

A Tale of Two Worlds

“Change the way you look at things and the things you look at change.”

—Wayne W. Dyer

As a very simple visual metaphor, imagine a performance line representing an individual’s skillset across a variety of domains. It goes wildly up and down, representing powerful skills in math, poor performance in debate, all-star status in statistics and logic, and abysmal proficiency at retention of historical models. Now add another individual with a performance line that’s mostly a mirror image of the first. It peaks where the other troughs and vice versa. Finally, let’s add two more individuals to this group, each with performance lines that peak and trough at still different points. Together, the four individuals make up a diversified portfolio of cognitive profiles with very different strengths and weaknesses.

Now, let’s imagine four new candidates. In this second group, all members have very similar performance lines: they all score “pretty good,” “average,” or “slightly below or above average” at every skill—none extraordinarily good or terribly bad at anything.

Which group of four should you hire?

The painfully obvious answer is both! Just as painfully obvious is the notion that either one, without the other, would contain the seeds of its own destruction in the context of a competitive market

economy facing rapid evolutionary and revolutionary transformations ahead. It is through the complementarity of different cognitive profiles, working together, that we arrive at the optimal configuration. And, naturally, evolution got there before us.

It turns out that some researchers now believe certain beehives have a minority cohort that behaviorally diverges from the rest of the hive in terms of responding to honeybees' most important social phenomenon: the waggle dance—a figure-eight dance performed to share information with other members of the colony about the direction and distance to patches of flowers yielding nectar and pollen, to water sources, or to new nest-site locations.

Some researchers believe that about one-fifth of the bees in a honeybee hive ignore waggle dance instructions, instead flying off in apparently random directions, while the other 80% of the bees in the hive follow instructions effectively and pursue the endorsed objective.¹

I am not in any way suggesting that neurodivergent individuals are comparable to non-waggle-dance-following bees. However, the example points out something important about the difference between thinking about individual-level traits versus thinking about community-level traits.

Through the lens of a deficit-based perspective, those divergent bees are failures because they won't or can't behave according to the standard expectations for proper bee behavior. However, it turns out that divergent bees appear to be a significant strategic asset for honeybee hives. The divergent cohort of the hive bucks the norms, charts a new course, and widens the scope of the hive's territorial reconnaissance operations and its behavioral matrix. At the end of the day, this divergent minority appears to account for a disproportionate share of new pollen discoveries, helping the whole community thrive.

In other words, the whole of the hive community is a complex system. Analyzing each member with only an appreciation for

differences according to individual-level standards obscures value at the system level.

The deficit-based perspective sees a group of five bees. It recognizes four of them with gold stars for successfully fitting in. And it bemoans the other one—the misfit—who has totally failed according to established protocols and standards of bee conduct.

But the strength-based perspective sees a completely different picture: “divergent-inclusive hives,” at some point in the evolutionary past, decisively outperformed “divergent-unfriendly hives” in a Darwinian scramble for dominance. And this victory came not despite, but precisely because of, the behavior of the divergent cohort in the hive.

In other words, at the community level (or at the organizational level), including individuals with divergent traits produces powerful value that would be unattainable through any other configuration. The challenge is being able to implement that community-level realization in the course of individual-level relationships and management within the fabric of a thriving organizational culture.

What I have couched as a “community-level dynamic” can, in fact, be discussed in more rigorous evolutionary terms.

Many of the neurodivergent cognitive typologies we discuss in this book are believed to have a hereditary basis in genetics. Given that, there’s plenty of room to build a theoretical foundation for explaining the universality, persistence, and pervasiveness of neurodivergence displayed in human populations across both geography and time in terms of community-level fitness.

One theoretical framework that has been developed toward precisely this objective is the theory of “complementary cognition,” which asserts that successful adaptation in humans arises from collaboration between individual members who are specialized in different but complementary neurocognitive search strategies.²

Essentially, the theory proposes that human cognition evolved to be in-group complementary in order to promote cooperation and improve group performance.

