

FOCAL ARTICLE

Neurodiversity in the workplace: Considering neuroatypicality as a form of diversity

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Abstract

Estimates suggest as much as 17% of the US workforce may be neuroatypical, a term used to describe individuals whose neurological functioning is at the tail ends of the distribution of naturally occurring variation. Although the neuroatypical population has a history of under- and unemployment, their inclusion in the modern workplace (i.e., promotion of neurodiversity within organizations) is gaining recognition by scholars and organizations as an important dimension of organizational diversity. Despite this burgeoning interest in examining neuroatypicality in the context of organizational diversity, surprisingly little research has been conducted that bridges these two research areas. The literature that does exist is scattered across several different academic disciplines, largely outside of industrial-organizational psychology, and rarely examines the employment of neuroatypical workers explicitly from a diversity perspective. In this article we argue that as the nature of work evolves and jobs continue to become more specialized, neurodiversity will become an increasingly relevant dimension of organizational diversity and is likely to play a key role both in terms of individual employees' well-being and performance outcomes, as well as organizational success.

Keywords: Neurodiversity; organizational diversity; disabilities in the workplace

Neurodiversity is a term used to describe the naturally occurring variation in neurological wiring within the human population. As much as 17% of the US workforce may be neuroatypical (CIPD, 2018; Sargent, 2019), a term used to describe individuals whose neurological functioning is at the tail ends of the distribution of this naturally occurring variation. Although the term neuroatypical, often used interchangeably with the term neurodivergent, can be used to describe people with a number of different neurological disabilities, it is most often used to refer to individuals living with autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), or dyslexia.

Despite estimates that suggest neuroatypical individuals make up a significant portion of the potential workforce, there has been surprisingly little research in industrial-organizational (I-O)

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psychology regarding neurodiversity in the workplace. Although research exploring minority group experiences along racial, gender, and sexual orientation diversity dimensions continues to grow, little research exists to illuminate the experiences of individuals who are minorities along the neurodiversity spectrum (i.e., neuroatypical individuals or neurominority members). Even less research exists to explain the antecedents and outcomes associated with workplace neurodiversity. Trends in the applied world suggest research is sorely lagging behind practice. There are a number of well-known companies, such as SAP, Microsoft, Goldman Sachs, Google, IBM, JP Morgan Chase, and Hewlett Packard Enterprise, that have started large-scale programs to recruit and employ neuroatypical workers, claiming several benefits including increased organizational performance (Austin & Pisano, 2017; Moran, 2019). Despite this emphasis in practice, little research has been conducted in academic circles to help us understand the individual- or organization-level antecedents and outcomes associated with neurodiversity in the workplace.

In this focal article, we argue that along with continued automation and the resulting changing nature of work, neurodiversity will become an increasingly relevant dimension of diversity and is likely to play a key role both in individual employees' well-being and performance outcomes, as well as organizational success. First, we provide background on neuroatypicality and the neurodiversity movement. Second, we discuss why we believe neurodiversity will become an increasingly important component of organizations' diversity initiatives. Third, we discuss how neurodiversity, as a dimension of diversity, is similar or dissimilar to other commonly studied dimensions of diversity in organizations (e.g., racial, gender, sexual orientation diversity). Along the way, we provide researchers with a number of substantive avenues in the area of neurodiversity that we believe will be fruitful for research and discuss the implications of neurodiversity for organizations.

Neuroatypicality and the neurodiversity movement: Disability or difference?

The terms *neuroatypical*, *neurodivergent*, and *neurodiversity* are relatively new. It is only within the past several decades that scholars within the realms of various academic domains (e.g., educational psychology, sociology, disability studies) have started using these terms. Previously, neuroatypical individuals (i.e., individuals with ASD, ADHD, and dyslexia) would have been described as having a neurological disorder or an intellectual/developmental disability. In the context of the workplace, such labels are likely to quickly raise questions regarding individuals' ability to successfully integrate into and add value to the organization.

Even though the Americans with Disabilities Act (ADA) prohibits organizations from discriminating against qualified individuals based on disability status during the selection process, it does not require companies to specifically recruit people with disabilities. Without a legal imperative or incentivization, in tandem with the lack of research on neuroatypicality in the workplace, organizations may be left asking questions like, why would we want to *actively seek* out individuals with "intellectual disabilities" to work in high level positions? Why would organizations care about neurodiversity and make it an essential component of their diversity agenda? In the following sections we discuss the implications of neurodiversity for the workplace, beginning with an overview of the neurodiversity movement and describing the movement's role in shifting societal views from a focus on intellectual disability to a focus on the value of neurological difference.

The neurodiversity movement

The neurodiversity movement can be traced back to the autism spectrum rights movement of the late 1990s. Although the exact origin of the term neurodiversity is unclear, it is widely cited as being coined either by sociologist Judy Singer in her 1998 book chapter on disability or by *Atlantic* staff writer, Harvey Blume, in a 1998 article entitled "Neurodiversity: On the Neurological Underpinnings of Geekdom." Whatever the exact origin of the term, the concept

behind the neurodiversity movement, the idea that differences in neurological functioning are a part of naturally occurring human variation, was quickly adopted by other groups traditionally pathologized for having neurological functioning considered outside of the “norm.” The term is now used in the context of a number of different neurologically based disabilities ranging from ASD to anxiety. The emergence of the movement was profound for disability rights advocates as it marked the beginning of a paradigm shift regarding the way neurologically based disabilities are seen, bringing to the forefront the importance of recognizing the strengths instead of just the weaknesses associated with neurological differences.

