which emphasizes exploration of ill-structured problems, illustrates the process and product dimension (VanTassel-Baska & Stambaugh, 2006).

The final dimension, the epistemological concept dimension, centers on the interrelationships with ideas, concepts, and themes, which are explored across disciplines. The teacher uses the Socratic method of questioning to deepen thinking, widen perspectives, and to evoke reflection surrounding ideas or themes. The conceptual curriculum framework has been championed by Heidi Hayes Jacobs (1997) and exposes gifted learners to a wide-range of ideas in multiple content areas. This method emphasizes a continuous interaction across domains, which strengthens new understandings as a system. In addition, this approach deeply connects affective goals as learners connect personal understandings and identity unfolds.

Thematic/interdisciplinary curriculum is a clear example of an approach that is organized around the epistemological concept dimension (VanTassel-Baska & Stambaugh, 2006).

Detailed examples of each of these approaches follow, with implications for curriculum development. They include the following:

- Independent Study (content)
- Problem-Based Learning (process and product)
- Thematic/Interdisciplinary Curriculum (epistemological concept)
Each of these is worth considering in an effort to match the curriculum with the characteristics and needs of highly gifted students. After a learner profile has been generated, a good match can be created between current learner needs and the curricular approach.

**Independent Study**

Johnsen and Goree (2005) defined an independent study as a “planned research process that (a) is similar to one used by a practicing professional or authentic to the discipline; (b) is facilitated by the teacher; and (c) focuses on lifelike problems that go beyond the regular class setting” (p. 380). They stated that independent study is the instructional strategy that is most often recommended for gifted students.

Students need guidance and the tools to be able to execute a research project from beginning to end if they are to feel the satisfaction that comes from a well developed project on a topic of interest. With skill development and experience comes the likelihood that the highly gifted student will be able to function more independently.

Guidelines mentioned by Johnsen and Goree (2005) of particular note for highly gifted students include that aptitude should not be confused with skill and that it is important to use different types of research and to make independent study a part of the regular program. It is very easy to assume that because a child is highly verbal or can produce elaborate ideas on paper that the tools for independent study are firmly in place. This is the very area where highly gifted students often flounder since they have never been taught study skills, planning, organizing, and time management combined with developing self-regulation. These executive functions are critical to the success of being able to move from functioning with guidance to functioning independently.
Introducing highly gifted learners to many types of research is essential to their assuming the mantle of the expert. Research tools should be aligned to the language of the discipline. Interviewing, surveys, experimenting, trial and error, keen observation, hypothesis testing, data collection and analysis are only some of the skills needed to advance in specific areas of study. When a highly gifted youngster can think like an economist, a psychologist, a paleontologist, a literary critic or an historian, then they are more apt to develop the critical thinking skills needed to make real contributions to the field of study. In addition, a fresh approach to independent study can hone creativity and innovation through strategies such as brainstorming, creative problem solving and synectics, thereby yielding creative growth.

It is not a surprise that, while well-intentioned, teachers often turn to independent study as a means to occupy the time of highly gifted learners. Highly gifted students who move through curriculum with speed and accuracy are often left in limbo, waiting for classmates to catch up. Therefore, independent study can be a valuable means of engaging advanced students. However, when the strategy is regularly used as an addition to the curriculum instead of replacing previously-mastered curriculum, then students may rightly feel that this is “more work” and not be as engaged. Most highly gifted students are very discerning regarding the motives of teachers when creating learning experiences. Furthermore, it is essential that the students be guided in developing an understanding of the purpose of developing research skills and that they are given examples of the relevance of these skills to real-world applications (Johnsen & Goree, 2005).

Kuhlthau (1994) recommended six steps when supervising independent research projects. His framework also presented the feeling and emotions likely to accompany each
stage and suggested that feelings and frustrations of each stage be discussed with students. This approach is particularly appropriate for highly gifted learners who may not understand their feelings when involved in work that does not come easily.

- Receive the assignment (uncertainty)
- Select a problem to solve (optimism)
- Examine for focus (confusion, frustration, doubt)
- Form focus (clarity)
- Collect information (confidence, having a sense of direction)
- Prepare to present (relief, sense of satisfaction or dissatisfaction)

(Kuhlthau, 1994, p. 11)

There are several models often used in gifted education that employ independent study within their frameworks. The Renzulli Enrichment Triad Model, The Purdue Three-Stage Model, and the Autonomous Learner Model are varied approaches that use different levels of teacher direction to guide the process (Davis, Rimm, & Siegle, 2011). Helping students locate resources outside the classroom is another task of the teacher, as well as locating an authentic audience. Finding an authentic audience enhances the experience for the highly gifted student and allows him/her to share beyond the informality of the classroom. Learning from feedback, improving the product, and participating in the evaluation process can contribute to self-efficacy and self-esteem (Johnsen & Goree, 2005).

Compacting the curriculum provides a means to create meaningful chunks of time for involvement in independent study, as well as for involvement in other appropriate curricular approaches, such as Problem-Based Learning and thematic/interdisciplinary curriculum.
Curriculum compacting is a systematic procedure for modifying or streamlining the regular curriculum. It is designed to eliminate repetition of previously mastered material and is aimed at upgrading the challenge level of the regular curriculum.

Curriculum compacting includes the following steps:

1. Defining the goals and outcomes of a particular unit or segment of instruction,
2. Determining and documenting which students have already mastered most or all of a specified set of learning outcomes or are capable of mastering them in less time than their peers, and
3. Providing replacement activities for material already mastered through the use of instructional options that enable a more challenging and productive use of the student’s time.

“Curriculum compacting might best be thought of as organized common sense, because it simply recommends the natural pattern that teachers ordinarily follow when individualizing instruction, or teaching in the days before textbooks were invented. Compacting might also be thought of as the mirror image of remedial procedures that have always been used in diagnostic/prescriptive models of teaching.” (Colangelo & Davis, 1997, pp. 145-146)

Problem-Based Learning

Problem-Based Learning (PBL) is well suited to developing the expertise of highly gifted students. Complex learning experiences are created for the students via the impact of the
essential structural components of PBL: the ill-structured problem, the student as stakeholder, the self-directed learner, and the teacher as coach (Gallagher, 2005).

The ill-structured problem. Problem-Based Learning is centered on the concept of ill-structured problems—problems that mirror those that everyone encounters throughout life. In fact, the initial development of PBL began in medical schools—a reflection of the fact that doctors regularly are faced with symptoms and multiple confounding factors as they work to establish a diagnosis and plan a course of treatment for each of their patients.

In describing the characteristics of ill structured problems, Gallagher (2005) noted the following:

- More information than is initially available is needed to understand the problem.
- No single formula exists for conducting an investigation to resolve the problem,
- As new information is obtained, the problem changes.
- Students can never be 100 percent sure they have made the "right" decision. (pp. 289-290)

Furthermore, the ill structured problems used in PBL need to be selected to make sure that a predefined area of knowledge is covered, ideally integrated from many disciplines. These problems should help students learn a set of important concepts, ideas, and techniques and should be successful in leading them to explore significant elements of a field of study. PBL problems should also be of intrinsic interest or importance as well as representing a typical problem faced by people in settings where such problems are encountered.

Here are two examples provided by the PBL Network at the Illinois Mathematics and Science Academy (http://pbln.imsa.edu/model/scenarios/):
Kindergarten science: The teacher coaches students to notice that invasive insects are eating the leaves off plants in the school’s garden, and to investigate and determine appropriate actions to rejuvenate the garden so that all plants are healthy and beneficial insects thrive. (Students learn simple food chains, plant structures and life cycles.)

7th/8th grade mathematics: The business office investigates ways to conserve energy use in schools. The principal appeals to mathematics classes to analyze current and future energy usage and make recommendations. (Students study alternative energy sources, complete cost/benefit analyses, and create and interpret graphs to substantiate their findings.)

The student as stakeholder. The stakeholder in a PBL unit is described as a person who has some level of authority, accountability, and responsibility for resolving some aspect of the problem. Students in a PBL problem experience the entire world of the problem solver and learn to adopt the appropriate dispositions, as well as content and skills. They learn the way problem solving is approached in different disciplines, the role of bias and perspective in the problem-solving process, the subjective nature of all real-world problem solving, the need to understand many different ways to solve a problem, and the intricate process of weighing the priorities of different points of view in a complex problem (Gallagher, 2005).

The self-directed learner and the teacher as coach. The final two structural elements of Problem-Based Learning—i.e., the self-directed learner and the teacher as coach—go hand in glove to make Problem-Based Learning particularly suitable for highly gifted students, especially those who are internally motivated and typically resist any efforts of teachers and others who
attempt to use authoritarian methods with them. With PBL, students are encouraged to take control of the learning process. Teachers act as coaches and help students develop a good tool kit of problem-solving skills, assist students as they learn to use these skills, and engage students in meta-cognitive reflection. Students take on an increasing set of responsibilities, including setting the learning agenda, facilitating the group process, and setting timelines or deadlines. Teachers guide students in seeing how professionals approach similar problems, help students focus on a problem’s central concepts, and probe to make sure that they understand all the data they gather (Gallagher, 2005).

In using Problem-Based Learning with gifted students, Gallagher especially affirms the importance of utilizing advanced content, working with complex concepts; demonstrating interdisciplinary connections; and practicing good reasoning, habits of mind, and self-directed action. She also emphasizes the relevance of discussing conflicting ethical appeals with gifted students – an aspect of PBL that is particularly significant in working with those who are highly gifted given their characteristics, including an early development of a high degree of ability to think abstractly, the ability to perceive many sides of an issue, and their unusual and early concerns about and insight into social and moral issues. Pearson (1998) reported that, as a result of PBL experiences, all the gifted students had “become confident problem solvers who were ready to take risks, test the properties and limits of their materials, work with trial and error and see their mistakes not as failures, but as learning opportunities” (p. 171). These are critical skills for highly gifted learners to develop, and PBL provides the means.

A Center for Problem Based Learning was established at the Illinois Mathematics and Science Academy in Aurora, Illinois, and is now the PBL Network. Its mission is described as
Thematic/interdisciplinary Curriculum

One of the most appropriate and comprehensive ways to provide relevant learning experiences for highly gifted students is the use of thematic/interdisciplinary curriculum. With this approach, teachers select a meaningful theme and develop content that is integrated across several different subject areas. The curriculum encourages in-depth study and provides opportunities for highly gifted students to grapple with ideas that are challenging and worth exploring.

The first two items of a widely circulated document on Principles of a Differentiated Curriculum for the Gifted and Talented state:

- Present content that is related to broad-based issues, themes, or problems.
- Integrate multiple disciplines into an area of study. (Gallagher, et al., 1976)

Therefore, there is a long history of recommending thematic/interdisciplinary curriculum for the gifted, and it is particularly relevant for highly gifted students because its depth, breadth, and complexity is well suited to their capacity for considering multi-faceted aspects of broad-based issues, themes, or problems. Furthermore, acceleration is incorporated into thematic/interdisciplinary curriculum as well, since students are engaging with material that is at much more advanced levels than what is suited for others. Bella Kranz (unpublished manuscript) labeled this approach “diagonal curriculum” because it combines both acceleration...
and enrichment and also takes students in new directions that go beyond either of those other methods.

Some confusion often exists about what constitutes a theme, rather than a topic. Teachers are actually much more familiar with a topical approach to curriculum and frequently use or develop units around various topics that may even include several subject areas, sometimes mistakenly believing that they are teaching “thematically.” However, a
thematic/interdisciplinary curriculum differs in that the focus is on grappling with complex, challenging themes, each of which is organized around a conceptual framework.

Some examples might help to clarify the difference between a topic and a theme. For instance, many preschool or primary age children are interested in dinosaurs, and this is especially common among those who are gifted. Teachers at these levels often include lessons about dinosaurs that may even incorporate several different subject areas – e.g., reading stories about dinosaurs, drawing pictures of dinosaurs, listening to or making up songs about dinosaurs, etc. However, many highly gifted children take their interest in dinosaurs much further, devouring everything they can lay their hands on regarding the subject and asking endless questions. Therefore, a thematic/interdisciplinary unit can be developed for highly gifted students in the early years that focuses on “Extinction,” rather than simply being about dinosaurs. The unit might include dinosaurs as a part of an introduction to paleontology, consideration of scientific material on endangered species and current environmental issues, and some study of fads and fashions that once were popular and now are no longer common.

Another example might be found at the middle school level, at a time when the American Revolutionary War is normally taught. Instead of focusing solely on historical aspects of the war and related information, a thematic/interdisciplinary unit for highly gifted middle school students might be centered on the theme of “Rebellion.” The American Revolutionary War would be one area of study related to rebellion, and would include consideration of factors that made it possible for the colonies to rebel against “Mother England” (e.g., an adequate supply of natural resources, etc.), and parallels can be drawn with adolescents rebelling against their parents. One of the disciplines, besides history, that would therefore be included would
be psychology. In addition, the protest music of the 1960s could be incorporated into this unit of study with an examination of the anti-war movement at that time.

A comprehensive list of themes that can be very useful in developing thematic/interdisciplinary curriculum was shared by Rogers (2001). Looking over this partial list helps clarify the difference between a topic and a theme:

<table>
<thead>
<tr>
<th>Power</th>
<th>Creation</th>
<th>Death</th>
<th>Leisure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change</td>
<td>Morality</td>
<td>Friendship</td>
<td>Tradition</td>
</tr>
<tr>
<td>Courage</td>
<td>Happiness</td>
<td>Truth</td>
<td>Beauty</td>
</tr>
<tr>
<td>Commitment</td>
<td>Justice</td>
<td>Evil</td>
<td>Good</td>
</tr>
<tr>
<td>Family</td>
<td>Time</td>
<td>Eternity</td>
<td>Survival</td>
</tr>
<tr>
<td>Love</td>
<td>Communication</td>
<td>Destruction</td>
<td>Freedom</td>
</tr>
<tr>
<td>System</td>
<td>Conflict</td>
<td>Loyalty</td>
<td>Supernatural</td>
</tr>
</tbody>
</table>

Source: Rogers, 2001, p. 305

Another name for this approach is “integrated curriculum,” and the Center for Gifted Education at the College of William and Mary has developed a number of units using this model (http://cfge.wm.edu/curriculum.htm). The Integrated Curriculum Model consists of three interrelated dimensions:
The Integrated Curriculum Model for Gifted Learners

Sometimes it is useful for teachers working with this approach to use a “catchy” title. Although this may seem like a gimmick, what usually happens is that it creates a mind-shift for teachers away from traditional educational thinking. Song or film titles, popular phrases, common clichés, and other sources can be used for this purpose and often pique students’ interest, as well. For instance, the unit for the early years that was mentioned above might be entitled “Here Today; Gone Tomorrow”, and the middle school example focusing on rebellion might be entitled “Free at Last.”

