

BOOK REVIEW: Temple Grandin's latest book, *The Autistic Brain* By Dave Lehman, Connections Executive Editor, NSRF National Facilitator, and CFG Coach in Wisconsin, davelehman@mac.com

The Autistic Brain: Thinking Across the Spectrum

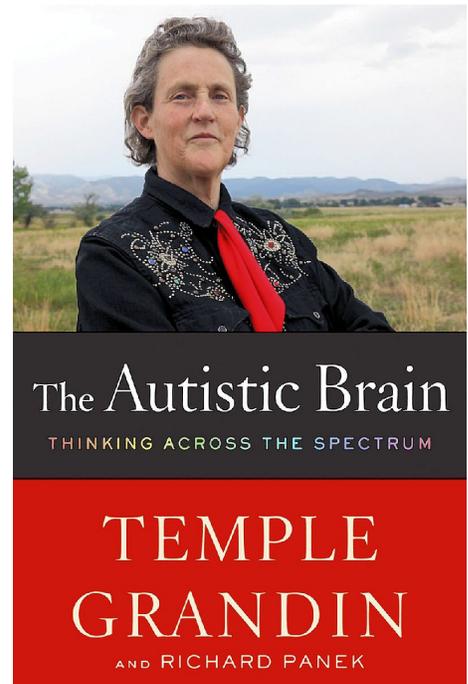
By Temple Grandin (with Richard Panek), 2013, Houghton Mifflin Harcourt

Several years ago, before Temple Grandin was named one of *Time Magazine's 100 Most Influential People*, or had given her *TED Talk*, or was portrayed by Claire Dane in an *HBO movie* about her life, I had the opportunity to hear an amazing speaker address a huge audience in Bailey Hall at Cornell University. A Professor of Animal Science at Colorado State University, Fort Collins, the speaker was beginning to be known internationally for her innovative design of cattle-handling facilities and other more humane methods of working with domestic animals. She spoke not from a written script or typed-out speech, but from a series of images on a large projection screen because, as she put it, she “thinks in pictures.” That night, the speaker surprised me at first with her appearance: dressed in a western shirt and tie (what has now become her signature style), the middle-aged Dr. Grandin was there to speak about her life with Autism. Soon, like the rest of the audience, I was captivated and rather awed. And soon after, Time magazine, the TED Conference, and the rest of the world felt similarly.

Grandin is now the author, co-author, or editor of twelve books. Three of my favorites include *Thinking in Pictures: And Other Reports from my Life with Autism*, and two with Catherine Johnson, *Animals in Translation: Using the Mysteries of Autism to Decode Animal Behavior* and *Animals Make Us Human: Creating the Best Life for Animals*.

Her twelfth book arrived in bookstores this year: a deep look into her own brain and behavior and an amazingly readable review of the past twenty plus years of research into ASD, the Autism Spectrum Disorder. In *The Autistic Brain*, Grandin retraces and recounts her own subjection to every neuroimaging brain technique available, from “structural MRI” (Magnetic Resonance Imaging) of the 1970s and “fMRI” (Functional Magnetic Resonance Imaging) in 1991, to the most recent techniques of “FA.” Functional Anisotropy measures the movement of water molecules through the white-matter tracts below the brain’s outer layer or cortex, deep inside the brain. She’s also undergone the recent “DTI” and “HDFT” (Diffusion Tensor Imaging and High-Definition Fiber Tracking) begun in 2012.

Excitedly, Grandin describes the new DTI technology as showing “the highways and off-ramps and crossroads of your brain as if they were all on a two-dimensional map.”



Then she goes on to explain that the new HDFT brain scans can actually track individualized fibers over long stretches, farther than any previous technology: “It even shows if a damaged circuit still has continuity or if it’s stopped transmitting.”

Enough of the neuroscience already, you say! Why is this so significant? Temple Grandin answers:

“HDFT is going to have a major impact on diagnoses involving brain trauma... First, the diagnoses are going to be more precise. The existing state-of-the-art DTI scanner collects data from 51 directions. HDFT collects data from 257 directions. As a result, HDFT doesn’t just tell you what section of the brain has been damaged. It tells you what specific fibers have been damaged, and how many. Second, the diagnoses are going to be more persuasive.... HDFT will show what the blows to the head [in concussions] have done to the brain.”

Grandin goes on to explain how when her own brain was scanned using this new technique, it showed two findings that “really jumped out.”