Complementary cognition proposes that humans evolved to specialize in different, but complementary, cognitive strategies, or “ways of thinking.” This specialization is thought to have arisen as a way of coping with the challenges of living in a complex and ever-changing environment.

There is evidence to support the theory of complementary cognition from a number of different sources. For example, studies have shown that humans have different cognitive strengths and weaknesses. Some people are better at spatial reasoning, while others are better at verbal reasoning. Some people are better at thinking outside the box, while others are better at following rules.

These different cognitive strengths and weaknesses are thought to be the result of natural selection. Over time, individuals who were better at thinking in certain ways that were complementary with the distribution of cognitive strengths across the community were more likely to survive and reproduce. This led to the evolution of a population of humans with a wide range of cognitive abilities.

Complimentary cognition holds important implications for our understanding of the factors involved in organizational success. For example, it suggests that we should not expect everyone to think the same way and that this diversity in cognitive strategies presents advantages capable of supporting the success of the wider community. We should also be aware that our own cognitive strengths and weaknesses may lead us to have different perspectives on the world.

Once again, this view returns us to the pitfalls we face when considering our appraisal of individual-level cognitive strengths and weaknesses and how that appraisal may be in conflict with the reality of team dynamics and what drives the performance of any given group of humans when viewed at a community level.

Complimentary cognition is still a relatively new idea, but it has the potential to revolutionize our understanding of human behavior. This theory was developed to help explain cognitive differences

associated with developmental dyslexia by providing the theoretical understanding of why “search specialization” is likely to have evolved as well as its significance for understanding human adaptation and cultural evolution.

But such a framework could just as easily be applied to autism or ADHD, which present potential complementarity implications for the performance of human groups at a community level.

The big takeaway from a complementary cognition interpretation of neurodiversity is the idea that, in our environment of evolutionary adaptation (roughly, sub-Saharan Africa, tens of thousands of years ago), not everyone could find a meaningful route to social—and thus, reproductive—success by being a perfect neurotypical subject: great at toeing the line, acting within the boundaries of social scripts, and quickly picking up commonly needed skills.

There would have been a small but not insignificant route to social and reproductive success for people built to buck the main road and march to the beat of their own drums, exploring different ideas and different ways of living, perhaps being impulsive or constantly finding new and different ways of solving problems.

Some percentage of these neurodivergent members of the community would strike gold in some way, providing some outsized value to the community and gaining status and social capital as a result. Not only would this dynamic maintain the genotypic and phenotypic pervasiveness of neurodivergent traits within a given community, but it would also confer an advantage to communities that accepted and included such individuals over communities that shunned and excluded them. Over time, extrapolation of this evolutionary game-theoretic landscape results in the world we see around us today in terms of population genetics and community-level distributions of cognitive strategies.

Sadly, the same cannot be said of the corporate landscape, where we see a heavy skew toward neurotypicals when compared to the broad population.

At its core, complementary cognition strongly suggests that human cognition evolved to be complementary in order to promote cooperation and improve group performance. The theory points to the potential that, by recognizing and leveraging complementary cognitive abilities, groups can enhance their problem-solving and decision-making capabilities, leading to better outcomes. After all, communities with a stable abundance of neurodiversity are more effective over time than communities that exclude neurodivergent individuals.

There is even a line of reasoning that suggests this complementarity extends to communities that will likely soon come to include artificial intelligence. As large language models such as Google's Bard or OpenAI's ChatGPT have demonstrated, an incredible amount of extrapolation, analysis, and linguistic modeling can be automated. But the gap in their conceptual coverage map is likely to be found in the territory of nonlinear thinking—in what we might call “intuitive leaps of insight”—that might otherwise go unexplored.

Yet, employers are still, by and large, reluctant to embrace authentic neuroinclusion. This is a central paradox motivating this book.

As a final note, this argument is not meant to suggest that only forms of neurodiversity with some genetic basis can play a productive role as complementary pieces augmenting the functionality of a community. There is every reason to believe that the evolutionary data simply demonstrate that cognitive diversity in all forms is a value-added dynamic at the community level.