The neurodiversity movement and the medical and social models of disability

At the core of the neurodiversity movement is a fundamental shift in the lens through which neurologically based disabilities are viewed. Specifically, the neurodiversity movement calls for a shift away from the traditional medical model of disability toward the social model of disability. The medical model of disability is a paradigm that categorizes disability as something internal to the individual, something in need of remediation that needs to be “fixed” (Areheart, 2008). For example, under the medical model, the solution to helping someone in a wheelchair would be to offer them treatments and therapies that would allow them to regain the ability to walk, thus allowing them the conventional mode of mobility (Comberousse, 2019). Research suggests the medical model of disability casts a negative light on disability and can prevent individuals from developing a positive disability identity and self-efficacy (Hahn & Belt, 2004; Weeber, 2004).

In contrast, the social model of disability recognizes disability as a social construct. As such, the social model tends to provide individuals with disabilities a greater sense of self-worth and agency. In other words, it is not the pattern of functioning itself that is inherently a trait of disability; rather, it is the comparison of that functioning with what society has deemed “normal” that leads to categorizing individuals as “abled” or “disabled.” Under the social model, the concept of disability “stems largely from society’s failure to accommodate varying needs” (Comberousse, 2019; para. 6). As such, the solution is for society to make accommodations for these varying needs by, for example, making ramps and elevators easily accessible to those in wheelchairs. By implementing such accommodations, someone who was previously “disabled” by the constraints of societal norms around mobility has gained a significant degree of mobility essentially overnight.

Under the lens of the social model, the same level of functioning could be either pathologized by others as abnormal or seen as part of the naturally occurring variation, depending on the social and societal context. In fact, Dr. Thomas Armstrong (2010), author of *The Power of Neurodiversity*, suggests that the same individual may be pathologized for their neuroatypicality in one societal context while being considered gifted in another, depending on the environmental niche in which they have found themselves. Indeed, our categorization of what is “abnormal” is shaped by societal context and values. This becomes particularly clear when we consider cultural and historical differences in what has been categorized as mental illness. For example, “homosexuality” was considered a psychological disorder until the 1970s (Drescher, 2015; Silverstein, 2009). Similarly, psychiatrists have suggested that in the past individuals with schizophrenia may have been treated as revered religious figures (Murray et al., 2012). As such, the social model suggests that the extent to which variation in neurological functioning is seen as a difference (i.e., neurodiversity) versus a deficit (i.e., disability) is going to depend on context. However, western culture is still largely dominated by the medical model of disability (Areheart, 2008), and, as a result, proponents of the neurodiversity movement have argued that neurological differences are all too often treated as a disorder rather than as a naturally occurring variation (Armstrong, 2010; Singer, 2017).

Despite this, the neurodiversity movement is not without its detractors. Opponents have criticized the movement for its focus on individuals who are “high functioning,” suggesting that viewing neurological conditions as a difference rather than a disorder/disability overlooks the real

suffering that some individuals with neurological conditions and their families experience (Chapman, 2019). Such concerns are particularly prevalent in the autism community, in which there is a divide between those who are “pro cure” and those who are “pro autistic” (i.e., those who are for versus against medicalizing autism; Ortega, 2009). Certainly, it seems valid for neuroatypical individuals and their families to be concerned that framing neurological conditions as differences rather than disorders may paint these conditions in too positive a light. However, proponents of the neurodiversity movement recognize the suffering that can accompany neurological disorders, and most are not against treatments or accommodations to help individuals function more easily in the world in which we live. For example, high functioning autistic Judy Singer argues for treatment as needed to alleviate suffering but is against the movement to “cure” autism altogether (Ortega, 2009).

It is important to note that the medical and social models of disability are not inherently at odds. It is more than possible to provide neuroatypical individuals with ameliorative interventions while still recognizing neuroatypicality as a natural part of human variation with positive aspects to it (Kapp *et al.*, 2013). The authors of this paper acknowledge that the medical model of disability may be beneficial in instances where an individual is suffering, and this suffering is, at least in part, a direct result of their disability (e.g., chronic pain, mental illness) rather than exclusively due to the societal response to their disability. We also believe this to be true in the context of the neuroatypical population. An individual with dyslexia, for example, will likely benefit from receiving tailored support developing their reading skills. However, what will become clear during the course of the present paper is that we are wary of the use of the medical model to pathologize conditions at the detriment of recognizing individuals’ potential strengths.

Implications of the neurodiversity movement for the workplace

The social model underpins much of the ideology behind the neurodiversity movement, and, as such, the neurodiversity movement has several implications for how neuroatypicality is viewed in the workplace. First, and most obvious, the framework of the neurodiversity movement allows divergent neurological profiles to be seen as differences rather than impairment, encouraging organizations to view variation in neurological functioning as a dimension of workplace diversity similar to that of racial or gender diversity (Saner, 2007).

Second, labeling neuroatypical individuals as different rather than impaired opens up the possibility that these individuals are, rather than being inherently deficient in some way, simply suited to different environmental niches or skill sets as compared to their neurotypical counterparts. Indeed, interest is growing, both in the applied world (Neurodiverse Hiring, [n.d.](#)) and in the popular press (Doyle, 2019; Moran, 2019) in understanding how neuroatypical individuals’ differently wired brains might, in fact, be advantageous under the right workplace conditions.

Neurodiversity: An essential dimension of organizational diversity?

As the neurodiversity movement has grown, so too has organizational interest in this type of diversity. As stated previously, a number of large-scale companies have incorporated neurodiversity into their diversity agenda (Austin & Pisano, 2017; HOK, [n.d.](#)). Certainly, progressive organizations may be motivated to do this as a way of promoting greater workplace inclusivity; however, we believe that the motivation to foster a neurodiverse workforce goes beyond social conscience. In the following sections we discuss why we believe that as the nature of work evolves and jobs continue to become more specialized, neurodiversity will become an increasingly relevant dimension of organizational diversity.

