Learning styles

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Sequential versus holistic (conceptual) learning styles

Around two-thirds of children learn new concepts one idea at a time. These children are *sequential*. They think logically, attend to details, plan ahead and are organised.

The remaining one-third of children learns whole concepts all at once, rather than being sequential. These *conceptual or holistic learners* miss details as they focus instead on the bigger picture. They can see a whole pattern all at once, so have no need to break it down into its component parts in order to understand it. This means that they often find sequential tasks frustrating, as these require a one-step-at-a-time approach, whereas these learners prefer to do things as a whole. They may take longer to grasp new ideas but then, in an 'aha' moment, finally understand the concept entirely. Holistic children can seem to be slow learners but then suddenly surprise us with their conceptual knowledge. They learn intuitively, with the result that the processes they use to arrive at answers can puzzle their sequential teachers.

This distinction is the first aspect of learning: our *style*.

Comparison of sequential and holistic learners

(Silverman, 2002, pp. 70-71)

The sequential learner	**The holistic learner**
Typically 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
Does well at arithmetic	Is better at maths reasoning than computation; cannot show workings when solving maths equations, although arrives at correct answers
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 organised	Creates unique methods of organisation
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 method 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 uneven grades across subjects
Enjoys algebra and chemistry	Enjoys geometry and physics
Masters other languages in classes	Masters other languages through immersion
Has academic strengths	Has creative, technological, mechanical emotional or spiritual strengths

Verbal versus visual modality

The second aspect of learning is the modality in which we learn best. Young children almost universally learn physically but, by the age of five, convert to deal most comfortably with either verbal or visual input (Robinson & Sloutsky 2004).

Verbal children are good at listening to instructions and talk to themselves (think in sentences) to plan their activities.

In contrast, children who are visual cannot take in long sequences of verbal instructions and cannot be reasoned with verbally, especially when distressed; they find it difficult to change tack when they have a fixed plan of action in their minds.

Combination of style and modality

Children who are sequential are typically good listeners. The same is true in reverse: those who are good at listening typically develop into sequential learners, because language is sequential. When they listen well, they get a lot of practice at taking in information one idea at a time. Therefore, in addition to their logic and attention to details, verbal-sequential learners respond well to verbal instructions.

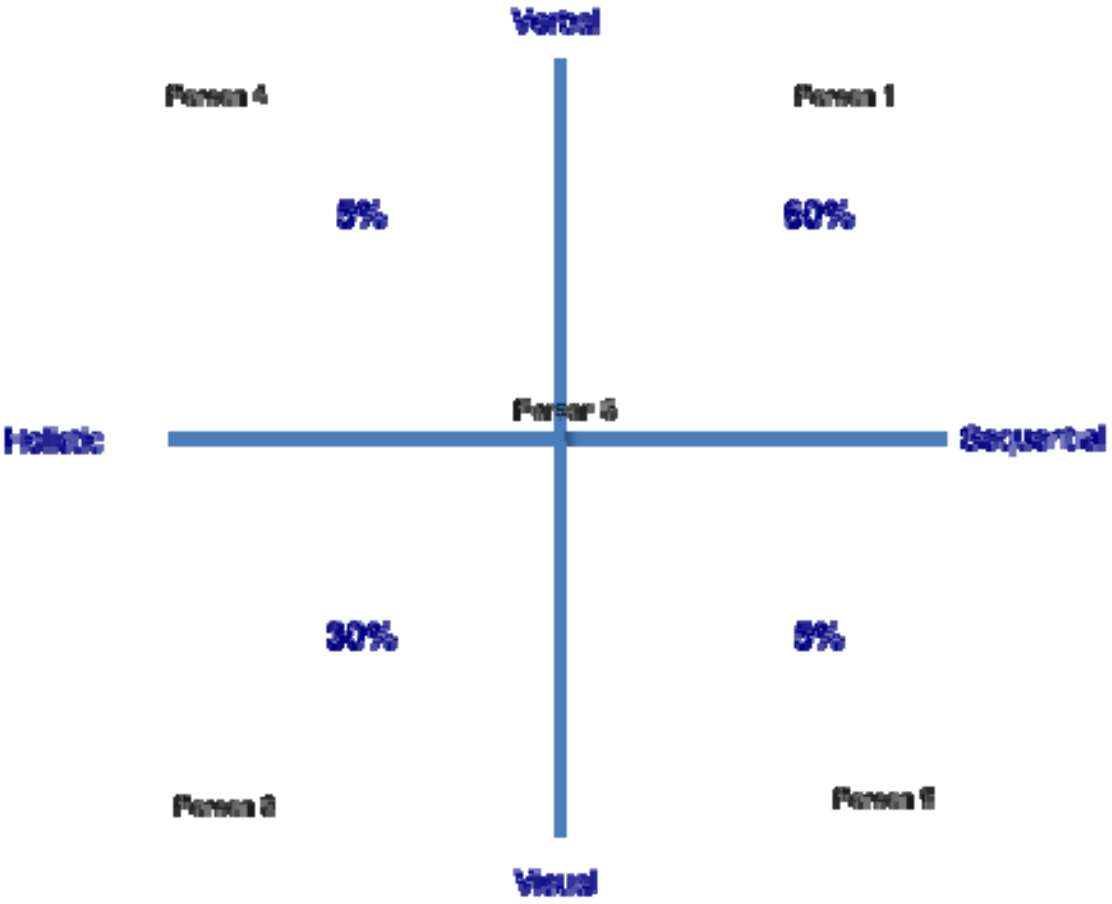
Visual learners usually (but not always) develop into holistic learners, because images appear as a whole (like looking at a painting in an art gallery). They gain practice at picturing the whole concept.

