

Appendix A: The Visual-Spatial Learner in School

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There are two main ways of organizing the world. These are *spatial* (using space) and *sequential* (using time). Spatial people tend to use space as a whole. They get a sudden "aha" recognition of patterns or significant relationships that they see in their mind. Sequential people organize information by following a logical sequence of steps to a conclusion. Even when they are organizing space, they do it in a linear, orderly way, such as writing from left to right, or building an outline from the top down. There are also two basic learning styles: *visual-spatial* and *auditory-sequential*.

Auditory-sequential learners are good listeners. They do well with a step-by-step presentation of information. They process what they hear quickly and are usually able to express themselves well when they speak. Most schools teach in this auditory-sequential style. They break down complex information into small bits and present the easier steps first. Then they gradually move into the more complex and difficult parts.

In contrast, visual-spatial learners (VSLs) are fine observers. They think in images and usually see things as a whole. It may take a while for them to express themselves verbally, because they have to translate their images and thoughts into words. Sometimes it is hard for them to find the right words. Their thinking and emotions are very entwined. Their different learning style often makes them feel out-of-step in traditional school settings. Visual-spatial learners are not all the same. They are a varied group that includes persons talented in art, science, mechanics, technology, computers, math concepts, and understanding of human relationships—anything that uses strong visualization skills.

Recognition of the visual-spatial learning style is new in our society and it is not as well understood as the more established auditory-sequential style. This instrument is designed to help identify and understand visual-spatial learners. A cluster of VSL traits is needed for identification. The more traits, the more strongly spatial a learner will be. Some of the characteristics might also belong to sequential learners, because there is no dividing line between these two natural ways of organizing the world.

We have identified 8 basic categories, 32 *positive traits* (bold, coded with plus signs) clustered under these 8 categories, and 71 *potential school problems* (coded with minus signs.) Many VSLs are successful in school because they have good sequential abilities to complement their strong spatial abilities. They exhibit the 32 positive characteristics without many of the related school problems. Those VSLs who have problems in school usually have sequential weaknesses. When the degree of sequential weakness is severe, the student may suffer from a learning disability. However, "school problems" as used here does not necessarily mean a learning disability. It is necessary to refer a child to a qualified examiner to determine if a learning disability exists.

Identifying Characteristics of Visual-Spatial Learners

Are Visual, Not Auditory

- ⊕ **Have a strong visual learning style.**
 - ⊖ May find it hard to follow spoken directions, explanations or instructions, unless pictures, charts or other visual aids are also used.
 - ⊖ Some can pay attention only to a teacher who uses lots of visual aids and has a dramatic presentation style. Speaking in a monotone is especially hard for them to follow.

- ⊕ **Are excellent visualizers and learn best through visual imagery.**
 - ⊖ Need to visualize in order to follow and remember, but may not be aware they can do this. Some may need help and practice in visualizing.

- ⊕ **Think primarily in images instead of words.**
 - ⊖ May need extra time to translate their images and ideas into words.
 - ⊖ May know the answer but not be able to get it out quickly when asked a quick response question. (Need a longer response time.)
 - ⊖ If their eyes are looking upward, they may be searching for an image. If they are interrupted, the image can easily be lost.

- ⊕ **Learn from seeing better than from listening.**
 - ⊖ May have trouble learning from listening alone.
 - ⊖ May need to look away from a speaker in order to focus their listening attention, because looking and listening at the same time is too much.
 - ⊖ May have had many ear infections when young. This can result in problems of processing what they hear. Sometimes this kind of inattention may be mistaken for attention deficit disorder.

- ⊕ **Remember lectures best through their own kind of note-taking, which may be pictures, doodles or webs showing relationships.**
 - ⊖ They may try to capture complex ideas with "chicken scratch" notations.
 - ⊖ They may be restricted from "doodling" by teachers who do not understand what they are doing.
 - ⊖ Note-taking may be a real problem, especially in middle and high school. They often cannot listen and write.

