PICTURE

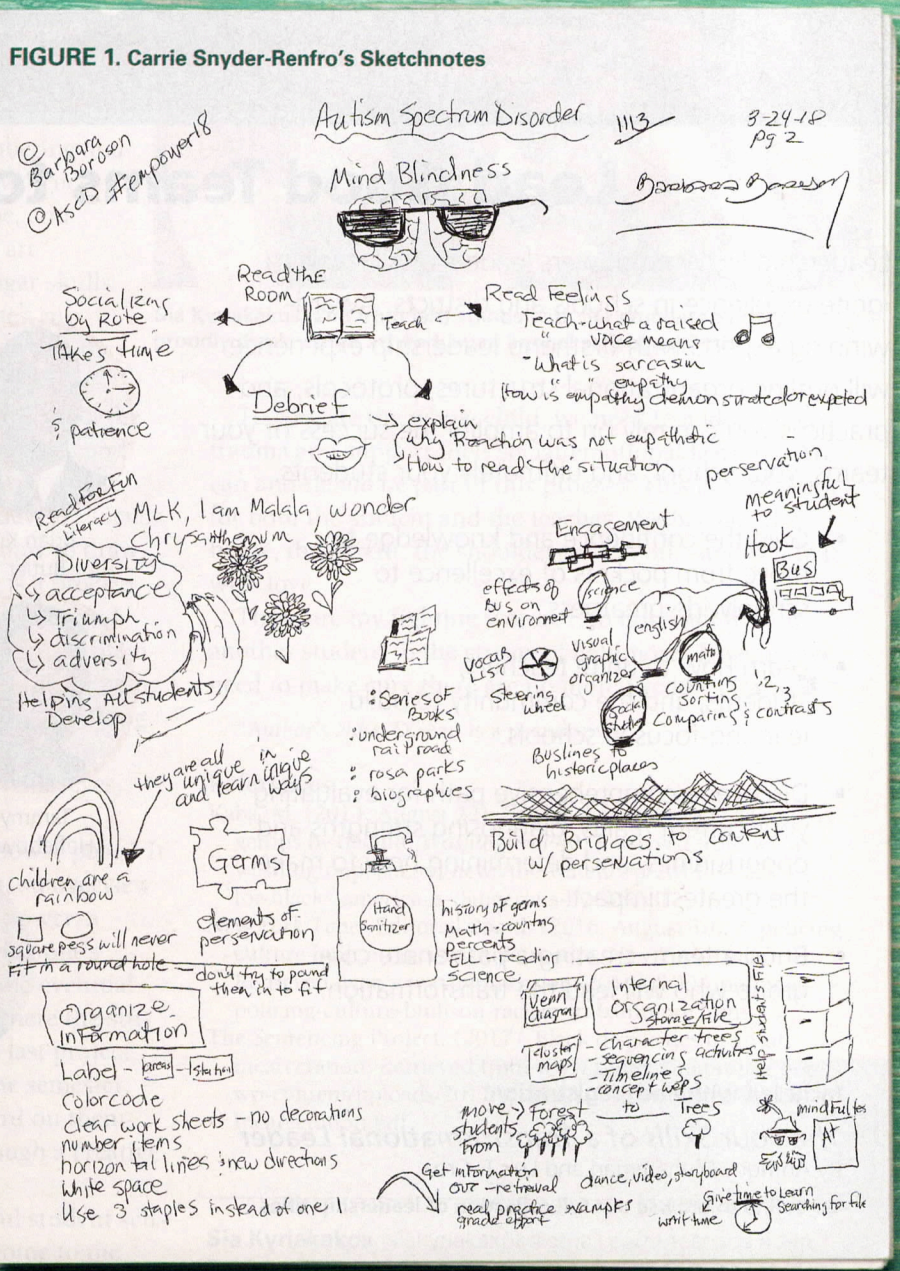
Barbara Boroson

Last March, I had the pleasure of speaking at ASCD's Empower18 Annual Conference. My session, "Autism at School: Life, Literacy, and the Pursuit of Content," was packed with participants. As usual, at the end of my session some folks dashed off to the next session; others came up to chat or share with me the big ideas that had opened up for them during my session. Some told me how my stories had gotten them excited to try new strategies; others came to give me a hug and tell me how I had made them laugh—and others how I had made them cry.