Neurodiversity World 2.0

Today, we live in Neurodiversity World 1.0. But the future belongs to Neurodiversity World 2.0.

In 1.0, the vast majority of neurodivergent people—more than a fifth of the global population—are either excluded entirely or included in some nominal sense where our gifts and talents are rarely

tapped. This disproportionality between the potential to contribute, on the one hand, and the lack of opportunity, on the other, is a moral and practical crisis for society. In 1.0, the neurodivergent are spectators choosing between complete exclusion or inauthentic inclusion.

Inauthentic inclusion is a critical idea in establishing the context for neurodiversity inclusion in the business world and something, at the start, to become aware of. This is when someone with an atypical cognitive profile is “technically included” in the process, but that inclusion is predicated on the tacit guideline that the neurodivergent person will work to maintain a neurotypical façade. In other words, the price of inclusion is fitting in.

In cases of inauthentic inclusion, social position, workplace rules, methods of working, and job performance are all explicitly and implicitly determined by neurotypical standards and assumptions. In such cases, neurodivergent people often engage in an arduous process of fitting in, also known as “masking,” where enormous energy is expended through superficial impression management and deeply felt stress to hide neurodivergent traits.

Sam, a late-diagnosed male with a master’s degree in history who has been largely unemployed over recent decades, describes his experience:

I need a job really badly. And I really want to feel included. It’s just that there is always this giant price I end up paying in terms of my mental health for forcing myself too hard to fit in rather than be me, quirks and all.

As shown in Figure 1.1, the covered divergent gold balls symbolize the all-too-common phenomenon of masking.

As we will explore in the chapters ahead, there are many advantages to being a first mover in the transition from World 1.0 to World 2.0,

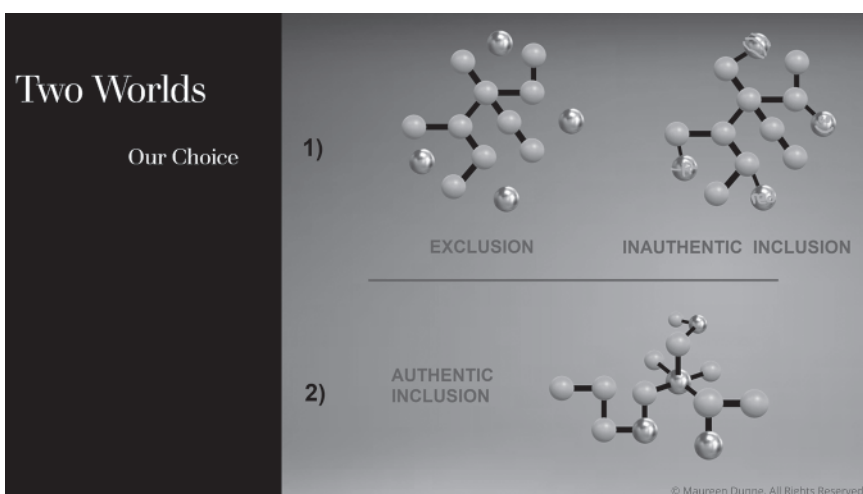


Figure 1.1 Technical inclusion vs. authentic inclusion.

including reduced groupthink risk, heightened innovation, reduced brand risk, and access to a wider pool of available workers.

World 2.0 is a superior configuration. For everyone. It represents a world that works better, both morally and functionally.

In World 2.0, businesses have discovered that it takes very little investment of time, money, and mindshare to embrace and implement authentic neuroinclusion and that the associated benefits far exceed those minimal costs, with a large collateral payoff for those in the neurodivergent community as well as everyone else living in this world.

World 2.0 is also a superior configuration in providing organizations access to a wider field of people, as well as far more per capita innovation, perspective, and motivation, as we will cover below.

Authentic inclusion is at the core of the transition to World 2.0, so we need to explore what we mean when we use this term—what *authentic* neurodiversity inclusion means, why it is so rare, what its

advantages are, and how organizational cultures can evolve to tap this powerful resource.

