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## Autism: A Function of Neurodiversity?

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## Autism: A Function of Neurodiversity?

### Cover Page Footnote

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### **Autism: A Function of Neurodiversity?**

Growing up and supporting individuals with special needs is a good thing. Growing up, going to college, and becoming a teacher in the field of special education is an even better thing. Growing up, teaching students with special needs for the next thirty, forty, or fifty years while having a working understanding of neurodiversity to better support students with special needs.

Nationally, two-thirds of students receiving services under IDEA are in at least one course taught by general education teachers (U.S. Department of Education, 2018). The share of students educated in general education classrooms (the least restrictive placement identified by the Office of Special Education and Rehabilitative Services) for about 80 percent of the school day increased from 45.3 percent in 1995 to 52.1 percent in 2004 (U.S. Department of Education, 2009) the year that IDEA 2004 was introduced to the nation.

Education should not be compartments in which one has a mindset of “these are special education students” and “these are not special education students.” The mindset must be changed to “all students.” This change in mindsets must begin in pre-service programs in order to carry on to PreK-12 classrooms. As inclusion becomes more and more accepted in public education, teacher candidates must be prepared to teach with strategies that will enable them to reach all types of neurodiverse differences.

IDEA 2004 requires that state education agencies provide guidance on licensure and certification requirements to ensure those general education teachers receive training in the subject matter and pedagogy that will enable them to effectively serve students with disabilities (National Center for Education Evaluation and Regional Assistance, 2010). Federal law allows states to allocate funds to support the preparation of general education teachers to teach students with disabilities, by reforming special education and general education teacher certification or licensing requirements.

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Redwood trees can grow to more than 379 feet. Their roots extend more than one hundred feet from the base intertwining with the roots of other redwoods. It is their interconnectedness that is the secret to their stability and strength (Denison, 2018). In a culture filled with changes and challenges, there is a need to support groups of people with differences from our accepted norm that encompass language, religion, cuisine, social habits, music, and arts. Interconnectedness is essential to most of the population; however, it appears that not everyone needs interconnectedness to function.

Generally, neurodiversity is a concept where neurological differences are to be recognized and respected as any other human variation. These differences can include those labeled with dyspraxia, dyslexia, attention deficit hyperactivity disorder, dyscalculia, autistic spectrum disorder, Tourette syndrome, and many others. It is truly a brain thing.

In the late 1990s, Judy Singer, a sociologist, who is on the autism spectrum herself, came up with a word to describe conditions like ADHD, Autism, and Dyslexia. This word was "neurodiversity." Her hope and objective were to shift the focus of discourse about ways of thinking and to learn away from the usual litany of deficits, disorders, and impairments.

Conceptually, there are a number of definitions that lead the reader to think of neurodiverse learners as those with autism. These definitions are to be discussed. In order to operationalize this paper, the definition of Thomas Armstrong will be the focus of this paper.

By the late 1980s, the neurodiversity movement began to evolve. Mary Temple Grandin, an American professor, best-selling author, autism activist, consultant, and an individual with high functioning autism, brought awareness to the public that children with autism were not

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useless individuals to be institutionalized. She began lectures and talks sharing with parents what it was like growing up as a child with autism. Parents that listened realized, possibly for the first time in their child's life, that the meltdowns and sensory sensitivity their children exhibited were a result of environmental factors that impacted the brain of their child. Ms. Grandin helped parents and adults on the spectrum realize that when they become adults, they are still on the spectrum stating, "it is lifelong." An individual with autism does not "recover." This has led to discussions concerning whether or not there should be an attempt to "cure" autism or better focus efforts on acceptance and accommodations.

In the late 1990s, Harvey Blume (1998) wrote that "neurodiversity may be every bit as crucial for the human race as biodiversity is for life in general. Who can say what form of wiring will prove best at any given moment?" (p. 5). Judy Singer (1999) described neurodiversity as an approach to learning and disability that argues diverse neurological conditions are a result of normal variations in the human genome.

