About Neurodiversity

Formal efforts to "normalize" learning, behavior, and emotional problems have existed from early in the 20th century. In recent years, reactions to a pathological bias about such human differences have been channeled into what is being called the neurodiversity movement. The movement reframes disabilities and describes differences in ways of thinking, relating, attending, and learning as normal variations in the human genome that should not be classified as problems. It is widely presented as a paradigm shift away from a medical model of autism and other diagnosed conditions.

The Movement

As described in Wikipedia (https://en.wikipedia.org/wiki/Neurodiversity):

> *There is a neurodiversity movement, which is an international civil rights movement that has the autism rights movement as its most influential submovement. Sharing the Disability Rights slogan, "Nothing About Us Without Us", the movement promotes self-advocacy of its members. Neurodiversity advocates promote support systems (such as inclusion-focused services, accommodations, communication and assistive technologies, occupational training, and independent living support) that allow those who are "non-neurotypical" to live their lives as they are, rather than being coerced or forced to adopt uncritically accepted ideas of normality, or to conform to a clinical ideal. Challenging pervasive social norms and stigmas, it frames autism, ADHD/ADD, dyslexia, bipolarity and other neurotypes as a natural human variation rather than a pathology or disorder, and rejects the idea that neurological differences need to be (or can be) cured, as they believe them to be authentic forms of human diversity, self-expression, and being.*

Thomas Armstrong's Eight Principles of Neurodiversity

"The Human Brain Works More Like an Ecosystem than a Machine. Up until now, the most often used metaphor to refer to the brain has been a computer (or some other type of machine). However, the human brain isn't hardware or software, it's wetware. The characterization of the brain as an unbelievably intricate network of ecosystems is much closer to the truth than that of a complex machine. ...

Human Brains Exist Along Continuums of Competence. Rather than regarding disability categories as discrete entities, it's more appropriate to speak of spectrums or continuums of competence. Recent research, for example, indicates that dyslexia is part of a spectrum that includes normal reading ability. Similarly, we use terms such as autistic spectrum disorders, to suggest that there are different gradations of social ability that merge ultimately with normal behavior. This suggests that we are all somewhere along continuums related to literacy, sociability, attention, learning, and other cognitive abilities, and thus all of us are connected to each other, rather than being separated into 'normal' and those having 'disabilities.'

Human Competence is Defined by the Values of the Culture to Which You Belong. Categories of disability often deeply reflect the values of a culture. Dyslexia, for example, is based upon the social value that everyone be able to read. One hundred and fifty years ago, this wasn't the case, and dyslexia was unknown. Similarly, autism may reflect the cultural value that suggests that it's better to be in relationship than to be alone. We should recognize that diagnostic categories are not purely scientifically-based but reflect these deeper social biases.

---

*The material in this document reflects work done by Tal Boussi as part of her involvement with the national Center for MH in Schools and Student/Learning Supports at UCLA.

The center is co-directed by Howard Adelman and Linda Taylor in the Dept. of Psychology, UCLA, Website: http://smhp.psych.ucla.edu Send comments to ltaylor@ucla.edu

Whether You are Regarded As Disabled or Gifted Depends Largely on When and Where You Were Born. In other times and other places, there have been different disability/ability diagnoses depending upon cultural values. In pre-Civil War America, for example, there was a disorder called 'drapetomania' said to afflict blacks. Its meaning was 'an obsession with the urge to flee one's slave masters' and reflected its racist roots. In India, today, there are people who would be labeled in the West as schizophrenic, but who are regarded as holy beings by the local population. We should not regard diagnostic labels as absolute and set in stone, but think, instead, of their existence relative to a particular social setting.

Success in Life is Based on Adapting One's Brain to the Needs of the Surrounding Environment. Despite Principles 3 and 4, however, it's true that we don't live in other places or times, consequently the immediate need is to adapt to our current contemporary culture. This means that a dyslexic person needs to learn how to read, an autistic individual needs to learn how to relate to others socially, a schizophrenic individual needs to think more rationally and so forth. Tools such as psychoactive medication or intensive remediation programs can help achieve these aims.

Success in Life Also Depends on Modifying Your Surrounding Environment to Fit the Needs of Your Unique Brain (Niche Construction). We shouldn't focus all of our attention on making a neurodiverse person adapt to the environment in which they find themselves, which is a little like making a round peg fit in a square hole. We should also devise ways of helping an individual change their surrounding environment to fit the needs of their unique brain.

Niche Construction Includes Career and Lifestyle Choices, Assistive Technologies, Human Resources, and Other Life-Enhancing Strategies Tailored to the Specific Needs of a Neurodiverse Individual. There are many tools, resources, and strategies for altering the environment so that it it meshes with the needs of a neurodiverse brain. For example, a person with ADHD, can find a career that involves novelty and movement, use an iPhone to help with organizing his day, and hire a coach to assist him with developing better social skills.