Thematic/interdisciplinary curriculum is specifically designed to develop students’ gifts and talents by providing opportunities for students to make meaningful use of their ability to see connections and make generalizations while using higher level thinking skills. The following guidelines were adapted from Kranz (unpublished manuscript) and represent strategies that teachers should consider in developing or using thematic/interdisciplinary curriculum:

1. Help the students probe a subject in depth.
2. Provide opportunities to see relationships between various topics and various subject areas related to the theme.

3. Assist students in developing self-motivation and self-direction.

4. Provide opportunities for students to learn to work productively with others.

5. Provide multiple opportunities for creativity and self-expression.

6. Provide students with large blocks of time to pursue a study of significant ideas that are relevant to their lives.

7. Help students challenge and stimulate each others’ thinking, and use their gifts and talents productively.

8. Incorporate the arts and show their relevance to humanity’s past, present, and future.

9. Provide opportunities for students to demonstrate perseverance in the face of obstacles.

10. Assist students in mastering research skills for independence and discovery learning.

11. Assist students in assuming responsibility for their own learning.

12. Reduce the amount of teacher talk/lectures; increase student inquiry/discussion.

13. Utilize a multi-text, multi-media approach, using books as references rather than as the basic vehicle for learning.

14. Incorporate authentic assessment into the curriculum while it is being planned.

Kranz further suggested that teachers should use the following criteria, asking themselves pertinent questions in order to determine whether they were on target with thematic/interdisciplinary curriculum:
I. **Theme:** Does it focus on broad-based issues, themes or problems?

II. **Disciplines:** Are several disciplines incorporated into an integrated study?

III. **Thinking Levels or Strategies:** Is the emphasis on higher-level thinking?

IV. **Gifts and Talents:** Will multiple and hidden talents of students be revealed?

V. **Balance:** Is there a balance between: Academic and creative? Cognitive and affective?

VI. **Assessment/evaluation:** How will students demonstrate what they have learned? How will the effectiveness of the curriculum be determined?

Thematic/interdisciplinary curriculum may be combined with other curricular approaches as necessary in order to be sure that other requirements are being met (e.g., state standards, learning outcomes from the core curriculum, etc.). Problem-Based Learning and compacting the curriculum are particularly relevant for use with thematic/interdisciplinary curriculum. Also, one school district coordinator for gifted education cross-referenced concepts covered in their middle school thematic/interdisciplinary units with the high school's entrance requirements, using that as a check-list to avoid unnecessary repetition of basic material.
Learning Environments for Highly Gifted Students: Creating an Optimal Match

As Fiedler (1993) commented, “Efforts to modify the learning environment have not kept pace with an understanding of giftedness that includes the entire range of individual differences within the gifted population,” further citing Ziv’s 1977 statement that “in general, the school pays little attention to the child who is out of tune with its usual expectations. The philosophy, objectives, and methodology of the school explicitly state that the orientation and focus are on the ‘average’ child. The gifted child has two choices: he can revolt or he can hide his giftedness” (p. 1). This is not something that has changed for the better in recent years.

Highly gifted students are the ones who are least likely to be placed in appropriate learning environments in school. Because they differ so significantly from others, placement for them in regular, heterogeneously grouped classrooms is likely to be considerably frustrating both for them and for their teachers, who have great difficulty in providing appropriate curriculum for them. Even when schools create self-contained classes or magnet schools for the general gifted population, those who are highly gifted may still be too far out of sync with their classmates. Educators consistently work diligently to place all students, including those with the entire range of special needs, in the least restrictive environment in school. However, “the regular classroom is not necessarily the least restrictive environment for the intellectually gifted, and for exceptionally and profoundly gifted students it is probably the most restrictive environment” (Gross, 2000, The Least Restrictive Environment, para. 1).

The following are some possible alternatives for providing optimal learning environments that more easily allow appropriate curricular opportunities for highly gifted students:
Greatest Potential, Greatest Need: Soaring Beyond Expectations

- Differentiation of curriculum and instruction for highly gifted students who are placed in those gifted programs that serve the general population of gifted students—i.e., those who encompass the entire range of giftedness from mildly to moderately to highly to exceptionally to profoundly gifted.

- Accelerated classes or dual enrollment in high school or college classes.

- Self-contained classes and/or magnet schools for highly gifted students where emphasis is placed on thematic/interdisciplinary curriculum and Problem-Based Learning.

- Home-schooling and distance learning.

Fraser, Anderson, and Walberg (1982) identified 15 dimensions of the learning environment, and Fiedler (1993) suggested some ways of modifying curriculum and instruction in relationship to each of these dimensions. Many of these suggestions may be particularly relevant for highly gifted students in order to make the curriculum more responsive to their specific learning needs. For example:
EXAMPLES OF HOW TO MODIFY
THE LEARNING ENVIRONMENT FOR GIFTED STUDENTS

- **Cohesiveness (closeness within the group)**
  - Grouping students for significant time periods by ability and interests.
  - Time devoted to building group rapport, mutual respect and appreciation for others.

- **Diversity (variations in students' interests)**
  - Validation for and celebration of individual differences, including giftedness.
  - Encouragement for specialization in areas of strength and interest.

- **Formality (learning environment governed by formal rules)**
  - Student-determined rules.
  - Analysis of classroom as a microcosm of society.

- **Speed (pace of instruction)**
  - Instruction in keeping with gifted students' ability to assimilate knowledge quickly.
  - Student-determined pace of instruction.

- **Material Environment (resources and physical environment)**
  - Access to a large quantity of resources, a wide variety of resources, and resources at widely-varying levels beyond grade-level materials.
  - Flexibility and mobility; freedom of movement within and beyond the classroom.

- **Friction (tension level)**
  - Use of any conflict as an opportunity to learn about conflict resolution.
  - Utilize effective affective strategies for reducing tension in the classroom.

- **Goal Direction (clarity of learning goals)**
  - "Non-negotiable" goals are clearly communicated.
  - Students can negotiate how they will demonstrate mastery of non-negotiable goals.
Students collaborate with teacher in setting other (additional or different), individually-determined goals.

**Favoritism** *(preferential treatment by teachers)*

Comparisons are avoided “like the plague.”

Emphasis on self-evaluation; use of encouragement, rather than praise.

**Difficulty** *(how hard the work is)*

Instruction/content is appropriately challenging and complex.

Student-determined level of difficulty, with assessment appropriately matched to student's willingness to risk learning new material.

**Apathy** *(lack of interest/uninvolved)*

Student-centered curriculum and classroom management.

Involvement in social issues; commitment of class time for students to be engaged in social action at ANY level (school, community, state, national, and/or international).

**Democracy** *(equality/shared decision-making)*

- Student-determined rules and consequences.
- Analysis of the democratic process and systematic application of democratic principles in the school setting.

**Cliqueness** *(how much students segregate themselves)*

- Opportunities for gifted students to work in various groups, including both homogeneous and randomly assigned.

  Analysis of social issues related to cliques, including research on related issues, such as involvement in gangs.

**Satisfaction** *(enjoyment of school)*

- Student-determined criteria for satisfying school experiences.

  Empowerment to enable students to affect factors that increase their satisfaction.
Into the Stratosphere: Providing Curriculum for Highly, Exceptionally, and Profoundly Gifted Students

- **Disorganization** *(confusion within classes)*
  - Provide information about various approaches to organization and allow students to apply them to improving the school environment.
  - Multi-faceted use of mentorships, including opportunities for students to analyze their mentors’ systems for organizing their work.

- **Competitiveness** *(how much students compete against each other)*
  - Provide appropriate opportunities for students to compete with others of like ability.
  - Have students study the competition-cooperation-collaboration continuum; use for analyzing various situations in order to decide what approach to take at which times (as well as to determine when individual effort would be the best alternative).

  *Source: Fiedler, 1993, p. 13*

Supporting the Educational/Curricular Needs of Highly Gifted

The educational landscape for the highly gifted child is more complex than for a typical child. Parents and teachers face multifaceted challenges in creating experiences that provide continuous learning to meet cognitive and affective needs. Depending on the student, over the years, these experiences might be a mosaic consisting of early entrance to school, early entrance to college, grade or subject acceleration, mentors, internships, or online learning. Parents and teachers typically find themselves searching for resources that move beyond the classroom and bridge home/school/community contexts.

Two organizations, The Hollingworth Center (http://www.hollingworth.org/) and The Davidson Institute (http://www.davidsongifted.org/default.aspx), were designed to meet the needs of highly gifted students and their families. Currently, the Davidson Institute has created several guidebooks designed expressly to meet the needs of this population. These in-depth
publications are available at no cost and offer substantial resources on topics that are germane to highly gifted youngsters and their families:

**Service learning.** Giving Back: A Guidebook for Volunteerism and Community Service.

http://www.davidsongifted.org/db/Resources_id_15515.aspx/

**Gap year.** Considering Your Options: A Guidebook for Investigating Gap Year Opportunities.

http://www.davidsongifted.org/db/Resources_id_15662.aspx

**Mentorships.** Mentorships: A Guidebook.

http://www.davidsongifted.org/db/Resources_id_14780.aspx


**Conclusion**

Highly, exceptionally, and profoundly gifted children are complex, dynamic, and synergistic learners. Their zest for new experiences and new environments and their hunger for learning imply the provision of curriculum approaches that are significantly different from those developed for the general student population, and even for the general population of gifted learners. The demands on teachers and parents for creating appropriate educational opportunities for highly gifted students are difficult to satisfy. Furthermore, the asynchronous development that is typical of highly gifted students often generates unanticipated challenges in the classroom, and requires that parents and teachers be in frequent communication. As with any student whose level of exceptionality is significantly different from the norm, highly gifted students need specialized attention from caring adults to nurture their passions and
Into the Stratosphere: Providing Curriculum for Highly, Exceptionally, and Profoundly Gifted Students

further their growth. As noted gifted specialist Elizabeth Meckstroth (2007) reminds us, “Adults who believe in children, encourage their attempts, listen to them, and express interest in them (not just their achievements) pass on courage and hope” (p. 338).
Greatest Potential, Greatest Need: Soaring Beyond Expectations

References


Pearson, E. (1998). This is a messy job, but somebody’s got to do it! In R. Fogarty (Ed.), Problem-based learning: A collection of articles (pp. 165-172). Arlington Heights, IL: Skylight.


Guiding the Gifted Reader

Robert W. Seney, EdD
Mississippi University for Women, Professor Emeritus

Perhaps my greatest joy in working with gifted students is sharing their enthusiasm for reading. Many, if not most, gifted students are highly motivated readers. Indeed, it is often this joy of reading that becomes their major coping strategy. Through their reading, they learn to deal with a world that is not equipped to deal with gifted persons, and which is often even hostile to the gifted. By their self-directed reading, gifted students extend their own knowledge bases, enhance their own skills, and develop their capabilities in areas of advanced learning.

Guiding gifted learners in their reading is both important and necessary. Guiding the highly gifted in their reading is perhaps even more crucial. Since these students are usually proficient and highly motivated readers, their reading needs and reading instruction are often overlooked or dismissed as, “They can handle it on their own.” It is our responsibility to guide our gifted students into positive reading experiences. The purpose of this session is to review the reading needs of gifted learners and discuss strategies that will strengthen and motivate these learners in their reading.

The first thing that we must acknowledge is that many of the approaches to guiding gifted readers have been inadequate and have not guided these readers into a creative engagement in their reading. For example, we have made lists of what books are popular with gifted readers as a basic resource, but this is akin to making a list of their favorite foods and calling it a balanced diet. We have suggested that these students select their reading from
award winners, which is often a good strategy, but we must be aware that while reading requirements may be high, the returns may be modest. These lists simply may not provide the appropriate challenge for gifted readers. We also have used professional groups' recommendation lists, but we must remember that these groups have their own priorities and agendas and they may not match the needs or interests of the gifted and, again, they may not provide the appropriate challenge. Finally, we have suggested or, usually more often, they have moved themselves into adult reading. The problem here is that adult novels address adult issues and situations, which may or may not be appropriate for a young reader. Surely, we don't even have to mention the inappropriate content, language, and situations of adult novels.

In addition, in my experience as a reviewer and teacher of writing, I have found that adult novels do not meet the critical standards to which young adult literature, for example, is submitted. For example, young adult literature must past not only the standards of editors, but also of teachers since they are often used in the classroom; of librarians who critically purchase books for their libraries; and parents who are most concerned about language and situations. However, perhaps the most sever critic are gifted readers. They know what they like and they want it presented in quality writing. Putnam, among others, as written on the challenge of writing young adult literature (Putnam). Our first task is to discover what literature is most appropriate for gifted readers. Judith Halsted (2009), in her extremely important work Some of My Best Friends Are Books, now in the 3rd edition, has listed several characteristics of books most appropriate for gifted readers. Among them are:

1. Novels with a high level of language and vocabulary;
2. Novels which have pronunciation guides, glossaries, maps, and other supplementary material;

3. Novels which use the full array of literary devices;

4. Novels which use descriptive works that stimulate strong visual images;

5. Novels that are written by authors who delight in the use of language and the expression of nuances;

6. Novels which use language patterns and vocabularies from other times and places;

7. Novels in which the structure of the book puts the mind to work;

8. Novels which use settings that evoke an experience of other lifestyles;

9. Novels which present unresolved problems and the reader must make conclusions (Halsted, 2009).

Once we have identified appropriate literature in all genres, we must develop an appropriate reading program which I see as having four significant elements:

1. We must match the right book with the right reader (Lesesne, 2003);  

2. We must provide instruction for a variety of responses to literature, and especially in the approach that uses Response Analysis (Probst, 1988);  

3. We must guide our readers into appropriate reading levels and content which matches their interests and provides challenge (Seney, 2004); and  

4. Finally, we must encourage recreational reading in a variety of genres (Rosenblatt, 1995).
Since these students are already proficient in basic reading skills (decoding, fluency, word attach skills, vocabulary, comprehension, etc), the basal reader is simply not appropriate. Any needed developmental skills can easily be addressed as you approach reading as literary study. I have adapted a set of ten principles for the study of literature from a lost and unknown source (Seney, 2009). These principles are a good guide for literary study with even very young gifted readers:

1. Literary study must include the genres of the novel, the short story, drama in text and production, film, television, and expository prose;
2. Literature must be studied in context of personal experience;
3. Literature is dynamic, not static;
4. Teaching literary facts is not teaching literature;
5. Literature is not a set of answers, but a process of seeking answers, knowing that there may not be any!
6. The end result of literary study is not a single interpretation, but an awareness of many possible interpretations;
7. Literature must be taught in-depth;
8. Writing is a natural and necessary outgrowth of literary study;
9. The essence of literary study is discourse;
10. The study of literature flourishes best when the entire community of scholars is involved.

