The Power of Images: Visual-Spatial Learners

Linda Kreger Silverman

Once upon a time, students sat in rows of straight-backed chairs facing the teacher. Teachers talked; students listened, and recited prose, poetry, facts, and numerical properties that had been committed to memory. The three R's—Readin', 'Ritin', and 'Rithmetic—were the undisputed curriculum designed to prepare children to enter the work force in their adult lives. Teachers taught sequentially. Students learned sequentially. The curriculum of each school year built upon the knowledge and skills taught the previous year, in a nice, neat, sequential progression. As this was viewed as the natural order of things, this system of education prevailed for millennia.

All of this is changing as we move into a new millennium. Reading, writing, and arithmetic are the curriculum of the sequential left hemisphere. They served us well as society evolved from an oral tradition to a written one, but they are insufficient for success in the new age. We are now in the midst of an enormous cultural transformation that began with movies, then television, then computers. The computer is to Age of Information what the printing press was to the Age of Literacy. As it uses both hands, it invites information from the right hemisphere, and integrates the two hemispheres. It has no time-constraints, does not rely on drill and repetition, and it teaches visually. Internet allows access to any information, out of sequence, regardless of the age of the learner. In the Age of Information, the gifts of the right hemisphere are honored and utilized.

Our left hemisphere has the words, our right hemisphere has the images. Leonard Shlain (1998) suggests that talking pictures marked the closing stages of a 5,000-year reign of our left hemisphere, and the emergence of our right hemisphere:

> The printing press disseminates written words. Television projects images. As television sets continue to proliferate around the world, they are redirecting the course of human evolution. The fusing of photography and electromagnetism is proving to be of the same magnitude as the discovery of agriculture, writing, and print. (p. 409)

> I am convinced we are entering a new Golden Age—one in which the right-hemispheric values of tolerance, caring, and respect for nature will begin to ameliorate the conditions that have prevailed for the too-long period during which left-hemispheric values were dominant. Images, of any kind, are the balm bringing about this worldwide healing. It will take more time for change to permeate and alter world cultures but there can be no doubt that the wondrous permutations of photography and electromagnetism are transforming the world both physically and psychically. The shift to right-hemispheric values through the perception of images can be expected to increase the sum total awareness of beauty. (p. 432)

In the 21st century, images are becoming more salient in our consciousness than words. September 11, 2001 attests to this fact. In the Preface of *Upside-Down Brilliance: The Visual-Spatial Learner,* I wrote:

> On September 11, 2001, life as we knew it changed forever. The world became smaller, and our connectedness became apparent. We were all witnesses, we all suffered. If we had heard the news on the radio or from a family member, it would not have had the same impact. The way many people shared the event with each other was simply to say, "Turn on the TV." For days afterward, I heard, "There are no words; there are no words."
>
> We watched the footage of the first plane crashing into the World Trade Center in stunned disbelief. As we tried to understand what had happened, we witnessed the next plane crash into the second tower *as it was happening*. We were there—a part of it all. These are images we will never forget. They are indelibly emblazoned on our psyches.
>
> *Upside-Down Brilliance* is about the power of images. It's about visual-spatial learners, who think in images instead of words. It's about cherishing our mental camera—the right hemisphere. It's about how the world is changing. It's about how we need to educate learners differently in an image-oriented technological era. It's about seeing "the big picture," so that we can understand our interdependence and learn how to inhabit our planet peaceably. (p. ii)

The marriage of photography and electromagnetism is the byproduct of visual-spatial thinking, and the new millennium is job-friendly for visual-spatial learners. Success in our technological era depends upon different skills than are currently emphasized in school: visualization, grasping the big picture, multi-dimensional perception, pattern-finding, thinking graphically, and creativity. Scientific progress relies heavily on the brilliance of people who think in images. And if we are ever to achieve peaceful co-existence, it will take visionaries to lead us there.

Students who are visually adept will have a much easier time gaining employment in adult life than those who are excellent readers, writers, spellers, calculators, and memorizers, but who do not have well-developed visualization abilities. Unless we begin to recognize the importance of visual-spatial abilities and pay more attention to the development of these capacities in school, we may be grooming students for success in a bygone era and dooming them to unemployment in this one.

What is a visual-spatial learner?