Are Spatial, Not Sequential

- ⊕ **Are more space oriented and less time oriented.** (For example, when very young, may know how to get to a favorite place even when the route is complicated. Or may know exactly what rooms are above or below them in a large building. But they won't be dressed on time or ready to go.)
 - ⊖ Have little sense of time. Scheduling is not a strength.
 - ⊖ May have a terrible time meeting deadlines and need help with organizational strategies.
- ⊕ **Reach correct conclusions without taking any visible steps.**
 - ⊖ May not be able to show their work.
 - ⊖ Because they don't know the steps they took (if any) to get their answer, they may not be confident about being able to do it again.
 - ⊖ May be accused of cheating by teachers because they cannot show their steps.
 - ⊖ May blurt out an answer because they are afraid they will lose their idea and not be able to reconstruct it.

- ⊕ **Are natural non-linear processors. They are global thinkers.**
 - ☐ May not learn readily when material is presented in the usual sequential order.
 - ☐ May have a lot of difficulty following someone else's line of thinking.
 - ☐ May not become automatic in left-to-right reading. They may have difficulty remembering right from left.
 - ☐ May reverse words or letters or numbers and this problem may persist throughout school years.
 - ☐ May not learn to read directly from phonics instruction. May need to apply analytic phonics after learning many whole words by sight.
 - ☐ May solve problems by starting at the end and working backward or at the middle and working toward both ends. This may not be acceptable in a class situation.

Are Holistic, Not Detail Oriented

- ⊕ **Are whole-to-part learners who need to see the big picture first. They grasp concepts and systems all at once and only later learn the details.**
 - ☐ Need a frame of reference to help them in their learning process.
 - ☐ Putting information in a larger context is essential for them to absorb new material.
 - ☐ May fail to remember details unless they are helped to see the big picture first or are given a framework to fit details into so that it all makes sense to them.
 - ☐ May score poorly on tests because they fail to focus on small details.
 - ☐ Have much difficulty learning and remembering isolated bits of information.

- ⊕ **Often grasp a concept or process with only one or two examples—the “aha” phenomenon.**
 - ⊖ Many examples of the same kind don't make a concept any clearer to them and may turn off their thinking processes. If they don't get the idea with the first few examples, they need a different approach, a new angle.

- ⊕ **Grasp ideas as a complete whole, with all the parts connected.**
 - ⊖ May be upset when their ideas are analyzed, revised, or “improved” because it feels as if the whole idea has been destroyed.
 - ⊖ May need to visualize something as complete before beginning a project.
 - ⊖ May not turn in a school assignment because it feels incomplete—only a part of what they see as a bigger whole.
 - ⊖ May find it hard to take tests until they feel they have an understanding of the whole.

- ⊕ **See the interrelationships between ideas. This is very important to them.**
 - ⊖ Have difficulty separating out main and supporting ideas or summarizing.
 - ⊖ May have difficulty with multiple choice tests because they can see ways in which many answers could be right. If asked, they can support these answers.
 - ⊖ May find the expected answers in true/false tests too simplistic. They see the situations as more complex.

Are Focused On Ideas, Not Format

- + Continually build permanent frameworks of ideas instead of memorizing rote information that is easily forgotten.**
 - ▣ Do not learn through drill, practice or repetition.
 - ▣ Learn best when information is meaningful to them. May need to ask a series of questions to understand fully.
 - ▣ Rote memorization is a weakness.

- + Are much more interested in ideas than in the particulars of their presentation.**
 - ▣ Are likely to make errors in computation, grammar, spelling and punctuation.

- + Are oriented to the process, not the product.**
 - ▣ What is important to them is their own understanding of an idea. They may be less interested in demonstrating their mastery to someone else in the form of a product.
 - ▣ They may know much more than they show.

Seek Patterns

- + Look for patterns and connections. Often they will find patterns no one has noticed before. Sometimes they will notice connections between things that other people see as quite different.**
 - ▣ May have difficulty learning unless they see a pattern or can make connections with something they already know.
 - ▣ May find these patterns, connections, and explorations more interesting than what is being taught. May find it hard to hold their focus on narrowly focused topics.

