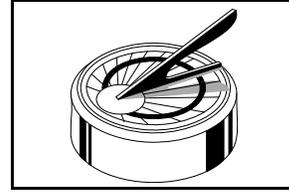


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Some examples are: ● Homeschooling – Many parents have decided to use this approach to providing a stimulating curriculum for their gifted children. Discussion groups on the Internet provide parents with support and suggestions for curriculum interventions and for dealing with social-emotional issues. ● Summer and after-school programs in mathematics, science and the performing arts – They offer gifted children some of the best teachers and advanced education in areas such as mathematics and science. ● Online Learning in grades K-12 and online education information services for students and parents – These World Wide Web sites represent one of the most promising efforts for helping students to take control of their own education. In this regard, I highly recommend the *National Society for the Gifted & Talented* web site at [www.nsgt.org](http://www.nsgt.org) which contains many independent learning and information programs such as The Renzulli Learning System. All of these end-run approaches to gifted education increase the number of appropriate learning opportunities for gifted students.

Joan Smutny has written a fascinating article on the education of gifted children who are very sensitive to moral and spiritual issues. She recently completed a summer program in the Chicago area that enrolled about 3,500 students. Her strong support of the gifted field and of parent advocacy places her among national leaders who are taking positive steps, in concert with parents and teachers, to improve gifted education programs. We appreciate her continued support of this periodical. The article by Yong S. Colen and his colleagues is a call for improved mathematics education for gifted students based upon their analysis of special Russian schools for the mathematically talented. He is a member of the mathematics department at Indiana University of Pennsylvania. Sarah Napolitan is enrolled in the school psychology program at this university, and Victoria Damiani is on the Educational and School Psychology faculty. Jinho Kim teaches in the mathematics department at Daegu National University of Education in South Korea. The third article in this issue by Eugene and Diana Avergon addresses the matter of art education for the gifted. Eugene holds an M.A. degree in sculpture from the University of Minnesota, Duluth, and has had an extensive career in working with gifted students in the Dumbach Scholars Program in Fine Arts at Loyola Academy, a Jesuit Secondary Education School, in the Chicago area. Diana has an M.A. degree in printmaking from the University of Wisconsin, Superior, and has been an administrator and art educator in private and public schools in the Midwest. Their combined interest in "the role of choice in art" has resulted in the publication of four Art by Choice books (Nasco, 2004) with a new release, Naturally Occurring Art by Choice, to come out in 2007. Michael Walters, a long time writer for *GEPQ*, completes this issue with his discussion of one of John Steinbeck's novels, The Grapes of Wrath (1939).

In football, the end-run is used to make progress toward the goal post. Educators of the gifted, parents and students are currently using many types of creative and productive end-runs to reach the goal of providing the best possible education for the gifted.

**Maurice D. Fisher, Ph.D. Publisher**

## Nurturing the Inner Strengths of Highly Intuitive and Sensitive Gifted Children

Joan Franklin Smutny National Louis University

When I was a child, I used to be really upset about the homeless people in our neighborhood. People would cross the street when they saw one and I would always give them any money I had. I can still remember the summer when I became afraid about the possibility of being homeless. My mom worked and we were ok, but I would look at these people and think, “that guy is someone’s son,” or “that lady had dreams once.” And it would just make me sad and afraid. So I used to plan out what I would do to *not* be homeless. I made a list of all the people who would probably give me a job and then I thought about where I could get shelter if I couldn’t afford an apartment right away. I just couldn’t stop thinking about it. While other people in my neighborhood were seeing them as some other species, I saw myself as one of them. –College student

We may never know how many gifted children lie awake at night confronting deep moral questions or how many project themselves into the future, as this girl did, looking for ways to avoid becoming homeless. Experiences and insights of such magnitude can shake the foundations of a child’s inner world.

A piano teacher once told me about a young child she taught, who, following a lesson one day, looked up at her and said, “I remember when I was in my mummy’s tummy.” The teacher nodded and said, “Oh? Is that so?” The child then said, “Yes, and I remember before that, too.” Exceptionally gifted in both music and languages, this child then recounted what he could remember about his life in some other place with other people before he “came here.” The piano teacher said that from the child’s point of view, he had arrived on earth much the same way as a person on a train and he described in detail where he’d come from in a casual but knowing way. She said: “I had no idea what to say to this amazing little child who was barely tall enough to reach the pedals, but I felt somehow that whether true or no, this boy was in touch with something much larger than himself and he knew it.” Within the next year, however, this remarkable child gradually fell silent on such subjects. Twenty years later, in a Ph.D. program in Quantum Physics, he felt the old child-like awe and wonder for things *unknown* return.

Edward Hoffman (1992) in *Visions of Innocence* conducted interviews with a number of adults who, in recalling early childhood experiences, revealed a rich inner world of spiritual insight and sensibility. They described such phenomena as feelings of profound joy, timelessness, oneness with nature, experiences with a life force, extraordinary inner convictions (sometimes contrary to adult belief systems), ability to enter non-ordinary states of consciousness, and a highly developed sense of self. At the same time, these sensitivities are apt to also bring disappointment or sadness when these children look at the moral failings of human beings. Hollingworth (1942) shared an example of a boy of nine who “wept bitterly at how the North taxed the South after the Civil War” (pg. 281). Lovecky (1997) described a child of six who befriended and bravely defended a developmentally disabled student of 12 who was tormented by the teasing of his peers.

Clearly, gifted children with enhanced intellectual powers are in an ideal position to understand complex moral questions. A young child whose knowledge about the ever-expanding

universe leads him to deeper questions about eternity or infinity would not be able to do so without these intellectual gifts. But with these gifts come a broad range of emotional, sensory and intuitive gifts that deal not merely with thoughts about the universe, but with ethics, compassion, kindness, intuition, artistry, inspiration, joy, and so forth. The following list reveals a broad range of the characteristics commonly seen among this population:

- Interested in philosophical questions way in advance of their years;
- Paralyzed by the intensity of their feelings in the presence of injustice, cruelty, self-centeredness;
- Inspired by a sense of the wholeness of life (encompassing all beings and the universe) and feeling part of this large whole;
- Subject to an acute sense of vulnerability in the world due to feeling “different” from peers and to difficult experiences in school;
- Profoundly affected by daily experience and inclined to plumb its meaning to the depths;
- Possessed of a highly developed moral understanding and strong convictions about fundamental principles (such as the right to a free trial);
- Acutely intuitive about human and animal behavior;
- Deeply drawn toward the creative, artistic and the imaginative;
- Interested in unexplained phenomena—UFOs, telepathic abilities, near-death-experiences, visions of the future, etc.;
- Highly sensitive and compassionate toward others, particularly toward those who are mistreated, troubled or unhappy;
- Able to take strong, courageous stands about ethical issues based on well reasoned arguments for doing so and in spite of opposition.