The diagram on the next page illustrates various learning styles (with the percentage in each quadrant being estimates only):

- Person 1 has excellent verbal skills and equally good sequencing abilities. This is the stereotypical proficient auditory-sequential learner.
- Person 2 is strong at visualising and learns concepts as a whole. This is the stereotypical visual-holistic learner. (In most of the literature, this is the person who is being referred to as 'visual-spatial' although descriptions tap into the holistic dimension as much as the visual.)
- Person 3 is balanced: has good verbal skills but is also capable at visual abilities; and can learn either sequentially or holistically.

There are two potential exceptions to these three typical patterns:

- Person 4 has excellent verbal skills but nevertheless learns holistically. These children's verbal abilities cause adults to expect strong sequential and logical abilities, but these skills are surprisingly deficient. They are often accused of having ADD because of their poor planning and sequencing skills, but they can focus on meaningful tasks – that is, those that require them to apply concepts.
- Person 5 is theoretically possible, although I have not met any of them. This person is visual but sequential.



Visual-holistic learners

Remember that the majority of conceptual learners favour visualising. (They are represented as person 2 in the above diagram and constitute approximately 30% of learners.) Visual-holistic learners gravitate towards activities involving the building, creating or manipulation of objects, including art, building, cooking, design, drawing, inventing and the assembly and disassembly of objects.

While the world needs these skills, the learning style of visual-holistic learners is often at odds with the more usual auditory-sequential teaching style in schools. While this has always been the case, today's generation of children presents a new phenomenon. A few generations ago, by school age, most visual children would have converted to listening. In the past, they had only the radio to listen to and they *had* to become auditory. Nowadays, however, with all the computer and videogames, DVDs and movies that children are exposed to, visual learners no longer have to convert to listening. Today's teachers (who learn auditorally because that was how they got through their own schooling and teacher preparation) often misinterpret a visual-holistic learning style as a learning difficulty (as deficient sequencing), rather than as a strength.

In school tasks, visual-holistic learning styles appear as:

- an apparent difficulty with following more than one instruction in a sequence;
- getting the correct answer to maths questions without following a sequence of steps, as a result of which they are often accused of not grasping the concepts, of copying someone else's work, or being illogical;
- irritation at having to show workings with such things as arithmetic equations;
- the ability to read words as a whole, rather than phonetically – and teaching reading phonetically only confuses them;
- having difficulty with tasks that, to auditory-sequential learners, seem easy (as they contain few steps) while being very able at tasks that, to others, seem difficult because they demand abstract reasoning. As a result, conceptual learners can appear not to be applying themselves to or can fail at routine tasks – which, in turn, can mean that they are not given the challenge of more stimulating tasks (at which they are likely to be very successful);
- having great difficulty telling or writing stories sequentially (because they cannot figure out where to start and what needs to go next in the story);
- being more than usually intolerant of rehearsal and repetition as, once you have seen a complete picture, rehearsal does not improve that image (whereas rehearsal does improve the recall of auditory-sequential learners);
- being inflexible when adults' instructions differ from the plan they imagine in their head, such that they will negotiate with adults rather than conform to their instructions; and/or
- tuning out auditory information (appearing to daydream or withdrawing physically from auditory stimulation), especially when exposed to visual stimulation, such as when they are watching TV or picturing concepts in their heads;
- having strong preferences for visual input, such as TV and computer games.

