



Dyslexia and Mapping Out the Mind [Premium]

by [DYSLEXIC ADVANTAGE TEAM](#) | | [BEING DYSLEXIC](#), [BRAIN](#), [CREATIVITY](#), [DYSLEXIA](#), [DYSLEXIC ADVANTAGE MAGAZINE](#), [DYSLEXIC ADVANTAGES](#), [GIFTED](#), [LEARNING](#), [MIND STRENGTHS](#), [NEURODIVERSITY](#), [NEWSLETTER](#), [PREMIUM](#), [PREMIUM CONTENT](#), [STRATEGIES](#) | [0 COMMENTS](#)



When Dan Pink wrote his book about the world needing more skills of the Conceptual Age, many in the dyslexia community couldn't help but notice that his list looked a lot like common lists of dyslexic strengths:

- Artistry
- Inventiveness
- Big-picture thinking
- Pattern recognition
- Empathy

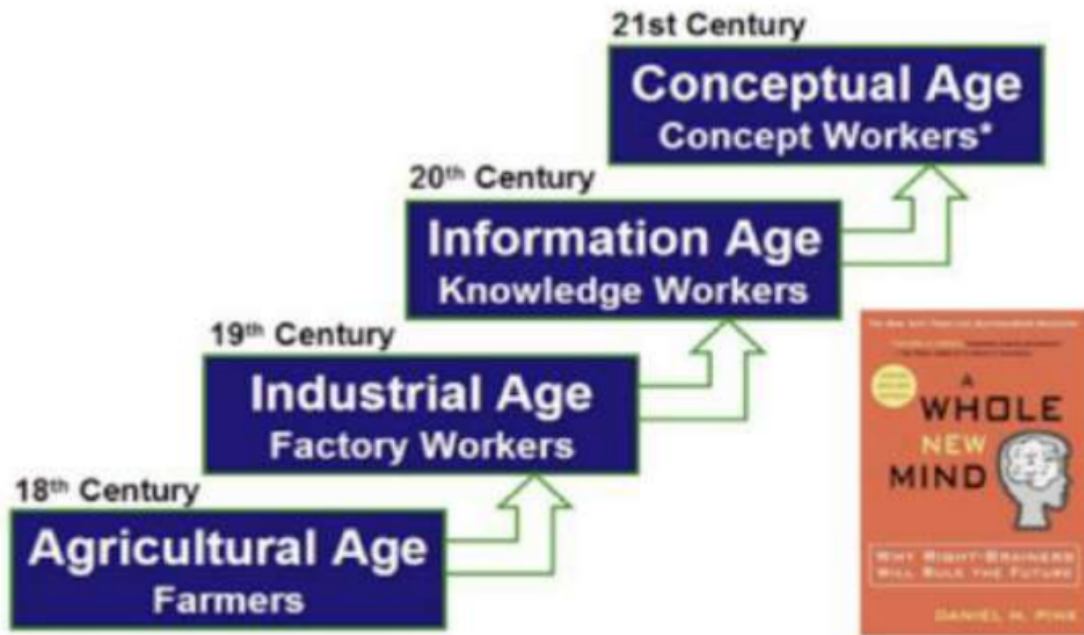
The implications for education and careers were straightforward.

The goals of education and satisfying work should not be mere mastery of information, but a mastery of concepts that could be used flexibly to solve problems and create things that are new.

Pink is not a neuroscientist; he is a popular author and observer of trends.

Where are we now in our understanding of "dyslexic thinking"?

There are many interesting lines of thought coming together these days that may explain some common patterns of dyslexic learning patterns and suggest why certain strategies of learning and lines of work may be especially fruitful.