### The Struggle

Sensitive gifted children face a dilemma. On the one hand, they have this special gift that links them to a larger sense of life and being. On the other hand, many of them are ushered into this awareness without the emotional maturity or life experience to cope with it. The now familiar phenomenon known as “asynchrony” makes a child seem like 25 in metaphysical

understanding and six in emotional maturity (Webb, Meckstroth & Tolan, 1982; Gross, 1993; Lovecky, 1997). A seven-year-old talks about the nature of consciousness at one moment and weeps over a missing toy the next. A 10-year-old asks if humans “can evolve into a kinder species than the ‘moral Neanderthals’ they are now” while watching Sponge Bob on cable television.

These children receive insights and impressions at an age when they can’t fully process what they mean, let alone explain their experience to an adult. What does such a child do? In this case and in many like it, the child keeps her thoughts to herself. Children such as these are usually out of synch with peers and sometimes with their own families as well. Families who hold strongly held views about religion, for example, find it difficult to debate with their own child about issues they themselves never questioned. A child senses connections between physics and spirituality and consequently starts examining Bible stories through the lens of quantum physics. Because of the mixed responses she gets from family members, she keeps this project to herself.

The other challenge these children face comes with their entrance into school. A young girl who paints the “spirit face” of animals and people discovers, with a jolt, that the other kids have no idea what she’s doing. “You know,” she explains, “there is the face that we see with our eyes and then there is the other one.” She shows pictures of her cat on four different days with the second face painted over the first like an otherworldly being. There is no response. The child immediately senses the gulf between what she sees, senses, and intuitively and the physical here-and-now world of her classmates.

For these spiritually gifted children, metaphysics is a common preoccupation. The domain of the spirit affects their whole being—the way they learn, love, connect to the world, form relationships. It is a sad day when they discover that their peers don’t stare out the window at the pigeons and wonder if being a bird would improve the feeling of life. They don’t concern themselves with the concept of compassion for animals and how this relates to living in harmony with all life. They don’t beg their parents to go to the art museum where they can disappear into the scenery of a Turner or Constable painting. They don’t devour stories by people who had near-death experiences and wonder if they could “see” their deceased grandparents by changing their state of mind. When these children awaken to the fact that those around them don’t occupy the same spiritual domain as they do, they may decide to let that domain go.

### **The Fork in the Road**

In order to really *belong* to their families, friends and community, many gifted students feel they have to make a choice between this sensibility and the more material sense of living and being that surrounds them. The “overexcitabilities” (Dabrowski 1979/1994) make them “delicate, gentle, sensitive, empathic, nonaggressive, industrious, wise though unsophisticated, never brutal, often inhibited, likely to withdraw, into themselves rather than retaliate, having deep feelings,

idealistic” (pp. 87-90). With these qualities, they have the potential to bring humanity to a higher moral and spiritual plane, but the aggressive, materialistic society doesn’t welcome them. They sense this and often withdraw from their own gifts in order to get along in the world.

But, becoming more like the rest of the world carries a high price: alienation from the most precious part of themselves. They act in one of two ways: they either pretend to be like everyone else and keep their pondering and questioning to themselves or they decide that the spiritual domain is unrealistic and silly—a thing to outgrow. Whatever the choice, most of these spiritually gifted people sense the loss at one time or another.

As a child, I can remember feeling so close to nature, so close to my love for painting and for the divine—what Rachel Carson called the “sense of wonder.” All of that dwindled away. I can’t remember the day or the event that made this happen. I think that, as a kid who performed well academically, I got pulled in other directions and bit by bit, the demands and concerns over grades and success and getting ahead chipped away at my more philosophical side until I just let it go. I remember experiencing this as a loss but I told myself that I had to get my priorities straight and there were pressing things to do. Always, there were pressing things to do! And in the distraction and bustle of school and research and work, I stopped hearing my own voice. In the end, as happens, my own voice actually stopped speaking, even in the silence. Now, interestingly, I’m following my inner voice again and returning to the rich, mystical world of my childhood.  
—Ph.D. candidate

### **Honoring the Child’s Experience**

Highly sensitive gifted children often have no one with whom they can share their deepest ponderings. When they do and an adult says, “Oh that’s silly” or peers shrug their shoulders and quip, “You are seriously weird!” they begin to dissociate themselves from their gift. They reject the more intuitive, sensitive, metaphysical part of themselves as something they must overcome or outgrow.

Parents and teachers I know who want to prevent such a tragedy from occurring have come up with these guidelines—

**Always assume that a gifted child entertains broader questions about life.** Express genuine interest in their thoughts and feelings. Explore the child’s paintings, poems or stories; ask what they mean by certain comments or what made them ask a certain question. When a sudden change has occurred in the child’s life (divorce, new baby, change of address, loss of a beloved relative or pet, etc.), try to discover how the child is processing this change. The same principle goes for national or international crises such as war, the tsunami and so forth. Express to the child your own interest in and openness to their

thoughts and questions about any subject. Adults can so easily miss the sign of a child's struggle by not looking for it:

A second grade girl whose parents had just divorced spent months worrying that they might suddenly stop loving her as well and shocked her father when she said: "If I knew that people don't love forever before I was born, maybe I could've asked to be a dog instead and live with Boris [their Doberman Pinscher]!" The father laughed along with the child, but the child wasn't really joking. And though the father responded by hugging his daughter and affirming the love that both he and her mother would always have for her, this response did not address the questions in her mind. She continued to harbor troubled thoughts around the changeableness of human love. What is it, she thought, that inspires love between people and what ends it or changes it into something else? What is love?