A competitive advantage? The changing nature of work and the business case for neurodiversity

The nature of work is quickly changing, and organizations are realizing that neurodiversity may be a key component of gaining a competitive edge in the new work environment. As technological advances are made and globalization increases, routine and low-skill jobs are becoming less prevalent in the United States (Autor et al., 2003, 2006; Becker et al., 2013). In contrast, the proportion of jobs requiring specialized skills and higher order thinking has increased markedly (Autor et al., 2003; Neubert et al., 2015).

Meta-analytic research on the changing nature of work suggests that, due to the expansion of the knowledge economy, the number of jobs that require greater skill variety (i.e., jobs that require “the use of a number of different skills and talents of the employee”; Hackman & Oldham, 1975, p. 161) have increased significantly since the 1970s (Wegman et al., 2018).

As a result of these changes, there has been an overall shift in the types of competencies organizations are looking for in their employees. According to researchers, the top five job skills in 2025 will consist of analytical thinking and innovation, active learning, complex problem-solving, critical thinking and analysis, and creativity (World Economic Forum, 2020). Other skills and abilities previously important are on the decline including rote memory skills and time management (EY, 2019). In other words, key organizational outcomes, such as performance, are increasingly dependent on employing workers who can “create” rather than just “do.”

Proponents of the neurodiversity movement claim that neuroatypical individuals are uniquely well suited to the workplace of the future. Specifically, it has been suggested that with increased technological advancement and automation, skills and abilities with which many neuroatypical individuals struggle (e.g., spelling, ability to read quickly, rote memory, organizational skills, etc.) are becoming less important in the workplace, whereas those associated with some of the strengths of neuroatypical individuals (e.g., novel thinking, creativity, computer coding, and scientific thinking) are becoming more important. As neurodiversity advocate Thomas G. West put it, “[m]achines are now doing the reading and recall and clerical tasks . . . [r]ather, humans need to visualize, see the big picture, consider slowly and ponder what it all means, where to go and how to get there.” (Dyslexia Association of Singapore, 2015, YouTube clip). These are the conditions, he goes on to assert, in which neuroatypical individuals thrive.

Those in the applied sector echo the sentiments of neurodiversity proponents, reporting that neuroatypical individuals have unique talents that, when matched appropriately with job competencies, can actually be a source of top talent that exceeds that of the neurotypical population (Pisano & Austin, 2016). According to Justine Campbell, talent managing partner at Ernest & Young LLP, “[a]ttracting neurodiverse talent . . . provides an opportunity for organizations to harness the fullest range of skills and perspectives. Our business looks to diversity of thought to remain competitive, continuously innovate and drive better business performance” (Pisano & Austin, 2016, pp. 96–103). In the following sections we will discuss in more detail the potential organizational advantages of incorporating neuroatypical talent into the workplace.

The neurodiversity advantage: Innovation, problem-solving, and creativity

There are several possible explanations for how organizational neurodiversity may increase innovation, problem-solving, creativity, and ultimately organizational performance. For one, it may be that simply having different perspectives, including both neurotypical and neuroatypical viewpoints, spurs innovation, allowing teams or organizations to realize new ways of doing things. Indeed, previous work suggests that diversity, especially when job relevant, may lead to increased team performance and innovation within teams via the incorporation of different perspectives and a wider breadth of knowledge (Cox, 1994; Horwitz & Horwitz, 2007; Hülsheger et al., 2009; Watson et al., 1993).

Another explanation is that certain groups of neuroatypical individuals actually have some advantages when it comes to innovation, problem-solving, and/or creativity in certain disciplines because of the unique way their brains are wired. This explanation, which we will refer to as the *neurodiversity perspective*, suggests that neuroatypical individuals who are successful in their careers are able to excel at work, at least in part, *because* of their neuroatypicality. This is in contrast to what we refer to as the *compensatory perspective*, a perspective grounded in the traditional medical model of disability, that proposes that neuroatypicals who excel at work do so *in spite* of their atypicality. In the following subsections we discuss evidence supporting the neurodiversity perspective for each of the following neurological conditions: ASD, ADHD, and dyslexia. In doing so, we will talk about the current research regarding the potential workplace strengths associated with each of these forms of neuroatypicality (see Table 1 for summary).

Strengths of autism spectrum disorder in the workplace. Autism spectrum disorder is a neurodevelopmental difference characterized by several traits routinely viewed by society as “deficits.” These include difficulty with social interactions, engaging in repetitive behaviors, and restricted or fixated interests (American Psychiatric Association, 2013). However, elements of these same traits can lead to high levels of concentration, strong attention to detail, and an impressive memory for factual knowledge (Firth & Happé, 2005; Happé, 2018). Interest has grown in the scientific community regarding possible specialized skills, also sometimes called “savant skills,” in those on the autism spectrum.

Indeed, a number of special skills, including a talent for mechanical and spatial tasks, music, detailed memorization, drawing, and mathematical calculations have been linked to autism (Itzchak *et al.*, 2013). Despite this, not all individuals on the spectrum exhibit special abilities. The exact prevalence of such abilities in the autistic population is unclear and has been overrepresented in media depictions of autistic individuals (Draaisma, 2009). Research in this area has provided estimates of special abilities in the autistic population that range anywhere from 13% to 42% (Bennett & Heaton, 2012; Bolte & Poustka, 2004; Itzchak *et al.*, 2013). However, much of this research has been conducted on children rather than adults, and as such it is difficult to know the developmental trajectory of these special talents or the prevalence of special talents in the adult autistic population.

