

Teamwork: Helping Visual-Spatial Flowers Blossom in an Auditory-Sequential Garden

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Human beings yearn to be accepted and appreciated for the unique resources they bring to the world—that includes students of every age, shape, and learning style, as well as the full range of people who enter the field of education. In spite of the fact that a teacher may be perceived as trying to isolate children who don't fit the norm, that teacher's inner experience might actually be one of failure and frustration because he or she can't seem to meet the diverse needs of all students. Years of working with parents and teachers to create a team approach to meeting individual student needs, have proven that it **can** be done successfully, but it takes effort, empathy and finesse. Creating school environments that allow these children to thrive should be a priority.

Traditional teachers tend to be auditory-sequential learners (ASLs). ASLs can assimilate information in a logical, step-by-step fashion, remember it, and then demonstrate competence using words to express the sequence of steps that lead to the "right" answers. It's easy to know when ASLs understand and can apply what they have been taught because if you can ask, the response will probably include words similar to those used during the teaching process.

When visual-spatial learners (VSLs) assimilate a concept, however, they have translated words into images, pictures, movies—media that can add color and detail to the complex experience of their ideas and associated feelings. To a visual-spatial learner, words are finite and subjective because their meanings change depending upon context and speaker. Once transferred to image, the VSL begins a process that allows a whole to emerge from the various parts that began as the symbolic units we call words. To demonstrate understanding of the concept to a teacher, the entire process must begin again, only in reverse. If you've ever played the game "Telephone," you have a good idea how likely the translation will fit the original concept. However, while the translation may or may not be verbally accurate, it might also be better, more creative, and innovative; the whole could end up greater than the sum of its parts. But, this process takes time and effort, and if this process is not honored and appreciated, the VSL suffers in many ways, only the least of which is the possibly mistaken belief that the student doesn't understand the concept.

Many of the "Continuation" and "Non-Public" High Schools contain VSLs who have been completely disenfranchised by auditory-sequentially based school systems. Unable to access information or to produce standardized results, these students often suffer the additional emotional consequences of failing in the system, of not fitting the norm—low self-esteem, depression,

alienation, anger, frustration. The time has come to create programs that will value and develop visual-spatial skills alongside auditory-sequential ones. This article will address some of the practical considerations and steps toward making this happen.

HOW DOES YOUR GARDEN GROW?



How does the Garden Grow?

Imagine you're an avid gardener and you have created the perfect environment for roses. One day, something new begins to grow in your garden. It has leaves like a rose, so you assume it must belong there because, after all, the soil, the added nutrients, and the whole environment are designed to create perfect roses. As this plant grows, however, you discover it is not a rose. It is something else that is very beautiful, but definitely not a rose. In fact, it obviously isn't completely healthy in the garden's current ecosystem---maybe too little water, or perhaps too much clay in the soil. You realize that if you wish to keep this flower from dying, you must make changes: learn new ways of gardening or even rework your plan for how the garden will look when it is in full bloom. Do you decide it is really a weed that doesn't belong anyway, and let it die, or even kill it?

This metaphor is meant to help you empathize with the reasons there might be resistance to change in school systems; it is also an example of a visual-spatial intervention. When you begin to plan your approach towards integrating the non-roses into an established garden, remember that it is natural for individuals and systems to resist change; consequently just creating a space for a new possibility is an important first step.

PLANNING THE GARDEN...



Planning the Garden...

The first step in the process of meeting the needs of visual-spatial learners is identifying what areas might need a fresh approach and who the target audience will be. To start the process you can consult Figure 1, the Visual-Spatial Learner Characteristics Comparison in Dr. Linda Silverman's lead article. This will help you to begin identifying the students who will most benefit from these innovations. Once you have an idea which students are currently struggling, make a list of specific target areas in which you plan to apply some fresh ideas. Once you know your goal, it is easy to apply visual-spatial techniques in the classroom; most are simple, and better still, fun. This listing step is important, however, because you will use it to conceptualize how you are going to apply these ideas, and to know if you have been successful when you assess the student's response to these enhancements.



About the Gardener...

Usually teachers are dedicated professionals who entered the profession with great intentions and lofty goals; why else would they work long thankless hours for low pay and little prestige? But, many teachers burn-out—stymied by administrative or district priorities, extra yard or committee duties, lack of funds, standardized testing, too little time, too many kids, and an impossibly wide range of learning capabilities, disabilities and skills—all under one roof.

The good news is that applying visual-spatial teaching techniques is not a lot of work. In some ways, it can be a lot less stressful than dealing with the acting-out of children who don't understand, have tuned out in boredom or are demoralized by feeling stupid and left out. Besides, many teachers are already using visual-spatial teaching methods in their programs. In fact, some of the most dynamic teachers are visual-spatial learners themselves. In their own lives, they were able to adapt to learning in a variety of styles, and as a teacher, they naturally apply a mix of visual-spatial and auditory-sequential teaching techniques.