Authentic inclusion is fundamentally about maximizing what any given individual can contribute within an organization and doing so in a way that appreciates and values diversity. To create alignment with this ideal, every organization should start with an honest examination of its core values—not the core values written in the emails or on the bulletin board, but the core values exposed by a brutally honest analysis of the allocation of time, money, habitual practices, implicit rules, and mindshare over a sufficient sample period.

Those are your only resources. Where they are being spent is what you value. There is no escaping that fundamental truth.

Often, the values that companies and organizations espouse in diversity statements are not fully backed up by genuine efforts to foster true inclusion, as suggested in a recent report by *MIT Sloan Management Review*.³

My aim is to convince you how and why your organization should include cognitive diversity as a fundamental value. World 1.0 versus World 2.0 is a choice hiring managers, administrators, and leaders make every day—whether they are consciously aware of it or not. The good news is that, even if your team has been making the wrong choice yesterday and every day before that, we can all make a different choice tomorrow.

As noted in the introduction, the neurodiversity paradigm frames cognitive types such as autism, ADHD, dyslexia, synesthesia, and dyspraxia as simply different ways of processing information within the expected range of variation for humans. Wherever you, your coworker, employee, or boss happen to fit into this range—neurotypical or neurodivergent—there are pros and cons.

We may never fully understand why this cognitive variation, with all its richness and complexity, is the norm, with neurodivergent

people exhibiting uniquely spikey profiles of strengths and challenges. But one might speculate that the answer should incorporate a community-level analytic framework—how it works at the level of the group as a functioning entity—rather than merely an individual-level framework.

Accordingly, a systems theory approach is one alternative framework to better understand how and why we are collectively stronger as organizations, companies, and communities when we can embrace rather than subvert differences.

The Strength-Based Framework

Divergent thinking drives innovation and creativity as it invokes methods of solving problems that defy standard approaches. The term “divergent thinking” encapsulates specific kinds of hidden strengths that have historically been underappreciated by employers but that are significant assets.

While profiles both within and between different cognitive typologies are unique, evidence supports the idea that particular strengths often, although not always, go hand-in-hand with ADHD, dyslexia, autism, synesthesia, and other types of neurodiversity.

Following are examples of just some of the cognitive advantages that can go hand in hand with neurodivergent cognition. There are many others. As we will see in the chapters ahead, the minimal cost and investment in developing or deepening a culture that fully supports cognitive diversity stands to more than pay off through the addition of diverse viewpoints, habits aligned with values, enhanced innovation and productivity, and improved well-being among all employees, not just neurodivergent people.

Strengths That Often Go Hand-in-Hand with ADHD/ADD.

ADHD/ADD is characterized by challenges with attention, as well as hyperactivity and impulsive behavior. However, seeing ADHD

only through this lens would miss the N+1 axis of high energy, ‘out of the box’ thinking. Cognitive psychologists Holly White and Priti Shah have demonstrated that ADHDers are particularly creative with novel ideas that are not derived from existing concepts. One study demonstrated how ADHD students performed significantly better in novelty, originality, and flexibility in creative tasks. The researchers suggested that this may be due to increased cognitive access to a wide range of semantic concepts.⁴

Another study found that ADHD participants showed less “design fixation” and relied less on existing knowledge, which allowed for more original and flexible thinking. College students with ADHD were compared to neurotypical peers on two creative generation tasks. One of the tasks required participants to imagine types of fruits that could exist on another planet. The ADHD students created alien fruits that were original and deviated to a greater degree from standard earthly fruits when compared to the neurotypical students (see Figure 1.2).⁵

Additional studies have highlighted a positive correlation between self-reported experiences of ADHD and creative achievements, indicating that individuals with ADHD might excel in creative tasks in daily life. Divergent thinking, creativity, and ADHD are also interconnected in terms of underlying brain science with further supportive evidence from neuroimaging studies.

Strengths That Often Go Hand-in-Hand with Dyslexia.