In my list of the significant elements of a reading program for gifted readers, I suggested that teaching a variety of approaches to literature is highly desired. This is one way that we can
provide appropriate challenge and problem solving, and develop the skills of viewing texts from
multiple perspectives. Certainly these are basic elements of any process of differentiating
curriculum for gifted learners. Literary criticism becomes, then, a basic thrust of the "why" of
students' reading. One definition of literary criticism that can certainly become the basis of an
in-depth discussion is: "Literary criticism is a human response to literature." There are at least
eight different formal approaches to literary criticism. Discussion of each approach is beyond
the scope of this article, but four popular approaches include: formalist/new critical/structural
(very much what is done in most classrooms today—a discussion of the "elements" of
literature); historical/topical (being aware of the social, cultural, intellectual context that
produced the work); psychological/psychoanalytical (involves the exploration of the role of
human behavior in literature); and reader response or response analysis (involves individual
responses to the text).

Of these approaches, I have found that reader response or response analysis to be very
effective with all ages of gifted readers. In this approach, we understand that each reader
brings a different background or history to the text and thus we find multiple interpretations. I
have students identify their interpretation, and then require them to support and develop their
interpretations by citing examples from the text of the novel or piece of literature. One
excellent resource for teaching this approach is Robert Probst's *Response and Analysis:

Reader response is based upon the work of Louise Rosenblatt (1994/1995). A long
description of her significant work is outside the realm of this article, but her work is especially
important in terms of the Levels of Response and her emphasis on the importance of
recreational reading as the basis of all reading instructions [Table One],

Table One: Levels of Response

1. EMOTIONAL or EMOTIVE: At this level of response, we become truly involved in the piece.
   We become truly engaged. In the past, this level has often been thought of as a low-level
   response, but it is probably the most important. It is the base upon which we build the other
   responses.

2. INTERPRETIVE: In this type of response, the reader makes an inference or interpretation
   about some aspect of the piece, it might be an interpretation of stylistic devices, a feeling
   about a character, or even extend the interpretation to his/her own experience. Here again,
   the personal involvement is important. This level often serves as a "bridge" to the next type
   of response.

3. CRITICAL: This is more of what we traditionally have done with literature: the emphasis on
   the elements of fiction, etc. These are responses that attend to the language and content of
   a work. Literary qualities are the main concern.

4. EVALUATIVE: This type of response occurs when a reader tells what s/he thinks a character
   ought to do. It also involves judgments about the work, about the theme, about characters,
   etc. Also the emotional appeal of the book may be judged. The affective evaluation plays an
   important part in this level of response. Again bringing us back to the first type of response:
   an emotional involvement with the piece.

Based on Louise Rosenblatt's Work (1995)
Guiding the Gifted Reader

Perhaps the biggest proponent of this approach is Robert Probst (1986) of the University of Georgia. I have summarized his basic principles here. In this approach, the focus of response is that:

- The literary experience is primarily a private exchange between a text and a reader;
- The focus of attention is the interchange between reader and text;
- The early stages of discussion are to elicit not to judge student responses;
- Each reader brings a different understanding and background to the text and thus there should be different interpretations. Each is legitimate (Probst, 1986).

From these principles, we can identify some basic assumptions of reader response. It follows that:

- Literature is personally significant;
- We respect the reader's responses to literary works;
- The reader accepts responsibility for making sense of personal experiences (both literary and otherwise);
- We acknowledge the influence of literature in shaping our conceptions of the world;
- We acknowledge an epistemological approach that knowledge is made, not found, and that making knowledge is everyone's task (Probst, 1986).

It appears to me that the strategy of reader response provides an almost perfect match to the most common of characteristics of gifted learners and how they prefer to process information and learning. As we use this strategy, the teacher's responsibility is seen in terms of selecting literature for potential interest to our students (often individually); an expectation
that the works are discussed based upon our readers’ own responses; that we insure discussion
takes place in a safe atmosphere which promotes cooperation rather than competition; that we
believe intelligent reflection upon one’s responses leads to deeper understanding; and that we
accept the varied responses from our students—indeed, we expect varied responses (Seney,
2009).

Once we have begun to identify and put into place various strategies for studying
literature, there is still the need to identify appropriate literature. I have shared the following
information at many conferences, national and state (Seney, 2009). Indeed, these presentations
may be the reason that you are aware of my name and my work with literature, in particular
young adult literature and gifted readers. For over twenty five years, this has been the focus of
my study and research.

My basic premise for years has been what was once termed by one of my graduate
students in a seminar presentation: “Seney’s Stand.” It can be stated as:

When you compare the characteristics of the gifted adolescents, especially the verbal
characteristics, the characteristics of books most suited for gifted learners, and the
characteristics of young adult literature, you have an almost perfect match. This leads
me to the conclusion that young adult literature is highly appropriate for gifted learners.
(Seney, 2009)

I have found that there is sometimes a lack of clarity in just what is young adult
literature. I prefer and use the definition suggested by Mertz and England: “The term young
adult literature refers to realistic and contemporary fiction which young adults as well as more
Recently, I came across this definition of young adult literature by Margo Lanagan, the author of Tender Morsels, a 2009 Michael L. Printz Honor Book. She offers:

I'm not sure what defines young adult literature. It's usually about young adults; it often deals with issues associated with coming of age and establishing one's place in the world. It can usually be relied on to have an interesting plot, which is not always the case with adult literature, which is allowed to be just internal musings. Beyond that, I wouldn't want to confine it any further; young adult literature is the literature that parents, librarians, and schools offer to young adults, thinking they might find it rewarding — whether it is graphic novels, literary classics, or targeted stories about teens. (2010) [From A Conversation with Margo Lanagan found in the 2010 paperback edition of Tender Morsels]

In their definition of young adult literature, Monseau and Saivner suggest: “Young adult novels have come of age because they have demonstrated the same skillful craftsmanship employed in all good literature and because they have translated to the world of the young adult the same conflicts and issues with which all humans struggle” (1992). These authors also provide a list of “elements” of contemporary young adult literature that further clarifies the nature of young adult literature. Young adult literature is characterized by:

1. Complex characters that seek to resolve conflicts of tremendous consequence to themselves and the world;
2. Vividly drawn minor characters that not only create texture but also advance the actions of the stories and serve as meaningful foils and allies for protagonists;

3. Vivid settings—both real and imaginary;

4. Plots that hold the reader through deft pacing, skillful use of suspense, and the use of flashbacks and other manipulations of time sequence;

5. Experimentation with various points of view from which the stories are told;

6. Treatment of thematic issues that matter not only to teens but to all of us: the quest for justice, the savagery of war and hatred and the struggles for love, acceptance, and understanding (1992).

In short, they suggest that young adult literature possesses “the same elements of all masterfully crafted works of fiction” (1992).

As we work with gifted readers, especially young gifted readers, we must remember who they are and then provide literary works that reflect their identity, nature, and interests. I have found in working with younger gifted readers that a literary study approach has been very successful. In translating the terms of literary study to their level, any deficiency or need in terms of reading or writing can easily be addressed. At any rate, I think that we are all aware that the use of a basal reader program is not only inappropriate but it can damage gifted students’ reading motivation. I also suggest that, as we look for appropriate and challenging literature, young adult literature is a rich and reliable source. Our task is clear, but maybe not so simple: we must guide our students into positive reading experiences which will become the basis of their lifelong reading habits, both in terms of recreational reading and professional reading.
Guiding the Gifted Reader

References


Mathematical Learning and the Zone of Proximal Development

A student’s zone of proximal development (ZPD) is that area where s/he is conceptually ready to learn new knowledge but can’t yet work independently (Van de Walle, 2007). Activities and experiences that push a student to reach beyond current knowledge must be close enough that it is perceived to be achievable, but not so challenging that a student gives up.

Because mathematics is an inherently sequential domain, a classroom will typically have a wide range of current mathematical knowledge. As children grow older, this range becomes even wider. A kindergartner who may be learning 10% more than typical peers will have even
greater mathematical knowledge than those same peers by the time they are in fifth grade together. When considering the ZPD of individual students, a teacher will find that some students have mastered what other students are just beginning to conceptually develop.

The problem for gifted students is that if they are not working in their ZPD and are instead primarily doing activities that are comfortable rather than stretching, they are not learning anything new. As a result, they may have less confidence when finally encountering more challenging material. In addition, they may not develop the ability to persevere and work through rough spots. Dr. Sylvia Rimm once stated in a class that she was teaching:

The surest path to high self-esteem is to be successful at something you perceived would be difficult. Each time we steal our students’ struggle by insisting they do work that is too easy for them, we steal their opportunity to have an esteem-building experience. Unless kids are consistently engaged in challenging work, they will lose their motivation to work hard. (quoted in Winebrenner, 2001)

Curriculum compacting

Curriculum compacting addresses the twin goals of making student work meaningful and stretching students into their Zone of Proximal Development. It begins with formal or informal assessment, which should already occur at the beginning of a new unit. Once a teacher knows what students are ready to learn, the class can be arranged into groups of learners that will benefit from similar experiences. Compacting can look like the following steps:

1.) Pretest students on the math unit. Textbook-prepared pretests can be a good source.
2.) Group students by ability into three groups:
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3.) Instruct students at their appropriate levels.

4.) If including whole group activities, choose ones that can be rich, deeper experiences for those students who need challenge (Reis & Renzulli, 1992).

Students who have mastered 85-90% of the material on a pretest are ready for different math experiences than the rest of the class (Assouline & Lupkowski-Shoplik, 2005). Use the pretest to identify holes or gaps in these students’ learning. They will likely need only a short time to learn the missing information or to review skills that are almost mastered.

Compacting the curriculum opens up time to explore more topics through acceleration and/or enrichment. Both are valuable tools that are used by the classroom teacher. Acceleration allows students to continue learning the same unit material as the rest of the class, but at a higher level. For example, if most of the class is learning coordinate graphing, the extension group can be learning it with the full coordinate system that includes the negative axes. Enrichment allows students to explore interesting mathematical topics that they might not normally encounter, such as Fibonacci numbers, other numeration systems, or the lives of mathematicians. Teachers looking for enrichment topics will benefit from their own exploration of mathematical ideas. Theoni Pappas (1999) and the Reimers (1995) have assembled resources that encourage exploration of mathematical ideas and connections throughout history. Shared experiences in class can lead to opportunities for independent study, which allow students to follow mathematical passions and interests.
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When a math unit is completed, this process repeats itself, beginning with a pretest for the new math unit. These groups are highly flexible. Students may have different levels of ability for varying mathematical concepts, and they can switch groups based on their individual learning needs.

Ability grouping

There is great value for mathematically talented students to learn with others of similar ability. Assignments are more meaningful because they can be directed more closely to students’ ZPD. The pacing of instruction is a better match for students in homogenous groups because they are ready to learn similar material at the same time rather than wait for others to catch up.

When gifted students are in class with other students of similar ability, curriculum can be designed that goes well beyond the regular content in both depth and breadth. The syllabus for average learners can be compacted and the topics elaborated, but more importantly, the thinking can be on a higher plane with topics unified and synthesized. No other grouping model offers such potential. (Wheatley, 1988, p.253)

The opportunity to be with other learners who think in similar ways and enjoy math challenges is motivating and exciting for mathematically talented learners. Curriculum compacting can provide ability grouping on a flexible basis, but ability grouping can also be a more permanent structure for gifted students.

Within a single classroom, students can be grouped by ability and move through the curriculum at different speeds. A second option, when a school has multiple classes of the same
grade, is to allow teachers to create math groups across the grades by scheduling math at the same time in every classroom. Then no matter which homeroom class a student is assigned, s/he can learn math with peers every day. Teachers can move through the math curriculum at whichever speed is beneficial for each math group.

Yet a third option, is to employ cluster grouping when there are multiple classes of a grade level. The traditional method of assigning students to teachers is to divide up the gifted students fairly across the classrooms, for example, if there are six students and two classes then each class would have three gifted students. This can be difficult for teachers to plan for such a small group of students. With cluster grouping, all six gifted students would be placed in a cluster in one classroom. This group is too large for a teacher to ignore their different needs, and a teacher will find it easier to plan for such a group, in a fairly cost-effective way for the school district (Bernal, 2003). The group provides peers who are ready to learn similar material and companions for more complicated learning opportunities. With a larger number of students, they can be divided into two (or more) clusters based on a similar need, such as mathematical talent (Winebrenner, 2001).

Types of games

The use of math games serves many purposes. Games can reinforce arithmetic skills and develop computational fluency. Students can strengthen logical reasoning and problem solving by playing math games. Teachers can introduce concepts in a very hands-on, concrete way with games, for example, probability. Above all, games are fun and appeal to students, increasing the possibility that students will enjoy math and therefore increasing their learning.
Many games that reinforce computational skills are commonly known. They can be found in nationally known department stores and are in many families’ possession. Games such as Yahtzee and Rummikub have been available for many years and may have been played by the parents of current students, making it easier to encourage families to continue to play these games at home. Other games, such as 24 Game and Equate, are often marketed to schools and teachers because an explicit purpose of the games is to develop computational fluency.

The simplest games can be played with a deck of cards. “War” games are those that compare cards. Frequently it is played so that the highest number wins, but it can also be played where the lowest number wins as a variation. If each player turns over one card, then it is a simple number comparison game. When turning over two cards, players can incorporate the operations of addition, subtraction, or multiplication. Depending on the ages and abilities of the players, they can use positive and negative integers and create fractions. With the great variety of multi-sided dice, even more extensions can be created, which keeps students engaged longer. “Snap” games are similar to “war” games. The primary difference is that, in “snap” games, speed matters. Whoever says the answer first wins the hand. “Snap” games work best when players are of similar ability.