Positive Niche Construction Directly Modifies the Brain, Which in Turn Enhances its Ability to Adapt to the Environment. In experiments with mice, neuroscientists have shown that a more enriching environment results in a more complex network of neuronal connections in the brain. This more complex brain, in turn, has an easier time adapting to the needs of the surrounding environment."

In advocating for the concept, Thomas Armstrong states that

> *"neurodiversity will help combat 'abelism' or the belief that people who are 'abnormal' should be discriminated against, condescended to, and ultimately kept out of the basic affairs of society. Neurodiversity brings with it a sense of hope, that all individuals, regardless of how they read, think, feel, socialize, or attend, will be recognized for their gifts, and accorded the same rights and privileges as any other human being."*

Neural Darwinism

In his book *Neural Darwinism*, Gerald Edelman offers a theory called "neuronal group selection" that is widely used in support of neurodiversity. He states that there is competition between neurons in the brain. Cells include extremely polar synapses with axons and dendrites that receive connections and information. Expression of the human genome is way too sophisticated to create a standard brain for every human. He describes the following as selective processes that determine structural diversity:

- "Anatomical connectivity in the brain occurs via selective mechano-chemical events that take place epigenetically during development. This creates a diverse primary repertoire by differential reproduction."
- Postnatal behavioral experience produces epigenetic modifications in the strength of synaptic connections between neuronal groups. ("This creates a diverse secondary repertoire by differential amplification.")
- Reentrant signaling between neuronal groups allows for spatiotemporal continuity in response to real-world interactions.

He stresses that synaptic strength and synchronization of circuits change throughout life, and that while competing for resources, some neurons die and others prevail.

Controversies and Concerns about the Term and the Movement

Some dislike the term because they view it as not conceptually clarifying; other perceive it as sounding too medical. For example, Nick Walker sees neurodiversity as an overarching concept and distinguishes it from neurodiversity as a paradigm shift for viewing human diversity as subject to the same societal dynamics as other forms of diversity – as contrasted with the pathology paradigm which represents neurominorities as problematic and pathological solely due to their deviance from the neurotypical majority. Walker proposes renaming the concept and using the term *neurominority* to cover all people who aren't neurotypical and who usually are marginalized and poorly accommodated by the dominant culture.

Some dislike the movement because they view it as skewed to mainly fit "high-functioning" individuals. For example, as applied to autism, it is criticized for being skewed towards those who are "high-functioners" and those with mild conditions. Critics stress that individuals who are significantly impaired require considerably more than the type of accommodations and supports that enable "high-functioners" to cope. These critics also point our that the neurodiversity movement tends to argue against efforts directed at finding a cure; they counter this argument stating that while a "cure" may not be forthcoming, the anti-cure stance interferes with finding treatments that can improve everyday functioning and quality of life.

And finally, some are concerned that the term and the movement trivialize the disabling aspects of autism and are an affront to the suffering of those with a disability and their families.

The aims of neurodiversity are ostensibly virtuous and rooted in a compassionate social view of disability. Many of its members declare that they are "autistic and proud", a slogan that was readily appealing to someone who'd long felt ashamed of admitting to being autistic, even to close friends. Reconceptualising autism as a different operating system as opposed to a series of deficits seemed fresh and invigorating and it wasn't long before I started to champion the movement's key tenets. I was told by countless enthusiastic advocates that the disabilities accompanying my autism were not so much the result of autism itself but by a systemically "ableist" society that routinely marginalises and oppresses neurodiverse individuals. After years of feeling bitter and resentful at society, it was tempting to run with such a view and become a full-fledged supporter of the neurodiversity viewpoint. However, while some of this rhetoric may contain a kernel of truth, the reality soon dawned on me that autism is a far more complex picture which cannot be reduced to a single redemptive philosophy. The anti-cure stance may ostensibly seem the most moral, at least for the time being, but the prospect of one day finding a cure for autism should not be ruled out entirely. ...

Being a left-leaning liberal, I am somewhat tilted towards the neurodiversity position in certain respects. Like them, I believe autistic people deserve better accommodations at work and in the wider society. I also support those who promote the potential of different minds and the strengths they bring to companies, and I welcome autism-friendly showings and events in public. These are undoubtedly brilliant ideas and I have no quarrel with them at all. What I don't respect are the radical ideologues who consistently browbeat those who disagree with them and wilfully ignore the real difficulties faced by a vast number of autistic people.

John Marble (http://quillette.com/2017/10/15/problem-neurodiversity-movement/)

What the Movement Wants Schools to Do

A Personal Reflection from Tal Boussi:

"My sister's limitations ranged from her struggle to memorize the same facts that others do, read a sentence as quickly as others, and to easily grasp the definition of a word. The school challenges meant she has always had to work twice as hard.