**Be open in discussing complex moral or metaphysical questions.** Try not to express any sense of finality on a subject that the child finds troubling. Overly simple answers to complex subjects—the reason for criminal behavior, the possibilities of life beyond the grave, the lack of kindness in some kids at school, the meaning behind disasters like a tsunami—will only push him away. The child, being a sensitive and intuitive person, will detect that he's hit a nerve and either retreat from the adults or pretend to agree. It's better to support the child's own process of discovery, sharing personal philosophies without any need to resolve every issue or close down the questioning. When adults say, "I can see why you would think/feel that way, but here's another way to look at this question..." the child feels that he has someone to talk to, someone who understands his quest for meaning. Sharing personal convictions or philosophies in this fashion helps the child to identify areas of confusion or concern and will lead to more dialog.

Einstein has excellent advice here:

The important thing is not to stop questioning. Curiosity has its own reason for existing. One cannot help but be in awe when he contemplates the mysteries of eternity, of life, of the marvelous structure of reality. It is enough if one tries merely to comprehend a little of this mystery every day. Never lose a holy curiosity. —Albert Einstein  
(see more quotes by Einstein at:  
[www.simpletoremember.com/vitals/einstein.htm](http://www.simpletoremember.com/vitals/einstein.htm).)

**Celebrate curiosity and discovery.** Help gifted children engage in these larger-than-life issues with a sense of joy and adventure. Share insights, experiences and quotes from a wide variety of thinkers (past and present), all speaking to the subject of what they have discovered about living and how they approach their challenges. Present the spiritual quest—whether this be a quest for beauty, artistry, philosophy of nature, the purpose for being in the world, compassion for animals, the wholeness of all life, and so forth—as a series of discoveries

and insights, each leading to new questions which lead to further discoveries. Instill the hope of finding more answers, but also the delight in the unknown as the place of future learning. Classes in my gifted programs provide this kind of support. Teachers share their own "sense of wonder" over a phenomenon yet to be fully understood and provide creative avenues for gifted students to express their own deeply felt intuitions and feelings. Here is an example from the pen of a gifted seventh grader from Chicago:

Standing, standing  
is where I stand.  
Sitting, sitting;  
I think I'm lost.  
There, there  
is far away.  
Walking, walking,  
toward my goal.  
My life, life,  
I grasp, I hold.  
Running, running,  
far away.  
I've got to get  
away from here.  
  
Hoping, hoping,  
for a new day.  
I always want, want,  
what I can't have.  
Asking, asking,  
for what will never come.  
I cry, cry,  
to my pillow at night.  
Choke, choking.  
I'm sorry.  
I got nervous.  
Finally, finally,  
windows have to show me  
that the sky is still clear.

—Jarrel, grade 7

### Cultivating Resiliency

Intuitive, sensitive gifted children need practical tools for living in this world. Their high sensibilities prevent them from tuning out the complex sensations that strike them from every side. They feel intensely vulnerable and raw to every jibe (real or imagined), every change in the atmosphere, every image of violence or cruelty, every assignment that confines or restricts. They react dramatically to their own and others' failings and are apt to abandon their most promising work over minor flaws. Over time, such children can become resigned and even dysfunctional.

The need here is to nurture the *inner* resources of gifted children which are the best defense against any assault on their individuality. The following are several strategies that I've seen work well for families of gifted children.

**1. Focus on the present.** A child comes home with stories of insensitive peers or of assignments that leave them empty and spiritless and parents wonder if their child will ever survive in this world. It's important for both parent and child to focus on coping only with what's in front of them right *now*—this day's difficulties, this day's responsibilities. To a child who says, "The kids in my group are mean to me; I can't get through a whole year!" a helpful response would be: "You only need to get through this one day; we can all survive one day." There is a remarkable freedom here. Staying focused on the present opens up the possibilities of the present—choices to make, problems to solve, opportunities to explore.

**2. Highlight the good.** To children with high sensibilities, the world is an intensely vivid and dramatic place. With little effort, they can become overwhelmed by the negative aspects of life. Taking an honest stock of the good in their lives (family and friends, opportunities, material comforts of a home, etc.) is the only way to tackle problems. Otherwise they are stuck in a cycle of deficiency where all they feel is what they *lack*. Remembering even a moment in their day when someone was kind to them or when an assignment inspired them will bring a measure of strength. Some parents I know have their child do this in different ways—through daily lists, conversations, paintings, drawings or creative writing. Spiritually sensitive children are often introspective by nature and benefit from any exercise where they can explore their strengths, their needs, interests and learning styles.

**3. Celebrate bravery and persistence.** Adults should celebrate the children whenever they successfully cope with a difficult situation. Some parents promise a special treat for their children in advance. They might take a child out to lunch at his favorite restaurant as a reward for sticking up for himself in a difficult group project, or arrange for him to meet all the animals at the local nature center after a week of controlling his temper in a class dominated by bullies. Thoughtful attention definitely softens the hardship of a bad year or a difficult episode. The children feel acknowledged and celebrated for the qualities that will help them become resilient defenders of their own path. When a teacher I know saw one of her struggling gifted children comfort an unpopular child, even though this brought him a lot of grief from other students, she took him aside and thanked him in private. She would remind him of this incident whenever he became nervous or held himself back. To his adulthood, he would remember her saying, "You're a brave soul, Jeremy and you can call on it whenever you need it." In this and many other ways, children gain strength by valuing what really matters to them and by living their most cherished ideals. "To thine own self be true" should be a constant guide to gifted children.

**4. Create a sense of community.** Gifted children have the same need for community that everyone else has. A teacher once had a Mexican student whose writing was so in advance of the other students that she jokingly told her father that she expected to see her published any day. He smiled and said, "Isabel comes from a long line of great storytellers, you know; I always tell her that what's inside her is a whole family of people who walked their own path, telling stories to anyone who

would listen." This highly gifted writer has a strong sense of belonging; her gift connects her with other storytellers in her extended family and with a cultural community that values what she does.

It's important to help these children find a community of people with whom they can share interests, support, and true friendship. The friends may range from little children to adults from all walks and ways of life. They may form a close bond with the school custodian or with a younger child who has similar interests. They may enjoy a lasting correspondence with a researcher they met through the internet or a group of high-schoolers who belong to an ecology club. Anything that parents and teachers can do to help their children meet like minded people will buoy them up during difficult times.

