

First, Discover Their Strengths

A neurodiversity perspective can help educators create learning environments in which all students flourish.

Thomas Armstrong

It was my first day as a special education teacher in Montreal, Canada, and my supervisor was taking me around to see some model programs in other schools. At the door of the first classroom, the teacher welcomed us warmly. As the eight students in the special education class looked on, she loudly proclaimed, “These are my slow students.” Thirty-six years later, I’m still haunted by this memory.

Certainly it would have been more diplomatic for the teacher to take us outside the classroom and give us this information. But I’m sure that the students knew why they were there. The fact is, all students in special education know why they’re there. They’re there (gifted students excepted) because there’s something “wrong” with them.

Despite our best intentions, we've created a system of special education based on deficits. To fashion an environment in which students with special needs can achieve their fullest potential, we need to dig deep into the roots of special education and, at the bedrock level, **replace its *disability* paradigm with a belief system based on *diversity*.**

Neurodiversity: No "Typical" Brain

The good news is that there's a movement on the horizon that can help us make this paradigm shift. About 15 years ago, activists for individuals with autism coined the term *neurodiversity* as a way of helping to redefine their identity (Blume, 1998; Singer, 1999). With this term, people with autism signaled to the world that they wanted to liberate themselves from the prison of negative expectations. Instead, they wished to be seen in a more positive way—as "differently wired" individuals. Since then, the neurodiversity movement has gained adherents and spread to other disability labels, including learning disabilities, emotional and behavioral disorders, and attention deficit hyperactivity disorder (ADHD) (Hendrickx, 2010; Pollak, 2009).

The neurodiversity paradigm suggests that we take the positive attitudes and beliefs that most people hold about biodiversity and cultural diversity and apply them to differences among human brains. We don't look at a calla lily and say that it has "petal deficit disorder"; we appreciate its beautiful shape. We don't say that a person with a different skin color from our own has a "pigmentation disability"; that would be racist. Similarly, we shouldn't label students as ADHD or as learning disabled, for example, just because they have different ways of paying attention or learning. Instead, we ought to honor and celebrate those differences.

The basic premise of neurodiversity is that there is no "typical" mental capacity—no "normal" brain to which all other brains are compared—and because this is the case, we should look at students with autism, ADHD, learning disabilities, intellectual disabilities, emotional and behavior disorders, and other disability categories not in terms of their deficits, but primarily in terms of their strengths. By focusing on assets rather than labels, educators in both regular and special education can develop better ways of helping all students succeed.

details within more complex patterns (Baron-Cohen, 1998). They also tend to be *systemizers* rather than *empathizers*: They have a fascination with logical structures that may be as basic as a nonverbal autistic child's obsession with a rotating fan or as complex as a high-functioning autistic teen's ability to master a sophisticated computer language (Baron-Cohen, Ashwin, Ashwin, Tavassoli, & Chakrabarti, 2009). Interestingly, students with autism score 30–70 percentile points higher on highly figural IQ tests, such as the Ravens Progressive Matrices, than on



Every student with special needs exists within a complex web of human relationships.

A Range of Strengths

The neurodiversity movement is well grounded in scientific research chronicling the strengths of individuals with a wide variety of disability labels. Individuals with autism, for example, appear to do better than typically developing people on the Embedded Figures Test, which requires focusing on small

more verbal and interpersonal tests, such as the widely used Wechsler Intelligence Scale for Children (Motttron, 2011).

Students with dyslexia often demonstrate superior artistic abilities. Research at one British professional art school, for example, revealed that almost three-quarters of the student body had some

form of dyslexia (Appleyard, 1997). In another study, people with dyslexia showed a capacity to identify impossible three-dimensional objects (like those made famous by the artist M. C. Escher) more quickly and with greater efficiency than a matched group of typically developing individuals (Karolyi, Winner, Gray, & Sherman, 2003). Students with learning disabilities also often show higher-than-average entrepreneurial ability. A survey of U.S. businesspeople, for example, indicated that one-third of entrepreneurs reported having dyslexia, compared

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immediate environment to help ensure their survival. Essentially, they're creating their own version of a "least restrictive environment."

A neurodiversity perspective encourages us to do the same for students with special needs by constructing positive niches—advantageous environments that minimize weaknesses and maximize strengths and thereby help students flourish in school. Here are seven practical components of positive niche construction that educators can use to help students with special needs. (For a case study, see "How Can We Best Help Brittany?" on p. 14.)