Although it is clear that not all autistic individuals possess what would be considered “savant skills,” there is evidence that, on average, autistic people have superior visiospatial processing abilities when it comes to processing details (Mitchell & Ropar, 2004). For example, using an embedded figure task paradigm, Shah and Firth (1983) found that autistic individuals were faster at identifying a target shape nested within a more complex pattern as compared to neurotypical individuals. It has been suggested that this superior performance in processing detailed visual information predisposes individuals on the spectrum to excelling in highly technical fields such as science, engineering, and computer coding. Some have even hypothesized that the “[g]enes that contribute to autism may overlap with genes for the uniquely human ability to understand how the world works in detail—to see beauty in patterns inherent in nature, music and math.” (Baron-Cohen, 2012, p. 75).

Further, multiple sources report that there is an unusually high rate of individuals on the spectrum in areas with a large “tech” presence, including Silicon Valley in California, Bangalore (i.e., the “Silicon Valley of India”), and Eindhoven (i.e., the “Silicon Valley of the Netherlands”; Baron-Cohen, 2012, p. 75). Similarly, work by Baron-Cohen and colleagues (1998) suggested that the incidence of ASD may be up to nine times higher in university students studying math as compared to those in the humanities. Of course, the mere presence of individuals with ASD at higher rates in certain fields does not necessarily indicate a higher innate aptitude. However, the fact that large science, engineering, and technology-based companies like Microsoft actively recruit employees on the spectrum as part of their business strategy suggests that individuals with ASD may have some unique traits that prove helpful in certain professional domains.

Table 1. Strengths and Challenges of the Neuroatypical Worker

	Strengths	Challenges	Environmental Niche
Autism	Attention to detail/sensory discrimination; ability to find discrepancies or mistakes others have missed (O'Riordan & Passetti, 2006; Eigsti & Fein, 2013; Baron-Cohen et al., 2009)	Social interactions; difficulty with reading social cues and following social convention, poor eye contact (APA, 2013)	Can excel in highly technical fields; sciences, engineering, computer and technology fields
	Ability to focus on tasks that others find tedious (APA, 2013; Murray, 2018)	Repetitive behaviors/fixated interests; inflexibility in routine (APA, 2013)	
	Impressive memory for factual knowledge (Firth & Happé, 2005)	Hypersensitivity to sensory input (APA, 2013)	
ADHD	Highly creative and enthusiastic; ability to come up with novel solutions and ideas (Baird et al., 2012; Batey & Furnham, 2008; Carson et al., 2003; De Dreu et al., 2008; Zabelina et al., 2016)	Difficulty directing attention; easily distractible when uninterested in activity or subject matter (APA, 2013; Castellanos et al., 2006)	Thrive in fast-paced environment that values creative thinking and allows for flexibility/autonomy. Individuals with ADHD may be particularly well suited to entrepreneurial pursuits
	Attentional abundance & hyper-focus when under pressure or faced with interesting stimuli (Hallowell & Ratey, 2021)	Difficulty with time management and organization (APA, 2013; Carnes & Holloway, 2009; Nadeau, 2005)	
		Tendency toward procrastination (Gray et al., 2016; Hallowell & Ratey, 2021)	
Dyslexia	Holistic processing style (Geiger, 2008; von Karolyi et al., 2003) leading to ability to see the "bigger picture" (Shaywitz, 1996)	Relative deficits in sequential processing leading to difficulties in "elementary" skills (e.g., decoding of written language; von Karolyi & Winner, 2004; Shaywitz, 1996)	Thrive in environments that value creativity, novel connections and problem-solving over rote memory skills or routine tasks
	Ability to understand at a conceptual level; make connections others don't see; cut through complexity (Shaywitz, 1996)	Poor rote memory/memory for details (Breux & Eichstadt, 2017)	
	Innovative and creative thinking (Majeed et al., 2021); may solve problems in ways others are unable to do	Slower processing speeds; slower reading and writing (Facoetti et al., 2010)	
		Difficulty with spelling (Breux & Eichstadt, 2017; APA, 2013)	

Strengths of ADHD in the workplace. ADHD is a neurodevelopmental difference commonly associated with a number of "cognitive impairments" including hyperactivity, difficulty with concentration, and impulsivity (American Psychiatric Association, 2013; Castellanos et al., 2006). Indeed, this may seem rather obvious as the traits that define this brain difference serve as part of the name of the condition (i.e., ADHD). However, some have argued that using this label is a misnomer and does a great disservice to those living with this brain difference. According to ADHD experts Edward Hallowell and John Ratey (2021), the ADHD brain is full of seemingly "paradoxical tendencies." Specifically, they have argued that ADHD, rather than being a condition characterized by *attentional deficits*, would be better characterized as a condition of *attentional abundance* in which individuals are constantly scanning their environment for novel or

interesting stimuli (Hallowell & Ratey, 2021, p. 7). As a result, individuals with ADHD often experience hyperfocus, an enhanced ability to focus when it comes to activities they enjoy and that offer stimulation, and thus they may be particularly well suited to fast paced environments.

In addition, there is evidence of a connection between ADHD and creativity. Research findings suggest that several of the cognitive differences associated with ADHD, such as impulsivity, distractibility, and cognitive arousal co-occur with divergent thinking and creativity (Baird *et al.*, 2012; Batey & Furnham, 2008; Carson *et al.*, 2003; De Dreu *et al.*, 2008; Zabelina *et al.*, 2016). Further, several studies have found a direct relationship between ADHD and both self-report (White & Shah, 2006) and standardized measures of creativity (White & Shah, 2011). Such research findings suggest that individuals with ADHD could be of particular value in the growing number of industries where novel thinking and creativity are at a premium.