**5. Nurture humor.** Light-heartedness is a powerful force. Highly sensitive gifted students often possess more than a usual amount of wit, but they need to awaken to it as a source of strength. They expect a great deal from themselves and others and consequently chafe against human failings. Many of them are such perfectionists and make such large demands on themselves that even a minor problem feels like a catastrophe. Parents can help their children see problems in a more humorous way by pointing out the ridiculous from time to time. I have known parents who had their distraught child create a cartoon about what happened at school one day, write a limerick about a grumpy principal, or do humorous imitations of corrupt politicians. Humor brings joy and joy will save these students from feeling victimized or defeated.

### **A Final Note**

We have all met people whose extraordinary gifts are surpassed only by their extraordinary ability to wander through life like lost souls, who leave trails of unfinished projects and failed dreams behind them. They always have excuses—the various assaults on their sensibilities, the demands on their time, their disorganized and fragmented environments, their lack of support from family or friends. Their high sensitivity keeps them from completing anything. Their self-doubt sends them into a tail spin every time someone seems less than understanding or compassionate.

These are gifted people who've never learned coping skills, never realized the power of resiliency. They've had little experience addressing their sensitivities and problems practically, either because the adults in their lives "fixed" all their problems for them or neglected their children's need for inner strength and power. Helping these unique gifted children—with all their intensities, sensibilities and complexities—be themselves in a world that doesn't understand them much of the time will take them far in life. No one has expressed this better than a highly gifted adult who wrote the following:

To have plenty of opportunities for using your talents is a wonderful thing. To have people who support you when you're down is a blessing not to be forgotten. But to be shown how to survive, how to recognize and face the enemies of your finest qualities, and fight, fight, fight for what you believe in and what you would like to be and do is a priceless gift that no one and nothing can take away. This is the crowning glory.

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## **Gifted Elementary Mathematics Education in Russia and the United States**

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### **Introduction**

As each school has a different approach to gifted education, so does each country. This article reviews and contrasts current trends in second grade, gifted mathematics programs and curricula in both Russia and the United States. In particular, the reader will be introduced to second grade, gifted education curricula in Russia, the history of its gifted education, and School 30 in St. Petersburg, a school specifically chartered to provide gifted mathematics education for elementary students. Furthermore, an overview of the gifted mathematics programs, relating to distance education courses, day programs, and specialized magnet schools, offered by different states in the United States for second graders will be explored. A comparison and contrast of American and Russian gifted mathematics programs and curricula at the elementary level will be provided as well.

### **American Gifted Elementary Mathematics Education**

A comprehensive list of schools for the gifted on the "Hoagie's Gifted Education" website in the United States names 62 public, private, and magnet schools that cater specifically to gifted elementary school students (2005). Many of these American schools specialize in areas such as art and music, accommodate principally to those students who are twice exceptional, or emphasize a group of specific subjects like mathematics,

sciences, and technology, as opposed to focusing exclusively on one subject ("Hoagie's Gifted," 2005).

Several types of mathematics curricula, varying from online courses and day programs to special schools, are offered to gifted second graders throughout the United States (Education Program for Gifted Youth, 2005; "Hoagie's Gifted," 2005; Johns Hopkins University, 2005; State of the States, 2003). Distance education programs have been developed primarily for second grade students in the United States who are mathematically gifted. The Stanford University's Education Program for Gifted Youth (EPGY) offers K-12 mathematics curriculum, and its accelerated K-2 level is designed to introduce students to the number system and the fundamental arithmetic concepts. The curriculum in this course is strand-based and focuses on sets, arithmetic, fractions, geometry, and measurement (EPGY, 2005). In this program students electronically submit their work to instructors for review, and if a student has difficulties with the material, instructors are available by phone or email for consultation (EPGY, 2005).

Similarly, precocious students in second grade receive challenging lessons provided by the Johns Hopkins University's CTY (The Center for Talented Youth) program. This online program, which begins at second grade, has instructors working with children via email and has children working in discussion rooms with other CTY distance learners (Johns Hopkins

University, 2005). The content consists of numbers and number theory, geometry, fractions, time, measurement, money exchanges, and multiplication (Johns Hopkins University, 2005). Both EPGY and CTY are individually paced for the students and often utilize interactive CD-ROMS and videos.

On-site day programs, most often held in the summer, are offered by countless schools and centers across the country. CTY offers a 15-day program exclusively devoted to mathematics for second graders, and its curriculum focuses on the history of mathematics by examining various cultures and their mathematical advancements. For example, by studying the Greek culture and an individual like Thales, watching a video about the life of Pythagoras, and proving the Pythagorean Theorem, students learn the Golden Mean, Fibonacci number sequence, Pi, and other unique mathematical discoveries (Johns Hopkins University, 2005).

Several magnet schools that focus on a combined emphasis of mathematics, sciences, and technology cater directly to an early elementary population who show high aptitude in mathematics. Andrew A. Robinson Elementary School in Jacksonville, Florida is a K-5 magnet school with a focus in mathematics, sciences and pre-engineering (Duval, 2005). The school has a reported enrollment of approximately 500 and provides a strong emphasis in mathematics education for its students.

The Casita Center, a magnet school in Vista, California, also provides a strong focus in mathematics, sciences, and technology to its students in grades K-5. Its mathematics curriculum centers entirely on hands-on discoveries and applications in real-life situations (Casita, 2005). More specifically, in order to develop students' problem-solving tools, the curriculum consists of simulations, Lego creations, simple machine constructions, and the usage of computers and technology (Casita, 2005).

Lastly, the Osceola Magnet School of Mathematics and Science is a K-5 school in Vero Beach, Florida. In second grade students use the Scott Foresman-Addison Wesley mathematics curriculum, a hands-on approach with practice involving games, investigations, and daily activities that require the development and use of higher-level thinking skills. In addition to the in-class component, students have an opportunity to participate in an after-school, enrichment program called "Sunshine Math" (Osceola, 2004).

### **A Glimpse of the American Gifted System**

"The State of the States" (2003) was a survey conducted in 2001 by the Council of State Directors of Programs for the Gifted and the National Association for Gifted Children in order to acquire information about the nature of the gifted services each state was providing to its respective students. This survey was distributed to all 50 states, and its areas included: state agencies, state definitions of giftedness, state mandates and required procedures, identification, programming and accountability, personnel preparation, and state and national funding (State of the States, 2003).