Many dyslexic individuals recognize connections between seemingly disparate concepts, objects, or perspectives. Looking at Dyslexia through this lens, the difficulties with reading and writing tasks in dyslexic individuals are compensated by enhanced creativity.

In a 2021 meta-analysis of 14 studies, dyslexic adults showed greater creativity than neurotypical adults across various measures. A study of European dyslexic children and adolescents found them to be significantly more original in the drawing tasks of the Torrance

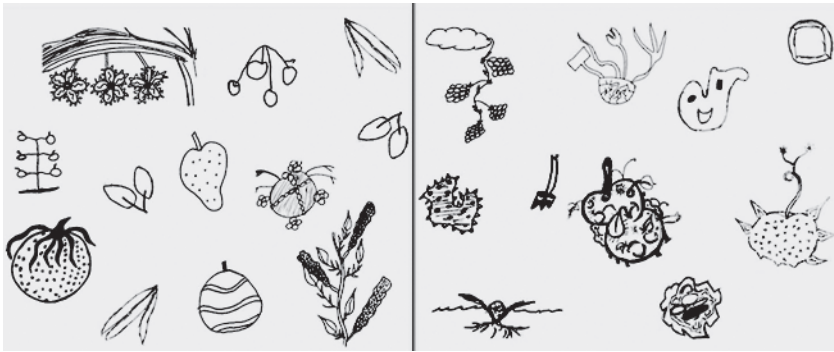


Figure 1.2 Invention of alien fruits by neurotypicals (left) and ADHDers (right).

Test of Creativity than their neurotypical peers.⁶ In a separate study, dyslexic junior high school students outperformed neurotypical peers in connecting disparate concepts in original ways.⁷

There is compelling evidence to suggest that original thinking, combinatorial thinking, and divergent thinking are part of the hidden profile of dyslexia. These skills may become increasingly important in the context of the transformative technological changes we face in coming years.

Strengths That Often Go Hand-in-Hand with Autism.

Autism spectrum disorders are generally characterized by difficulties with social interaction and communication, as well as repetitive behaviors. A strength-based lens allows autistic people to be seen more fully. Uncommon skills that autistic people bring to the table may include attention to details, pattern thinking, authenticity, and original solutions to problems. Autistic individuals demonstrate more consistently objective and rational decision-making and are less susceptible to cognitive biases, social pressure, and visual illusions. They also exhibit superior performance on visual-spatial and pattern thinking tasks.

Autistic individuals, irrespective of age and cognitive ability, outperform neurotypical individuals on the block design test, indicating their enhanced ability to detect visual patterns and segment a gestalt with less expenditure of mental resources.⁸ Autistic individuals also exhibit extraordinary attention to detail and superior skills on the Embedded Figures Test.⁹

Neuroimaging studies have indicated differences in brain activation and functional connectivity between autistic and neurotypical individuals. The unique information processing and brain connectivity of autistic individuals underpin unique talents and hidden cognitive profiles.

Recent research, including my own, supports the hypothesis that autistic strengths also include increased creativity and original thinking. A study found that those with strong autistic traits were more likely to produce exceptionally original or creative ideas. Participants were asked to come up with alternative uses for common objects. Those who generated more unusual responses were associated with higher degrees of autistic traits. Interestingly, autistic participants produced fewer interpretations for abstract drawings but scored higher in creativity and originality.¹⁰

The findings suggest that people with autistic traits may approach problems that demand creative solutions in a different way, possibly leading directly to less common, but more original, ideas.

Strengths That Often Go Hand-in-Hand with Synesthesia.

Synesthesia, which occurs in about 4% of the population, is a neurodivergent cognitive typology where the various senses (sight, hearing, taste, smell, and touch) get crossed up.

Synesthetes generally experience one sense through the lens of another. Some people taste shapes while others perceive the alphabet or numbers as particular colors. It tends to be overrepresented in the creative professions, such as art and music. Musician synesthetes,

such as Tori Amos, report seeing music as colors, visual shapes, or streaks of light. Chromesthesia is a type of synesthesia that evokes an involuntary inner experience where sound or music is automatically translated into visual-spatial shapes, color, or movement.