Many card games not only develop computational fluency, but also promote logical reasoning and problem solving. Problem solving is a key avenue for learning because students are actively searching for relationships, examining and creating patterns, manipulating concepts in their heads, and reinforcing the mathematical learning in a deeper way (Van de Walle, 2007). As players become more skilled in mathematics, they can make more complex moves in games such as Rummikub and Equate. Other well-known games that utilize reasoning skills and are
commercially available include Blokus®, Blink®, Set®, and Mastermind®. An additional component of these games is the use of visual reasoning skills, which are crucial to careers in mathematics, science and engineering, but often lacking in mathematically talented students (Assouline & Lupkowski-Shoplik, 2005).

Probability is a concept for which some elementary school teachers lack confidence. There are many resources available to support teachers, and games are an enjoyable, concrete way to teach this concept, even at very young ages. Games involving dice are ideal for illustrating probability because of their randomness. Materials developed by Joanne Currah, Jane Felling, and Cheryl MacDonald (1989, 1992, 1994, 2001) provide teachers with computation skill games based on dice and playing cards, as well as those that involve logical reasoning. Analyzing whether or not games are “fair” and discussing what that term means mathematically are rich pursuits in the classroom that can begin in the early elementary grades.

Students who say they are not good at certain dice and card games need experience to learn that some games require no skill and are entirely based on luck. Currah, Felling and MacDonald include many games that intrinsically develop concrete experience with the concept of probability. Requiring students to reflect on the games and analyze the outcomes will support them in learning the material more solidly and in being able to discuss the concepts with their classmates. Open-ended questions and discussion that is skillfully guided by teachers are key components to students’ mathematical learning (Chapin, O’Connor, & Anderson, 2003; Sullivan, & Lilburn, 2002).
Using games in the classroom

Games can be used in the classroom in multiple ways. Mathematical games can be one of many centers that are available to students during an independent work time or when teachers have divided the class into small groups for more focused instruction. If a game has been taught to the whole class and played with teacher facilitation, it will become an independent option for centers or small group activities. When all students in a class know many math games, it becomes commonplace to have different students play different games. When groups play with variations, students don’t always know that others are playing a harder version. Students have also been motivated when they see the differences to challenge themselves to learn the material and play harder, more complex games. This creates an opportunity for a teacher to see some students from a different perspective because they are responding differently here than they do to more traditional math instruction.

When it is helpful to have an additional adult facilitating small groups, parent volunteers or paraprofessionals can assist the classroom teacher. A smaller adult-to-student ratio allows for more direct support when students have questions. It also tends to reduce the number of student disruptions that interrupt the flow of learning.

A personal anecdote

In one school I provided weekly whole class enrichment for two mixed grade, second and third grade classrooms as well as an occasional enrichment, pull-out group for students who had already mastered certain math concepts. One day I presented a problem to the pull-out group from Marilyn Burns (1982) (see Figure 1). They explored it, with some students
solving it on their own and others needing a small nudge in the right direction. I expanded the problem to the next level, which is slightly trickier, but very manageable when the pattern is understood. Students ran out of time, and I encouraged them to take it home, continue trying, and share it with their parents, but I did not require it as homework. The following day, two of the girls in the class approached me near the beginning of the dual class enrichment time and presented me with a sealed solution to the problem. They had worked on it together the previous day during recess, and they shared it with me at the first possible moment. Their excitement and pride was palpable. The confidence and joy that I witnessed is exactly what I believe all students should experience in math instruction, especially those that are mathematically talented.

Conclusion

Much of this article derives from my experience as a classroom teacher, educational consultant, and parent of two gifted children. During my conference session, I witnessed the same excitement and enthusiasm from the educators that I see in students, especially gifted students. Playing and learning can occur side by side, whether by young children solving problems embedded in math games, or by adults seeing the potential for new ways of learning in their own classrooms or school settings. Playing games can be a way to develop differentiation for gifted elementary students, and resources abound for teachers wanting to incorporate games of all sorts.
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Figure 1

A Special Deal

I have ten cards here, numbered from 1 to 10. Watch carefully while I deal them out. ... I turn over the first card; it's a 1. Then I put the second card on the bottom of the pile. I turn over the next. It's a 2. The next card goes on the bottom of the pile. I keep doing this; see, now I turn over a 3... then I put the next card on the bottom. Here comes a 4. Then one goes on the bottom. Watch. The numbers will keep coming out in order, all the way up to 10.

(Burns, 1982, p. 65)

Question: How do you order the cards originally so that they will turn up in this special order?

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References


Playing Games in the Elementary Math Classroom


Games


Additional Resources Shared at the Conference


In order to understand the true meaning of giftedness, it is necessary that we separate the concept from achievement. High achievers are those who are motivated to do well in school. Gifted students may be high achievers or they may be high school dropouts. They have learning needs that differ from other students, just as developmentally delayed students have different learning needs. When giftedness is seen as the mirror image of retardation, it becomes clear that we have a responsibility to meet their needs, whether or not they are high achievers.

Even gifted students who are achieving A’s may be severely underachieving. The Talent Searches, which involve more than 150,000 junior high school students annually, demonstrates how this is possible. Seventh and eighth grade students who are at the 95th percentile in mathematics and reading in grade level assessments are eligible to take the SAT or ACT as above-level tests. These tests were designed for college-bound seniors and juniors. Some junior high school students score much higher on these assessments than their high school counterparts. In fact, some may score high enough to meet the entrance requirements for M.I.T. or Stanford when they are only 12. There are 12-year-olds who have attained scores of 780 or 800 on the SAT-M. When one of these students obtains an A in 7th grade mathematics, what does that A mean? Is the student sufficiently challenged? If this student has already mastered enough algebra and geometry to obtain a score comparable to that of a top high school senior, wouldn’t the pre-algebra sequence be a waste of time—even if the student achieved all A’s?

For gifted students, achieving an A is not the goal. The real purpose of education is to learn new information. Students who achieve A’s based on what they have already learned are gaining daily practice in underachievement. All students have the right to struggle. Struggling is essential to growth. It means that the student is stretching to attain new power in learning. And gifted students actually enjoy struggling to master new material—if they haven’t been pruned into grade-getters who are afraid of a challenge. Girls, in particular, are at risk for shunning challenges in favor of performing perfectly what they already know.

So how can teachers meet the needs of gifted students?
1) First of all, ask the students! Engage the students in academic planning. It is amazing what a heart-to-heart talk with a gifted student will reveal.

2) Assess what they have already learned before teaching them. There is no use in relearning what one already knows. This can be done by looking at achievement test scores, giving them pre-tests of the material to be covered, informal talks about the subject matter or teacher-constructed diagnostic tests.

3) Allow very advanced students to test out of courses—receiving credit for courses via examination.

4) There are excellent fast-paced courses for gifted students or college-level courses available on internet or via computer instruction. The Educational Program for Gifted Youth (EPGY) out of Stanford University is one such program in mathematics and creative writing. Students receive Stanford University credits for engaging successfully in this interactive program. Allow students to substitute computer-based courses, internet courses, summer courses on college campuses, etc., for regularly paced courses.

5) Reduce the amount of drill and repetition to a bare minimum. Some students can learn as much attending class three days a week as others learn in five days, if two days each week are spent in review. Gifted students do not profit from review. It has the opposite effect. While they are waiting for the others to catch up, they usually get turned off to learning.

6) Engage students in high level independent study projects, preferably involving real problems in the community.

7) Mentorships and apprenticeships are excellent for gifted high school students.

8) Grouping gifted students together for instruction or for group projects stimulates them to higher performance.

9) Involve the students in community service projects. Give them choices of where they would like to be of service.

10) Do not have the gifted students teach the slower ones. They learn in a different manner and may be poor teachers. They need to be challenged and allowed to learn more difficult material. They are held back in their own learning when they are used as teachers’ helpers. (The best teachers for learning disabled students are older learning disabled students who have mastered the material.)

11) Rigorous coursework is a must. Set high standards for students.

12) Encourage three years of a foreign language and exchange programs where students get an immersion experience in a different culture and language.

13) Gifted students have strong aesthetic interests. Make sure that they have room in their schedule to pursue one or more of the fine arts.

14) Provide opportunities for gifted students to accelerate. Continuous progress is imperative. Some students are ready for college at a younger age. Some can succeed in Advanced Placement courses in junior high school. Some should be co-enrolled in high school and college. The options for
acceleration should be explained to students and their parents.

15) Counseling is an important provision for gifted students. They are often troubled by their differences, by difficulties they encounter in communicating with others, and by making career choices among many appealing options. Groups designed specifically for gifted students are the most effective. These can be formally conducted by a counselor or informally conducted, more as discussion groups, by an interested teacher. (See Counseling the Gifted and Talented, Chapters 4, 5 and 6, for information on how to run these groups.) Teachers have an enormous impact on the lives of gifted students. Underachieving students have been salvaged by one understanding teacher who took an interest in them. The investment of time and energy in differentiating the curriculum for gifted students can inspire them to have higher aspirations, to win scholarships, to choose demanding careers, and to use their gifts for the betterment of society.

Reference
Friendship and the Highly Gifted

Deirdre V. Lovecky, PhD
Gifted Resource Center of New England

Sarah, at age nine, didn’t really have any friends. A quiet, introspective girl who spent her after school hours practicing the violin, she had little time or inclination to seek out the friendship of girls in her class at school. It wasn’t that Sarah was anti-social, but rather, that she felt that she didn’t have anything in common with her classmates. Her classmates were friendly, but ignored her. Sarah was generally content with her own company. She enjoyed reading, sewing, and designing and building her own model houses. Still, she longed for a friend with whom she could share her feelings and passions. Because the school system was unable to meet Sarah’s needs for an accelerated curriculum, she was home schooled from the middle of grade four on. At age 12, Sarah took a high school science course, and soon after that a college course in math. There, she met another highly gifted girl also taking the same math course. They became best friends. For the first time, Sarah felt that someone understood who she was and valued what was important to her.

Fast forward to age 18. Sarah has just graduated from college. Sarah has different types of friends: a few who are close, and many she sees once in a while. Sarah’s friends are people she met through her music studies, music camps, the state youth orchestra, and the music program at her college. She also has friends met through the Davidson Young Scholars and Johns Hopkins Center for Talented Youth (CTY) programs. Sarah is still introspective and
practices music many hours a day, but she no longer longs for a friend to help her feel understood.

Alex, at age nine, attended a public charter school where he had a small circle of friends. He was invited to birthday parties, and he usually had a partner for school projects. Like Sarah, Alex was introspective and quiet. He had several activities he enjoyed including Cub Scouts, building with Legos, and reading. In middle school, he moved to the public school where he was in all the highest-level courses. These were not particularly difficult for him, but he had difficulty getting all the work done. He spent a lot of time doing homework. Alex participated in the school’s math and science competitions, attended classes with other bright children, some of whom were in his Scout troop, and he was occasionally invited over to the houses of these boys. Alex never invited anyone over to his house or out to a family event, even when encouraged to do so by his parents. Alex was content to spend most of his time alone and to participate in small-group activities with a familiar circle of boys he’d known since kindergarten. He didn’t want to get close to any of them, or allow them into what he saw as his private space, but he did enjoy the time he spent in their company in the structured activities directed by school and Boy Scouts.

Fast forward to age 20. Alex is now in college, and he does not have any friends. People are friendly to him, and he talks to other students in his classes. The relationships never go further because Alex still resists the idea of asking others into his private space, and he doesn’t know how to invite classmates to do other activities. Yet, he feels lonely and yearns for the one person who might be a true friend. Alex is like a robin lost from his flock. School and Boy Scouts provided a secure harbor for him that now is not replicated in his college experience.
Sarah and Alex have many commonalities. They are both highly gifted, and in fact, have almost identical IQs in the 170+ range. They both are introverted, introspective people who enjoy solitary activities. Both found it difficult in early years to find compatible peers. Yet, from middle school years on, Sarah was much happier with her life than was Alex. The differences in their life experiences, as well as their personalities, likely contributed to different outcomes.

Alex never had a chance to be with other very bright children. He was never accelerated in school and never participated in CTY. He did not have a passion that took him outside his immediate social circle to meet new people. He was more socially anxious than Sarah. Also, schoolwork took him more time, and he found it much more difficult to organize his time and to generate motivation. It was also harder for Alex to try new things. Thus, he stayed in the same routines and with the same people throughout high school.

Sarah went to music camps all over the country where she met new people; Alex went on camping trips all over New England with the same group of boys. By the middle of college, Sarah had had a multitude of experiences that well prepared her to find friends. Alex, instead, lost his social circle and did not have the skills to make new friends.

The Focus of This Chapter

The two children described above had different experiences with friendship. While, initially, both had difficulty finding and making friends, the reasons were quite different. Differences in temperament, types of opportunities, differing personal goals, and underlying handicap resulted in different social outcomes. Thus, in this chapter, the social adjustment of gifted children at higher IQ levels, the issue of making friends, how asynchrony contributes to difficulty with social expectations, the role of introversion and extraversion in finding potential
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friends, internal motivation, and how specific opportunities (or lack of them) changes prospects for friendship will all be discussed.

The Highly Gifted

In studying friendship in the highly gifted it is vital to define which group of children is "highly gifted." Sheeley and Silverman (2007) defined “highly gifted” as IQ 145-159, and “moderately gifted” as 130-144. In addition, gifted children scoring above 160 IQ (exceptionally gifted) and above 180 IQ (profoundly gifted) are considered to have quite different experiences than those in the moderately gifted range. These differences in experience can affect social and emotional development because as the discrepancy between chronological age and mental age increase, there is also greater discrepancy in how the world views the child and how the child views the world. For the purpose of this chapter, the term highly gifted is meant to describe those children who are IQ 145 and above. Thus, exceptionally and profoundly gifted children are also meant to be included in this group.

Social Adjustment of Highly Gifted Children

From the time of Terman’s (1925) studies, the social adjustment of gifted children has been described. The term social adjustment has meant positive relations with peers, mature play interests, mature social understanding and awareness, positive self-concept, social acceptance, and mature world view. In general, research has shown gifted children to have good social adjustment (Hollingworth, 1926; Robinson & Noble, 1991; Sayler & Brookshire, 2004; Terman, 1925). Hollingworth (1926) discussed social adjustment in terms of optimal intelligence: that is, children with IQs between 125 and 155 are able, by virtue of their higher intelligence, to lead others, to achieve easily and to have time to participate in many school
activities. They are often popular and accepted well by others because they are not so different. Gallagher (1958) thought those with IQs below 165 were more socially acceptable to others.