According to the National Symposium on Neurodiversity (2012), neurodiversity is "... a concept where neurological differences are to be recognized and respected as any other human variation. These differences can include those labeled with Dyspraxia, Dyslexia, Attention Deficit Hyperactivity Disorder, Dyscalculia, Autistic Spectrum, Tourette Syndrome, and others." (p 23).

Silberman (2015) defined neurodiversity as a "Rapidly growing civil rights movement based on the simple idea that the most astute interpreters of autistic behavior are autistic people themselves rather than their parents or doctors." (p 16). He commented that individuals with autism, especially adults, often seem arrogant or selfish. Silverman (2015) wrote about Henry

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Cavendish and Paul Dirac. Both were considered brilliant scientists and exhibited characteristics attributed to what is now known as autism.

Silverman described Cavendish as insensitive to others, blind to emotion, and as a “cold, clear intelligence.” Cavendish did not love; he did not hate; he did not hope; he did not fear...his brain appeared to be nothing but a calculating engine. Silberman went on to describe Paul Dirac as the second greatest scientist of the 20<sup>th</sup> century. Dirac was labeled as the “strangest man” (Silberman, 2015; Farmelo, 2009). While not as eccentric as Cavendish, Dirac was thought to be autistic. He was further described as a silent, solemn, detached, lonely man who was driven by the idea of mathematical beauty. His tendency to take statements quite literally, to exist with a lack of empathy, to exhibit robots like visage, and demonstrate repetitive behavior all indicated that Dirac was most likely on *the spectrum*. Interestingly, Dirac married and became both a good husband and father. Dirac was chairman of the mathematics department at Cambridge.

Matthews, D., (2015), a professor at the University of Sheffield, himself "on the spectrum," had this to say about autism: “We believe that autism is a natural and, in many ways, a desirable variation in how people think, not a great evil to be stamped out. We’ve called autism a disease for decades. We were wrong.” Matthew’s comments created the question: Is autism a lifelong disability or a unique way of being human?

Thomas Armstrong, (2012), said of neurodiversity “it includes an exploration of what have thus far been considered mental disorders of neurological origin but that may instead represent alternative forms of natural human difference.” “Just as we celebrate diversity in nature and cultures, so to do we need to honor the diversity of brains among our students who learn, think, and behave differently” (Armstrong, 2012).

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The operating definition used in the writing of this paper is based on the 2012 definition of neurodiversity given by Thomas Armstrong. Armstrong's definition looks more broadly at differences in neurological functioning.

As neurodiversity rights are advocated for, the symptoms and behaviors of the people who would ordinarily be classified as non-neurotypical are simply normal expressions of human function rather than disorders to be diagnosed and treated. The neurodiversity movement prefers to view individuals with autism and other cognitive or neurological impairments in a similar fashion. They are to be viewed simply as people with normal human differences in behavior.

### **Discussion**

Harvey Cavendish and Paul Dirac offered descriptions of neurodiversity. What do their descriptions have to do with neurodiversity? Firstly, neurodiverse characteristics can be seen, comprised of the lives of Cavendish, Dirac, and various contemporaries. Focusing on Cavendish, these characteristics show that the concept of autism is not a new phenomenon since his behaviors were recognized in the 18<sup>th</sup> century. Secondly, neurodiversity should be acknowledged as a variation of human wiring. Neurological differences are to be recognized and respected as any other human variation. Neurodiversity should be viewed as a concept and social movement, not a disease. Neurodiversity advocates point out that an individual with autism (or any other disorder) should be celebrated with no attempt to "cure" them. These individuals are, after all, most assuredly NOT broken. They are a natural variation in the human genome.

The argument for neurodiversity is that traits and characteristics seen by medical science as abnormal and in need of correction should instead be included in the normal range of human behaviors. Neurodiversity rights advocates believe a number of other developmental disabilities

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should be viewed as being within the spectrum of normal behaviors (i.e., Dyspraxia, Attention Deficit Hyperactivity Disorder [ADHD], Tourette Syndrome, Dyscalculia) along with the full spectrum of autism disorders. Autism remains the most prominent focus of the neurodiversity rights movement.