Furthermore, it is the qualities of creativity and innovation that have led researchers to examine the relationship between ADHD and entrepreneurship. There is a small but burgeoning body of research examining the possibility of ADHD as an advantage in entrepreneurial pursuits. Research suggests that due to their heightened stimulus seeking tendencies, individuals with ADHD are less likely to be put off by the risk involved in entrepreneurial tasks (Lerner *et al.*, 2018). Indeed, research conducted by Lerner and colleagues (2019) suggests that individuals with ADHD are more likely both to have entrepreneurial intentions and to engage in business venturing. Specifically, the hyperactivity component (rather than the inattentive component) of ADHD and ability to hyperfocus may be beneficial for individuals in pursuing entrepreneurial pursuits, particularly when combined with a passion for founding and developing an entrepreneurial opportunity (Hatak *et al.*, 2020; Verheul *et al.*, 2016). The passion for developing and founding may mitigate ADHD challenges in sustaining focus and persevering over the long term so that the entrepreneurial ventures are more likely to succeed (Hatak *et al.*, 2020).

Indeed, popular press articles have touted ADHD as the secret weapon to business success, with titles like *ADHD: The Entrepreneur's Superpower* (Archer, 2014). Such articles claim common traits associated with ADHD such as creativity, risk taking, preferences for multitasking, and high energy make individuals with the condition particularly well suited to entrepreneurial business success. Indeed, popular press outlets point to the success of ADHD individuals such as Richard Branson, Ikea founder Ingvar Kamprad, and JetBlue founder David Neeleman as anecdotal evidence of an entrepreneurial ADHD advantage. Clearly more research is needed to reach any strong conclusions regarding the possible strengths of ADHD in the workplace, however, anecdotal evidence along with burgeoning research streams suggests that this is a research area worth pursuing.

Strengths of dyslexia in the workplace. Dyslexia is a neurodevelopmental difference associated with difficulty in the phonological processing of written language (American Psychiatric Association, 2013; Peterson & Pennington, 2012). Despite this “deficit,” there is growing scientific evidence that dyslexics may have unique patterns of cognitive strengths that accompany the relative deficits. Specifically, research suggests that dyslexics may have a greater affinity toward holistic information processing, which allows them to more easily make connections and see the bigger picture. For example, studies have found that dyslexics have an advantage over nondyslexics when it comes to global visual-spatial (Geiger *et al.*, 2008; von Károlyi *et al.*, 2003) and auditory (Geiger *et al.*, 2008) processing. In contrast, there is evidence that dyslexics may be particularly weak at visual and auditory tasks that require sequential or part-based processing (i.e., processing that requires a focus on specifics of the attentional field; von Károlyi & Winner, 2004). Facoetti and colleagues (2010) suggest that the difficulty in reading associated with dyslexia is a product of this different attentional style (i.e., multisensory spatial attention deficits). This is further supported by research that has found that dyslexics have greater right hemisphere dominance, which is associated with greater holistic rather than sequential processes, as compared with nondyslexics (Korbey, 2015; Stein, 2001; Vlachos *et al.*, 2013).

Although this predisposition to processing stimuli in a global rather than part-based way has generally been framed as a deficit, as this processing style may be related to a number of difficulties dyslexics encounter it may also be associated with the kind of higher order thinking and problem-solving competencies that organizations are increasingly looking for in their employees. For example, the United Kingdom intelligence agency GCHQ reportedly employs a disproportionately high number of people with dyslexia just for this reason. According to GCHQ director, Jeremy Flemming, dyslexics are of particular use to the intelligence agency because of their knack for “joining the dots, simplification, seeing the bigger picture” (Wood, 2019, para. 4).

Both organizations (EY, 2019) and the popular press (Schneps, 2014; Taylor, 2019) have offered anecdotal evidence of specific dyslexic talents in the workplace (e.g., creativity and innovative thinking). For example, Vanella Jackson, Global CEO at Hall and Partners is quoted as saying that dyslexic thinking “plays into what we need as a business, and the pressing business needs of today and the future” because “people with dyslexia have a unique advantage; their special ability to cut through complexity and find original ways to solve problems” (EY, 2019, p. 6). Indeed, from a clinical standpoint, dyslexia is associated with an uneven cognitive profile. This can lead to a seemingly paradoxical situation whereby individuals struggle with “elementary” skills such as spelling, rote memory, or reading fluency while performing well on “higher order” skills (e.g., creative thinking and problem-solving; Breux & Eichstadt, 2017).

(Un)Employment of neuroatypical individuals: Implications for well-being

We have discussed in detail the potential organizational advantages to neurodiversity. However, despite these potential advantages, neuroatypical individuals suffer from rates of under/unemployment significantly higher than that of the general public (Dow et al., 2020). Research suggests that employment is one of the more important factors related to well-being outcomes for individuals with disability (Beyer et al., 2010). As such, making neurodiversity an essential part of the organizational diversity and inclusion agenda will almost certainly have a substantial impact on the well-being of neuroatypical individuals.

Unemployment can have detrimental consequences to one’s well-being (i.e., psychological, physical) and overall satisfaction (i.e., life, marital, familial). For example, in a meta-analytic investigation of the relationship between unemployment and individual psychological and physical well-being, McKee-Ryan and colleagues (2005) found significant, negative effects on mental health, life satisfaction, and objective physical health. More specifically, research on the negative impact of unemployment on social-psychological well-being found evidence of increased levels of depression and anxiety, as well as decreased levels of self-esteem and morale (see Brand, 2015 for a review).