While all this usual post-session commotion was proceeding, one woman remained seated near the back of the room. She was deeply focused, hunched over a notebook, scribbling intently. As the other participants trickled out and I began to pack up my computer, the woman suddenly burst out of her scribble-bubble and leapt up from her seat, emitting a self-satisfied, "Yes!"

She approached me and explained that she had just "sketchnoted" my entire session.

FIGURE 1. Carrie Snyder-Renfro's Sketchnotes



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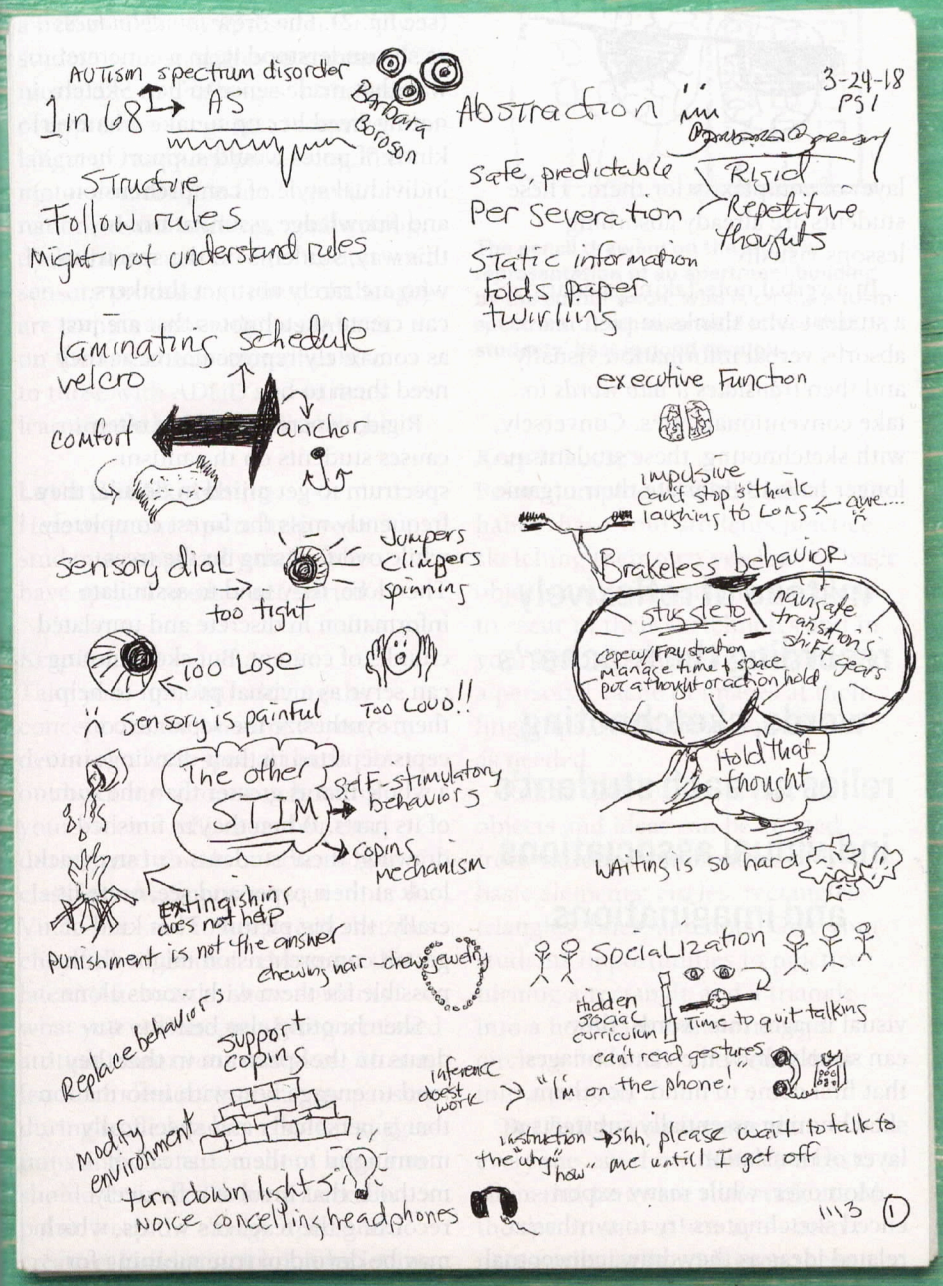
"Sketchnoting"—taking notes through focused drawing—can help students with autism assimilate new information in organically differentiated ways.