Adjusting instruction for visual-holistic learners

To adults with an auditory-sequential learning style. It can appear that visual-holistic learners are being disorganised and obstinate, when instead the children need to be able to picture what we are asking them to do, not just hear about it. These children often complain that other people do not understand them, which has a ring of truth about it, as auditory learners *do* find it difficult to understand how visual-holistic learners are

thinking. The following strategies can be useful.

- Before giving an instruction, make sure you have eye contact with visual children. Stand between them and the TV, or move within their line of sight, and then give them a moment to change out of picturing mode into listening mode, so they can take in what you are about to tell them.
- Give instructions in visual language. Rather than: 'Get your pyjamas and a book from your room' try, 'Picture your room…Can you see where your pyjamas are at the moment?…Okay, get them.' If your child can handle two-part directives, add in the instruction to locate the book; otherwise, deliver that after the first part is completed.
- Sometimes these children have a fixed picture that they need, say, to complete their model space station, but this conflicts with your imperative that they get ready for school. In such situations, do not force them to abandon their picture entirely but just set it aside temporarily. You might instruct them to 'change channels' in their head – just as they change channels on the TV – to shift attention to another picture, knowing that they can return to their own picture at another time – say, after school.
- Take photos of the tasks they need to do each morning: breakfast, toothbrush, hairbrush, clothes, the made bed, and so on, and put these on a chart or a series of index what they need to do to get ready for school.
- To help holistic children to appreciate their skills, when giving feedback, it is important to highlight not their products but the processes that they used to attain outcomes. Dispositions that are valuable to foster can be:
  - the *creative* dispositions: imaginativeness, being open to new ideas and experiences, having tolerance of ambiguity, curiosity, adventurousness, exploration, being adventurous or playful; seeking alternatives;
  - *reflective* skills: the use of metacognitive strategies of self-awareness, self-control (including impulse control), and self-monitoring to regulate one's own thinking;
  - *critical* thinking skills: being planful, strategic, inquiring, investigative, intellectually rigorous and logical (seeking truth, reason and evidence);
  - *emotional* dispositions: engagement, motivation, persistence, perseverance, patience, independence, cooperativeness, confidence, delay of gratification and enthusiasm for learning.
- Visual or holistic learners typically *can* perform sequences but, being so proficient at holistic or conceptual learning, prefer to do things in their favourite mode. If we forced them to learn sequentially, this would be like asking them to drive a car in reverse for an entire journey: the car can do it, but it is more efficient to drive forwards. We do not want to take away their more efficient style away, but supplement it with enhanced sequencing abilities that they could employ when those skills would produce more success. Therefore, it can help to cue holistic learners to perform the sequence of steps for problem solving. The first step is to remind him to pause…then ask, 'Where will you start? What will you do first?'….'Is it working?'…'What will you do next?'…'Is that working?'…'Are you finished?'.
- These children will be experiencing a disparity between his learning style and the typical sequential and analytical style of teaching. It will help to:

- give them the bigger picture first before asking them to apply themselves to details: they can learn only when the task has some *meaning* for them;
- explain the rationale for a task or explain it as being a small part of becoming competent at bigger skills;
- give them extra *time* to devote to their conceptual learning. This means giving them less homework so that they are not so busy that they have not time to learn anything meaningful, reducing the number of structured extra-curricular activities, and giving extra time in class and in tests for them to think in the sequential ways that do not come naturally to them.

References

Robinson, C.W. & Sloutsky, V.M. (2004). Auditory dominance and its change in the course of development. *Child Development, 75* (5), 1387-1401.

Silverman, L.K. (2002). *Upside-down brilliance: The visual-spatial learner.* Denver, CO: DeLeon.

Further resources

Golon, A.S. (2004). *Raising topsy-turvy kids: Successfully parenting your visual-spatial child.*

Golon, A.S. *If you could see the way I think: A handbook for visual-spatial kids*.

Golon, A.S. *The visual-spatial classroom: Differentiation strategies that engaged every learner!*

Silverman, L.K. (2002). *Upside-down brilliance: The visual-spatial learner.* Denver, CO: DeLeon.

Websites

www.gifteddevelopment.com

www.VisualSpatial.org