Neuroatypical individuals may experience compounded effects of unemployment, as neuroatypical applicants are perceived as less employable (McArdle et al., 2007). Alarming, the unemployment rate is exponentially higher for subpopulations of neuroatypical individuals. For example, college educated adults with ASD face a substantially high unemployment rate of 85% within the United States (Sparrow, 2018), compared to the 6.2% unemployment rate of the general US population (Bureau of Labor Statistics [BLS], 2021).

These high unemployment rates translate into lost income and, as stated above, negative outcomes on mental and physical health (Brand, 2015; McKee-Ryan et al., 2005). In a 2006 study, Biederman and Faraone estimated the loss of income for adults with ADHD across the United States ranges from \$67–\$116 billion annually. Not only is unemployment detrimental to the individual’s well-being, but also to state and federal unemployment infrastructure. For example, Kropp (2020) found unemployment due to dyslexia will cost \$340 billion in gross domestic product (GDP) over the next 60 years in California alone.

Neurodiversity: A unique dimension of organizational diversity

Despite the clear and pressing need to better understand neurodiversity in the workplace and barriers to employment for neuroatypical workers, there is little research on neurodiversity within the organizational sciences. One reason for this is that scholars and organizations are only just starting to see neurological differences as an important dimension of organizational diversity (Brinzea, 2019). Therefore, relevant research that does exist does not often use the framework of diversity. We believe that examining neurological differences from an organizational diversity perspective can help us better understand the experiences of neuroatypical workers as well as the barriers they may face in the workplace. In the following section we discuss how neurodiversity in the workplace may be similar or different from that of racial, gender, and sexual orientation diversity, bridging the currently disparate literatures on neurological disability and diversity.

In particular, we highlight three aspects of neurodiversity that we believe make neurodiversity different from other commonly studied types of organizational diversity and in doing so discuss the implications of these differences for organizational diversity initiatives. First and foremost, the stigma and stereotyping around neuroatypicality is likely to be different than that of other commonly studied minority groups in the workplace. Second, unlike other types of diversity commonly studied in the organizational sciences, neurodiversity is a form of deep level, as opposed to surface level, diversity. Third, unlike other types of minority membership, neurominority membership is the only minority status defined by differences in cognitive processing. These three aspects of neurodiversity are likely to necessitate that organizations take unique approaches to increasing neurodiversity, many of which are not applicable to other types of diversity initiatives.

The neuroatypical identity: A different type of stigmatized identity?

Similar to other stigmatized identities, preliminary evidence suggests that neuroatypical individuals are not immune to negative stereotyping and discrimination (e.g., Gray, 2001; Hinshaw & Stier, 2008; Mawson et al., 1985). However, the exact nature of this stereotyping and the outcomes related to this stereotyping are likely to be different than those of other commonly studied minority groups. Due to the medicalization of ASD, ADHD, and dyslexia based on deficits, it seems reasonable that individuals with these neurological differences would be stigmatized as particularly incompetent as compared to other minority members in the workplace. Indeed, stereotypical attitudes toward individuals with disabilities more broadly are described as low competence and high warmth (Fiske et al., 2002; Lyons et al., 2018). According to the stereotype content model (SCM), disabled individuals are thereby perceived through a paternalistic lens (Fiske et al., 2002). Under this view, those with disabilities are often met with pity and sympathy by their outgroup.

Although neuroatypical individuals can be viewed as disabled, it is likely that there are unique stereotypes associated with this group. For example, previous research suggests that because of low social skills and inappropriate use of affective expression, individuals with ASD may be perceived as rude or impolite (McKnight-Lizotte, 2018). Therefore, people with ASD may be perceived as low in warmth, which is likely to be met with more contempt from individuals belonging to their outgroup (Fiske et al., 2002). This stereotype is likely to influence hiring perceptions of team cooperation, customer service, and general social skills. Future work should examine stereotypes of neuroatypical identities and how these stereotypes influence subsequent organizational decisions.

Further, the negative stereotyping of and discrimination toward neuroatypical people in the workplace may be seen as “rational” (i.e., justifiable, acceptable), a perspective not often adopted for other stigmatized groups (e.g., racial, sexual, or gender minorities; Areheart, 2008). The medicalization of neuroatypicality is unlike that of other commonly studied minority identities in the workplace and is likely to color how neuroatypical individuals are perceived in the workplace.

Labeling someone with a clinical diagnosis that is considered a “neurodevelopmental disorder” is likely to make employers and coworkers question even a qualified individual’s ability to perform job duties. In contrast, not wanting to hire or work with an otherwise qualified Black, female, or gay individual is less likely to be seen as justifiable and more likely to be considered racist, sexist, or homophobic. As such, discrimination against neuroatypical individuals in the workplace is likely more commonly considered acceptable than discrimination toward other commonly studied minority groups.

However, adherence to the view that discrimination against neuroatypical individuals is rational is likely to be affected by one’s general view of disability (Areheart, 2008). In adopting the medical model of disability, individuals may perceive disabled persons as physically or mentally inferior to the majority and thus ill-fitted for the workplace. In contrast, the social model of disability views disability discrimination as a form of social discrimination similar to race-based or sex-based bias. Therefore, individuals who adopt the social model of disability may recognize discrimination toward neuroatypical others as rooted in social injustices toward the community. Although these differences have been proposed by Areheart (2008), empirical evidence directly testing these proposed differences within organizations is lacking. As such, future research should explore how one’s perceptions of disability influence stigmatization of neuroatypical individuals in the workplace. Of particular interest is the organizational culture around disability. Organizational cultures that ascribe to the medical model of disability (as opposed to the social model) are likely to be more stigmatizing environments for neuroatypical individuals to work in.