Carrie Snyder-Renfro sketchnoted Barbara Boroson's session at ASCD's Empower18.

She introduced herself as Carrie Snyder-Renfro, an educator from Oklahoma, and told me that she had dabbled in sketchnoting before but had never stuck with it for a full session. She then proudly presented my presentation back to me, in pictures (see fig. 1).

Not Your Average Doodle

Sketchnoting, a term coined by designer Mike Rohde in 2006, became wildly popular at technology and design conferences before finding its way into schools (Perry, 2018). Sketchnoting is not the same as doodling. Doodling is a passive activity we do to keep our fingers occupied while we listen. Sketchnoting is *directed* doodling; it's an active, proactive, and productive strategy for recording ideas visually to boost engagement, comprehension, and retention.

Drawing while listening engages parts of the brain that may not be activated by listening alone or transcribing spoken words into written notes. According to author and educator Wendi Pillars, "sketchnoting or 'edusketching' can improve retention by up to 55 percent" (Pillars, 2015).

Given that most students

on the autism spectrum struggle mightily with engaging in, comprehending, and retaining information, and that they usually learn best by doing, it seemed to me that sketchnoting could be a powerful scaffolding strategy to boost their learning. While it's not for every student on the spectrum, it's a pretty neat fit for most. Here's why.

Thinking in Pictures

Carrie Snyder-Renfro told me that after having sketchnoted for 90 minutes throughout my session, she found herself "exhilarated and exhausted." That's not surprising. For a neurotypical learner, the technique requires a seemingly heroic effort to dually code verbal input. A learner must simultaneously listen, conceptualize, visualize, and illustrate, continually careening among auditory, cognitive, visual, and grapho-motor processing systems.

One might argue that students on the autism spectrum have enough on their proverbial plates without piling on these extra layers of challenge. Adding a complex note-taking approach to the mix for students who already push up against so many challenges may indeed sound like a truly terrible idea. Even just the act of shifting cognitive gears poses a major executive functioning challenge to many students on the spectrum.

But Temple Grandin, a well-known author and professor of animal science who has autism, describes her own cognitive style as "thinking in pictures" in her 2006 book by that name. Indeed, most folks on the autism spectrum are visual thinkers *first*. That's why I believe that sketchnoting may actually *remove* a layer of complexity for them. These students are already absorbing lessons visually.

FIGURE 2. Carrie Snyder-Renfro's Conception of Mindblindness

In a verbal note-taking scenario, a student who thinks in pictures absorbs verbal information visually and then *translates it into words* to take conventional notes. Conversely, with sketchnoting, these students no longer have to translate their organic visual images into words; they can simply draw the visual images that first come to mind. For them, sketchnoting essentially subtracts a layer of translation.

Instead of reflexively recording the teacher's words, sketchnoting relies on each student's individual associations and imaginations.

Moreover, while many experienced sketchnoters try to synthesize related ideas as they draw, conceptual synthesis isn't necessary to do effective sketchnoting. For example, in my ASCD session, I defined the concept of *mindblindness*, which is the inability to take the perspective of another person. Snyder-Renfro sketchnoted mindblindness as a brain wearing dark glasses—a blind mind (see fig. 2). She drew *mindblindness* as she understood it, in a concrete way that made sense to her. Sketchnoting freed her up to take whatever kinds of notes would support her individual style of comprehension and knowledge assimilation. In this way, students on the spectrum, who are rarely abstract thinkers, can create sketchnotes that are just as concretely representative as they need them to be.

Rigid, concrete thinking often causes students on the autism spectrum to get mired in details; they frequently miss the forest completely while overfocusing on the trees. Therefore, they tend to assimilate information in discrete and unrelated chunks of content. But sketchnoting can serve as a visual prompt to help them synthesize the separate concepts depicted in their drawings into a whole that is greater than the sum of its parts. When they're finished drawing, these students can step back, look at their paper and see, quite literally, the big picture. That kind of gestalt comprehension might not be possible for them with words alone.

Sketchnoting also benefits students on the spectrum in that they tend to engage best with information that is personally and specifically meaningful to them. Instead of methods that involve reflexively recording the teacher's words, which may be devoid of true meaning for them, sketchnoting relies on each student's individual associations and imaginations. It's an inherently

differentiated system of information assimilation and retrieval. Each student's sketchnotes will be entirely different from every other's.