Baio et al. (2018) reported that the Centers for Disease Control and Prevention determined that approximately one (1) in fifty-nine (59) children are diagnosed with an autism spectrum disorder (ASD). Boys are four times more likely to be diagnosed with autism (1 in 37) than girls (1 in 151). Most children were still being diagnosed after age 4, though autism can be reliably diagnosed as early as age two (2). Autism Speaks (2017), the national organization for autism, stated that autism affects all ethnic and socioeconomic groups. They also indicate that 31% of children determined to have ASD (Autism Spectrum Disorder) have an intellectual disability (intelligence quotient [IQ] of less than 70), 25% are in the borderline range (IQ of 71-85), and 44% have IQ scores in the average to above-average range (i.e., IQ greater than 85). Autism Speaks (2017) additionally stated that early intervention affords the best opportunity to support healthy development and deliver benefits across the lifespan. There is no medical detection for autism, and there is no cure. It does not go away.

Research indicates that genetics are involved in the vast majority of cases. It appears that children born to older parents are at a higher risk of having autism. Parents who have a child with ASD have a 2-18% chance of having a second child who is also affected. Studies have shown that among identical twins, if one child has autism, the other will be affected by about 36 to 95% of the time. In non-identical twins, if one child has autism, then the other is affected by about 31 % of the time.



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Over the last two decades, extensive research has asked whether there is any link between childhood vaccinations and autism. The results of this research are clear: Vaccines do not cause autism. It is interesting to note that developmental regression, or loss of skills, such as language and social interests, affects around 1 in 5 children who will go on to be diagnosed with autism and typically occurs between ages 1 and 3.

Autism Speaks (2017) also indicated that an estimated one-third of people with autism are nonverbal. It appears that autism can affect the whole body. Attention Deficient Hyperactivity (ADHD) affects an estimated 30-61 % of children with autism. Additional health conditions include chronic health problems, anxiety disorders, depression, chronic gastrointestinal disorders, epilepsy, overweight, and schizophrenia. Autism-associated health problems extend across life, span-from young children to senior citizens.

Prizant (2015) offered a different way of seeing autism. This new and compelling paradigm describes the most successful approaches to autism that do not aim at fixing a person by eliminating symptoms but rather by seeking to understand the individual's experience and what underlies the behavior. It's a unique way of being human. It is clear that the field of special education needs to change. Armstrong, (2017), says "the field of special education needs to rid itself of its negative baggage and embrace a more progressive way of educating students who learn differently" (p. 29).

As the preceding information is considered, three thoughts come to mind. First, it is acceptable to be an individual with autism. Secondly, autism cannot be cured. Thirdly, individuals with autism can be productive citizens. In considering these three thoughts, teachers are faced with the responsibility of helping these individuals become contributing adults in the same way as they are challenged with helping any child become a contributing adult. Indeed

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there are special considerations and methods to utilize the instruction of individuals on the spectrum.

The autism rights movement is a part of the neurodiversity undertaking. Neurodiversity supports and promotes self-advocacy in inclusion-focused services, accommodations communication and assistive technologies, occupational training, and independent living supports (National Symposium on Neurodiversity, 2012). It allows those who are “non-neurotypical” to live their lives as they are, rather than being forced to adopt what neurodiversity proponents see as uncritically accepted ideas of normality, or to conform to a clinical ideal (National Symposium on Neurodiversity, 2012). Neurodiversity frames autism, dyslexia, and other neurological conditions as natural human variations rather than pathologies or disorders. Neurodiversity rejects the idea that neurological differences need to be (or can be) cured, instead of believing them to be authentic forms of human diversity, self-expression, and being. Neurodiversity stresses that attempting to cure autism is like attempting to cure left-handedness or homosexuality.

Salvia, Ysseldyke, and Witmer, (2017), defines the field of autism as containing individuals who demonstrate "a developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age three that adversely affects a child's educational performance" (p. 303). Additionally, these authors stress that “characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences.” (pp 303-304).

Psychologists as well as educators who diagnose autism agree that there are three primary characteristics that are present in individuals on the spectrum: behavior problems, language

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deficiencies, and a lack of social skills. Both psychologists and educators agree that early intervention is the key to assisting individuals on the spectrum find success in later years. Both behavior and language can be improved through early intervention. Social skills, however, are skills that must be taught and change as individuals mature. Individuals on the spectrum do not come from the womb with the ability to discern appropriate social skills. They must be taught.