Strength Awareness

If our only knowledge about students with special needs is based on the negatives in their lives (poor test results, low grades, negative teacher reports, and so on), our ability to help them succeed will be seriously compromised. We need to put even more energy into detailing their positive attributes than we do into assessing their deficits.

Educators should become familiar with the research literature on the strengths of students with special needs labels (Armstrong, 2011, in press).

They should thoroughly examine students' cumulative files and mine them for any data that reflect strengths, talents, abilities, and interests. They should collect positive information about each student using a variety of tools, including strengths inventories; success portfolios (containing work samples, photos, and DVDs of the student's accomplishments); and appreciative inquiry (a method of focusing individualized education program (IEP) meetings on strengths, hopes, and interests) (Kozik, 2008). Teachers and administrators should also have an intimate knowledge of what each student is most passionate about at school.

with only one percent of middle managers in large corporations (Warren, 2008).

Other disability categories show a similar range of strengths. Many kids with ADHD, for example, have a tendency to seek novelty, an important prerequisite for creative behavior (Cramond, 1995). Children with bipolar disorder have scored higher than other children on a popular test of creative thinking (Simeonova, Chang, Strong, & Ketter, 2005). People with Williams syndrome often show well-developed musical capacities and interests (Levitin et al., 2004). Children with intellectual disabilities often have

strengths related to the emotions and personality—Down syndrome, for example, has been referred to as "Prince Charming syndrome" because of the friendly attitude and disarming smiles of many people with this genetic difference (Dykens, 2006).

Positive Niche Construction

Once we recognize the strengths of students with special needs, we can start to create positive environments within which they can thrive. Animals in nature do this all the time. Beavers build dams. Bees create hives. Spiders spin webs. Birds build nests. All of these creatures are changing their



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How Can We Best Help Brittany?

Ten-year-old Brittany has been diagnosed with fetal alcohol syndrome. She is below grade level in all her subjects except art and physical education. She works hard but can be very tough on herself when things don't go well. She is socially isolated because of her controlling behavior of others, and she responds to rejection by being physically aggressive with her classmates. She has difficulty remembering and following even simple instructions, and she also has significant problems with higher-order thinking tasks. Here are two possible scenarios.

Negative Niche Construction

Brittany is placed in a special class for all her subjects except recess, lunch, and library. She is assigned to a paraprofessional for part of the day, who treats her like a much younger child and doesn't expect much from her academically. Brittany throws tantrums when she doesn't get her way; she spends a good portion of her time in the time-out area of the special education classroom. She spends most of her time in class doing primary-level worksheets, which she often doodles on or makes into little origami structures, for which she is reprimanded.

Positive Niche Construction

Brittany is fully included in the regular 5th grade classroom. An academically advanced classmate volunteers as her study buddy to help her with her reading and math homework. A survey of her strengths and interests indicates that Brittany loves to draw, play the piano, knit, play softball, and collect dolls. She is appointed as an "artist in residence" in art class to help other kids with their drawing and painting skills, and a collection of her hand-knitted dolls' clothing is displayed prominently in the school lobby. She becomes assistant captain of the 5th grade girls' soccer team, where her controlling behaviors turn out to be an asset in directing the flow of the game. To help her with following directions in class, she is given a tablet computer and uses the application Stories2Learn to put together personalized narratives of directions she needs to master, using text, photos, and audio prompts. For help with reading, Brittany uses the FastForWord software program, which allows her to move through the program at her own pace. She also plays problem-solving video games to help develop her higher-order thinking skills.

Source: Adapted from Neurodiversity in the Classroom: Strength-Based Strategies to Help Students with Special Needs Succeed in School and Life, by T. Armstrong, in press, Alexandria, VA: ASCD. Copyright 2012 Thomas Armstrong.

Positive Role Models

Students with special education labels need to see examples of people like themselves who have overcome difficulties to achieve success. To make this happen, educators should familiarize themselves with the lives of famous neurodiverse people and teach students in both regular and special education classes about these individuals' accomplishments. Examples might include Nobel Prize-winning biologist Carol Greider (learning disabilities); director Steven Spielberg (ADHD); animal engineer Temple Grandin (autism); opera singer Gloria Lenhoff (intellectual disabilities); and former U.S. president Abraham Lincoln (emotional and behavioral disorders). This approach to highlighting "heroes with special needs" can instill in neurodiverse students a deep feeling that "If they can make it, so can I!"