Visual-spatial learners are individuals who think in images. They have multi-dimensional perception, which means that they can transform images in their mind's eye, seeing them from many perspectives. It takes more time for visual-spatial learners to translate their mental pictures into words, and word retrieval may be problematic, so they usually have difficulty with timed situations. They learn all-at-once rather than step-by-step. Their learning takes place in great intuitive leaps, when, all of a sudden, they see the big picture. Since they do not learn sequentially, they are at a distinct disadvantage on class and state achievement tests that require them to show their work. They may have a poor sense of time, but a superb awareness of space. Deadlines may escape them. They learn best by understanding relationships, not by memorization. Complex concepts are easier for them to understand than simple, sequential skills. They may master calculus before their times tables. They are highly intuitive, but organizationally challenged. It is easy to see why these children suffer in school. They tend to be late bloomers, getting smarter as they get older.

Academically successful students are more often auditory-sequential learners, who learn in a step-by-step manner, the way the teachers teach and the way the curriculum is designed. They think in words, so they can express themselves easily. They have good auditory skills and excellent phonemic awareness, which enables them to master reading phonetically, as it is usually taught. They have a good sense of time, are punctual, and usually turn in their assignments in a timely manner. They are fast processors of information, and often enjoy contests, like "Mad Minutes." They are well-organized. They usually have neat handwriting, neat papers, neat desks, and neat attire. They can easily show their work, because they take a series of steps to reach their conclusions. Gifted auditory-sequential learners are more likely than equally capable visual-spatial learners to be high achievers in academic subjects, to be selected for gifted programs, to be recognized by their teachers as having high potential, and to be considered leaders.

Additional differences between auditory-sequential learners and visual-spatial learners can be found in the following chart. Please keep in mind that we all are a combination of both sides, since we all have two hemispheres. However, some individuals fit many more of the visual-spatial characteristics, and these are the ones who feel disenfranchised in school.

Visual-Spatial Learner

Characteristics Comparison

The Auditory-Sequential Learner	The Visual-Spatial Learner
Thinks primarily in words	Thinks primarily in images
Has auditory strengths	Has visual strengths
Relates well to time	Relates well to space
Is a step-by-step learner	Is a whole-part learner
Learns by trial and error	Learns concepts all at once
Progresses sequentially from easy to difficult material	Learns complex concepts easily; Struggles with easy skills
Is an analytical thinker	Is a good synthesizer
Attends well to details	Sees the big picture; may miss details
Follows oral directions well	Reads maps well
Does well at arithmetic	Is better at math reasoning than computation
Learns phonics easily	Learns whole words easily
Can sound out spelling words	Must visualize words to spell them
Can write quickly and neatly	Much better at keyboarding than handwriting
Is well organized	Creates unique methods of organization
Can show steps of work easily	Arrives at correct solutions intuitively
Excels at rote memorization	Learns best by seeing relationships
Has good auditory short-term memory	Has good long-term visual memory
May need some repetition to reinforce learning	Learns concepts permanently; does not learn by drill and repetition
Learns well from instructions	Develops own methods of problem solving
Learns in spite of emotional reactions	Is very sensitive to teachers' attitudes
Is comfortable with one right answer	Generates unusual solutions to problems
Develops fairly evenly	Develops quite asynchronously (unevenly)
Usually maintains high grades	May have very uneven grades
Enjoys algebra and chemistry	Enjoys geometry and physics
Masters other languages in classes	Masters other languages through immersion
Is academically talented	Is creatively, technologically, mechanically, emotionally or spiritually gifted
Is an early bloomer	Is a late bloomer

Visual-spatial learners and giftedness

I coined the term "visual-spatial learner" in 1981, after observing an interesting phenomenon in testing gifted children. The children with the highest test scores, the ones who went beyond the norms in the manual, achieved these scores by passing visual-spatial items that were designed for children twice their age. They demonstrated excellent auditory-sequential abilities, but their visual-spatial abilities were even more extraordinary. As they tended to be somewhat shy and cautious, I made the connection between visual-spatial learning style and introversion. Introverts (who gain energy from within themselves rather than from interaction with others) may or may not be visual-spatial, but visual-spatial learners are very often introverted (Dixon, 1983; Lohman, 1994). [For more on introversion, please see Chapter 10 in *Upside-Down Brilliance*.]