The two most important aspects of an individual's life, whether on the spectrum or not, are their home life and educational life. Concerning home life, it's important for parents of a child on the spectrum to be regarded as part of the family and to be accepted just like their siblings. Their behaviors may be quirky, but they are human behaviors motivated to achieve something the individual either wants or wants to eliminate. Consider a person who has just won something. They jump up and down, shout and flap their hands. No one thinks a thing about that labeling it as a normal response from someone who has just won. When an individual on the spectrum expresses the same behavior, they may be thought of as different or weird.

Consider the following "real life" incident: A child, a girl, is on the spectrum. Her favorite meal is chicken strips and fries from one specific restaurant. She will not eat the meal if it's purchased anywhere else. Her grandmother stops by to pick up the child and tells her they are going to get chicken strips and fries at her favorite restaurant. The child becomes excited and jumps up and down, flaps her hands, and grabs her grandmother and pulls her out the door. Why are these behaviors considered inappropriate? A neuro-typical child might exhibit the same behaviors, and his/her behaviors would be considered appropriate.

Another "real life" incident: A young man has been taught to use a napkin at the table. His parents are insistent the young man uses his napkin while having dinner at a local Mexican restaurant. He needs to blow his nose at the same time flour tortillas are being passed around.

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The young man takes a tortilla and blows his nose in it. Is he gross? Ill-mannered? Certainly not intentionally. He did not leave home thinking he'd do his best to embarrass everyone around him. He is actually transferring the skill of blowing his nose into a soft, white napkin to blowing his nose into a soft, white tortilla. His family should reinforce the difference between a tortilla and a napkin prior to another dinner out and help the young man with his social skills.

It is important that the family incorporate the child on the spectrum into the natural rhythm or routine of the family. When a normally recurring, scheduled activity changes, the child should be told beforehand that there will be a change. The "Smith" family normally goes to church on Sunday. Their six-year-old daughter, Lisa, who is on the spectrum, has a "Sunday dress" she wears to church on Sunday. The family decides to take a weekend trip to Sea World and will be away from home on Sunday. They fail to let Lisa know that they won't be going to church that Sunday. They assume, incorrectly, that she realizes she will not be wearing her "church dress." The child responds, "Today is Sunday. I wear my Sunday dress on Sunday" repeatedly all day long. Because Lisa's routine had an unexpected change, she is upset all day and makes the family miserable.

Two things should have occurred to ensure a pleasant trip for the family. First, Lisa should have been made aware early on that the family would not be going to church on Sunday and that it was OK to miss church once in a while. The family should have prepared her for the change in her routine and that she understood the changes. Secondly, it would have made the day much more enjoyable to let Lisa wear her Sunday dress to the amusement park. If she got it soiled, all mom would need to do is wash it. The day would have been saved for everyone. This story is not just about Lisa. It's about a change in a routine that all the family members should be aware of. Planning and discussing schedule changes enables all of the family members to

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anticipate a different weekend activity and to know what will be happening. It will give the child on the spectrum a heads up that something is going to be different.

The educational aspect of an individual on the spectrum is vital. Educators and psychologists both agree that early intervention is critical for the individual's future (Darling-Churchill & Lippman, 2016). To support neurodiversity, early speech/language therapy is essential for young children who are not speaking or making efforts to speak by the time they are 18-20 months old. If a toddler is not making meaningful sounds by that age, they need to be seen by a specialist. Parents should discuss this with their child's pediatrician and get the child enrolled in an early intervention program. Most communities have early childhood intervention (ECI) programs, and their pediatrician can direct them to their local office.

By the time a young toddler is 18-20 months old, behaviors indicating autism are often evident. Frequently parents don't recognize inappropriate behaviors, especially if this is the first child in the family. What is often seen as inappropriate behavior may be thought of as "the terrible twos." It would be wise for the parents to discuss behaviors that are inappropriate with their pediatrician. Again, early intervention is critical. Inappropriate habits are developed and become difficult to change. A behavior specialist should be enlisted to help parents correct behaviors that are negative. Negative behaviors are learned, and if rewarded by relatives or friends who think the behaviors are "cute," it becomes very difficult to change. It's never a good idea to reward a toddler for bad behavior. A behavior specialist can help parents to not only recognize the inappropriate behaviors but to also make appropriate changes that will bode them well as the child matures.