McCallister, Nash and Meckstroth (1996) pointed out that the more highly gifted the child, the more likely that he/she exhibited difficulty with social and emotional adjustment. Gallagher and Crowder (1957) found that 20-25% of the most highly gifted children showed such difficulty. Dauber and Benbow (1990) studied students participating in the Johns Hopkins Talent Search and found that verbally precocious students rated themselves as less popular, less socially adept, more introverted, and more inhibited. The mathematically gifted, on the other hand, had higher social self-concepts and felt less social stigma. Janos and Robinson (1985), in reviewing many studies, found that gifted children showed good social adjustment, but the highly gifted had considerably more difficulty. Studies reviewed suggested that 21-71% of highly gifted children had psychosocial difficulties. A more recent study (Pearis, 2011) which compared gifted with non-gifted adolescents, found academic giftedness to be associated with positive peer relations; however, those gifted students with poor peer relations were at great risk for negative behavioral, psychological and academic adjustment, and they were the most victimized of all students. Thus, if gifted children have poor peer relations, they are at risk for even more problems.

The term social adjustment covers a wide breadth of concepts. Yet, for the gifted child, it is friendship that matters most. Almost all gifted children want good friends. However, having good social adjustment and having good friends is not the same thing. A gifted child can be accepted by others, even be well liked, and yet feel that no one is really a friend. Social acceptance runs along a continuum from: actively sought out, well liked, accepted, tolerated,
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ignored, disliked, rejected, tormented and bullied. Gifted children anywhere along the continuum of social acceptance may have friends or may not. Thus, a child can know he/she is popular, yet feel there is no true friend who really understands. Conversely, a gifted child can be isolated at school, yet have good friends outside of school.

For example, Patrick, age 9, with an IQ in the 160 range, was very popular at school. He had a group of children who wanted to play with him at recess, eat lunch with him, invite him to their birthday parties, have him join in games, and be their partner in sports and class projects. Though quite extraverted, Patrick felt burdened by all this attention. He knew that several boys wanted to be his best buddies, but he didn’t feel the same way. “Mom” he said, “It’s like I’m a duck and all these chickens want to play with me. Where are all the other ducks? I can play chicken games forever and it’s fun and all, but none of them understand what I like to do.” Like Patrick, many highly gifted children feel like ducks out of water, pretending to be chickens to get along.

Many highly gifted children do not find any others like themselves in school. While socially acceptable to more average peers, these gifted children find, as they progress through school, that social acceptance can come at a price. That is, in order to be socially acceptable and have friends, these gifted children have to downplay and hide the extent of their difference. If there are no highly gifted peers, highly gifted children feel they have to pretend to be average in order to have friends. This produces for them a “forced choice dilemma” (Gross, 1989). The choice then also has consequences. If gifted children “choose” to perform at less than their level of potential, they forego opportunities that would allow them to develop their gifts, such as upper level classes, college courses in high school, summer camps and courses
such as CTY, and mentorships in areas of interest and strength. The net result is that over time, these gifted children lose the chance to develop certain gifts. Later on, it can be too late.

For some highly gifted children, no matter how much they pretend, peers can only see them as ducks. These gifted children can never fit in no matter how hard they try; they just stand out as different, even if on the surface they look and act like peers. There is just something different about them and peers know it. For example, Sam, age 16, never felt he had friends, though everyone was nice to him. He was in the high level classes, and made highest honors. Rather than being interested in sports, as were his classmates, Sam was interested in medieval weaponry. He had made his own forge and chain mail. He also enjoyed science fiction but found no one else like-minded at his small high school. He did have Internet friends with similar interests, but wished for one good friend. When Sam went to college, things changed. He found others who had the same passions.

Finally, there is a group of highly gifted children who have a clear sense of their own destiny. They are not necessarily in conflict with others, but clearly follow their own drummers. These are the children with a strong sense of entelechy, or goal-directed purpose, that pervades their whole lives (Lovecky, 1993). Children with this sense of purpose find the social atmosphere at school irrelevant to their own major concerns. This does not mean they are ignored or rejected. They can even be popular. It’s just for them the social scene is not where they want to expend their energy or focus. Many creative children who spend hours learning and practicing their art are like this, as are those who feel a passion for justice and fairness. Sarah, described, at the start of this chapter had a strong sense of a goal she was reaching to attain with her music. Though she longed for a true friend, she also did not try to mold herself
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into someone her elementary school peers would find acceptable. In later years, her sense of purpose and determination paid off for her, and she found friends because of her goals, not despite them.

Research on Friendships in Highly Gifted Children

Research has shown gifted children to be socially mature for their age. These children typically seek out older friends and show social awareness and understanding typical of older children; they also have more mature play interests (Janos & Robinson, 1985).

Finding friends can be difficult for young gifted children. Hollingworth (1931) suggested that when gifted children’s interests and intellectual development are far advanced, they have difficulty relating to age peers. Hollingworth (1942) described the isolation of highly gifted children (IQ 160+) with little chance to find playmates who are similar in interests and mentality. Hollingworth did not think that older children found highly gifted children to be compatible playmates, but thought them to be too young. Hollingworth stated, “The difficulty of the gifted child in forming friendships is largely a result of the infrequency of persons who are like-minded. The more intelligent a person is, regardless of age, the less often can he find a truly congenial companion” (1942, p. 263).

Gross (2004) stated that research over the past 70-plus years has shown that gifted children tend to gravitate first to other gifted children close to their own age, then second to older age peers who are somewhat above average in ability. Mental age, rather than chronological age, was the factor in deciding who was sought after as a friend. Gross also found that, like Hollingworth’s children, what made the younger gifted child acceptable to older age peers was knowing him or her in the context of being in the same class at school. Thus, if the
younger child was in a lower class, seeking out older peers did not necessarily work because of the social hierarchy in most schools.

Janos, Marwood and Robinson (1985) studied both moderately (mean IQ 131.2) and highly gifted children (mean IQ 167.9). The highly gifted children were found more often than the moderately gifted to have older friends, too few friends, and felt that being smart made it harder to have friends. A significant number (40%) were found who did not like other children “a lot” (p. 48). Parents were found to view their highly gifted children’s friendships more bleakly with one or no friends, fewer times spent with friends each week, and less regular group participation with other children. Surprisingly, many of the children in the highly gifted group were in classes with other bright children.

Shapiro, Schneider, Shore, Margison and Udvari (2009) found that gifted adolescents identified a lower number of positive qualities in friendships (less companionship, help, security, and closeness) than non-gifted children. One purported cause might be that the gifted students judged their friendships from more mature levels of expectation of what friendship should be, and felt the friendship was lacking.

Not all highly gifted children have few friends. Some are able to bridge the gap between themselves and age peers and have satisfying relationships, at least for a time. For example, Stefan, age seven, with an IQ over 170 and achievement scores at college level, studied calculus and higher-order geometry on his own (Semrud-Clikeman, 2007). He also had built his own computer with help from his father. As he was accelerated into some college level courses, he continued to take gym, art, music and health with his second grade class. He also played sports with his second grade friends. Other children described Stefan as a good friend. He was
observed to be friendly, chosen to be first on teams, and well liked, according to Semrud-Clikeman. One does not know how Stefan felt about the situation though. Had Stefan had the opportunity to be with other equally bright peers, would he still have chosen to stay with age mates?

The author suggested that the achievement and social gap widened for Stefan over the years; however, since Stefan received his Ph.D. degree at age 19, it is unlikely he was still socializing with age peers. At age 19, the gap between Stefan’s own social age and that of his graduate school peers was much less than when he was younger. Thus being radically accelerated likely helped Stefan find like-minded peers, especially as he matured.

The key to understanding Stefan might be that he had a variety of friends ranging from his age peers in early school years to mental age peers met through his college courses. Rather than being isolated and lonely, Stefan’s gregariousness and the opportunity afforded him by acceleration allowed a wider pool of potential friends.

Gross (2006) indicated that exceptionally gifted children who were accelerated two or more years showed better and more mature social relationships while those who were not radically accelerated had more difficulty with relationships both in school and afterwards. This certainly parallels Hollingworth’s (1942) observations that gifted children’s social isolation and loneliness were most acute in early childhood when they were less able to have access to other resources.
Factors Determining Friendships For Highly Gifted Children

There are a number of factors that determine friendship choices in gifted children. For example, asynchrony, the difference between the gifted child’s mental, social and emotional ages, as well as between the gifted child’s social needs and expectations for age peers. Other factors include the gifted child’s degree of introversion or extraversion and how this interacts with finding possible friends, the motivation of the gifted child to find friends, and whether or not the gifted child also has a handicap.

Asynchrony

Asynchrony is the difference between the chronological age of the gifted child and cognitive, physical, emotional, social and moral ages. The brighter the gifted child, the greater is the discrepancy between cognitive and chronological age (Silverman, 1993a). However, physical, emotional, social and moral ages may all vary widely and even change depending on circumstance. Furthermore, asynchrony occurs not only among the “ages” of the gifted child, but also within each “age.” For example, social knowledge and social behavior are likely to be asynchronous especially in young gifted children because, in general, knowledge precedes ability to use the knowledge.

Expectations

The asynchrony between adult expectations for age peers and highly gifted children’s social development produces unrealistic expectations. Highly gifted children, in general, are more advanced socially than age peers; however, people expect that despite high intelligence and achievement, the gifted child should be socialized to fit in with age mates. It’s like the adults have compartmentalized the child’s giftedness, so it doesn’t count in social situations.
“Yes. Mrs. Smith, we know he can do pre-algebra, and is reading Shakespeare, but at recess he
has to play with the other second-grade boys.” In some cases, highly gifted children are
discouraged from seeking out older children. “Well she can’t sit with the third graders at lunch.
She’s no different from any other first grader. She has to make friends with the girls at her
table. I know she goes to third grade for reading, but rules are rules.”

Besides compartmentalizing giftedness, adults may also overgeneralize giftedness. Thus,
they expect that the highly gifted child, showing giftedness in many areas, should show equally
advanced skills in all areas. They then use this as a means of denying the giftedness or
punishing the child for being so gifted. “How could you call Lisa a name? That’s bullying,
Isabelle. I certainly expected more of you, young lady. You know name-calling isn’t allowed, and
you’re in 5th grade already. I don’t care if she called you a name first. You skipped a year, so
you’re smarter than the other children, and you should know better.” This kind of
overgeneralizing does not give Isabelle any help in dealing with peer issues, not does it help her
find friendships in the 5th grade class.

Development

Not all aspects of social development happen at the same rate. Thus, social cognition
and social skill development can be discrepant. Research has shown that gifted preschoolers
know people ought to take turns and share, but they have difficulty actually doing so fairly
(Abroms, 1985). They know what children ought to do to solve social problems, but they hit and
kick about as much as non-gifted children (Roedell, 1989). They are good at perspective taking,
seeing things from the others’ points of view, so long as it doesn’t impact on their own
immediate needs. Research thus shows that gifted children are asynchronous in their friendship
skills, with more rapid development of social knowledge and awareness and more average development of skills.

Eventually, social knowledge, ability to control behavior and to think more globally about how to be fair and kind in relationships become more closely allied in children’s relationships with friends. This occurs as gifted children start to develop the capacity to use perspective taking and empathy together in relationships (Lovecky, 2009). As they start to self-regulate behavior and are able to put themselves into another’s shoes, more mature friendships are sought. Gifted children are able to self-regulate at an earlier age than average (Calero, Garcia-Martin, Jiménez, Kazén & Araque, 2007), and they are more advanced in development of empathy (Lovecky, 2009). Thus, it is likely that highly gifted children achieve more mature expectations for friendship at an earlier age, than do average children.

Older highly gifted children, adolescents and even adults continue to show discrepancies between what they can articulate about self-control, solving conflicts, issues of fairness, and what friendships mean to them, and the actual behavior they show in social situations. Like everyone else, highly gifted children can be unfair, unkind, unhelpful, uncooperative, self-centered, and angry towards friends and adults. Thus, the asynchrony between what one knows and can articulate about what to do in a social situation, and the struggle to achieve that in relationships remains throughout life.

**Stages of friendship**

Selman (1981) studied friendships of average children and showed that ideas about what makes someone a friend developed through stages. Children, age four to seven, associated friendship with sharing materials or activities, offering assistance, defending against
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others, and other friendly behavior. Older children, over age ten, chose sharing interests, private thoughts and feelings, having a sense of mutual respect and affection. Friendship was increasingly thought of in terms of reciprocity and mutuality. Over time friendships become interdependent, last over time and imply understanding of feelings, intentions, thoughts and personalities of each party (Lovecky, 1995).

Gross reported a study undertaken with 700 children, ages 7-12, on conceptions of friendship (Gross, 2001; reported in Gross, 2004). Children were average, moderately gifted or exceptionally gifted. Her study, like Selman’s (1981), showed that ideas of what constituted friendship developed in stages. Stages of friendship development included, from least complex to most complex: play partner; people to chat to; people to give one help and encouragement; people to share intimacy/empathy; the sure shelter. The first stages were one directional, the latter two more mutual. When friendships reach the stage of “sure shelter,” people can be their real selves and trust the friend will still be there for them; that is be a true friend. Thus, at this stage, friendships are based on mutual honesty, caring and respect.

Gross found that mental age, more than chronological age determined what children look for in friendships, and so the exceptionally gifted children were much further along in the hierarchy of expectations at an earlier age than expected, and more so even than the moderately gifted peers. Thus, the exceptionally gifted children were looking for “sure shelter” types of friendships four or five years in advance of peers. According to Gross (2004), an exceptionally gifted girl of 6 or 7 might want the same type of friendship from peers that average girls of 12 or 13 look for.
When highly gifted children go through the stages of friendship earlier than age peers or even more moderately gifted peers, social asynchrony will result. For example, a child who is ready for a more intimate friendship will not find it in age peers who are still at the “someone to chat with” stage. This makes finding friends particularly difficult for highly gifted children who are expected to socialize with age peers. Thus, school personnel and other adults who won’t allow acceleration for cognitively and socially advanced gifted children because they think the child needs social opportunities with age peers, make the assumption that social development is the same for all children. Yet, a highly gifted child forced to socialize with age peers will always be a duck out of water pretending to be a chicken to get along. What does it do to a child over time to have to live such a lie?

Another type of social asynchrony can occur because not all friendship skills develop at the same time. Thus, a highly gifted child may be at the stage of wanting greater intimacy in relationships, yet not really understand the appropriate ways to build intimacy. Thus, Aisha, an exceptionally gifted girl, age six, wants a closer friendship with her best friend, Soleil, age ten, a more average child. The girls exchange secrets and spend a lot of time together. However, Aisha expects her best friend always to put her first, and so when Soleil goes off to play with others, she feels that Soleil doesn’t like her anymore. That isn’t the case at all. The two girls are operating from different expectations. Soleil knows that in friendships, especially close ones, there has to be room for a person to have other friends and to trust that their close friend will know this. Aisha doesn’t know it. Though she has higher expectations for what a friendship ought to be than most children of her chronological age, she still hasn’t figured out that others might have different needs than she does (which has more to do with perspective taking).
wants only one best friend and to spend all her free time with this person. She thinks that in a true friendship her friend would want this too.