Soon I began to notice that not only were the highest scorers visual-spatial, so were the *lowest* scorers. These were children who fit most of the descriptors on our *Characteristics of Giftedness Scale* (Silverman, 1990), but fell short of the gifted range on the IQ tests and bombed in school. The main difference between the two groups was that the students who took the top off the IQ tests had advanced auditory-sequential skills as well as advanced visual-spatial abilities, whereas the underachievers had exceptional visual-spatial abilities combined with *weak* auditory-sequential skills. For example, they could copy extremely complicated block designs and tell how many blocks were in an array with some of them hidden, but they could not repeat 5 random digits.

As I spent more time observing visual-spatial children, I realized that they saw the world differently, three-dimensionally. They saw through artists' eyes, and some demonstrated artistic talent. Some were scientists and mathematicians, able to see the complex inter-relationships of systems. Some were computer junkies. Some were dancers, actors, musicians, imaginative writers. Some were highly emotional, extremely empathic. Some were spiritually aware and psychically attuned. Most were pattern-seekers and pattern-finders, excited with each new discovery. They pursued their interests passionately, sometimes to the exclusion of everything else. They definitely marched to a different drummer.

Children who are strong in right-hemispheric abilities, but weak in left-hemispheric skills, are more likely to become underachievers and drop-outs. They are more often counted among gifted children with learning disabilities (e.g., dyslexia, dysgraphia—difficulties with handwriting, central auditory processing disorder, AD/HD); gifted children from culturally diverse backgrounds; left-handed children; children who had difficult births; and children who suffered chronic ear infections in the first few years of life. Unless they're taught to their learning style, they are also at higher risk for delinquency (Seeley, 2003). Their learning differences are perceived as deficiencies, and most of the attention paid to these children is for the purpose of ameliorating their deficits. Rarely are their visual-spatial gifts recognized and developed in school. Ironically, the most effective way to reach these students is to teach to their strengths.

Everyone has two hemispheres, but no one uses both hemispheres equally. Just as each person prefers one hand over the other, auditory-sequential learners use their left hemispheres more than their right, while visual-spatial learners use their right hemispheres more often than their left. We have to honor hemispheric preference, just as we honor hand preference. We would no more expect children to be equally proficient with each hemisphere than we would expect them to be equally proficient with either hand. The problem, as I see it, is that left-hemispheric proficiency has been emphasized in school for eons at the expense of right-hemispheric development.

Visual-spatial learners and school

The right hemisphere is our mental video camera. It enables us to see the "big picture" rather than just a series of details. It gives us the context into which to place our experience (Ornstein, 1997). It is essential to art, music, dance, drama, sports, mechanics, geometry, physics, calculus, technology, invention, metaphor, intuition, emotional responsiveness, and spirituality. Art is born in images. Scientific breakthroughs and visionary leadership originate with images. Beauty, love and peace are the promise of the right hemisphere (Shlain, 1998).

For thousands of years, school has been primarily dedicated to the education of the left hemisphere. Children enter school with more balance between their left and right hemispheres than when they graduate. They begin Kindergarten with a vivid imagination that expresses itself in their block play, their pretend games, and their dress-up corner. By first grade, they are taught that playing is something they do at recess in organized games, and school is where they work. Children with good phonemic awareness, who learn to read on schedule by the phonetic approach employed in most primary grades, are considered good students. Children who struggle with reading often develop poor self-esteem.

For some visual-spatial learners, reading is Flatland. It is a two-dimensional experience that is difficult for their three-dimensional minds to grasp. If you see the world in three dimensions, you live in a world of moving forms—of dynamic shapes. You may be able to build a Space Station with Legos or create a magnificent horse out of

clay, but *b, d, p,* and *q* all look alike. They are all the same shape—flipped and rotated. Imagine trying to learn to read when the letters turn upside-down, flip backwards, and even trade places—moving around the page! Visual-spatial learners learn best whatever they can see in their minds. In some countries, children first learn to read words like "mountain," and "lake," words they can visualize, and when they have established a large enough reading vocabulary of these words, then they begin to learn smaller words, such as "the," and "is," that are not as amenable to visualization.