Are Divergent, Not Convergent

- + Are divergent thinkers, preferring solutions that are more creative.**

- ☐ May be actually unaware of the more usual methods of problem-solving or classification—or they may be unable to use these because they have things framed in a different way.
- ☐ **Are highly imaginative and creative.**
 - ☐ May have their own creative approach which conflicts with a teacher's conventional approach.
- ☐ **May be artistic.**
 - ☐ May be a persistent doodler or sketcher, even during teacher presentations.
- ☐ **Tend to be rhythmic and musical.**
 - ☐ May be a finger drummer. May need rhythm and music to enhance learning. May actually do homework better with the radio or TV on.
- ☐ **May be inventive and have mechanical aptitude.**
 - ☐ May daydream, visualizing machines or inventions rather than the subject at hand.
 - ☐ May require a hands-on approach to learning.
- ☐ **May be used to setting their own agenda for learning because they learn in their own way.**
 - ☐ May find it hard to leave a project and move on to the next scheduled thing.

Are Sensitive and Intense

- ☐ **May have acutely developed senses.**
 - ☐ Can be distracted easily by a variety of sounds, movements, etc.
 - ☐ It may be difficult for them to ignore things in the environment that probably wouldn't bother others, such as bright lights, noises of motors, fans, etc.
- ☐ **Respond very readily to many things in their environment.**

- ☐ Are easily irritated by many conditions, such as wool or nubby socks, clothing tags, certain foods, changes in air pressure, environmental chemicals, even the presence of others around them.
- ☐ **May exhibit a great deal of energy.**
 - ☐ May need to move their bodies or their hands to learn, think, or talk fluently.
- ☐ **Are highly sensitive emotionally. Learn best when emotionally involved.**
 - ☐ May need emotional involvement in order to learn.
 - ☐ Do not respond well to criticism, even when it is intended to be constructive.
 - ☐ May need what they learn to be personally significant to them.
- ☐ **May be highly aware of other people's feelings.**
 - ☐ May be aware of unspoken disapproval by a teacher or other students.
- ☐ **Are able to focus extremely intently on a topic.**
 - ☐ May have trouble moving from one task to another.

Display Variable "Asynchronous" Development

- ☐ **Think faster than their hands can capture, because mental development is often ahead of fine motor skills.**
 - ☐ May have illegible handwriting with poorly formed letters. Sometimes this is a jumble of cursive and manuscript letters without spacing between words.
 - ☐ May never feel comfortable with cursive writing and choose to print, even as adults.
 - ☐ May be frustrated with writing assignments and unwilling to write down their thoughts. May be unable to capture thoughts in writing.

- ⊕ **May be spatially gifted and “verbally inconvenienced.”***
 - ☐ May be afraid of public speaking and other situations where quick responses are needed.
 - ☐ May have trouble finding the right words to express their ideas.
 - ☐ May not be able to retrieve words quickly enough to explain themselves when asked to justify their ideas. This can be very embarrassing.

- ⊕ **Often succeed at more complex tasks yet continue to have difficulties with simple tasks.**
 - ☐ May have found it difficult to memorize math facts, yet can do well with more complex mathematical concepts.
 - ☐ May write at a much lower level than they speak because they are afraid of misspelling words.
 - ☐ *May be frustrated and even turned off from learning by being held to mastery of simple material when they are capable of excelling at complex work. (This is important.)*

- ⊕ **May have wide discrepancies on different portions of IQ tests.**

Scores may be much higher on spatial relations (e.g., Block Design) and measures of verbal abstract reasoning (e.g., Vocabulary, Similarities, Comprehension, Information) than on measures of attention and sequential memory (e.g., Arithmetic, Digit Span, Coding).

 - ☐ If discrepancies exceed 9 points, learning disabilities may be indicated.

*Lohman, D. F. (1994). Spatially gifted, verbally inconvenienced. In N. Colangelo, S. G. Assouline, & D. L. Ambrosio (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.

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