What has been discussed begs the question: How do teachers in inclusive classrooms address the needs of students with neurological differences? First, educators should recognize

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that an individual with a neurodiverse brain can be a source of strengths as well as challenges.

Examples of these strengths include:

- Many people on the spectrum are highly intelligent. An even larger number are of at least average intelligence with areas of great intellectual strength,
- Many individuals on the spectrum have strong abilities in the areas of music, math, technology, art, and engineering.
- Individuals on the spectrum tend to be extremely trustworthy and honest, in part because they find it difficult to recognize or use sarcasm, dishonesty, flattery, or white lies (Losh, Childress, Lam, & Piven, 2016).

Second, Prizant (2015), asserts, "If you can understand the experience and feelings that underlie difficult behavior, you can help a person with autism connect and communicate more effectively." (p 33). Communication is one of the key factors in working with individuals with neurological differences. If you can help them verbalize why they are frustrated or upset, it is possible that you can help them overcome many of their frustrations.

Third, change your mindset from teaching a student with autism (or any other neurological disability) to using strength-based learning (Armstrong, 2017). Strength-based learning means "providing these students with cutting-edge approaches to learning" (p. 46). It means allowing neurodiverse students to use their strengths to complete assignments. Perhaps you have a student with an artistic strength, but with a deficit in written expression...allow that student to draw or paint his book report rather than write it. Maybe you have a student with strong verbal skills, allow her to record her book report, rather than write it. Basically, strength-based learning allows the student to use his or her strengths to complete assignments, rather than

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penalize them for their deficits. A menu of possible ways to do an assignment could prove beneficial and even exciting for all the students in the classroom.

Finally, general education teachers with neurologically diverse students included in their classrooms should view these students as resources rather than encumbrances. This concept goes back to the change in mindset to strength-based learning. General education teachers (and parents) need to spend time with the student to discover what their strengths are, then plan ways to incorporate those strengths into their classrooms to enhance their learning and opportunities for success.

### Conclusion

Neurodiversity means many things to people. Neurodiversity is an approach to learning that researchers, as well as mental health professionals argue, are various neurological conditions that are the result of normal variations in the human genome (Jaarsma & Welin, 2011).

Neurodiversity is a blend of “neurological and “diversity” that originated in the late 1900s as a challenge to prevailing views of certain neurological conditions as being inherently pathological, instead asserting that neurological differences should be recognized and respected as a social category on par with gender, ethnicity, sexual orientation, or disability status.

Neuro-diverse students can be successful in inclusive classrooms. It means a shift in the thinking of not only teachers and administrators, but also parents from what these students can't do, to what their strengths are and how they can be successful. It won't be easy; it will require a great deal of time and energy. However, the benefits of these shifts in thinking will bring about great benefits to these individuals. Educators should give neurodiverse students the most innovative ideas education has to offer (Armstrong, 2017). All pre-service teacher candidates should be exposed to neurodiversity.

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Instead of seeing autism as a disorder that needs fixing, members of the neurodiversity movement see autism as a characteristic of an individual, like having brown hair or being left-handed. Being neurodiverse simply means having a brain that's wired differently. Many autistic individuals including those who have intact language and no learning difficulties such that they can self-advocate have adopted the neurodiversity framework, coining the term “neurotypical” to describe the majority brain and seeing autism as an example of diversity in the set of all possible diverse brains, none of which is “normal” and all of which are simply different.

Finally, the idea of neurologically diverse individuals needs to be spread. Pre-service teachers are being trained to teach in classrooms and are very likely to have these students in their classrooms. Pre-service teachers must be made aware of ways to help them be successful. It is clear that more research is needed in order to determine what the attitudes and level of knowledge teacher candidates possess and their feeling toward neurodiversity in the classroom.



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