*“One, my visual tract is huge – 400 percent of a control subject’s [Remember her wordless slides and how she self-describes as “thinking in pictures.”]. Two, the ‘say what you see’ connection in the auditory system is puny – one percent of a control subject’s. This finding made sense. In my book **Emergence [Labeled Autistic]**, I discussed my childhood speech problem: ‘It was similar to stuttering. The words just wouldn’t come out’.”*

Grandin underwent the HDFT scanning under the direction of Walter Schneider of the Learning Research and Development Center at the University of Pittsburgh. (Incidentally, the scanning was shown and discussed on a “60 Minutes” TV show!). Grandin reiterated Schneider's hypothesis as:

“Something happened developmentally during the single-word phase [of early child development] so that the fibers didn’t form a connection between ‘what you’re seeing’ and ‘what you’re saying.’ This would be the tract that was one percent of the size of the control subject’s. To compensate, my brain sprouted new fibers, and they tried to go somewhere, anywhere. Where they wound up primarily was in the visual area rather than traditional language-production areas. That’s the tract that was 400 percent of the size of the control subject’s.”

In such a scenario, Schneider continued, the babbling

phase might be normal but language development would slow down dramatically between ages one and two, which would match a developmental pattern that the parents of children diagnosed with autism often report.

But what does this have to offer teachers who are working with Autism Spectrum Diagnosed students? The central point that Temple Grandin stresses throughout her book, given her own personal experiences as well as her incredible research into ASD, is NOT to focus on the deficits. Rather than putting your attention on what the child, the ASD student in your classroom cannot do, focus on their strengths! Here’s how she puts it:

“I’m concerned when ten-year-olds introduce themselves to me and all they want to talk about is ‘my Asperger’s’ or ‘my autism.’ I’d rather hear about ‘my science project’ or ‘my history book’ or ‘what I want to be when I grow up.’ I want to hear about their interests, their strengths, their hopes. I want them to have the same advantages and opportunities in education and the marketplace that I did.

I find the same inability to think about children’s strengths in their parents. I’ll say, ‘What does your kid like? What is your kid good at?’ and I can see the confusion in their faces. Like? Good at? My Timmy?”

I have a routine I follow in these cases. What’s your child’s favorite subject? Does he have any hobbies? Does she have anything she’s done – artwork, crafts, anything – that she can show me?”

In a similar vein, in the middle of her book, Grandin provides a particularly useful summary chart in which she identifies persons with visual-processing problems, auditory-processing problems, touch and tactile sensitivity, and olfactory and taste sensitivity with practical tips for people with each of these symptoms of ASD. For example, in the part of the chart dealing with touch and tactile sensitivity she first lists these identifying characteristics:

** pulls away when hugged by familiar figure*

** takes off all clothes or wears only certain articles (wool and other scratchy material cause the most problems)*

** seeks deep-pressure stimulation by getting under heavy pillows or carpets, rolling up in blankets, or squeezing into tight spots (for instance, between a mattress and box spring)*

** lashes out or throws a tantrum when lightly touched*

She offers the following practical tips for people with tactile sensitivity:

** Deep pressure can help desensitize an individual; it can also help teach feelings of kindness. Most individuals with autism can be desensitized and can learn to tolerate being hugged by, for instance, wearing weighted vests, getting under heavy cushions, or receiving firm massages.*

** Sensitivity to scratchy clothing is more difficult to desensitize, but try washing all new clothing several times before letting it touch the skin; remove all tags; and wear underwear inside out (which gets the seams away from the skin).*

** Sensitivity to medical examinations can sometimes be desensitized by applying deep pressure to the area that has to be examined.*

In a chapter entitled, “From the Margins to the Mainstream,” Grandin lists seven pieces of advice for “folks who ask me how to prepare someone who’s on the spectrum for employment:”

- 1) *Don’t make excuses.*
- 2) *Play well with others.*
- 3) *Manage your emotions.*
- 4) *Mind your manners.*
- 5) *Sell your work, not yourself.*
- 6) *Use mentors.*
- 7) *And if one door closes, and another, and even another, ‘keep on knockin’.*

Grandin also identifies three (not two as previously thought) major ways autistics think: visually, verbally, and in patterns. ***The Autistic Brain*** ends with a useful, three-page table listing dozens of Jobs for “Picture Thinkers,” “Word-Fact Thinkers”, and “Pattern Thinkers.” For example, she lists the following as potential jobs for “Picture Thinkers” – architectural and engineering drafter, photographer, animal trainer, graphic artist, jewelry/crafts designer, web page designer, veterinary technician, auto mechanic, and computer troubleshooter, among numerous others.

This insightful book offers a variety of information regarding Grandin's personal experiences as well as her research, and, for educators, it includes a number of specific things to do while working with a student who is “on the spectrum,” diagnosed with or suspected of Autistic Spectrum Disorder (ASD).



Temple Grandin

Photo: Wikimedia Commons - Jonathunder

What has been your experience with students on the autism spectrum? NSRF would love to hear from you. Please [email us](#) with your comments. — *Dave Lehman*