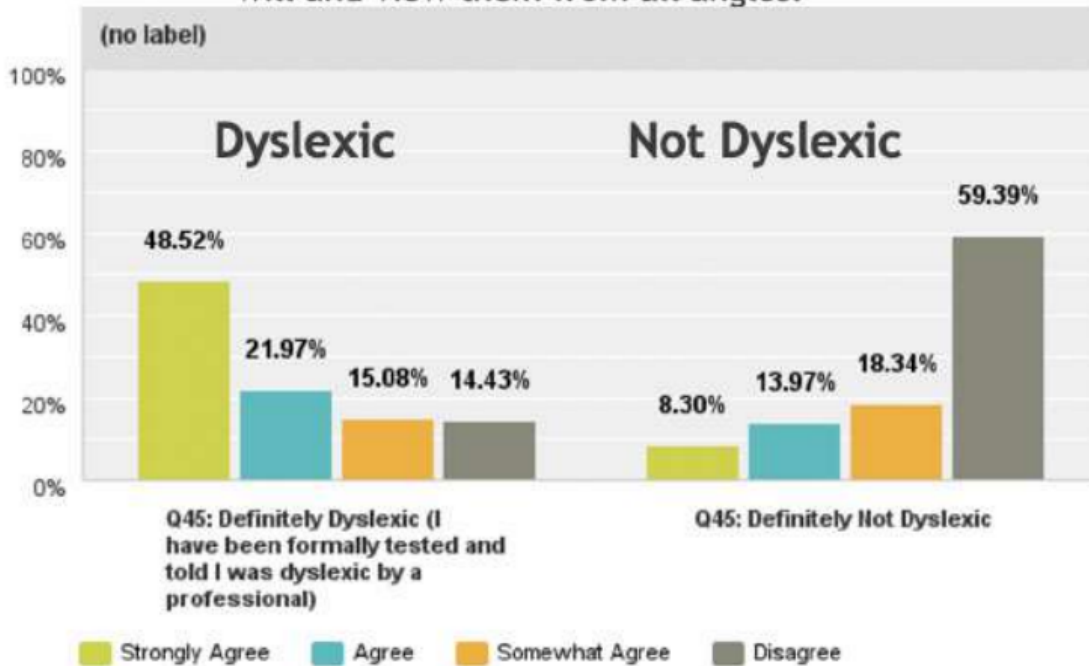
Source: Dan Pink

SPATIAL AND EXPERIENTIAL LEARNING – Hippocampus Grid Cells

One talent cluster we spoke about in our book, [The Dyslexic Advantage](#), is the M-Strength of Material Reasoning. [Researchers have recently made great progress understanding how brains learn from multisensory experiences.](#)

There are different locations in the brain for dictionary wordbased knowledge vs. multisensory and spatial information. Some people may have balanced ways of learning, while others may be very uneven.

: I can form 3D spatial images in my mind, and I can manipulate them at will and view them from all angles.



In the survey data above from the Dyslexic Advantage community, look at the dramatic differences between being able to form spatial images in one’s mind and seeing things from different perspectives depending if they were dyslexic or non-dyslexic.

Consistent with spatial strengths in general among dyslexic adolescents, researchers in the United Kingdom found that dyslexic students out-performed non-dyslexics on tests of virtual reality spatial navigation.

Educationally, spatial skills often receive little explicit attention in traditional subjects other than the arts or STEM, however recent research neuroscience developments suggest that spatial skills may also map in brain regions that involve learning from direct experience, recall of video (multisensory) information, generation of concepts, and the making of mental scenes. These activities could be applied to all subjects... not just art or STEM.

These observations tie in some classic observations of outstanding educationalists like **Tim Miles** who noticed that changing conventional study sessions into personal experiences (e.g. by making colorful posters, making up funny jingles, studying with a friend) can support learning and memory.

MAKING A SPATIAL MAP OF INFORMATION TO LEARN

Often when interviewing dyslexic adults about their thinking processes, they have told us how they recall learning and retrieve information spatially. Some may use a vertical sense of numbers, while others may recall walking through information on a board. Those of us

who are educators or health professionals, probably don't think **to ask our students as much about how they recall information.** Their answers may surprised you and be much different from how you learn and think.

Perhaps here in the US, because it's been so difficult connecting dyslexic students to appropriate reading based intervention, other aspects of dyslexia-related learning differences have been overlooked.

An illustration is Dr. Susie Nyman's example of teaching science (below):

vidéo
Dyslexia teaching points: Multi-sensory
techniques for teaching science
<https://youtu.be/blzZzbrlK9c>

Walking through the chambers of the heart can make the anatomy more memorable for strong spatial and experiential learners because the information is taken in spatially and as a personal experience.

METACOGNITION: IT'S NEVER TOO LATE TO START

In our experience, **it's never too late for anyone to think about how they think and learn.** Reflection about how we learn best is something we all can do.

Savvy super metacognitive dyslexics have told us that once they figured out how they learned – they converted ALL their learning to that route...if they had the freedom to do it, that is. In some cases, that took the form of an innovative private school, while others homeschooled, or others put in their hours working after school.