Gross’ (2001; reported in Gross, 2004) study of friendship expectations encompasses children in elementary and early middle school years. Conceptions of friendship continue to develop through adolescence and adult years. No one reaches a stage where all his or her relationships are perfect. It’s just that adults have more choice, and if a relationship doesn’t work out, even one that was very close, one can move on and try to find another friend. Children don’t have the same choices, and when relationships are not satisfying, there may be little alternative to hiding their gifts or forgoing even superficial friendships.

Introversion/Extraversion

Another factor that can influence how highly gifted children make and keep friends is introversion and extraversion. Where the gifted child falls on this continuum can greatly influence how he/she looks at the process of making friends, as well as the types of friends desired. Introversion and extraversion are expressions of temperament. Where a person falls on the continuum reflects his/her ability to deal with sensory stimulation, especially social stimulation. Both introverts and extraverts range from people on the extremes to people at the middle sharing some of both sets of traits. The Myers-Briggs Type Indicator bases the amount of introversion and/or extraversion by use of a forced choice self-report measure (Myers, 1987). Silverman (1993b) and Meckstroth (2007) offer perspectives on introversion and extraversion in highly gifted children, and how to deal with them.

Highly gifted children like Stefan (Semrud-Clikeman, 2007) and Patrick, mentioned above, appear to be extraverts, while Sarah and Alex, mentioned at the start of this chapter,
are more introverted. Both Stefan and Patrick had friends, were well liked, were issued
invitations from peers and were even popular. Sarah and Alex, on the other hand, had fewer
friends, did not seek out friendships, and spent most of their time alone engaged in their own
pursuits.

Janos and Robinson (1985) reviewed a number of studies that suggested that as gifted
children grew towards adolescence, the number classified as introverted increased. Silverman
(1993b) reported that about 75% of gifted children with IQs over 160 are introverted,
compared with about 50% of the moderately gifted. For more average people, on the other
hand, things are reversed with about 75% extraverted.

**Highly gifted introverts and friendship**

Introversion is a measure of where people direct their attention and derive their energy.
Introverts direct their attention internally and derive their energy from themselves. The more
introverted a person is, the less he/she prefers outside stimulation, including social occasions.
Introverts prefer their own company, find it harder to make friends, and enjoy solitary pursuits.
Thus, studies that find highly gifted children to have fewer friends and to be more solitary also
reflect the introverted nature of many highly gifted people. Nevertheless, that does not mean
that introverted highly gifted children don’t want good friends.

Introversion is not well understood by the average extraverted majority. At least part of
the reason parents of highly gifted children are told that their children need to learn to socialize
more with age peers is that their introversion is viewed as something that needs remediation.
The more introverted the child, the more problematic people think the introversion is.
Introverted highly gifted children can use their solitariness as time to create.

Csikszentmihalyi, Rathunde and Whalen (1993), in studying creatively gifted children, found that they needed time alone in order to create. In fact, without time alone, few creative endeavors would take place. Thus, solitariness is a positive aspect of introversion and allows the highly gifted to have the space and time to pursue interests in depth. Sarah, presented at the start of this chapter could not have practiced the violin six hours a day were she spending the majority of her time being social.

Introverts tend to want one or two good friends. Thus, introverts take time to make friends, are slower to develop the friendship and want deeper relationships. This means they are less likely to have superficial friends or to consider someone a friend just because they play a sport together.

The biggest problem for introverted highly gifted children in finding friends is that the potential pool of possible friends is so small. People make friends because in some way they are in proximity to each other. With a very introverted child who spends a lot of time alone, the pool of possible people they will meet can very small. Alex, for example, though he attended a middle school with 500 students, only associated with the 30 children who were in all his advanced classes. Many of these boys were also in his Boy Scout troop. Thus, his pool of potential friends was very small. Sarah, in middle school years, only met one possible friend in her math class at the local college, but they became best friends. Sarah didn’t think about needing more friends. Only later was she more ready to explore other types of friendships.

Introversion is not synonymous with poor social skills; however, introverted gifted children who have not had a lot of experience with making friends may be awkward in social
situations. They can be shy and look inept. Once they feel comfortable, the ineptness deceases, and they are able to participate more smoothly. These gifted children wait and observe before jumping into the situation. Therefore, they may become good at observing group dynamics and at reading people. This skill may then help them pick out people with whom it might be interesting to pursue a friendship.

**Highly gifted extraverts and friendship**

In contrast to introverts, extraverts find their energy with and from other people. They are sociable, self-confident and uninhibited with others. They are most interested in people and things outside the self, not their own thoughts and feelings. While fewer highly gifted children are extraverted, those who are have different needs than introverted gifted children. For example, in order for extraverts to know how they feel about something, they need to talk about it with others. This makes the lack of good friends more acute for extraverted gifted children than for introverts.

Extraverted highly gifted children have more ability to and desire to fit in with peers. They are more likely to face the forced-choice dilemma (Gross, 1989) and to choose to hide their gifts in order to have a social life. Natalie, age 11, was invited in grade four to be in the school gifted program because of her high scores on the state standardized testing. Natalie refused, as none of her six best friends were chosen. They were a tight clique who had been together since nursery school days, and who had had many sleepovers and outings together. Natalie worried that being in the gifted class would end her friendships. She never let the other girls know how much she enjoyed reading, and she mimicked their affection for certain toys.
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and preteen heart thobs, though privately she thought the current heart throb was pretty stupid.

Because extraverted gifted children are not really happy alone, they are more likely to have different friends for each activity. Thus, they will have sports friends, school friends, friends who will go partying, friends from church, etc. They will also be the gifted children, especially girls, who spend much of their time with social networking sites, Twitter, texting etc. They can be so much in contact with their friends, they don’t have time to be gifted. By middle school, Natalie spent most of her evening in social contact with her friends. She did much less reading and barely finished her homework. Her parents began to worry that she had “lost her giftedness.” To deal with the problem, they forced Natalie to go to a summer camp for gifted children. Her weeks there were an eye opener for Natalie, who had never before encountered others like herself, what she thought of as “normal kids” who enjoyed learning. The friendships she made at camp were sustained when she returned home, through the use of social media.

Some extraverted highly gifted children mistake popularity for friendship. Because they are so attracted to people, these gifted children can fall under the spell of those who are most popular and desire to be with them. Depending on the social atmosphere of the school, as well as the child’s particular talents, the gifted child may have more difficulty fitting in with this group than with other social groups and may have to sacrifice more of who they are in order to fit in. For example, the gifted child who is good at athletics will have a better chance of fitting in than the child good at chess.

Trying to fit in by hiding one’s giftedness does not produce good friends. The gifted child who chooses hiding does not make the kind of friend who will be a “sure shelter.” Thus, these
gifted children always feel that something is missing in the relationships they do have. This can lead to an underlying feeling of brokenness or badness, “If my friends really knew how smart I am, what I really like, they would all hate me, and no one would be my friend. Therefore I can never reveal who I am.” Gross calls this “the love that dare not speak its name” (1998, p. 171). The consequence of hiding who one really is can result in the building of doubt about one’s own abilities, passions and opinions with a longer-term risk of depression.

Like introverted highly gifted children, the extraverted highly gifted want true friends, and have a better chance of finding them than do the more introverted. Because they are so people oriented and uninhibited, these gifted children take more social risks, try new things and have a wider pool of potential friends. They are also likely to have true friends who share some, but not all interests. Thus, the aspect of a true friend that appeals to the more extraverted highly gifted child is being there, doing things, sharing experiences, feelings, thoughts, and desires. For the more introverted gifted child, it is as if true friends need to be more like a mirror, while for the more extraverted, true friends are more like a prism, each facet reflecting a different aspect of the extraverted gifted child.

Motivation to Find Friends

There are a number of factors that determine a highly gifted student’s motivation to find friends. Internal factors such as contentment with familiarity, social anxiety and a small range of interests can affect the likelihood of finding friends for highly gifted children. External factors such as opportunity, family cultural values and family circumstances also can play a role.
External Factors

Contentment with familiarity

A highly gifted child who is reluctant to try new activities or seek out new opportunities is a child who enjoys the comfort of familiarity. A highly gifted child, who enjoys the sameness of routine and the familiar, does not feel the need for more in his/her life than is currently present. This lack of interest and lack of willingness to branch out means that the highly gifted child is not prepared if things change. Alex had the same group of friends throughout school, and thus was unprepared for the changes that took place when he went to college. His parents had tried to get him to try new things and find new friends, but he resisted. This resistance was coupled with a lack of motivation to try other new activities unless accompanied by his parents or his familiar group. Alex would go to new places, but his experience of them was most comfortable if he was surrounded by the familiar. Alex was not unmotivated to learn things. He enjoyed learning and eagerly explored new topics at school, and for school reports. He was not a curious boy though, and he never did research on his own. He did best if things were highly structured for him.

Highly gifted children who have difficulty with change have trouble making friends. Often they are the children who make one best friend. The friend may not be a mental age peer, but is someone who shares familiar activities with the gifted child, such as playing video games. If that person moves away or decides he/she no longer wants to be friends, the highly gifted child is devastated and cannot move on. These highly gifted children have no way to make a new friend. Partly this is because the friendship did not change over time, and the highly gifted child did not acquire the skills of being a friend at a more mature level. When the
now lonely highly gifted child tries to form a new friendship, not only are expectations for friendship immature, but also friendships in school are already set. Thus, no one may be interested in him/her as a potential friend. Since these gifted children also have low motivation to seek out new experiences, unless new people drop in their laps as it were, they will have no friends. Alex was luckier in having a small group of friends; however, he was not really close to any of them. He was included in group activities, but not sought out for individual visits, nor did he invite others over. He was generally content with his own company.

**Social anxiety**

When a highly gifted child feels social anxiety, being in any social situation can be unbearable. The child may be able to go places where he/she will be alone or with a small group of well-known friends, but cannot go to any place where there will be many strangers. The child fears humiliation or embarrassment, and tries to avoid the situation. If forced to go, he/she can panic. Thus, a highly gifted child with social anxiety will avoid situations where there are new people, or where the child’s performance will be scrutinized. Thus, the potential for making friends is lower as the child has difficulty getting past the anxiety to meet or associate with anyone new.

For some children, social anxiety is tied to difficulty with reading facial expression (Walker, Nowicki, Jones & Heimann, 2011). Thus, the highly gifted child who cannot easily read facial expressions may avoid social contact. These children can include those with ADHD, Nonverbal Learning Disability, and Autism Spectrum Disorders. However, there are some who do not have these disorders but still have deficits in reading facial expressions. Charles, age 16, was home schooled because he would not attend school due to his social anxiety. A highly
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gifted boy with an IQ over 160, he excelled at math, but would not take university courses, or take part in math competitions. He had no friends, and even such distant social contacts as Facebook were too much for him. His only social contact was one on-line videogame he played.

Small range of interests

The highly gifted child who has only one or two interests has a decreased likelihood of finding and meeting friends. It depends on what the interests are and how many others share such interests. A highly gifted child who has one specific interest may do well if many others share that interest, even if the sharing is on different levels. Thus, Ezra, age ten, who loves Pokémon, can find many friends at different levels of playing ability. Ezra’s encyclopedic knowledge of Pokémon stands him in good stead with other boys as he gives them hints about what to do next. Ezra has a wide range of friends, all of whom like Pokémon. In contrast, Eli, age 12, is still in love with dinosaurs. He spends all his time reading about them, researching new fossils on-line, and learning everything he can. No one else he knows enjoys dinosaurs anymore. Unfortunately, it’s the only thing in which he is really interested. Thus, Eli has little in common with any peers, average or gifted. Furthermore, he is not motivated to develop any other interests. He thinks the things that his peers like are shallow and a waste of time. While Eli would like someone to discuss dinosaurs with, he doesn’t really know how to find such a person.

External Factors

Opportunity

The opportunity to meet other like-minded highly gifted peers differs depending on locale, specific interests and age of the child. For example, those highly gifted children who
were radically accelerated or placed in advanced classes with other highly gifted children had
many more opportunities to find and make good friends, while those kept in average classes
had much less opportunity (Gross, 2006). Since children spend many hours a day in schools, the
primary place to meet potential friends is school. If the school setting is inadequate to meet the
academic needs of highly gifted children, it cannot meet their social needs either.

Opportunity also arises from locale. Living in a larger city with many activities, different
types of schools, larger home schooling groups, and the chance for specialized instruction
through college courses, historical societies, museums, etc., all provide venues for highly gifted
children to find friends. Those who live in small towns, suburbs or rural areas may not have
such access available.

For highly gifted children to have the opportunity to meet peers who might be potential
friends requires knowledgeable parents. Those parents who have sought out resources through
the Internet and have access to other social networking media have an advantage in finding
opportunities for their children. “Freddie” Lee, for example, the child of recent immigrants, was
exceptional in his inner-city school. Despite coming to this country at age six, speaking no
English, he mastered academic subjects quickly. At age nine, he achieved one of the highest
scores in the state on the language arts standardized test, and he was several years advanced in
math. Freddie had never met another child like him. His parents, who worked long hours, had
no idea there was anything else but his impoverished inner-city school. Immigrant children like
Freddie are dependent on the resources of their public school. If the school system has
resources and recognizes talent, these children have a chance to meet others like them.
Without such resources though, they may never find anyone like themselves.
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**Family and cultural values; family circumstances**

What value the family places on individual achievement, as well as on education, plays a role in what the highly gifted child is allowed to do and with whom. Some families actively discourage achievement and “being smart.” In these cases, the highly gifted child can acquiesce or rebel, with negative consequences either way. It can be difficult for some parents to have a big enough dream that they can envision their child achieving more than they ever did. Thus, if obedient to this family culture, the gifted child cannot find peers with a different worldview, and they remain embedded in the worldview of their family tradition. Other highly gifted children develop a wider worldview than their family tradition, and if the family cannot change to accommodate that view, they are forced to leave.