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Universal Design for Learning

Universal Design for Learning refers to the process of removing barriers to learning for students with disabilities in ways that also enhance everybody's capacity to learn (Rose & Meyer, 2002).

With the expansion of new technologies in the past two decades, students with special needs have many more opportunities to sidestep difficulties and learn more effectively. Spell checkers and speech-to-text software help students with language difficulties. The touchscreen interface of tablets and smartphones offers students with autism and intellectual challenges an easier way of communicating with others. Neuro-feedback devices and self-monitoring software help students with ADHD or emotional and behavioral disorders get crucial feedback to help them modulate their activity levels in the classroom. Guidelines issued by the Common Core State Standards Initiative (2011) have singled out Universal Design for Learning as an important instructional support for students with disabilities.

Strength-Based Learning Strategies

Once we know students' strengths, we can design differentiated learning strategies that are tailored to their individual

needs. Knowing, for example, that a student with autism will probably do better with small details than with the big picture, a teacher can design lessons that begin with concrete examples and then move toward generalities. Understanding that students with ADHD are often more playful and physical than their peers enables teachers to create learning strategies that integrate games, role-play, and hands-on exploration into academic lessons. Realizing that students with learning disabilities may often show artistic tendencies, a teacher can integrate drawing, cartooning, or other art-related activities into reading and writing assignments.

Enhanced Human Resources

A major component of positive niche construction for students with special needs involves enriching their human support systems by repairing poor relationships, strengthening positive relationships, and adding new life-affirming relationships to the mix. Every student with special needs exists within a complex web of human relationships that includes interactions with teachers, specialists, support personnel, tutors, administrators, peers, younger or older students, volunteers, parents, relatives, and friends from the community. Enhancing human resource networks may go a long way toward establishing students' positive attitudes toward school and improving their academic performance.

Educators can use sociograms (mind maps of students' relationships that include indicators of positive or negative interactions) to help diagnose the health of students' interpersonal networks and offer suggestions for how to improve them.

Affirmative Career Aspirations

Students need hopes and dreams for the future. These aspirations are often



crucial stepping stones to a stronger sense of direction and purpose in life. Many students in special education, however, feel futility, emptiness, or negativity regarding their future. Thus, it becomes important to help them construct positive self-images and expectations that they will function as successful adults when they leave school.

Educators can help facilitate this process by introducing students with special needs to careers that make the most of their talents and abilities. Students diagnosed with learning disabilities who have visual-spatial or artistic inclinations, for example, may find inspiration in careers associated with graphic arts, engineering, surveying, or filmmaking. Temple Grandin (2004) suggests that people with high-functioning autism might find particular success as accountants, mechanics, computer programmers, or clerks. Students with ADHD might favor

careers that involve high stimulation and movement, such as firefighting, journalism, or forest management. For younger children with special needs, events like career day and field trips may spark an initial interest in specific careers. For older students, apprenticeships, internships, job shadowing, or other real-world experiences with various occupations may help determine a positive life course.


Environmental Modifications

Educators have many options for tweaking the classroom and school environment so that they mesh with the needs of individual students. For example, students with autism often have acute sensitivities to noise and physical contact. Strategies that muffle sounds through earplugs or ameliorate kinesthetic challenges through weighted vests may result in fewer emotional meltdowns or negative social interactions. For students with emotional or behavioral difficulties, providing a quiet room somewhere in the school where they can go voluntarily when they feel out of control may help prevent or modulate outbursts or other classroom disruptions.

Positive niche construction requires that educators view the entire school as a complex network of environments, any one of which can serve at any given time as an effective micro-habitat for meeting a specific need of a neurodiverse student. Because diversity is ultimately a good thing for everybody, it makes sense whenever possible to include neurodiverse students in a regular classroom—which already contains students with diversities of race, gender, cultural background, and sexual orientation. Programs like the William W. Henderson Inclusion Elementary School in Dorchester, Massachusetts, where one-third of the students have disabilities and learn alongside their

typically developing peers, use most of the elements of niche construction described here (Henderson, 2011). The March 21, 2012, PBS *NewHour* profile of this school is available at www.pbs.org/newshour/bb/american-graduate/jan-june12/amgradengaging_03-21.html.