Best of all, sketchnoting opens up a new avenue of expression for any student who struggles to communicate due to challenges in the areas of expressive language, receptive language, auditory processing, fine-motor control, eye-hand coordination, visual tracking, handwriting, dyslexia, attention, organization, and sensory processing. These challenges are common not only to students on the autism spectrum, but also to those with ADHD and various learning and language disabilities.

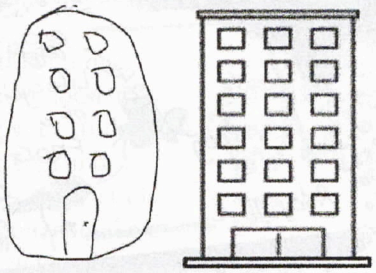
Let's Get Sketching

Here are some tips to help your students—especially those who have special needs—get started.

Keep It Light

Take your time introducing the concept of sketchnoting to your students who have special needs. Start out by doing some sketchnoting yourself on a whiteboard or easel during read alouds or other whole-class lessons. Suppress your inner da Vinci—be sure to keep your sketches cheerfully imperfect. (More on this later.) Afterwards, show students what you've done, modeling a relaxed attitude about your mistakes. After a few such demonstrations, try pausing during some lessons to solicit suggestions and discussion about what you should draw to illustrate a certain point. Keep the energy upbeat and creative. Build anticipation by letting students know that "one day" you might let them do it, too.

FIGURE 3. "Backpack" Building



The pencil drawing on the left is a representation of an apartment building by the author's son, who is on the autism spectrum. Teachers should stress that students' best is good enough.

Keep It Loose

Before jumping in with both hands, have your students practice sketching their own versions of basic objects and concepts that are likely to recur in their sketchnotes and in your lessons. This way, they'll have a personal cache of images at their fingertips, ready to be reproduced as needed.

Rohde (2006) asserts that *all* objects and ideas can be created from various combinations of five basic elements: circles, rectangles, triangles, lines, and dots. Give your students opportunities to practice turning a rectangle and a triangle into a house; or transforming a circle, a few lines, and some dots into a person.

But before you assume that everyone can draw those five basic elements, be aware that students on the spectrum—of any age—aren't necessarily facile with even these basic shapes, so you may need to emphasize to them that their best is always good enough. Throughout his 20 years, my son, who is on the autism spectrum, has never mastered a sharp corner on a rectangle or triangle because of his severe visual-perceptual and visual-motor challenges. His best rectangle looks more like a backpack than a building (see fig. 3). But make no mistake: Even backpack buildings are welcome in a sketchnote skyline.

Some students may have exceptional art skills or be already attracted to drawing as a form of expression and communication. Others may view themselves as bad artists; they may have never even considered using art for communication. Let all students know clearly that sketchnoting is *not* about creating a work of art or making pretty pictures. It's about *drawing* an idea out of the mind and onto the paper.

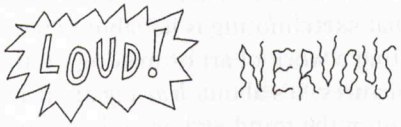
You might also want to give your students the opportunity to practice sketching supporting elements like arrows, stars, plus and minus signs, and thought bubbles. Also, keep your specific curriculum in mind as you encourage them to practice sketching their own versions of a generic adult, child, family, face, home, food, farm, city, newspaper, book, computer, horse, ship, factory, or whatever feels relevant in your classroom. (A great resource for practice activities is Doug Neill's The Verbal to Visual Notebook at www.verbaltovisual.com.)

Encourage students to use their creativity to practice sketching abstract concepts like cause/effect, same/different, or fact/opinion; big ideas like peace and war; and content-related terms like

executive, *legislative*, and *judicial* or *setting* and *motif*.

If your students get stuck on drawing such abstract ideas, talk through the concepts together. Help them access their personal associations. Maybe for one student, *war* looks like swords and shields; for another, it looks like a mushroom cloud; and for another, *war* looks like lightsabers. Any of those associations would make a highly engaging, meaningful sketchnote of *war* for each of those individual students.

One fun way to convey sensations and feelings is the approach that U/X designer and master doodler Matthew Magain calls "empathic lettering"—making the look of the word match



the feeling it expresses, like this: It's kind of a visual onomatopoeia (Magain, 2012).