Writing can be even more discouraging. The fine motor skills needed for writing with one's right hand are controlled by the left hemisphere (Springer & Deutsch, 1998). Letters that flip and rotate in one's field of vision will end up upside-down or backward on the paper. Spelling is a nightmare. It is purely sequential. Many visual-spatial children (and adults) speak at one level, and write at a much lower level, because there are so many words that they cannot remember how to spell. They may overuse the same words, because each word is a *label* for a picture in their minds, and they would no more dream of using a synonym than they would consider changing all the names of the pictures in an art gallery (Grow, 1990). While their ideas may be superb, they cannot express them well because of mechanical difficulties: handwriting, spelling, punctuation, capitalization, grammar, syntax, organization—all the left-hemispheric skills that educators cherish.

Memorizing math facts is yet another roadblock for visual-spatial learners. They are natural mathematicians and scientists, excellent pattern-finders, but they cannot do rote memorization. They understand a concept by forming a visual image in their minds, and seeing the underlying structure. This allows them to arrive at answers to math problems intuitively. When commanded to show their work, they go completely blank, because they did not take a series of steps to arrive at their answers. *Show your work* may be an appropriate request for an auditory-sequential learner, but it simply cannot be done by someone who uses a visual-spatial thought process.

Time is an anathema to the visual-spatial learner. School is all about time. You must arrive on time, take timed tests, complete your work in class on time, move on to other subjects on time, and turn in your homework on time. According to Leonard Shlain (1998), our time sense originated in the left hemisphere. "Time is the quintessential attribute of the left brain. All of the functions of this hemisphere proceed temporally" (p. 220). Time is essential for linear speech. "A conversation can be understood only when one person speaks at a time. In contrast, one's right brain can listen to the sounds of a seventy-piece orchestra and hear them holistically" (pp. 22-23).

As it is currently structured, school is an unfriendly place for visual-spatial learners, and they do not demonstrate their full potential during the school day. It is a much better match for auditory-sequential learners. But I predict that in the near future, schools will become more welcoming to visual-spatial students. Every day there are more and more computers in schools. At the college level, notes are taken on laptops, and homework is turned in and corrected via email. It is only a matter of time before every student has a computer. A computer is as indispensable to the visual-spatial child as a book is to an auditory-sequential child. It is visual, graphic, unconcerned with time, highly motivating, responsive to the inquisitive mind of the visual-spatial learner, and accesses the right hemisphere. It is the skating rink where a visual-spatial mind can perform dazzling feats.

How many visual-spatial learners are there?

We have been conducting studies with the *Visual-Spatial Identifier* (Haas, 2001), which was developed over a ten-year period by a multidisciplinary team. The *Identifier* has been validated with 750 fourth, fifth, and sixth grade students (the entire student body in these grades) in urban and rural school districts. Nearly 50% of each school was Hispanic. Following are some sample questions from the self-report form of the *Visual-Spatial Identifier*:

1. I have a wild imagination.
2. I think mainly in pictures instead of words.

3. I solve problems in unusual ways.
4. I have a hard time explaining how I came up with my answers.
(Silverman, 2002)

Remarkably, one-third of these mixed ability school samples was strongly visual-spatial (Silverman, 2002). Less than one-fourth (23%) was strongly auditory-sequential. The remainder (45%) was a mixture of both. However, 30% of this middle group showed a slight preference for the visual-spatial learning style, whereas only 15% showed a slight preference for the auditory-sequential learning style. In these schools, the student body was clearly more visual-spatial than auditory-sequential.

We plan to validate the *Visual-Spatial Identifier* with third and seventh graders and gradually extend the age range, as well as test its usefulness with different ethnic groups. For more information about the *Identifier*, please see "Classroom Identification of Visual-Spatial Learners," by Steve Haas, in this issue. The *Identifier* is available on our website: www.gifteddevelopment.com, and we can assess individuals as well as groups.

If our research holds for other groups, then at least *one-third* of the school population is visual-spatial! This is a substantial number of students whose needs are not being met. And their numbers are growing. According to studies conducted by John Flynn (1999), intelligence is increasing all over the planet at the rate of one-third of an IQ point per year, and the greatest gains have been in spatial visualization and verbal problem solving, not in areas related to school-based learning. Children from different ethnic backgrounds appear to be more visual-spatial than auditory-sequential, and there is greater ethnic diversity in the schools in the 21st century than there was in the 20th century. Gifted children are also more likely to be visual-spatial, particularly those in the highly gifted range (Silverman, 2002).

How can we recognize visual-spatial learners?