The Promise of a Strengths-Based Perspective

A neurodiversity perspective brings together the best elements of both regular and special education to serve the needs of all learners. Neurodiversity-inspired educators have a deep respect for student differences and seek ways to join nature and nurture together to create the best ecological niche (or differentiated learning environment) for each student. By changing from a deficit orientation to a diversity perspective, and by creating positive ecosystems within which students with learning differences can learn according to their strengths rather than their weaknesses, we can help these students become who they are truly meant to be. 

References

Appleyard, D. (1997, February 27). Education: The art of being dyslexic. *The Independent*. Retrieved from www.dys-add.com/resources/RecentResearch/EducationTheArtOfBeingDyslexic.pdf

Armstrong, T. (2011). *The power of neurodiversity: Unleashing the advantages of your differently wired brain*. Cambridge, MA: DeCapo/Perseus.

Armstrong, T. (in press). *Neurodiversity in the classroom: Strength-based strategies to help students with special needs succeed in school and life*. Alexandria, VA: ASCD.

Baron-Cohen, S. (1998). Superiority on the embedded figures task in autism and in normal males: Evidence of an “innate talent”? *Behavioral and Brain Sciences*, 21, 408–409.

Baron-Cohen, S., Ashwin, E., Ashwin, C., Tavassoli, T., & Chakrabarti, B. (2009). Talent in autism: Hyper-systemizing, hyper-attention to detail, and sensory

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hypersensitivity. *Philosophical Transactions of the Royal Society*, 364(1522), 1377–1383.

Blume, H. (1998, September 30). Neurodiversity: On the neurological underpinnings of geekdom. *The Atlantic*. Retrieved from www.theatlantic.com/magazine/archive/1998/09/neurodiversity/5909

Common Core State Standards Initiative (2011). *Application to students with disabilities*. Retrieved from author at www.corestandards.org/assets/application-to-students-with-disabilities.pdf

Cramond, B. (1995). *The coincidence of attention deficit hyperactivity disorder and creativity*. Storrs: National Research Center on the Gifted and Talented, University of Connecticut.

Dykens, E. M. (2006). Toward a positive psychology of mental retardation. *American Journal of Orthopsychiatry*, 76(2), 185–193.

Grandin, T. (2004). *Developing talents: Careers for individuals with Asperger syndrome and high functioning autism*. Overland Park, KS: Autism Asperger Publishing.

Henderson, B. (2011). *The blind advantage: How going blind made me a stronger principal and how including children with disabilities made our school better for everyone*. Cambridge, MA: Harvard Education Press.

Hendrickx, S. (2010). *The adolescent and adult neuro-diversity handbook: Asperger's syndrome, ADHD, dyslexia, dyspraxia, and related conditions*. London: Jessica Kingsley.

Karolyi, C., Winner, E., Gray, W., & Sherman, G. (2003, June). Dyslexia linked to talent: Global visual-spatial ability. *Brain and Language*, 85(3), 427–431.

Kozik, P. L. (2008). *Examining the effects of appreciative inquiry on IEP meetings and*

transition planning. Doctoral dissertation, Syracuse University, Syracuse, NY.

Levitin, D. J., Cole, K., Chiles, M., Lai, Z., Lincoln, A., & Bellugi, U. (2004). Characterizing the musical phenotype in individuals with Williams syndrome. *Neuropsychology, Development, and Cognition, Section C, Child Neuropsychology*, 10(4), 223–247.

Mottron, L. (2011, November 2). The power of autism. *Nature*, 479, 33–35.

Pollak, D. (2009). *Neurodiversity in higher education: Positive responses to specific learning differences*. New York: Wiley.

Rose, D., & Meyer, A. (2002). *Teaching every student in the digital age: Universal design for learning*. Alexandria, VA: ASCD.

Simeonova, D. I., Chang, K. D., Strong, C., & Ketter, T. A. (2005). Creativity in familial bipolar disorder. *Journal of Psychiatric Research*, 39(6), 623–631.

Singer, J. (1999). Why can't you be normal for once in your life? In M. Corker & S. French (Eds.), *Disability discourse* (pp. 59–67). Buckingham, England: Open University Press.

Warren, C. (2008, July). Could this be the secret to success? *American Way*. Retrieved from http://dyslexia.yale.edu/DYS_secretsuccess.html

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