For “spiky profile” people with big differences in particular routes of learning, they may have to reformat their learning or walk away with no lasting learning at all.

LEARNING WITH THE DEFAULT MODE NETWORK

Besides the spatial map that may enhance certain types of learning for students, there is also the default mode network which **might** be a particular strength for dyslexics. This interesting network of brain regions has roles in multimodal sensory experiences, social interaction and perspective-sharing, personal memory, mental simulation, and visualization. It's a network that's particularly activated by multisensory experiences like film, and the generation of new ideas.

ADVICE FOR LEARNING IN 2021-2022

Do you know where you stand on MIND strengths? **Neurolearning** has now posted their MIND strengths self-profile on their app for free. It's available for kids as well as adults. For iOS devices: **HERE**. For Android **HERE**. For Kindle Fire **HERE**. The free MIND strengths survey does not require you to pay for the Dyslexia Assessment tool.

If your student has trouble mastering a subject or material, see whether adding more spatial aspects (making a simple model, walking through the material while saying key points aloud, etc.) improves retention.

Some of these factors might explain why many successful structured literacy curricula have movements or activities involved with learning and why many students benefit from the use of manipulatives when learning math concepts.

WHAT IF STUDENTS DON'T SEEM TO HAVE SPATIAL STRENGTHS?

It's important to be aware that many of the spatial strengths associated with dyslexia may be somewhat late blooming or, perhaps, not bloom beyond average abilities at all.

Sometimes students are dyspraxic, leading to difficulty with spatial activities or perceptions in 3-dimensional space.

Students who don't have spatial strengths may still learn well with novelty, humor, music, or stories, and not require manipulatives, movements, or experiencing information in the ways that other students may need.

If a person has some mild dyspraxia (motor sequencing difficulties), then certain tasks like hand motions, manipulatives, or even card sorts can interfere with efficient learning rather than help or even be neutral.

Spatial strengths can of course improve with practice – and sometimes therapy..., knowing a particular student's relative strengths and weaknesses can help you tailor a program that

leverages strengths, but also allows time to improve weaknesses.

WATCHING VIDEO AND LISTENING TO STORIES ACTIVATES THE DEFAULT MODE NETWORK (DMN); DON'T OVER-TEST.

Finally, another little pearl that might be helpful if you are teaching or tutoring students this year...as always, teach for understanding, but don't feel as if you must test your student all the time when they are learning. Studies have shown (for instance [HERE](#)), that interactive multimedia sometimes reduces open-ended learning. From that paper:

"The DMN is strongly implicated in the processing, comprehension and memory of narrative receptive media including aural, audiovisual, and text media.. More recently, Tikka, Kauttinen, and Hlushchuk (2018) found that the same networks (principally the DMN) are activated by the same parts of a narrative whether read as text or viewed as a movie. The DMN thus appears to have an abstract narrative function, integrating causal and contextual information across entire stories. Given these findings, it is not surprising that adults who listened to the same stories in different languages activated these same narrative comprehension structures... (Honey, Thompson, Lerner, & Hasson, 2012)"

Interestingly, in this study, the researchers also compared conventional video watching to "interactive watching" (e.g. video game format) which required some decision by the watcher or reader to continue the movie. What the researchers found is that this interactive mode was not better for broader aspects of learning; in fact, it was worse for "big picture" or incidental learning. Students tended to remember just what they were asked at the time rather than other facts or bigger implications of what they had seen.

The Dorsal Attention Network is the network of brain areas activated with this interactive learning, whereas passive watching or listening activated the Default Mode Network.

All this may sound a little bit complicated – but if you set out to learn something by watching a film or listening to an audiobook, if you just listen and don't focus on answering questions along the way – you're more likely to remember broader aspects of the information presented and probably more likely to apply that knowledge to other contexts or situations. On the other hand, if you were asked to do interactive watching or listening (like some MOOCs, video games, or interactive novels), you will more likely remember what you were specifically asked – and remember those aspects of the story rather than things not explicitly presented.

So that is part of the advice for not over-testing. If you are supervising a student in the upcoming school year -encourage deep learning, but resist the impulse to over-test. Model how new knowledge may apply to real life problems or situations and encourage students to wonder and extrapolate what they know to new situations. Take a broad view of

knowledge (i.e. not just memorizing or learning for a test) and return to information later (spaced learning) in order to reinforce ideas.



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