Another group of teachers who are already applying some visual-spatial techniques are those whose personalities naturally tend to be flexible and relaxed. They've noticed that some kids just learn things differently; without value judgment, they have been able to let the VSL child be a guide in his or her own learning process; these teachers take the role of cheerleader—praising successes, and encouraging the child to keep trying new possibilities in the face of failure. This may seem like a passive way to teach, but, in fact, it can be very

effective, particularly with gifted visual-spatial learners (who tend to be very creative and inventive, and start out highly motivated to please their teacher.) It is the **relationship** between the encouraging teacher and his or her student that becomes the incentive for the student to succeed; the student has the ability to invent new ways of learning and together they enjoy the process of unlocking the door to understanding. Interestingly, it is that same relationship that allows the teacher to feel the importance of his or her attention and effort.



Preparing for the garden....

Classrooms that encourage visual-spatial learners do tend to look a bit different from auditory-sequential classrooms: usually there is an overhead projector, or a television available to show movies that demonstrate examples of concepts; computers are available for keyboarding and educational games; there may be graphics and humorous cartoons all over the walls, and maybe ceiling, too; on bulletin boards, there are probably pictures waiting for captions, brain teasers or math challenges, questions—maybe even rhetorical ones; the math program is filled with things to manipulate in demonstration of a concept, charts, games, puzzles, answers where students must figure out the applicable questions. But, the biggest difference is materials—recycled, new, plain, decorated, invented, reinvented; all are the raw materials of right-hemispheric brain function.

Speaking of materials, I'd like to inject a few words on the process of setting up this exciting new environment: thrift shops, yard sales, newsletter ads requesting donations, parent wish lists. Those are the words, and also the best sources for everything you need. For instance, I found a functional overhead projector (with spare bulb) for \$10 at a yard sale; even computers (albeit not top of the line, but still good for word processing and games) can be acquired this way. Another proven strategy is for the teacher to contact one of the supportive classroom parents to organize a "class gift" to fulfill a particular need. This approach saves the teachers from a desk full of apple paperweights and allows parents to feel they have contributed something necessary to the school. My

favorite story of this approach is the teacher who started a publishing program in her class. For Christmas, she asked for and received a book-binding machine from the grateful parents of her published student-authors.

On the subject of the other cost, the time and effort involved to innovate the classroom, the truth is that it doesn't take any more time to create a bulletin board that asks a question or poses a puzzle, than it does to make one that states a fact. Plus, the best bulletin boards are actually designed by the students themselves to demonstrate an idea or concept. The next time students resist doing a written report, tell them you'd consider a bulletin board on the subject instead. Teachers who really do not consider themselves "artistic" can assign a bulletin board each week to a different group of students: the teacher starts with a list of topics gleaned from her lesson plans (the bulletin board can either correspond with the lesson topic or precede it) and groups or tables sign up at the beginning of the year for the topics. This gets the VSLs in the group interested early, and guarantees you'll have something new each week. Be sure to create a generic rubric or "cheat sheet" with guidelines and dated time schedule; list what should be included for a passing grade, and schedule a time for this creative collaboration to meet. This is also a good way to get a parent involved; odds are if you have a VSL kid, at least one parent is, too.



Nurturing the garden...10 VSL Commandments (with examples)

1. Create visual materials to present ideas and facts.

The visual-spatial learner is always translating words into pictures in order to remember information. This elaboration in image takes longer than auditory-sequential processing (think computer download: compare download time and storage memory for a page of pictures vs. a page of words). By pairing pictures with words when presenting an idea, VSLs are getting the

information more directly and are more likely to have it anchor in memory. When they are able to translate words into images, VSLs have exceptional long-term memory—pictures require little or no repetition in order to be saved in memory. This is one of the reasons that VSLs rebel when forced to do repetitive work; either they have it in the mental photo album or they don't.

This works exceptionally well with vocabulary words; present the vocabulary words to the students and instead of asking for the definition, have them put the word on one side of an index card, and on the other, have them draw or paste a picture that suggests the meaning of the word to them. When they bring back the cards, have a bingo board ready with all the words on it. Play bingo by using students' pictures and having the rest of the class guess what word the picture represents and why it suggests that meaning. Next give them a sentence that would explain the meaning in context, but leave out the vocabulary word. Have them use the picture side of their cards to figure out which word belongs in the space. The combination of the visual association with the word, and the use of context should help the student remember the meaning. To reinforce spelling, have students place the word below the picture and visualize them together. If they can create a whole word picture, it is easier to recall the spelling. Other ways to reinforce vocabulary words are crossword puzzles, word searches, and Mad Lib-type fill in the blanks. For spelling, the kind of word search that has the same word many times forces the child to mentally re-spell the word in order to find it spelled correctly.