At the beginning of her academic career, my sister was taken to speech therapy classes because she could not correctly pronounce many words. When she was in the third grade, she was placed in special ed classes, which she continued to attend until the end of middle school. Although her academic performance was improving, she was given extra help classes during high school. Early on she struggled to leave these classes, but eventually she grew to accept her situation. My mom, on the other hand, was devastated. She could not understand why her daughter was placed in such classes.

My sister has been told she has a condition known as dyslexia. It takes her longer to read than other kids her age, and her vocabulary is also limited. Although she had difficulty with classes like English, her math skills were beyond the standards that were set for her in special ed class. However, everyone in the class had the same set requirements, leaving no room to excel beyond the curriculum.

Questions that arose over the years: (1) *Was it my sister's fault for falling complacent over her situation and not striving higher?* (2) *Should it have been her goal to gain access to normal kid education?*

From the perspective of neural diversity, different questions arise: Rather than, *Where did she fall short?* we ask, *What more could the school have done to account for diverse thinking? How could the school have avoided reducing her confidence and motivation to succeed in school?*"

Tal's questions about the school are a major focus of the neurodiversity movement. They want schools to account for a wider range of individual differences. Along with other critics, they see prevailing approaches to differentiated instruction and to providing accommodations and learning supports as unsatisfactory. In many locales, classroom and school climate are toxic, and too many students and staff feel a sense of hopelessness.

Students who manifest learning, behavior, and emotional problems are in particular jeopardy. Whether or not they are assigned a diagnostic label, it is too common for them to develop negative thoughts toward school learning and themselves. Those assigned a disability label often come to view themselves as "unable" and develop an emotional overlay that compounds their problems.

The emphasis of the neurodiversity movement is to call for schools to make fundamental changes not just to be disability friendly but more generally "human" friendly. They want schools to embrace neurodiversity as essential to students developing resilience and to emphasize the positive and work against the negative.

Examples of what they advocate include:

- understanding and valuing individual student's strengths
- positive Niche construction (i.e., creating an environment and learning strategies that fits the student's motivation and capabilities to enhance equity of opportunity)
- removing practices and messages that focus on weaknesses and disabilities
- rearranging and using additional learning environments
- ensuring students have continuing contact with positive neurodiverse role models
- adding more human resources (e.g., in addition to the student and learning support staff, paraprofessionals, aides, high school or college-aged tutors and "buddies," mentors, family members)
- fully integrating assistive technologies

And advocates for neurodiversity see the concept as providing the catalyst for special education adopting a more progressive way of educating students who learn differently.

Key References Used in Preparing this Information Resource

Adelman, H. S., & Taylor, L. (2006).*The Implementation Guide to Student Learning Supports: New Directions for Addressing Barriers to Learning*. Thousand Oaks, CA: Corwin Press.

Armstrong, T. (2010). *Neurodiversity: Discovering the extraordinary gifts of autism, ADHD, dyslexia, and other brain differences* . Boston: Da Capo Lifelong Books.

Armstrong, T. (2013). *Neurodiversity in the classroom* . Moorabbin, Victoria: Hawker Brownlow Education.

Armstrong, T. (2017). Neurodiversity: The future of special education?" *Educational Leadership, 74*, 10-16.
http://www.ascd.org/publications/educational-leadership/apr17/vol74/num07/Neurodiversity@-The-Future-of-Special-Education%C2%A2.aspx

Bascom, J. (ed) (2012). *Loud hands: Autistic people, speaking*. Washington, DC: The Autistic Press.

Edelman, G. M. (1993). Neural Darwinism: Selection and reentrant signaling in higher brain function. *Neuron, 10*, 115-125. doi:10.1016/0896-6273(93)90304-a

Fitzpatrick, M. (2015). *Why we should be cautious about celebrating autism.* Online at www.spiked-online.com

Kapp, S. K., Gillespie-Lynch, K., Sherman, L. E., & Hutman, T. (2012). Deficit, difference, or both? Autism and neurodiversity. *Developmental Psychology, 49*, 59-71.
https://www.ncbi.nlm.nih.gov/pubmed/22545843

Mitchell, J. (2007). *Neurodiversity: Just say no.* Online at
http://www.jonathans-stories.com/non-fiction/neurodiv.html

National Center for Educational Statistics (2017). Children and youth with disabilities. *The Conditions of Education.* Washington, DC: author.
https://nces.ed.gov/programs/coe/indicator_cgg.asp

Ortega, F. (2009). The cerebral subject and the challenge of neurodiversity. *BioSocieties. 4*, 425-445. doi:10.1017/S1745855209990287. ISSN 1745-8552.

Rubin, S. *Acceptance versus cure*. Online at
http://www.cnn.com/CNN/Programs/presents/shows/autism.world/notebooks/sue/notebook.html

Walker, N. (2014). *Autistic identity and the neurodiversity paradigm*. Online at
https://www.youtube.com/watch?v=s0TrcbUyjSM

Walker, N. (2016). Autism and the pathology paradigm. Online at
http://neurocosmopolitanism.com/autism-and-the-pathology-paradigm/