Cultural norms also can play a part here, with achievement equated with going beyond one’s place or setting oneself apart from others. For example, some African American children cannot easily achieve in school or make friends with other highly gifted children without being accused of “acting white.” (Fordham & Ogbu, 1986, cited in Ford, 2002). Ford (2002) also pointed out the double forced choice dilemma of minority-gifted students: achievement or social acceptance; achievement or minority identity. It can even more difficult for minority highly gifted children to find true peers. Not only do they have to overcome cultural pressure, but also they have to find a peer who gets what they are going through. It’s not just a matter of finding a true friend with whom to share experiences, but of finding a true friend who will understand on an inner level what those experiences are like.

Highly gifted children living in extreme poverty have a difficult time finding friends. They may find it more difficult to fit in with peers, including highly gifted peers, because of a lack of
family resources. The scholarship child who comes from poverty will have more difficulty finding true friends when every opportunity is carefully weighed. If one is always the scholarship child, it can be difficult to make friends even in a school for gifted children. Tom’s mother was on welfare, and though she was able to get him scholarships to school, camps, and other opportunities where he could engage in activities with other gifted children, Tom never felt really at ease. Academically, he had no difficulty, but socially he never felt he could bridge the gap he felt across the financial divide. Though he had friends at school and camp, he never saw them in any other context. It was just too difficult.

**Having a Handicap**

Highly gifted children with handicapping conditions can have much more difficulty finding and making true friends. The handicapping condition itself can make finding friends hard. Also, the consequences of having the handicap can bring skill deficits that make it difficult to find true friends.

Children with certain types of handicaps have difficulty due to the handicap in finding and meeting others. Paul had multiple allergies and chemical sensitivities that made it difficult for him to go anywhere. Because he was so allergic, he could never go to anyone’s house. He also could not attend many of the opportunities available for highly gifted children because of his handicap. Thus, it was difficult for him to meet anyone. He did make one friend in high school, but it was difficult when the friend always had to accommodate Paul’s allergies. Though he liked Paul, he felt it asked too much of him to have to do so much accommodating. The friendship felt too unbalanced, and so he dropped the friendship.
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Children with handicaps such as ADHD, Nonverbal Learning Disability, or Autistic Spectrum Disorders (ASD), have difficulty making true friends. For one thing, having ADHD or ASD carries with it skill deficiencies that impact friendships. Thus, the child lacks social skills, has difficulty reading social cues, has problems with social timing and rhythm, has difficulty with self-regulation, and engages in inappropriate behaviors. These deficits can mask gifted children’s high IQ and deprive them of opportunities to be in classes with other highly gifted children. They may only meet peers with average or lower than average intelligence in their classes. Thus, the opportunity to meet peers who share their interests and who think in advanced ways is much less than for other gifted children.

The highly gifted child with ADHD or ASD does not fit in with other children with that disability. Their thinking is more advanced and more complex. The way highly gifted children with disabilities view the world is more complex. Emotionally they are more complex, as well as more intense than others with the disability. These highly gifted children thus want more from friendship than what an age peer with the disability can offer. While these children have trouble with emotional self-regulation and social awareness, they still want friends to whom they can relate on their own level.

Gifted children with disabilities that affect social awareness and self-regulation have difficulty fitting in with other gifted children who do not have the disability. Thus, while the highly gifted child with a disability may be cognitively ready to accelerate, socially and emotionally, they will have a more difficult time making friends with other gifted children. Thus, Jake, age 12, with ADHD, who had been grade-skipped two years, had no friends in his high
school. He was in the highest honors courses with other gifted children, but they regarded him as immature and childish.

Highly gifted children with disabilities are often those who also suffer from problems with social anxiety and motivation problems that can affect friendship. Thus, children like Alex need to be evaluated to determine if their reluctance to engage socially is due to an undiscovered handicap. Remediating the handicap can help these children build needed skills that may help them find friends.

Highly gifted children with handicaps, especially ADHD, can find true friends. A combination of opportunities to learn an interest in depth, coupled with social skill coaching can help these children to meet potential friends and to negotiate the stages of developing a friendship. (See Lovecky, 2004, for extensive discussion of the social problems and what to do about them).

Interventions For Parents, Teachers And Other Adults

Interventions include finding other highly gifted children, surviving an average school environment, and enhancing friendship skills.

Meeting Other Highly Gifted Children

Meeting other highly gifted children is the best way for a highly gifted child to find a potential true friend. There are many ways to expand the gifted child's horizons:

- Join the state gifted association and National Association for Gifted Children. Parents and teachers will find other families and resources for highly gifted students.
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- Check out Hoagies Education Page, the Davidson Young Scholars, Jack Kent Young Scholars, John Hopkins CTY, and other such gifted resources as ways of finding out activities that may be available for your highly gifted child.

- Add a social aspect to activities that are performance oriented. Thus, a Youth Orchestra could have a social time before or after the practice sessions. After a performance there can be a “cast party.” This allows highly gifted children who are actors, musicians, dancers, and other performers to actually get to know others in their classes.

- Start a group around the child’s special interest. If it is a multi-age group, the highly gifted child can find mental age peers among the older children and may be able to find friends.

- Join an activity that revolves around the child’s interest but attracts people of all ages. The highly gifted child may find adults who are willing to act as older friends and mentors.

- Have the highly gifted child join in an activity designed to help others. Many highly gifted people engage in charitable works, and the child might find other like-minded peers.

- Exercise has been found to be helpful in fostering creativity (Steinberg, Sykes, Moss, Lowery, LeBoutillier, & Dewey, 1997). Finding a kind of exercise the child enjoys and that enhances the creative endeavor can also lead to finding friends. For example, many different types of people enjoy martial arts or yoga.
Participating in these sports need not be competitive, but can allow the child to learn to control their body in new ways while meeting new people.

**Surviving an Average School Environment**

Finding coping skills for highly gifted children who have more limited options for finding other highly gifted children is important. These can include:

- Finding out-of-school activities where the child can be him/herself. These activities can meet the burning passion the child has for learning. Thus, taking a foreign language, doing a volunteer internship at a local museum, taking art classes or music lessons can help the highly gifted child find an outlet for creative passions and a “rage to learn” (Winner, 1996). Peter, a 16-year-old boy with Asperger Syndrome made his first real friend, a college student, age 19, the summer he had a volunteer job in a physics laboratory.

- Help the highly gifted child learn the skill of narration: that is, the highly gifted child tells the story of their achievement without making the achievement the main point. The narration allows everyone to enjoy the accomplishment without making it seem as if the teller is putting anyone else down. Thus, after she spent the month of July at a camp for the gifted, Natalie told her school friends funny stories about events that had happened at the camp. Everyone wanted to hear about the big green something in the bathroom. It was even funnier when the campers dissected the green thing.

- Help the highly gifted child to make an interest of theirs more popular at school. For example, one highly gifted boy, Nate, age 15, started a Beatles Club at
school. Eight other boys joined, and they met regularly for the next three years, becoming Nate’s true friends.

- Teachers, with students in different periods who enjoy the same thing, can introduce them to each other. Teachers can also set up study groups across classes and develop competitions so that very bright students have the chance to interact where they may not even have met. Teachers also can invite students like Sam who was interested in the Middle Ages and made his own chain mail, to share an interest with all their classes. It legitimizes the interest and also helps students who are also in hiding to realize that someone else might be interested in something they like.

**Enhancing Skills**

Enhancing skills can mean changing aspects of the environment, as well as teaching children skills they are lacking. Enhancing skills can include:

- Parents need to have discussions with their highly gifted extraverts about the problems of popularity. Discussing the group dynamics of how people take power over others and influence their thinking can be efficacious in helping the young person learn how to be stronger against some of these influences.

- Help the highly gifted child who is caught in striving for social acceptance to find space in his/her life for something else. Parental boundaries can be helpful to the child in setting their own limits. It is easier to say, “My mother would kill me” or, “My parents won’t allow it,” than to say, “I don’t want to.” Boundaries can
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help the child set limits on the amount of time spent on social media. This gives
time to do something else, as well as helps the child slowly reset priorities.

- With the child who has a narrow range of interests, parents can foster a wider
  range of interests where there is a possibility of meeting other highly gifted
  children. This may mean making the child go to camp, or participate in a series of
  classes around a potential interest. Make the child “help” an adult in an area the
  parent thinks might be of interest to the child, if only they could get him away
  from computer games or her from social media. Shauna, age 10, who had been
decreasing her school achievement to fit in with the popular girls, had no
interests but social media. Her mother knew she had once loved art, so she
enrolled Shauna in a painting class at the local art museum. Dragged there
kicking and screaming, Shauna found a love of painting that she had not known
was within her. She also found another girl like her, and being with the popular
girls became less important than going to painting class.

- Finally some children need professional help to overcome shyness, social
  anxiety, social skill deficits, inappropriate behavior and problems with self-
  regulation. Getting professional help can mean psychotherapy, social skill
  groups, relationship training, going to skill building camps and special activities.
The goal here isn’t to meet potential friends, though the child might, but to
enhance skills so that the child may then be able to do better in activities where
he/she can meet other highly gifted children.
Conclusion

Highly gifted children, because of their lower frequency in the population, can find it more difficult to meet each other and to make friends. It can be very difficult, especially in the early years, for highly gifted children to find others who match both mental ability and interests. Young highly gifted boys who are mainly interested in Pokémon or videogames will find a variety of friends to play games with, but as they get older, they may find such relationships lacking in depth and breadth. Young gifted girls have much more difficulty finding compatible others who also value learning. Thus, more gifted girls are likely to cover up their giftedness by faking mediocrity.

Parents, teachers and other adults who work with highly gifted children need to be aware of the necessity not only of fostering academic success, but also of helping the child find and make true friends.

Highly gifted children need to find real friends who can help them develop a realistic sense of who they are within themselves and in relation to others. Without the mutuality of a friendship, the highly gifted child develops a skewed view of the self, and of the world.

*The real friend ... is, as it were, another self.*

Cicero

*De Amicitia, XXI*
References


Hollingworth, L. S. (1931). The child of very superior intelligence as a special problem in social adjustment. Mental Hygiene, 15, 3-16.

Friendship and the Highly Gifted


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A Lone Wolf Cries its Wistful Tune: 
The Highly Gifted Child Searches for a Place of Belonging

Ellen Honeck, PhD and Shannon Jones, MA
Institute for the Development of Gifted Education
Ricks Center for Gifted Children, Denver, CO

"Mom, I need to resign. I can’t work with this group. They are talking about trying to raise funds and design marketing plans and packaging and they don’t even have a business plan!! And, they want to do all this and they haven’t even dealt with the real issues—how is studying about chocolate going to change the corruption in Nigeria? Without changing the corruption they can’t really deal with the poverty and issues in education. I like working with ... but I just can’t work on the project when so many things are being ignored. I keep talking and bringing up big issues, but they don’t listen. I need to resign. How do you think I should quit?"

You can hear the frustration in the voice of this adolescent girl as she works through her intellectual dissatisfaction and tries to resolve the social implications of resigning from a group that she both values and wants to please. These types of interactions occur often in regular classrooms and kitchens around the globe. Gifted children struggle to find their place with peers of their age but not their intellect, with teachers who are accustomed to meeting a general set of needs, not the specialized needs of the gifted. But this is not a gifted child who has yet to be identified and receive programming. This is an identified gifted child, in a school
for the gifted. Where, then, is the discrepancy? It lies in an often studied, but still little understood, area of the highly gifted.

The highly gifted student is defined as a child that tests 3 standard deviations above the norm on an IQ test. For the purposes of this article, highly gifted, exceptionally gifted (4 standard deviations above) and profoundly gifted (5 standard deviations above) are all grouped together. "The higher the IQ, the greater the need for differentiated services" (Kay, 2007, p. 10). Traditional educational opportunities tend to struggle to meet the needs of the students as their IQ moves further away from the norm. Highly gifted children have a range of options within a traditional schooling environment, but may have a difficult time in school due to lack of challenge and/or similar intellectual peers. The discrepancy between gifted and highly gifted is difficult to address even within a school for gifted children.

Terra is a highly gifted girl, identified as a preschool child by knowledgeable parents and supported by a subsequent play-based assessment and individualized IQ measurement. Terra has attended a self-contained school for the gifted since she was three. Her teachers are highly trained, experienced and educated in both general education and more specifically in the field of gifted education. And yet, in kindergarten, Terra’s teacher approached the school administrator to express concern over Terra’s development, level of achievement, and questioning the identification of giftedness. The teacher’s recommendation was that Terra be closely monitored and placed in a remedial math group. There were many examples cited, but the most recent and most concerning to the teacher was Terra’s inability to complete her 100’s chart and find the patterns in the numbers that they had discussed as a group.
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The administrator approached Terra as she was working on the task. Terra was asked a probing question which was immediately answered with a whispered, “It’s stupid.” A follow up question elicited a rapid flow response, “I know how to count to 100, I know how to write the numbers, I know how the tens go, I even know how the tens and the fives go together, the teacher didn’t even know to explain how the threes work and the really cool patterns don’t show up on this kind of a chart.” Cleary, Terra didn’t need placement in the remedial group. Her teacher needed more specific training and education regarding the highly gifted child.

Teacher training is a critical component for all teachers but especially gifted teachers. Teachers trained in gifted education are able to recognize and identify gifted characteristics with both positive and negative manifestations; however, recognizing characteristics of the highly gifted is more difficult. During a professional development training session, gifted educators were asked to create a list of students based on characteristics into gifted, moderately and highly gifted characteristics. After placing students, teachers provided discussion and reasons for their placement. Data was pulled and the students IQ scores, based on the Wechsler Intelligence Scales, were shared. The majority of the students placed into the highly gifted category was high achieving students and not highly gifted based on the IQ measure.

This exercise was recreated with a new group of students and teachers at a similar age level that had training on the highly gifted and experience in gifted education. Approximately half of the highly gifted population was correctly identified. These data suggest that a continued focus on the training of gifted teachers about highly gifted students is crucial to the success of the students.
This informal assessment of teacher identification demonstrates the need for continued ongoing professional development activities and training for teachers, even those trained in gifted education. This exercise was only to identify highly gifted students in an already identified gifted population. The authors predict that a lack of identification among gifted educators would be present across school locations, states and countries unless there is specific training on highly gifted individuals. This discrepancy within identification demonstrates a significant professional development opportunity for teachers that have little to no training in gifted education or highly gifted students.