Preschool-age visual-spatial learners are attracted to puzzles, building, and art projects. We've found 18-month-old children who could do 4 to 6 puzzles *at once*—with all the pieces mixed up! We've heard of 3 year olds doing 300-piece puzzles. Some toddlers prefer to do all the puzzles brown-side-up. It's always a red flag to me when a visual-spatial learner doesn't like puzzles. I send these children to optometrists to see if there is some slight visual processing glitch that can be corrected with six months of vision therapy.

Visual-spatial learners are natural builders. They may toss aside their presents and build something interesting out of the boxes and ribbons. So many of them are Legomaniacs that I sound like a Legos commercial. K'nex, Construx, Tinkertoys, Zometool, and any other building materials are likely to engage them for hours on end. They also like to unbuild—or take apart—everything within reach, just to see how it works. They love anything with gears. Here are some anecdotes parents have sent me:

He thinks in three dimensions, and his first "art" project, at about nine months, was a mountain made of tiny pieces of masking tape piled on the coffee table. I carried tape with me all of the time and he piled it on anything he could. (Mirrors were a favorite.)

[At 2 ½] Clocks and gears entered our life around this time. M got clocks for gifts and we'd sit on the bed watching them. He wanted to know about gears and had to see the engine of the car. We'd be riding and he'd be listening for the gears operating. The summer when he was 2 ½, we'd go to the amusement park, and the kids loved the rides but I was a nervous wreck. He would lean way over to see how the ride operated. On the merry-go-round his head was always up watching the poles to see how they operated or else he was leaning into the center of the ride to see the gears. On one of the little car rides, he started crawling under one of the cars. We ran with the attendant and when we got there he looked up and asked, "What makes this thing run, anyway?"

Vivid imagination and creativity can be seen before school age. Visual-spatial children are always transforming ordinary things into something else. Instead of using her spoon to shovel soup into her mouth, the visual-spatial child is as likely to turn the spoon into a microphone for her TV interview, a baton to be twirled, a catapult for ice cubes, a metal dancing figurine, or a large earring. Art projects abound, using everything in sight. Never throw anything out that can be recycled into a work of art, or a construction project, or an invention.

We have a joke in our home, every time someone tries to throw something in the garbage we say, "Don't throw that out!! T can make something out of it!!"

> He can make anything just looking at a picture or creating out of his imagination. He also builds things out of odds and ends around the house. Many rolls of Scotch tape have been sacrificed in the name of science. One time my husband had some little scraps of wood left over from an outdoor project and he asked J (then age 4) if he would like them to build with. Enthusiastically, J ran for his shoes to head out to the garage. "What are you going to make?" I asked. J stopped and looked at me like I was crazy. "I don't know that yet," he replied, "I have to see the wood first!"

Visual-spatial children are often drawn to animals and seem to commune with them. Remarkably tuned in, they appear to be keenly aware of the emotional state of everyone with whom they come in contact. They instinctively discern friend from foe, true from false, authenticity from pretense. They love movement, all kinds of music, dance, drama, art—beauty in all of its forms. They come to uncanny conclusions, and when you ask them how they know what they know, they just shrug their shoulders. They can't tell you. They just know. Their intuition is extremely well developed.

There sometimes is an other-worldly quality to visual-spatial learners. It's as if they are only partially paying attention to what we are saying, while another part of them is on a magic carpet sweeping over beautiful landscapes on the way to more inviting adventures. They have vivid recollections of movies, which they enjoy describing to you, or even better, acting out, in glorious detail, while you strain to keep your attention focused on what they're saying. Their world is full of wonder, magic, vivid imagination, and crystal-clear pictures that they desperately try to communicate in words. Our world is practical, realistic, and filled with words. They tune out our words, and we have trouble grasping their pictures. We live in two different realities.

How can we serve their needs?

There are many techniques teachers already employ that activate the right hemisphere, and engage visual-spatial learners. The techniques simply need to be used more frequently and more pervasively. Auditory-sequential learners will also benefit from these strategies, finding school more stimulating, as they develop more of their right-hemispheric abilities. Jerre Levy, a prominent brain researcher at the University of Chicago, warns that unless the right hemisphere is activated, little learning can occur.