It is also important to note that experiences of discrimination may have unique effects on identity formation among the neurodivergent community. Compared to other identities, neuroatypical individuals are often isolated within their family or direct community (Santuzzi & Waltz, 2016) and therefore may receive less social support, making it harder to navigate experiences of discrimination. Additionally, although there has been a widespread rise in positive subcultures and public positive messaging surrounding other identities (e.g., LGBTQ Pride; “Black Girl Magic”), the same is not true to the same extent of disabled community (Bogart, 2014; Hahn & Belt, 2004). Although positive subcultures around neuroatypicality do exist, particularly through the internet, one is likely to have to seek it out more actively. As a result, individuals within the neurotypical community may not be exposed to messages likely to combat negative portrayal of neurological disorders and experienced discrimination.

Neurodiversity: A form of deep level rather than surface level diversity

Unlike other types of diversity commonly studied in the organizational sciences, neurodiversity is a form of deep level, as opposed to surface level, diversity. Whereas surface level diversity refers to obvious differences among individuals in characteristics that are readily visible, deep-level diversity is a term used to refer to “diversity of underlying attributes” that are not readily visible such as attitude, knowledge, and skills (Harrison et al., 1998, p. 98). Race and gender, the most commonly studied types of diversity in the organizational sciences (Colella et al., 2017), fall within the realm of surface level diversity, as they are typically observable through physical characteristics.

Neurominority members exhibit, essentially by definition, a deep-level type of diversity because the type of diversity they bring to an organization stems from differences in brain functioning that are not obviously visible. As such, neurominority members are likely to have more similar experiences to those of sexual minorities in the workplace, a minority group whose minority status can often be hidden (i.e., an invisible identity). In the following section, we discuss the implications of neuroatypicality in the workplace as a deep-level form of diversity, focusing on one of the issues most prevalent in the invisible identity literature, that of workplace disclosure.

Workplace disclosure

Unlike other more visible identities that represent surface level diversity (e.g., race, gender, physical disability), the neuroatypical community generally represents a more *concealable* identity. Neuroatypical individuals are not identifiable by physical appearance (although behavioral differences in some neuroatypical individuals may suggest their minority identity, such as lack of commonly accepted social behaviors in many persons with ASD; Johnson & Joshi, 2014). Therefore, much like sexual orientation minorities, neuroatypical individuals are tasked with deciding whether to disclose their identity within the workplace.

Disclosure is defined as “the act of revealing personal information about oneself to another” (Collins & Miller, 1994, p. 457). The decision to disclose one’s invisible identity in the workplace is not straightforward. Research on the consequences of workplace disclosure among sexual minorities has pointed to both positive (e.g., job satisfaction, affective commitment; Day & Schoenrade, 1997; Griffith & Hebl, 2002) and negative (e.g., workplace harassment, social isolation, discrimination; Clair *et al.*, 2005; Ragins, 2008) outcomes related to disclosure.

However, the disclosure decision is further complicated for neurominority members by the fact that disclosure is often tied to the ability to receive accommodations. Some individuals may be tasked with having to disclose their identity right away in order to seek accommodation during the selection process (e.g., interviews for individuals with ASD; Austin & Pisano, 2017; Hurley-Hanson & Giannantonio, 2017; Patton, 2019). For others, it may be imperative that they request and receive accommodations once employed (McIntosh, 2016). This contrasts with other concealable identities (e.g., sexual minorities), who can choose to conceal their identities until they have developed stronger ties within the organization.

Receiving appropriate accommodation could have a direct impact on performance and individual success in the workplace. Although employers are legally required by the ADA to provide neuroatypical employees who disclose with reasonable accommodations, research suggests that the act of receiving accommodations may have stigmatizing effects beyond that of disclosure alone. Paetzold *et al.* (2008) conducted an experimental study in which they examined the fairness perceptions of accommodations (i.e., extended time) for a student with dyslexia. The results showed that participants perceived not granting accommodations as more fair than granting accommodations. Further, Paetzold and colleagues (2008) found that accommodations were perceived as most unfair when the dyslexic individual performed well (vs. poorly) at the task for which they received accommodations. Such findings suggest that even after disclosure, neuroatypical individuals may continue to experience stigmatization as a result of utilizing accommodations, an effect that may be magnified if they are high performers. Future research is needed to explore the unique experiences and challenges surrounding disclosure of neurodivergent workers.

In addition, the disclosure decisions of neuroatypical individuals have implications for the success of organizational recruiting programs aimed at targeting neurominorities. Specifically, although some targeted recruitment programs currently exist to increase workplace accessibility to the neuroatypical community (e.g., Microsoft Neurodiversity Hiring Program or EY’s Neurodiversity Centers of Excellence Initiative), it is likely that, due to hesitancy to disclose, a substantial proportion of the neurotypical population may choose not to respond to targeted recruitment efforts. Similar to research findings that beneficiaries of affirmative action plans are often perceived as less competent (Heilman *et al.*, 1992), recruitment through a program intended to increase neurodiversity may also result in lower perceptions of competence (i.e., stigmatization). This may present a barrier to targeted recruitment efforts of neuroatypical individuals that further thwarts organizational efforts to increase neurodiversity.

The neuroatypical mind: A different way of processing information

Perhaps what makes neurodiversity the most different from other types of organizational diversity is that neurominority membership is the only minority status defined by differences in cognitive

processing. Unlike other minority groups commonly studied in the context of the workplace (e.g., racial, gender, and sexual minorities), neurominority members, by definition, process information and interface with their environment in ways that are different from what is considered “typical.” Due to these differences in neurological functioning, there are some unique considerations when it comes to increasing neurodiversity within organizations. Specifically, common organizational practices and structures have been built for the neurotypical population and may not work as well with neuroatypical individuals. In other words, standard approaches may not always work for unstandard minds. As a result, organizations wanting to increase neurodiversity will need to be open to implementing accommodations, adapting modes of communication, increasing flexibility, or changing management style and leadership practices.