The survey results reported below illustrate the states' responses concerning services provided by Local Education Agencies (LEAs). The percentage of LEAs within a particular state that provided services of any sort to its gifted students ranged from 0% to 100%.

The bulleted numbers indicate thirty-eight respondent states to the survey question relating to services provided to second graders:

- 15 states – 80-100% of LEAs provided services
- 2 states – 60-79% of LEAs provided services
- 3 states – 40-59% of LEAs provided services
- 4 states – 20-39% of LEAs provided services
- 8 states – 1-19% of LEAs provided services
- 6 states – 0% of LEAs provided services (State of the States, 2003).

Moreover, according to the survey, "28 states indicated that identification [of gifted students] occurred during grades 2, 4, 5, and 6" (State of the States, 2003, p.66). Illinois, New Jersey, Wisconsin, Wyoming, and Washington, D.C. reported that they did not provide any services at second grade (State of the States, 2003). When asked about their top three methods of delivery of services to their K-3 gifted students, only two states named specialized magnet schools (State of the States, 2003). At the high school level, sixteen states reported having special schools of mathematics and sciences for their gifted students (State of the States, 2003).

### **What Experts Suggest**

According to Gavin (2004), students who are highly gifted in mathematics do need a separate mathematics program, but they also need the opportunity to engage in mathematical discourse and to come together in small groups to meet with their teacher on a weekly basis. Another vital element in a gifted mathematics curriculum is that students should be involved in determining the essence of the curriculum (Ediger, 1994). Offering flexible grouping or flexible pacing are other important factors of gifted mathematics education (Gavin, 2004). In addition, gifted students are more challenged when an open-ended approach is used by the teacher, and he or she is viewed as someone who assists and encourages yet does not lecture (Ediger, 1994).

The distance education programs offered in the United States are much more of a teacher-learner model than that recommended by Ediger, although the computer-based format of presenting information and encouraging the learning of technological skills through computer use is something that has been thought highly of in gifted mathematics education (Ediger, 2004). According to Johnson (1994), six key elements for a curriculum for mathematically talented students include: having a large scope of content, presenting that content at a greater depth, presenting the content with a discovery orientation that allows for

exploration, focusing on problem solving, using a metacognitive approach, and connecting the mathematics to other disciplines.

Assouline and Lupkowski-Shoplik (2003) suggest that American public schools may accelerate students in mathematics so that they have access to more fast-paced materials, but this still does not meet all requirements for an adequate mathematics curriculum for gifted students. In fact, accelerated students in public schools could face many disadvantages, such as, the possibility of too little new content coverage, materials that are too slow-paced, and the likelihood of “running out of math” before they graduate from high school (Assouline & Lupkowski-Shoplik, 2003). American students enrolled in schools for the gifted may face the same problems as public school students if the curriculum does not cater to the mathematical talents.

### **Russian Gifted Elementary Mathematics Education**

In the late 1950's, a group of Russian mathematicians and scientists signed an open letter advocating specialized schools for gifted Russian children in the fields of mathematics and sciences. As a result, several boarding schools and day schools opened, each partnering with a respective Russian university (Donoghue, Karp & Vogeli, 2000). One mission of these schools was to prepare the world's future scientific leaders in order to advance the Russian interests. The special schools thrived and catered to gifted children ages 7 to 11. (Formal education in Russia does not begin until a child reaches 7 or older.) Three-fourths of Russian mathematicians are graduates of these special schools. However, the government-imposed sanctions on the schools caused them to decline in the 1980's. Today, many gifted schools in Russia receive valuable funding from their graduates in order to continue their other mission: to provide special education opportunities (Donoghue, Karp & Vogeli, 2000).

Russian special schools for the mathematically gifted are not composed of prodigies but of children who have a higher than average interest and ability in mathematics. Typically, to enroll in the special school, prospective students must undergo a rigorous, two-part application process. First, any age-appropriate child, male or female, who would like to participate in the program, is permitted to take a qualifying exam. Those who pass the exam must partake in the second selection phase, the pre-entrance interview sessions, in which they are closely observed. Usually, only 30% to 50% of the pre-entrance interview group become selected students.

This is one of the many ways Russian gifted education differs from American gifted education. While Russia may often use a translated Stanford-Binet or translated Torrance Tests of Creative Thinking, it is this rigorous application process and testing that serves as the gateway to these specialized schools as opposed to the American method of IQ testing, which often includes a standardized testing procedure (Dorfman, 2000). A second type of Russian specialized gifted school has a focus on

language, folklore, art, ballet, philosophy, and music and utilizes some of the aforementioned tests to screen its students (Dorfman, 2000). The following description of School 30, a Russian specialized school for mathematically gifted children in K-2, provides a window into the rigor of the curriculum within these schools.

### **A Russian Gifted Elementary Mathematics Lesson: A Visit to School 30**

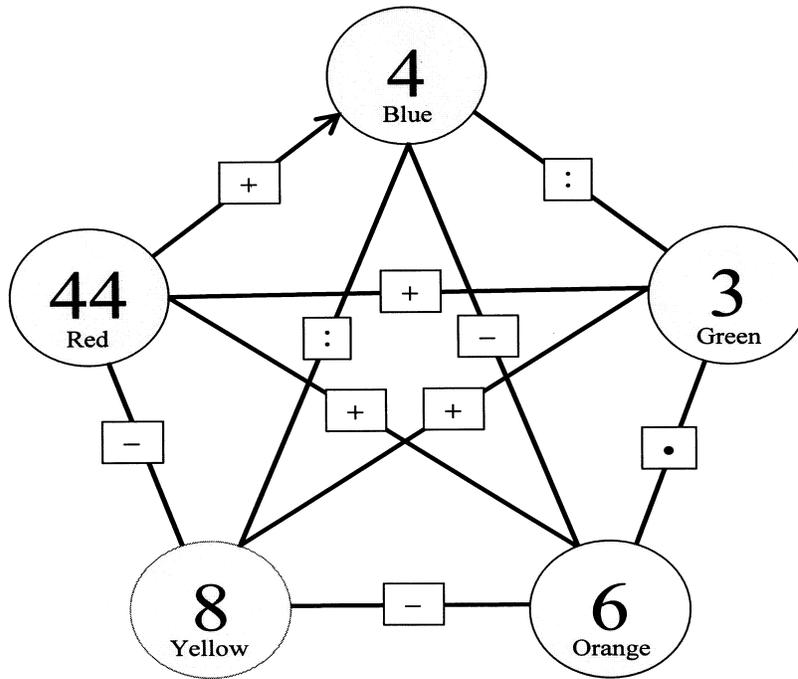
In November 2000, twelve graduate students in the mathematics education program from Teachers College at Columbia University participated in a study trip to Russia. Their primary objective was to examine School 30, an elementary school of advanced mathematics learning. To gain a better understanding of Russian mathematics education, they also met with policymakers, including the President of the University of the Pedagogical Mastery, and the Chief Officer of the Ministry of Education responsible for mathematics teaching. The following is a report from a member of that visiting group.