2. Place information within a context whenever presenting an idea.

A good example of using context to anchor information was demonstrated in the Art History program parents started at Van Gogh Elementary School in Granada Hills, California. The overall program involved selecting 20 artists per year who had diverse styles, colorful personal lives, and used accessible materials. Two or three examples of the artist's work would be enlarged to poster size and laminated, so they could be used from year to year. A short history of the artist was placed on a card with an emphasis on personal facts, such as why Van Gogh cut off his ear, or the fact that Monet was thought to have cataracts, or that Picasso was dyslexic. For fifteen short minutes, a parent presents a life story of the artist, then points out highlights of the art piece, particularly relating the art to the context of the artist's life (e.g., Picasso started painting his blue period when he broke up with his girlfriend.) The rest of the time is spent on a free art piece using a medium that the particular artist used.

The program used visual presentation to present facts in context (with humor), which made it more likely to be anchored in memory; it allowed students to manipulate materials in a way that could connect them to the experience of the artist; it allowed students to use their imagination to create whatever they wanted from the selection of materials so there could be no right or wrong product.

3. Metaphors are a magician's hat when it comes to illustrating ideas.

Metaphors are a highly effective way to illustrate relationships, patterns, and ideas. For the visual-spatial learner, a metaphor immediately creates a template to which they are able to compare their own version. In addition to stimulating right-hemispheric conscious thoughts, it also works to unlock unconscious associations. These unconscious associations create new associations and understanding long after the conscious process has moved on. The garden metaphor used in this article suggests beauty and growth, and the work it takes to nurture living things. Ultimately, teaching or parenting is very similar to gardening, so the metaphor allows all readers to fill in details of the kind of garden they wish to create, and what they need to do to make that happen.

The most reinforcing metaphors come from the children themselves; teaching them to explain an idea through metaphor is providing VSLs with an important life translation skill.

4. Use humor, costume, storytelling to entertain and inform.

In a recent memorable meeting of the Access Team of Visual-Spatial Resource, an organization created to support visual-spatial learning, five highly educated professionals spent an hour howling over quotes from the very creative and humorous movie and book, *The Princess Bride*, by William Goldman. Each of us had used references such as these in our classroom teaching, as well as in-service teacher and parent presentations; we all agreed that humor was an important way that we all kept our audiences, of every age, engaged.

Probably the most powerful way to illustrate an idea or to present information is by using cartoons or humorous stories. Try teaching current events or history by creating cartoons out of them; or put up a picture and have students add the caption. Teach the lessons of history in costume, or have students write them in play form and produce the results.

My son once had to dress up as Andrew Jackson before he was allowed to get credit for a report on Jackson's life. He had to make a brief presentation as if he was Jackson, and, in character, he answered questions about himself for the class. It was impressive how much he learned about the man, and remembers 10 years later.

5. Inductive logic: inspiring curiosity from the right hemisphere of the brain.

Deductive logic is the sequential method of using reasoning to develop a rule. Using deductive logic, the conclusion *follows from, is deduced from, or inferred from* the premises. Or, we may say the premises *imply, entail, or prove* the conclusion; the deduction starts as a specific statement or statements, and ends with a general statement.

Inductive, or ampliative, logic is when the conclusion "goes beyond" the premise; it is more like a puzzle in that it includes a challenge, rather than a statement. Some ampliative arguments go from general statements to

general statements, others go from general statements to specific statements. But, the easiest way to apply this technique is by playing the “What’s my Rule?” game. In this game, examples (such as math equations) are given and the students must use inference to uncover a general rule from these specific statements; the rule can then be tested by applying real numbers, or concrete examples. Another form of using inductive logic is to provide an answer and challenge the student to figure out the question or problems that will result in that answer; if it is math, you can specify the operations or number parameters. VSLs are better at math reasoning than computation, so this way of presenting the work gives them a chance to practice computation skills while demonstrating they understand the reasoning.

6. Games and puzzles reinforce concepts and inspire curiosity.

Whenever I have children who rebel against an assignment, I find that giving them the option of creating an alternative, equally illustrative project immediately ends the mutiny. My favorite is to have the student create a board game or puzzle that illustrates whatever it is, but that is fun enough that kids will want to play or solve it. The game must include whatever is being studied, all the covered material, and not be any more difficult than the test on the subject is likely to be. It also must be small enough to fit, with all its pieces, in an 8 x 12 inch manila envelope. In case you haven’t noticed, even if only some of these games turn into winners, you eventually have a set of reinforcing learning materials to keep for years to come. I make sure the student gets credit by naming it: “Johnny’s Fraction Game” or “Susie’s Cell Parts Game” and then it goes into a treasure chest that students may use if they finish their assigned work early. (Note: the game board usually has to be folded to fit into the envelope; but even if you laminate it, it will generally take one fold.)