The issue confronting Terra, and other children like her, is best described by Miraca Gross (1993). Teachers receive training on the characteristics of giftedness, as well as the programmatic and instructional strategies that have been designed to meet the needs of the moderately gifted, achieving child. The highly gifted child varies from the moderately gifted child not just as the moderately gifted child varies from the average learner; but, due to the extreme nature of the highly gifted, this variance is magnified by their own general intellectual ability. Gail Lewis (2002) has likened this to a “V” model of ability rather than the typical Bell Curve analysis. “The shape of this image enables us to focus on variety rather than on rarity.... The higher the deviation above the mean, the greater the number of possible combinations and recombinations of abilities” (Lewis, 2002, p. 2). Highly gifted children do not necessarily demonstrate the same characteristics, leading to misidentification or under-identification. But, of greater concern than the identification of highly gifted children is their subsequent programming. “No single-focus program, whether acceleration or any other design, can hope to adequately serve a population with such potentially complex profiles” (Lewis, 2002, p. 2).
Typically, highly gifted children are lumped into the general gifted population for programming and services. They are considered as part of a larger group, rather than as a distinct subset of learners with unique needs. Grouping strategies, instructional methods, and curricular modifications designed for the moderately gifted are utilized with all gifted learners. Schools for the gifted accept students with a wide variance of scores from moderately to highly/profoundly gifted. Are the modifications designed for the gifted student in the regular classroom appropriate for the highly gifted student in a gifted classroom? A review of the literature provides additional insights about the highly gifted learner, as well as outlining some of the potential applications and possible pitfalls of traditional gifted programming when used with the highly gifted student.

Background

The focus on the highly gifted individual dates back to one of the pioneers in the field of gifted education, Leta Hollingworth. In 1924 (reprinted 1997), she prepared a manuscript for publication on children above the 180 IQ. In her research and focus on highly gifted children, she discovered that the gifted child has difficulty forming friendships. “The more intelligent a person is, regardless of age, the less often can he find a truly congenial companion” (p. 263).

She states that “the really difficult problems of adjustment to life and to people come to those who test above 170 IQ. As there are so very few of these children, parents and teachers are seldom called upon to consider their needs. Thus when one does appear, he or she is the more likely to be misunderstood” (Hollingworth, 1997, p. 254). Due to this fact, even within a population identified as gifted, the students that are high achievers are generally the children that are identified as highly gifted. However, when looking at IQ scores this is generally not the
case; and the average gifted child is identified incorrectly and the highly gifted child is not serviced correctly.

So, what do we do with these kids?

Clearly, some of the strategies and practices recommended for gifted children in a regular environment are applicable to the highly gifted child in a self-contained gifted program. Differentiation, as described by Meckstroth, Smutny, Walker, Tomlinson, and Winebrenner, is a critical component for all gifted students. At the heart, differentiation requires that the teacher or coordinator hone in on each student’s specific needs at a given time. This requires frequent assessment and adjustment of curriculum and instruction based on the results of the assessment.

This will perhaps be even more critical for the highly gifted child who may have already acquired the prerequisite skill or information that is used to introduce a new area or unit of study. Often, highly gifted children will have read broadly prior to their entrance in school. This early reading ability, which is characteristic of the highly gifted child (Gross, 1993), enables the child to accumulate a greater amount of background knowledge and general information. Additionally, the ability to manipulate language at early age allows the highly gifted child a greater amount of time in the classroom to explore additional forms of learning while peers are focused on the acquisition of reading skills.

Differentiation practices

Differentiation of the curriculum as defined by Tomlinson (1995) “is proactive; more qualitative than quantitative; provides multiple approaches to content, process, and product;
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Student centered; a blend of whole-class, group and individual instruction and is organic” (pp. 8-10). These same differentiation strategies should be utilized for the highly gifted child. The importance and success of these strategies is looking at the individual needs of the child. One highly gifted child is not going to be the same as the next child, and the strategy or technique that worked for one may not work for the other.

“The primary intent of differentiated instruction is to maximize student capacity, when you can see (or you have a hunch) that a student can learn more deeply, move at a brisker pace or make more connections than instructional blueprints might suggest” (Tomlinson, 1995, p. 13). The reason for a teacher to differentiate the curriculum would be that children of varying skills and abilities are present in the classroom. By differentiating the curriculum, providing a variety of interesting topics, and placement into varying learning groups, the teacher can make sure that everyone improves and grows in key learning and skill areas. This is important within a homogenous classroom because the asynchronous development is present among gifted individuals. Therefore, the highly gifted child may be as out of place within a gifted classroom as is the gifted child in a regular classroom.

An initial assessment in all areas will provide the teacher or coordinator with valuable information about a starting point. However, the highly gifted child is likely to learn the new material more rapidly than his or her peers. This necessitates frequent follow up assessments with necessary adjustments in the curriculum. This test-instruct-retest method can best be compared to a radical form of curriculum compacting.

In addition to differentiation, a variety of forms of acceleration will likely be necessary to ensure the success of the highly gifted child. Often, the highly gifted child is subjected to a
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Single grade level acceleration. While this does, in many cases, meet the needs of a gifted child, a single grade level acceleration often further isolates the highly gifted child from an appropriate school experience. Single grade acceleration may address the content needs of the highly gifted child in some academic areas. It will not, however, address the issue of pace. Additionally, a highly gifted child with an exceptional ability in a given subject matter may find him or herself to already be significantly beyond the other students in the classroom.

An accelerated student who still finds him or herself at the “top” of the class not only suffers from inappropriate programming, he or she also confronts a complex social reality that affects not only his or her own personal development but the classroom community as a whole. In Dorothy Kennedy’s (2002) study of a highly gifted child in a regular classroom, she found the dynamics to be significantly impacted by the participation of the highly gifted child in the regular classroom as well as in pull-out experiences. Other students (and the teacher) found themselves looking to the highly gifted child as the expert, furthering his “separate” role rather than finding a true learning community. In many situations, radical acceleration in specific subjects (or across subjects) will be necessary to adequately meet the needs of the highly gifted child.

It is critical for the parents and teachers of the highly gifted child to recognize that intellectual differentiation should not come at a cost to the social or emotional needs of the child. “If a very gifted child is placed in the regular grades as far ahead of his age as his learning capacity warrants, the evils of social dislocation may result” (Hollingworth, 1997, p. 259).

In a self-contained gifted program it may be that the radical acceleration occurs in linear subjects such as mathematics and science, but that the highly gifted child remains with his or
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her age peers during humanities studies. This is often an appropriate solution because the study of literature and social change is reliant not only on background knowledge, skill and rapidity of acquisition of information, but also on life experience (Lewis, 2002).

Critical in the consideration of radical acceleration is the quality of teaching. Poor teaching, even when done by a brilliant scholar, highly gifted individual, or high level instructor such as a college professor, can still have a “deleterious effect” on the highly gifted child who is searching not only for access to content but to genuine instruction at their optimum learning level (Lewis, 2002). This is an important consideration when placing highly gifted students into classrooms. Content knowledge is important for the teacher so that interactions with the student are around high quality content, but the relationship with the teacher is also critical to the learning process. A teacher that has a true desire to be a lifelong learner can inspire the highly gifted child by demonstrating the learning process and desire to find new information. This characteristic is important, but does not replace the importance of a challenging curriculum.

Other options for radical acceleration include a mentor working with highly gifted students from several settings: perhaps students across ages in a school from the gifted, or students from several different gifted programs in a geographic area. This mentor would facilitate an additional form of acceleration in a specific content area while providing some opportunities for intellectual peers to work together.

The mentoring model highlights an additional form of differentiation that will be necessary for the highly gifted child in the gifted classroom. The need that gifted children have to connect with peers is equally important for the highly gifted child. We serve not only their
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intellecst but their developing social, emotional, and spiritual natures. What is critical in
programming for the highly gifted student is to recognize that true intellectual peers will be
rare and will come from varied backgrounds with a wide range of experiences and interest.
Trying to establish this level of relationship may be possible, but with a limited number of highly
gifted children to choose from in trying to match friendships and working relationships, it is
likely that an age-mate will have different interests, passions, and styles. Rather than seeking
age-mates, we need to focus our energy on establishing relationships built on specific interests
and needs. This enables the highly gifted child to form a variety of relationships that support his
or her intellectual, emotional, social and spiritual growth.

A highly gifted child with a keen interest in team sports should be encouraged to form
relationships based on this interest, hopefully with a same-age peer. This same child may form
a close relationship with a much older student or adult to explore ideas involving the use of
robotics in medicine or in creating a business plan for a non-profit agency. A relationship with a
family member may provide an outlet for this child’s creative spirit. What is critical is
recognizing the complexity of the highly gifted child’s needs and providing opportunities that
support the full development of their being.

Another strategy regularly employed to meet the needs of gifted children is cluster
grouping. This strategy can be effective for the highly gifted child as well, but it is often difficult
even in gifted schools to bring together a cluster of highly gifted children on a regular basis. An
additional challenge to bringing a group of highly gifted children together is the feeling of
“tiering” in terms of the level of giftedness. Some schools for the gifted have dealt with this
challenge by establishing interest-based before- and after-school clubs/classes, such as chess or
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genetics. Others pair students from several different schools within a geographic area, and still others try to establish e-mail/pen pal relationships with other highly gifted children around the world. The key to the success of cluster grouping for highly gifted children is the need to bring students together for more than a social interaction. This is often best accomplished by assessing student interests and passions, and then grouping students accordingly. Some small cluster groupings have been successful in meeting to deal specifically with issues related to student experiences as a highly gifted child in a gifted environment. These must be facilitated by a coordinator, teacher, or school psychologist who has a clear understanding of the specific needs of the highly gifted child.

Another differentiation option for the highly gifted student is the exploration of a personal passion through an independent study. While independent studies have frequently been employed in classrooms as a way to manage moderately gifted students, independent studies offer an excellent opportunity for personal growth and development in the highly gifted student. When done well, an independent study offers not only an opportunity to explore an area of interest at a high level, it also encourages the development of an internal locus of control as students become more autonomous in their own learning. Too often, independent studies have been utilized in much the same manner as “individualized reading.” The gifted child is sent off to read or research a topic independently, perhaps with guidance from the gifted coordinator or a parent, perhaps with support from a librarian. Little connection is made between the independent research and the child’s regular school program. Little focus is spent on the acquisition of high level research skills or primary resources/experiences.
A well-designed independent study allows students to explore a topic as an “expert in the field.” Again, opportunities for short-term mentorships or interview experiences enable students to interact with others who share their passions. Students have the opportunity to learn more not only about their topic, but also about the skills a researcher employs. These skills will serve the highly gifted child well both in other academic areas, but in their personal time as they continue to explore areas of interest. Rather than simply inspiring life-long learning, a comprehensive independent research program enables students to actualize this goal.

While the above strategies focus primarily on the student’s experience in the school environment, another key component of differentiation for the highly gifted student is that of parent involvement/education and counseling. Parents of the highly gifted confront unique issues, not only in acting as an advocate for their child in the educational realm, but also in their parenting. Many of these parents withdraw from the general school systems, turning either to home schooling or radical acceleration that requires a reorganization of the family system. While this may be the best option for the child, it further isolates parents who already feel that much that is written about parenting is not reflected in their own experiences. Parents need support for themselves, as well as structured guidelines for best meeting the needs of their child. Too many parents of highly gifted children find their needs diminished or disregarded even by those in the field of gifted education. The number of highly gifted children is so small that they are “statistically insignificant” (Tolan, 1992). Educators must find ways to serve the parents of the highly gifted in order to accurately serve the needs of the highly gifted child.
In addition to helping parents in their relationship with their highly gifted child, schools need to find a way to include a component which focuses specifically on the social and emotional needs, the whole child component. Too often programs focus on intellectual differentiation without giving much thought to the special psycho-social needs of the highly gifted child. While educators familiar with gifted children will be aware of the increased sensitivities of the moderately gifted child, what are the social-emotional characteristics of the highly gifted child? We have already discussed avenues for providing intellectual peers, but are their needs separate from this that should be addressed? Clearly highly gifted students need “opportunities for fuller realization of their predispositions and interest” (Pufal-Struzik, 1999, p. 6). This self-actualization process deals with issues such as self-knowledge, control, self-control, and the process of intellectual creativity (Pufal-Struzik, 1999). While teachers, coordinators, and parents certainly play a role in this process, the expertise of a counselor trained in working with issues related to giftedness can be of great benefit to a program serving the highly gifted child. Often opening lines of communication through informal one-on-one conversations will allow a counselor to guide the highly gifted child through the inevitable challenges they will face in their personal development.

The “more highly gifted the (child), the less likely they are to fit into a prearranged profile” (Lewis, 2002, p. 1). These children are so unique that decisions surrounding their learning need to be made on an individual basis. Even within a self-contained homogenous gifted classroom, the highly gifted child will need special programming. “It is easy to organize programs for gifted students on the assumption that one size fits all ... the success of programs for (highly) gifted students depends on a combination of subtle factors” (Lewis, 2002, p. 10).
The asynchrony of development within each individual child is of special importance when looking at the highly gifted. Parents and the school should work together to negotiate the best possible learning environment for the education of the child.

So, did we find the subtle combination of factors in handling Terra as she moved through her self-contained gifted program? Many of the modifications described throughout the article were utilized in trying to best serve Terra; more art than science, parents, teachers, and administrators worked together to try and ensure the academic and social/emotional success of this highly gifted child. Terra has participated outside of school in activities in areas of both high interest and exceptional talent; she has experienced a variety of cluster groupings designed to best meet her academic needs; she has participated in mentorship relationships in areas related to her strengths and remained with her age peers when exploring humanities content areas such as a specific history unit; Terra has received support in finding and maintaining a select group of peers while being reassured that to sometimes find herself in an asynchronous relationships with a peer is all right.

But the central question remains, have we successfully met Terra’s needs? As she completes applications for high school, struggling to find the best match in a geographic area that offers little to the gifted high school student—let alone the highly gifted high school student—there are clear indicators of her self-actualization. Her essay on poverty profoundly affects those who read it, both students and adults. Her confidence in her own being is apparent to all those who meet her. Her creativity is clearly apparent in many different areas. Ultimately, only Terra can tell us whether or not our attempts at differentiation were
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successful, but we believe that her writing gives us a glimpse into the effectiveness of these efforts.

And o the dreary night wears on,
Unyielding to the evening star,
With thought that precious light is gone,
The gleaming sun, it can’t be far

As oer the hills ascends the moon,
A branch sways in a quiet breeze,
A lone wolf cries its wistful tune,
The gentle rustle of the leaves

Alack the raven and the dove,
The chirping finch and starling song,
This pleasant melody above,
The darkness will not reign for long

O rise the sun that gives us life,
Cut darkness as if by knife
References