Upon the study group's entrance to School 30, the students, dressed neatly in uniforms, stood up promptly, turned around, and bowed slightly to recognize our presence. St. Petersburg is very cold in November, and even inside the school building, everyone in the group kept their coats on throughout the visit. The classroom was arranged in rows of desks in which a pair of students can sit together. The large windows let in the natural light in order to conserve energy, and the only blackboard, located in front of the class, had additional lights—this way the teacher could turn on the blackboard lights in the afternoon to “highlight” the lesson.

The teacher begins the lesson by displaying a diagram on the board. (Its duplicate, Diagram 1, is shown on p. 9.) The diagram contains five colored vertices (44, 4, 3, 6, 8), and the ten edges represent the four operations (+, -, ●, :). In Russia students utilize ● and : symbols to represent multiplication and division respectively. The teacher begins at vertex 44 (hence the arrow) and demonstrates a circuit by connecting to the vertices 4, 3, 8, 6 and back to 44 in order. This, in essence, represents a Hamiltonian circuit, i.e., “a tour . . . that starts at a vertex of a graph and visits each vertex once and only once, returning to where it started, is called a Hamiltonian circuit.” (COMAP 2003, p. 33). She asks the students to write an arithmetic expression that represents this circuit. Secondly, she asks them to simplify the expression by applying the operations in order of appearance.

Having given time for individual work, she calls on a student to share his work. He writes  $44 + 4 : 3 + 8 - 6 + 44$  on the board. Several students raise their hands quickly; yet, the teacher seems to ponder deliberately. Eventually, she calls on a student who exclaims, “There is a need to group 44 and 4 since the

**Diagram 1**



omission of this would lead to the traditional order of operations.” At this point the first student pauses before revising the expression to  $(44 + 4) : 3 + 8 - 6 + 44$  and correctly writing the answer 62.

The teacher then guides the students to represent the circuit in an alternative way (tree diagram). She starts with a red bead (representing vertex 44) and asks them what color should follow next. Concurring with their input, she puts the blue bead on the second level. She elicits the remaining colors to represent the circuit; the students answer, “green, yellow, orange, and red.”

While still focused on the tree diagram, she asks for another possible path starting with the red-blue-green sequence. The students answer, “orange, yellow, and red,” to complete the R-B-G-O-Y-R path. Moreover, the teacher repeats the previous instruction of formulating and simplifying the expression of the path. At this point the students turn to the first diagram (Diagram 1) to collect the needed information. After about a minute, another volunteer writes on the board:

$$(44 + 4) : 3 \cdot 6 - 8 - 44 = 44 .$$

When directed to formulate and simplify the rest of the circuits, the students first complete the tree diagram. After working on the remaining expressions, four students write the following solutions on the board:

$$(44 + 4 - 6) \cdot 3 + 8 - 44 = 90. \quad [\text{R-B-O-G-Y-R Path}]$$

$$44 + 4 - 6 - 8 + 3 + 44 = 81. \quad [\text{R-B-O-Y-G-R Path}]$$

$$((44 + 4) : 8 + 3) \cdot 6 + 44 = 98. \quad [\text{R-B-Y-G-O-R Path}]$$

$$((44 + 4) : 8 - 6) \cdot 3 + 44 = 44. \quad [\text{R-B-Y-O-G-R Path}]$$

By all accounts the study group felt the teacher presented a creative, cohesive lesson that incorporated the concepts of the Hamiltonian circuit, the tree diagram, and formulating and simplifying complex arithmetic expressions. The lesson was initially challenging due to the unorthodox direction that the students had to simplify the expressions “in order of appearance.” When asked how she had conceived the idea of the lesson, she responded she had collaborated frequently with fellow teachers in formulating this and other lessons. In *Knowing And Teaching Elementary Mathematics: Teachers’ Understanding of Fundamental Mathematics in China and the United States*, Ma (1999) underscores the continued cooperative spirit among Chinese teachers as one of the most striking differences vis-à-vis the U.S. teachers. In short, the teacher taught a polished lesson partly due to collegial planning.

Furthermore, our group was amazed at the level of sophisticated mathematics the second graders had performed and how well disciplined they were. All students worked eagerly without the aid of the calculator, and they were on task at all times. (Our presence provided an opportunity to be off task—but this only briefly.) Students’ ability to explain succinctly in front of the class provided another noticeable contrast to the group’s prior experience.

## What Can We Learn?

In light of the current state of elementary mathematics education, Silver (1998) states that “the U.S. school mathematics curriculum is not sufficiently demanding.” The recent *TIMSS 2003 Technical Report* (Trends in International Mathematics and Science Study) depicts continued mediocre mathematics performance by the U.S. students (Martin, Mullis & Chrostowski, 2004).

Unfortunately, our mathematically gifted students are embedded within this culture of mediocrity. Much progress has been made in developing curricula for American gifted elementary mathematics education; yet, according to several researchers, not much of the curricula is being implemented into the distance education courses, day programs, and specialized magnet schools for American K-2 gifted students (Ediger, 1994).

To achieve a higher plane of mathematical learning among mathematically gifted students, the education community needs to foster their ability much earlier than the traditionally accepted secondary school level. While schools like North Carolina School of Science and Mathematics promote advanced mathematical learning, it is a lost opportunity to not foster children’s innate mathematical ability much sooner. Perhaps we should heed Seeley’s call that “students deserve, and society demands, that we also support and advance our most able students.” (2005). Tondeur (2005), former Director of the Division of Mathematical Sciences, NSF, strongly believes that “many mathematics and science education innovations are not tested in pilot programs for future widespread implementation in our faltering public schools. . . . We are not investing enough in people.” Furthermore, James Bryant Conant, a former Harvard president and philosopher of education, noted some years ago in *The Child, the Parent, and the State*:

Some teachers and administrators object at once to any line of argument which starts with such phrases as “the nation needs today.” Their attention has been centered so long on the unfolding of the individuality of each child that they automatically resist any idea that a new national concern might be an important factor in planning a program (Parini, 2005, p. 144).