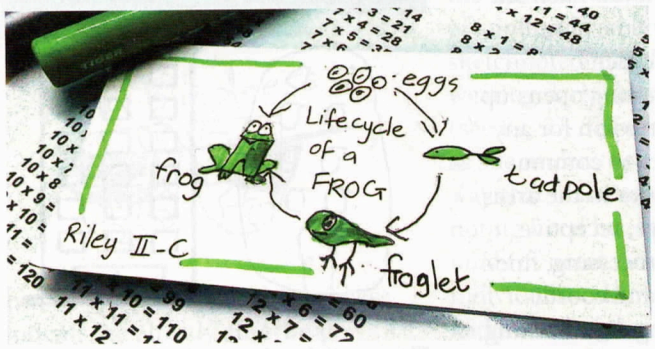
Some students may prefer to work in a digital format. For them, illustration and presentation apps like Procreate, Explain Everything, and Wixie might do the trick.

Keep It Simple

Sketchnoting encourages playful use of various media—pencils, fine-point markers, gel pens, crayons, colored pencils, and so on. But students on the autism spectrum get easily overwhelmed when presented with too many options; moreover, many have fine-motor and sensory challenges, too. Help these students choose a writing/drawing implement they can grip comfortably and that offers appropriate responsiveness to the amount of pressure they apply—and then put the rest away.

Limiting color options will also help some students stay focused on the task at hand. See Figure 4 for an example of a student's sketchnote that uses only two colors.

FIGURE 4. Sketchnote of Lifecycle of a Frog



This sketchnote by 1st grader Riley D'Cruze represents science-related concepts with limited colors, but plenty of meaningful content.

Keep It Clear

Sketchnoted pages don't need to flow from left to right or top to bottom. Students who have difficulty working in an orderly way can be encouraged to literally go with the flow, free to defy the constraints of conventional organization.

On the other hand, a blank page with no overt or implied structure could be overwhelmingly open-ended to many students. As needed, provide graphic organizer templates such as stepping stones, a web, quadrants, or other boundaries that can help to frame and guide their work.

Consider also providing some *conceptual* structure by flagging in advance the key concepts of an upcoming lesson that will warrant sketching. This will help guide your detail-oriented students to look for the proverbial forest even while detailing the leaves of every single tree.

Don't Judge . . .

It's not uncommon for some students on the spectrum to get hung up on the imperfections of their sketches. So let them know that they can redo or clean up their notes later if they feel the need to make them neater. Sketchnoting purists might balk at

GUIDING QUESTIONS

- How might you use sketchnoting in your class or school as a "scaffolding strategy," as Boroson suggests?
- What challenges might sketchnoting present for your students? How might Boroson's tips for introducing the method address those challenges?
- Have students experiment with sketchnoting concepts and content as you deliver a lesson. Are they more engaged? Check for understanding: Did this method help them retain what you said, or think about it in a different way?

this modification, maintaining that part of the beauty of sketchnoting resides in its spontaneity, but inclusive educators know that the magic is in the modifications. Plus, even compulsive recopying can have the unintended side effect of boosting comprehension.

No matter what your students produce, don't judge. Show them that their artistry (or lack thereof) doesn't matter. Check for understanding by asking your student to share with you what his sketch means to him and gauging whether he's got the idea; if he does, then let his representation be, just the way it is. If key conceptual elements are missing from a student's sketch, suggest that she *add on* to the picture. But try not to make her feel she did anything wrong or that her sketch is inadequate. This should be an empowering, creative process. For example, 7th grader Sarah went all-in on "the big dig," as shown in Figure 5.

FIGURE 5. Seventh Grader's Sketchnote

12-year-old Sarah had fun making this colorful sketchnote filled with her own associations.

For many students on the spectrum who think in pictures, sketchnoting actually *removes* a layer of complexity.

A Powerful Pairing

Sketchnoting is an engaging way to access the expectable benefits of multisensory learning for all students. But pairing pictures with words is of particular benefit to students on the autism spectrum. For them, interactive daily schedules with visual icons are known to increase motivation and reduce anxiety; graphic novels are thought to boost engagement and comprehension. Sketchnoting springs from the same multisensory ideal. It's a powerful, self-directed tool that can enhance motivation, engagement, comprehension, and retention, while students are having fun learning. All told, a winning picture. EL

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Barbara Boroson (barbaraboroson@gmail.com; www.barbaraboroson.com) has worked in autism spectrum education for more than 25 years and is a nationally recognized speaker and professional development provider. She is the author of *Autism Spectrum Disorder in the Inclusive Classroom: How to Reach and Teach Students with ASD* (Scholastic, 2nd Edition 2016) and a forthcoming book for education leaders from ASCD.