> When tasks are so easy that they fail to challenge mental capacities, communication between the two hemispheres declines and one hemisphere dominates processing with little participation from the other. Under these conditions, the attentional level is low and cognitive performance is poor. In contrast, in response to challenging tasks, the left and right hemispheres become tightly integrated into a unified brain

system, which increases attentional resources and cognitive power. The right hemisphere is especially important in regulating attentional functions of both sides of the brain. Unless the right hemisphere is activated and engaged, attention is low and learning is poor. (J. Levy, personal communication, June 12, 2001)

Try the following suggestions *one at a time*, and see which ones reach which students. Use different strokes for different folks.

- When presenting a new concept, **ask students to** close their eyes for a moment and **picture what you are saying**. Have them share their pictures with a partner.

- **Show them!** Use visual presentations as often as possible: overhead projectors, computers, demonstrations, diagrams, videos, pictures, charts, and graphs.

- **Teach to their strengths**. Help them use their imagination, creativity, as well as their abilities to visualize, recognize patterns, see from different perspectives, build, draw, dance, sing, act, etc., to compensate for their weaknesses.

- **Give students time to think**, time to translate their pictures into words or numbers. Word retrieval is difficult for visual-spatial learners, especially under the pressure of time. Support well thought out answers above fast ones.

- **Give them the big picture.** Visual-spatial learners learn best if they understand the goals of instruction. Tell them where the lesson is leading, so that they have an idea of the whole, before they try learning the parts.

- **Use visualization techniques.** Ask them to picture what you are saying. Have them record their images using webbing, mind-mapping, or pictorial notes. Teach the students to visualize spelling words, math problems, "What would happen if…" scenarios in reading, science, and social studies. Employ movie, television, and computer techniques to assist them in visualizing: *zoom-in, split screen, slow motion, superimposition, fast forward, instant replay,* etc.

- **If their handwriting is poor, let them use a keyboard.** Teach keyboarding as soon as possible. (Child-sized keyboards are now available.) If they cannot master a keyboard, allow them to use a voice-activated computer.

- **Make the learning significant to them.** Meaningful, relevant material will be remembered, while insignificant information and rote memorization will be quickly forgotten. How does this learning relate to their experience? In what way can they apply it to solving a problem they care about?

- **Use discovery techniques.** Visual-spatial learners are good at discovering rules and principles. Have them discover their own methods of problem solving instead of teaching step-by-step. Employ inductive reasoning and inquiry training.

- **Avoid timed tests and contests**. Timed tests actually freeze the thought process of visual-spatial learners. Let them take untimed tests, or demonstrate mastery in some other manner, such as creating a PowerPoint slide show, a diorama, a photographic exhibit, a videotape, a series of drawings, or an oral story about the concept.

- **Use hands-on approaches**, such as manipulatives, experiments, real-life experiences, field trips, three-dimensional models.

- **Remove drill and repetition** from their lives. These children do not learn from drill; it simply turns them off. Art begins with an image in one's mind. That image is permanent: it is not improved at all by drill and repetition. Like artists, once visual-spatial learners see concepts in their mind's eye, they learn them permanently. Their images are not improved by drill. Drill and repetition work best with auditory-sequential learners.

- **Do not require them to show their work.** Trust that they got the correct answer in their own way. Respect visual, intuitive methods of knowing.

- **Give more weight to content of papers than to format.** Allow them to use computer software, such as spell check and grammar check, to help them with the mechanics of spelling, capitalization, punctuation, grammar, and syntax. These technological supports provide instant feedback, which is important for VSLs to learn skills. Don't penalize students in other subject areas when they haven't mastered these skills.

- **If they struggle with easy, sequential tasks, give them more advanced, complex work.** These upside-down learners surprise us: hard is easy and easy is hard. Acceleration is more beneficial than remediation.

- **Teach them about their learning style**. Help them understand their strengths as well as giving them hints about improving their weaknesses.

- **Expose them to role models of successful visual-spatial adults.** Many of the most celebrated physicists, artists and statesmen were visual-spatial learners. Biographical sketches of famous VSLs can be found in *The Spatial Child* (Dixon, 1983) and *In the Mind's Eye* West, 1991).

Conclusion

The most loving thing anyone can do is to honor the reality of the visual-spatial learner. Our left hemisphere can be rather narrow-minded. It tells us to be on time, and admonishes anyone who does not adhere to that standard. Our left hemisphere is often judgmental. It believes that there is only one right way to do things, and that everyone ought to do them that way. Our left hemisphere processes rapidly, and has little patience with anyone who doesn't think as quickly. Our left hemisphere is highly verbal, and misunderstands people who don't express themselves as well in words. Our left hemisphere is linear, sequential—accruing knowledge through a series of retraceable steps; it invented the requirement to "show your work." Our left hemisphere believes that every effect has a cause, and scoffs at anything that cannot be explained through logic.