In sum, pulled-out enrichments, acceleration into higher levels, online resources, and summer gifted programs do not meet the needs of our most precocious students (Assouline & Lupkowski-Shoplik, 2003; Ediger, 1994; Gavin, 2003; Seeley, 2005). Our communities, educators, and policymakers need to support School 30’s where mathematically gifted students, regardless of their sex, socioeconomic status, or race, can thrive.

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## **Choosing a Domain, Looking for a Mentor: A Research and Painting Project**

**Eugene Avergon Diana Avergon  
Art by Choice Books Fletcher, North Carolina**

Art in the high school curriculum is frequently thought of as an extra subject. It is not necessarily viewed as being as structured as those areas of study such as math and language. The art room often becomes attractive to students who excel in an area other than traditional academics. Consequently, art classes can often offer opportunities for building confidence in students who might not have achieved academic success.

As the gifted learner is most often motivated by the challenge of mastering a body of knowledge (domain), the visual arts classroom, in this context, needs addressing. Ellen Winner speaks about the gifted learner's experience with two-dimensional work and also with composition. "*The core ability of the visually artistic child is a visual-spatial-motor precocity that makes it possible to capture the contour of three-dimensional objects on a two-dimensional surface....*" and also "...exceptional non representational skill with design, form and color also occurs in children who draw precociously."<sup>1</sup>

The question might arise, "What are some of the best ways to introduce art disciplines in a gifted setting?" As a research and painting project, two areas will be put forth – the mastering of a domain and the use of mentors. In mastering a body of knowledge, we need to look at art curricula in which this is inherent. Drawing is governed by rules and therefore meets the "mastering of a domain" criteria. Painting becomes more complex because of its many and varied group styles (movements, isms). In a group painting style, a gifted learner can find a rich and compelling body of knowledge about the subject, including well known paintings to look at. For example, in Photorealism, the characteristics are those of photographic realism, commonplace subject matter and precise painting. The portraits of contemporary painter Chuck Close, just to name one artist, come to mind. In looking at Op Art, commonalities in style include abstract shapes and specific colors, arranged in variations to create many different types of optical illusions. Along with other significant artists, Briget Riley is well known for her black and white Op Art works.

Mentors are important to the artistically gifted student. Many artistically gifted children mention artists who have inspired them as mentors.<sup>2</sup> The study of a painting movement puts one in touch with its artists. An artist, even if many times removed, can serve as a mentor on the basis of intellectual parallelism. Intellectual parallelism can be described as one person working in a parallel way to another person, from recent or past history. Unlike copying, which is rote, it is the study of the form and content of another's work through emulation of the mentor's characteristic style, and finding one's own style in the encounter. Mentors can provide a powerful incentive for carrying forward one's own work.

Essential in this research and painting project is the employment of a differentiated classroom. A flexible approach to both curricular differentiation and the use of school time needs to be set. Visual arts standards will be in place while the emphasis will be centered on individual learning modes. Giving students choices as to the outcome of an assignment has been spoken of as one of the differentiating strategies.<sup>3</sup> Choice, henceforth, will be used as a motivating factor. Standards, which encompass the elements of art and the principles of design, are inherent in the research time and in the creative painting process. These standards, worked through with one's instructor or in pairs or groups, are ideally discussed during the processing and critique portion of a lesson. Individually chosen domains and mastery can be looked at, mentors can be revealed and personal painting styles can be viewed as works of art.

The definition of "style" needs to be addressed. One's personal style can be described as what one favors, one's fashion, distinction, the outpouring of one's essential nature. This, of course, shows up in myriad ways in various aspects of life. In painting, style can be looked upon as one's characteristic features (form, content, arrangement) manifested in creative expression. When several or more artists share, or have in common, certain features (such as painting from a photograph in a realistic way), such works can be categorized as being a group style (Photorealism). As previously mentioned, group styles are also known as "movements" and "isms."

Flexibility, as being an aspect of curricular differentiation, shows up in art education as essential to the creative process. The importance of using choice as a creative element is that one does one's own research, initiates personal decisions and draws one's own conclusions.

Criteria for doing a research and painting project can be addressed in three phases – the preliminary research phase, the painting procedure and the wrap up processing portion of the lesson, which includes critique. Each phase can serve as an opportunity to explore the domain.

### **Research:**

1. What are the group painting styles that I have found?
2. Which painting style appeals to me? Is there a mentor within this movement?
3. Can the characteristic components of this group style be identified?
4. Does this group style have historical context?
5. Will I need to work on skills?
6. Is specific media required?

## **Painting:**

*Prepare the art room for independent study.* Individualize the discussion of standards when it might prove beneficial to do so. The length of time needed to complete individual paintings might vary greatly.

## **Processing:**

1. What were my painting experiences?
2. Does my painting appear to relate to a group style?
3. Have I chosen a mentor. If so, who?
4. Can I critique this work in terms of how the elements of art and the principles of design were used?

## **Research**

### **What are the group painting styles that I have found?**

Research is the key in exploring and identifying the domains in painting. Two excellent sites for looking into painting styles and learning definitions can be found on the internet. **Artyclopedia.com** gives a comprehensive listing of group painting styles (movements, isms) as well as definitions. Doing research on several styles can give broad insight into the characteristics of each movement. It will also denote artists involved in each ism. Museums and galleries are listed and visuals are extensive. For example, in looking at the movement that we call Photorealism, we can view paintings which are characterized by photographic likeness, precise work and everyday subject matter. Chuck Close epitomizes this movement with his portraits while Richard Estes paints scenes from the urban landscape. **Artlex.com** gives definitions to movements and is also an extensive lexicographic authority for art terms. Additionally it provides an ample source of visual examples.