A prime example of this is the selection process, as common selection practices for new hires may not work adequately for neurodiverse applicants. Employers need to consider the potential for adverse impact of current selection systems on neuroatypical individuals. Although the three types of neuroatypicality we have focused on in this article (i.e., ASD, ADHD, and dyslexia) are unrelated to overall cognitive ability itself, neuroatypical individuals often have “a spiky profile” of functioning, meaning that although they have certain cognitive deficits, other areas of their cognitive functioning are relatively unaffected (Doyle, 2020, p 109). Due to this “spiky profile” of cognitive functioning, certain commonly used modalities of testing knowledge, skills, or abilities during the selection process may not be appropriate for the members of the neuroatypical population. For example, because individuals with dyslexia have slower processing speeds when it comes to written language, selection tools that are time sensitive and reading based will not fully capture a dyslexic’s abilities when it comes to higher level skills (e.g., reasoning skills, problem-solving; Schneider et al., 2015).

Similarly, selection tools intended to evaluate specific job relevant skills but that do so through modalities that have a high social component (e.g., interviews) may screen out applicants with ASD even when they have necessary or superior skills for the job. For example, adults with ASD may be discounted for lack of eye contact during an interview (CIPD, 2018). Indeed, Patton (2019) suggests interviews may inadvertently discriminate against individuals with ASD due to emphasis on emotional intelligence and agreeableness, which may not actually be competencies required for the job.

These findings highlight the need to examine the evaluation and psychometric properties of selection systems in specific groups to ensure that selection measures are equally valid across neurotypical and neuroatypical populations. This is imperative not only for legal defensibility but also person–organization fit, as the goal of selection is to hire an individual with the ability to perform successfully on the job. To this end, we suggest future research examine the differences between neurotypical and neuroatypical populations on different sets of selection tools and also strategies to reduce these group differences, such as providing appropriate evaluation and accommodations during the selection process. In addition, research should investigate how construct validity varies between neurodiverse groups to ensure the selection tool is measuring job-related KSAOs without construct contamination as mentioned above.

Similarly, neuroatypicality may have implications for management styles that are not characteristic of other types of diversity. Recent diversity research suggests that leadership can play a role in determining important outcomes (e.g., performance, turnover, organizational commitment) in organizational settings with diverse employees (Kearney & Gebert, 2009; Nishii & Mayer, 2009; Ruppert, 2010). As such, leadership is also likely to play an important role among work groups that are neurodiverse as well. For example, researchers have suggested that leadership is particularly important when it comes to neurodiversity and disability in the workplace, as those in leadership positions play an important role in the accommodation (Gates, 2000), socialization, and mentorship processes (Kulkarni & Lengnick-Hall, 2011).

However, researchers and practitioners should not assume that leadership styles that are well suited to other types of diversity are similarly well suited to individuals with neuroatypicalities. For

example, although research has suggested that transformational leadership, a form of leadership that inspires followers to move “beyond immediate self-interests” (Bass, 1999, p. 11), can positively influence the outcomes of diverse teams (Kearney & Gebert, 2009), research also suggests that there are some negative outcomes associated with this type of leadership for certain neuro-minority members. Specifically, Parr *et al.* (2013) found that although certain dimensions of transformational leadership (i.e., individualized consideration and idealized influence) reduced anxiety in ASD followers, which in turn increased follower organizational commitment, other dimensions of transformational leadership had the opposite effect. Indeed, inspirational motivation, a dimension of transformational leadership that involves “affect-laden” displays and “charismatic displays,” was positively related to levels of anxiety and negatively related to organizational commitment in individuals with ASD (Parr *et al.*, 2013, p. 611).

Parr and colleagues’ (2013) findings challenge, as they put it, the “universal applicability” of transformational leadership (p. 608). Further, these findings illustrate how leadership styles may have different outcomes for individuals with neuroatypicalities, suggesting that understanding leadership in the context of neurodiversity is of particular importance. Due to differences in neurological functioning, the relationship between leadership styles and important individual and organizational outcomes may be different for neurominority members than for that of other types of commonly studied minority members in the workplace. Although the extant literature suggests that leadership is an important factor in neuroatypical employees’ well-being and success in the workplace, further exploration is needed to understand what types of leadership are best suited to a neurodiverse workplace.

Conclusion

Examining neurological differences within the wider realm of organizational diversity can help inform the research questions of scholars interested in studying neurodiversity in the workplace. Although neurominority individuals in the workplace are likely to have many experiences (e.g., stigmatization, identity management, discrimination) that overlap with those of other minority groups, there are also aspects of neuroatypicality that make this population unique. We have discussed several fruitful avenues and considerations for future research, discussing the parallels and differences between neurodiversity and other commonly studied dimensions of organizational diversity.

In their 2017 review of the first one hundred years of research on discrimination in the *Journal of Applied Psychology*, Colella and colleagues underscore the need for research examining the experiences of individuals with intellectual disabilities in the workplace. It is our hope that in this focal article we have extended this call for action a step further by articulating not only the importance of studying the experiences of individuals with neurological/intellectual disability in the workplace but also the importance of studying this population from an *organizational diversity perspective*. It has been our contention throughout the current article that with the continued automation of jobs and the evolving nature of work, neurodiversity will become an increasingly relevant dimension of organizational diversity. Specifically, we have suggested that as an important dimension of diversity, neurodiversity is likely to play a key role in important individual and organizational outcomes. It is our hope that this article helps to spur discussion and I-O scholarship in the area of neurodiversity.

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