Our society has lived for millennia under the domination of our critical, verbally bombarding left hemisphere. Our mute right hemisphere has a difficult time getting a picture in edgewise. It takes quieting of the mind (the left hemisphere), ceasing of the continuous flow of words, for the images of the right hemisphere to be received. Tribal societies had rituals to invite their right hemisphere to guide their lives through visions. Today, many go on vision quests, or do daily meditation practices, as a means of gaining

intuitive wisdom and clarity. These practices bring more balance to our hemispheres. They are paths to inner peace, which, eventually, may translate into world peace.

Children who come equipped with powerful right hemispheres need to be cherished for their tremendous potential as artists, builders, designers, musicians, inventors, actors, technological wizards, surgeons, innovators, CEOs, visionaries, empaths, and spiritual leaders. Our society needs their gifts. We must stop treating them as defective if they can't read by six, if their handwriting is poor, if their spelling is atrocious, if they're hopelessly disorganized, if they can't memorize their math facts, if they don't know when to capitalize and where to put commas, or if they turn in assignments late. These are all left-hemispheric values. Instead, we need to look at what they **can** do well, what fascinates them, what is deliciously lovable about them. That is how we will reach them. Teach to their delights. Believe in them. Love them and they will blossom.

References

Dixon, J. P. (1983). *The spatial child*. Springfield, IL: Charles C. Thomas.

Flynn, J. R. (1999). Searching for justice: The discovery of IQ gains over time. *American Psychologist, 54,* 5-20.

Grow, G. (1990). *The writing problems of visual thinkers.* [Available from the author at Florida A & M University, Talahassee, FL]

Haas, S. (2001, August 1). *A validated instrument for identifying visual-spatial learners.* Paper presented at the 14th World Conference of the World Council for Gifted and Talented Children, Barcelona, Spain.

Hafenstein, N. L. (1986). *The relationship of intellectual giftedness, information processing style, and reading ability in young gifted children*. Unpublished doctoral dissertation, University of Denver.

Lohman, D. F. (1994). Spatially gifted, verbally inconvenienced. In N. Colangelo, S. G. Assouline, & D. L. Ambroson (Eds.). *Talent development: Proceedings from the 1993 Henry B. and Jocelyn Wallace National Research Symposium on Talent Development* (pp. 251-264). Dayton, OH: Ohio Psychology Press.

Ornstein, R. (1997). *The right mind: Making sense of the hemispheres*. New York: Harcourt Brace.

Seeley, K. R. (2003). High risk gifted learners. In N. Colangelo, & G.A. Davis (Eds.), *Handbook of gifted education* (3rd ed., pp. 444-451). Boston: Allyn & Bacon.

Shlain, L. (1998). *The alphabet versus the goddess: The conflict between word and image.* New York: Penguin/Arkana.

Silverman, L. K. (1990). *The Characteristics of Giftedness Scale.* Denver: Gifted Development Center. [Available on-line at www.gifteddevelopment.com or write to the Gifted Development Center, 1452 Marion Street, Denver, CO 80218]

Silverman, L. K. (2002). *Upside-Down Brilliance: The Visual-Spatial Learner.* Denver: DeLeon Publishing.

Springer, S. P., & Deutsch, G. (1998). *Left brain/Right brain: Perspectives from cognitive neuroscience* (5th ed.). New York: W. H. Freeman.

West, T. G. (1991). *In the mind's eye: Visual thinkers, gifted people with learning difficulties, computer images, and the ironies of creativity*. Buffalo, NY: Prometheus Press.

Linda Silverman, Ph.D., is a licensed psychologist. She directs the Institute for the Study of Advanced Development and its subsidiaries, The Gifted Development Center (www.gifteddevelopment.com), and Visual-Spatial Resource (www.visualspatial.org). Her life has been devoted to the study and development of giftedness in all of its forms. Among her 300 publications are *Counseling the Gifted and Talented* (Love, 1993) and *Upside-Down Brilliance: The Visual-Spatial Learner* (DeLeon, 2002).

For more information about the Gifted Development Center and Visual-Spatial Resource, please see the back cover.