### **Which painting style appeals to me? Is there a mentor for me within this movement?**

Upon doing research on several movements and looking at various paintings from each, a gifted learner can readily get a feel for the characteristics of each group style. The painting techniques which comprise any movement will become more evident. Each artist who is involved in a group style will display his/her personal subject matter (content). One then might ask oneself which of the movements is most appealing. Is there a connection with one of the artists, a possible mentor? Would I like to get involved with this group style?

### **Can the characteristic components of this group style be identified?**

Keep in mind the importance of becoming aware of the artists in any particular ism, while paying close attention to focusing on the characteristics of the style itself. For example, in Optical Illusionism, the characteristic features include design like work, optical excitation, vibrational color and the “moves” or pulses.

## **Does the group style have historical context?**

Answers to questions might be a written assignment. What is the time frame of the chosen art movement? Where was the geographical center of the group style? What occurrences were happening in the world at that time? Did world events or discoveries affect the artistic movement? Does historical context impact my choice?

## **Will I need to work on skills?**

In reviewing the characteristics of the group style and viewing paintings from the movement, one can begin to ascertain the skills needed. For example, in Photorealism, one needs to be competent in rendering objects realistically and paint them in a precise and representational manner. Questions might be asked. Have I worked in this way before? Am I embarking on familiar territory, or extending myself onto a new path? How comfortable am I with this style? What skills do I anticipate needing?

## **Is specific media required?**

What are my media options? Will I be working with canvas or paper, oils or acrylics, watercolor or mixed media. Am I familiar with the materials?

## **Painting**

Each painting can be done as an independent study project, based on each student's predilection towards a specific group style. Throughout the painting process, art direction can be available through regular meetings with one's instructor. Levels of mastery and technical challenges can be reviewed. Individual or group work stations can be set up. Pertinent standards can be discussed for an individual's benefit. Flexible time frames are needed.

## **Processing**

### **What were my painting experiences?**

Reflecting on the choices made and the painting experiences enables a student to view the entire creative continuum, from start to finish. Upon completion of a work, a critique session(s) with one's instructor and a small group, or the class becomes the creative wrap up. A discussion format works well. Questions can be raised. Why was this group style chosen? Was it a good choice for me? Did I connect up with a mentor on the basis of intellectual parallelism? Did the painting process hold my interest? What were the challenges? Will I choose to paint in this style again?

### **Does my painting appear to relate to a group style?**

A conversational format works well in a relaxed, nonjudgmental way. What are the characteristics of the group style that I have

chosen to work in? How does my painting relate to this ism? How is my work different or original from the paintings found in this movement?

**Can I critique this work in terms of how the elements of art and the principles of design were used?**

Use the language of the elements of art to discuss the use of point, line, shape, color texture and value in the painting. In regard to design, talk about the painting's rhythm, balance, harmony, emphasis, subordination, contrast and unity.

**Conclusion**

Using choice as a motivating force in selecting a body of knowledge and making a connection with a mentor on the basis of intellectual parallelism might well give a gifted learner an experience in the discovery of a personal painting style.

**Five Points Concerning *The Grapes of Wrath* as Related to Gifted Education**  
**Michael E. Walters Center for the Study of the Humanities in the Schools**

Teachers of the gifted can use great classics of literature to develop the sensibilities of their students. This essay presents five points derived from John Steinbeck's **The Grapes of Wrath** (1939) that will enable teachers to have a holistic approach to using this novel in the gifted classroom. Point Number 1 is about a current issue in the scientific community – global warming. The beginning of Steinbeck's novel describes the impact of a drought upon the landscape and inhabitants of the dust bowl during the early 1930s in such states as Oklahoma. When reading Steinbeck's book, students can examine different aspects of world climate change by asking: Is there a constant cycle of weather changes? Does today's world climate have unique aspects not found in previous meteorological history? Steinbeck describes the horrific conditions of the dust bowl with such artistry that students will comprehend the total impact of drought and wind. He also described agricultural conditions such as crop rotation, and the need for trees and water systems.

In points 2 through 5, Steinbeck's keen esthetic gifts are displayed. The second point is about his ability to blend scientific and artistic insights. Part of his training at Stanford University was in marine biology. Although he left college after a short while, he had a lifetime interest in the scientific study of sea creatures. After the publication of **The Grapes of Wrath**, he wrote a non-fiction book about a marine expedition in Baja California, Mexico, **The Sea of Cortez** (1941). In **The Grapes of Wrath**, he constantly blended artistic and naturalistic descriptions of landscapes and animals, and their impact on human beings.

Point 3 concerns Steinbeck's poetic style. The following sentence from **The Grapes of Wrath** is similar in style (imagism) to the poem by William Carlos Williams, *The Red Wheelbarrow* (1923): "Two red chickens on the ground flamed with reflected light." (Chapter 8). Williams' poem is as follows: "so much depends / upon / a red wheel / barrow / glazed with rain / water / beside the white / chickens."

Point 4 is about the tension between the Individual and the collective group. When the book was originally published it was compared with Harriet Beecher Stowe's **Uncle Tom's Cabin** (1852) as being a part of the social protest tradition in literature. However, the enduring aspect of this novel is Steinbeck's ability to capture the individual humanity of each of his characters. John Ford's cinematic adaption of **The Grapes of Wrath** in 1940 also displayed this trait.

Point 5 concerns Steinbeck's achievement in making this novel both a specific political concern – the plight of the refugees (Okies) from the Dust Bowl and the conditions of migrant workers – combined with a universal religious motif. Steinbeck used religious symbols throughout the book. For example, grapes represent the Promised Land. The metaphor of the "grapes of wrath" illustrated the disillusionment the Okies experienced when they entered the Promised Land of California. The title, **The Grapes of Wrath**, was based upon a line from the *Battle Hymn of the Republic* (1862). At the end of the novel, one of the extended family members of the Joads is a young woman named Rose of Sharon, a name in the *Song of Songs* from the Old Testament. In the last paragraph of the book she helped to restore a stranger to health.

Steinbeck's **The Grapes of Wrath** can help teachers to stimulate some of the most important aspects of the sensibility of giftedness. These are the ability to express oneself in scientific, social and artistic modes, and to see the significance between the individual and the collective needs and aspirations of humanity.

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Examples of services offered through the NSGT Web Site are The Renzulli Learning System for grades K-12 and the AIFS Educational Planning Portal for high school and college students.

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