7. Simulate, demonstrate, or manipulate something to explain it.

Some of the most exciting educational programs I’ve witnessed used no words at all: one morning during a presentation about the California missions, the teacher came to school dressed as a Spanish Conquistador. He motioned the students to follow him to the yard where an adobe-making project was set up. Using a walking stick and grunts, he taught them to make adobe bricks from the materials he’d laid out; they built an actual adobe wall around what later would become the garden of maize they later planted (they cooked tortillas from the corn they grew and ground up using a rock, on a fire they started with a real flint!) The amazing thing was that the children in the class who became the “interpreters” and, therefore, “foremen” for the adobe-making were the VSLs who spoke English as a second language—children often behind in school because of their English deficiencies. But, in this context, they had an advantage—they were keen observers, and had already learned the nonverbal skills necessary to make meaning from context alone.

8. Utilize visualization and mnemonic techniques to aid memory.

For instance, have VSLs imagine each spelling word as skywriting, or associate a picture with it and place the letters inside the picture. The computer is a fantastic tool for writing and spelling because it allows students to “see” the word, to visually edit their writing by easily moving words or sentences around, so they can see them in a new location. Associate memory facts to humorous acronyms: after 40 years the acronym for the order of the planets still works—My Very Excellent Mother Just Served Us Nine Pizzas, otherwise known as Mercury, Venus, Earth, Mars, Jupiter, Saturn Uranus, Neptune and Pluto. Or, put the words to music (the rock group, *They Might Be Giants*, are masters at this); anyone still sing the alphabet song when filing or looking something up in the dictionary?

9. Model a variety of ways to organize thoughts and ideas.

Most of us learned to organize our ideas by creating an outline—a sequential and logical process that simply doesn’t match the way a VSL thinks. The VSL thinks in bursts: imagine the Fourth of July when those huge firecrackers begin as a tiny dot flying into the air, only to burst into a hundred trails of bright light that fill the sky in all directions—that is how ideas come to VSLs.

Two alternative ways to organize ideas recreate a “thought-burst process:” Tony Buzan (1991, 1996) has written extensively on his Mind Mapping method of using pictures and something like a fire cracker design to organize subjects and thoughts. Another way of organizing thoughts is to use a structure like a tree (trunk is the main topic) and branches (the paragraphs), with smaller branches (sentences), and fruit (the details or descriptors.) Another metaphorical organizer was used for decades by a 95- year-old newspaper journalist—she liked to use the Mississippi River for her subject and various streams and tributaries to fill in the details. Or, allow students to make up their own metaphor, and brain-storm subjects and associations, and then use their metaphor to organize the results.

If you still feel that an outline is an important skill to master, teach VSLs to put their ideas on 3 x 5 inch cards as they brainstorm them, and then lay the cards out in a way that can generate an outline. Or, better still, teach them to use the computer program, *Inspiration*, that automatically does the translating for them.

10. Honor differences, reward innovations.

It’s ironic that visual-spatial students (often the least likely to get positive reinforcement from their teachers) are among those who are best motivated by encouragement and praise. VSLs tend to respond with enthusiasm to encouragement and praise; they are commensurately sensitive to being hurt by criticism and disapproval. Empathy and patience go a long way toward getting the best from visual-spatial children. Approval, positive incentives, encouragement, and acceptance not only inspire VSLs to work harder, but often have a lasting impact on their entire school experience.

One way of honoring their different way of thinking is to give multiple grades: such as one for content, and one for mechanics; or one for originality, and one for following directions; or give partial credit when the student has created something, even though it isn't exactly what was asked.



The Garden in Bloom

Everyone remembers one or two teachers from their school careers; VSLs first fondly recall the one who encouraged them, and recognized their gifts. Next, they remember the teacher who did the opposite—who left them without understanding and then shamed them by demonstrating their ignorance in front of the class, or who publicly chastised them, day in and day out, for not following directions the “right” way. With sensitive VSLs, teachers make the choice of whether they want to get credit for making a child’s year joyful and productive, or be remembered in a less favorable manner.

But, as the population of visual-spatial learners grows to meet the demands of our technically fast-paced world, we actually jeopardize our future progress every time we fail to meet their needs. These are the scientists, the engineers, the architects of future innovations; they naturally think outside the box. Let’s help them blossom into flowers that will turn the world into a more beautiful garden.

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