As with other neurodivergent typologies, this access to an alternative way of processing reality often confers advantages expressed in the form of creativity, heightened pattern detection, or skills in design, visual arts, and music. There is substantial research that suggests that heightened creativity and artistic work may be associated with synesthesia because of strong and meaningful associations across modalities.

Psychologists Katrin Lunke and Beat Meier examined creativity and involvement in the arts among people with varying types of synesthesia. Participants were administered psychometric tests and then asked to report on time engaged with the creative arts. Synesthetes were significantly more likely to engage in creative arts, especially when factoring in the type of synesthesia. Synesthetes who see colors or visual experiences from music were the most likely to play a musical instrument. Overall, synesthetes outperformed neurotypical peers on one version of the psychometric measures. Researchers concluded that synesthetes were more likely to be linked to the creative arts but that underlying processes may be distinct from those captured on psychometric tests.¹¹

Thinking from Thirty Thousand Feet

When taken together, there is a plethora of compelling research demonstrating a correlation between neurodivergence and uncommon skillsets, including unique problem-solving abilities, increased creativity, and original thinking. However, the last thing I want to do is imply that the only value to neurodiversity inclusion is the search matrix population density for creative genius.

In fact, I would strongly contend that the most important asset all neurodivergent people bring to the equation is a divergent perspective: a way of seeing the world and approaching tasks and problems that will almost certainly be uncorrelated to the dominant vibe permeating any organization; a whole personal life history of traveling an unconventional path with new and rare insights to contribute.

That alone is inherently valuable.

At the same time, the neurodiversity framework characterized in this book does not make the case that 20% of humans are oddball misfit fountainheads of creativity and innovation, while the other 80% are indistinguishable cognitive drones plodding along in clockwork unison, doing only as told.

This isn't Macs versus PCs in a twentieth-century TV ad.

If you identify as neurotypical, you may well be on the cusp of revolutionizing the frozen breakfast market through narrative dance. If you're neurodivergent, you may be on a path toward achieving perfect predictable and efficient conformity. Any attempt to generalize among humans is ultimately futile upon granular scrutiny. Exceptions are the rule, and all the lines are fuzzy. Nothing can be counted on to hold up in small-sample examination.

That said, research suggests that, from 30,000 feet, neurotypicals make up roughly four in five, and the neurodivergent—the other one in five—are a comparatively more heterogenous cognitive set.

To sum it up: the spectrum of *normal* human cognitive variation *includes* a subset (about 1 in 5) that can be differentiated as “neurodivergent” relative to the rest of the population. And this subset contains people with different strengths and challenges who learn differently, perform differently, and think differently—not only differently from neurotypical people but also differently from each other.

The legacy perspective on this variation has been defined solely by the medical-deficit model.

Rapidly gaining traction is a new perspective that reframes this picture through behavioral, observational, evolutionary, and cognitive data and research to suggest that this divergent 20% plays a crucial role in advancing the interests of the whole community.

As we will see, this has powerful implications for business strategy, team management, human resources, workplace management, and executive leadership in the twenty-first century.

Key Takeaways

- It is through the complementarity of different cognitive profiles, working together, that we arrive at the optimal configuration.
- We can best explain the universality, persistence, and pervasiveness of neurodivergence displayed in human populations across both geography and time in terms of complementary cognition and its implications for community-level fitness.
- Communities with a stable abundance of neurodiversity are more effective over time than communities that exclude neurodivergent individuals.
- Yet, employers remain reluctant to embrace neurodiversity inclusion due largely to erroneous beliefs and fear of the unknown. This is a central theme motivating this book.
- Neurodiversity World 1.0 is a world where the neurodivergent are either excluded or included inauthentically. It is a world of checklist solutions to inclusion, a world of neurodivergent “masking,” and a world of wasted talent.

- Neurodiversity World 2.0 is a world of authentic neuroinclusion, psychological safety, innovation, employee satisfaction, and actualized talent.
- While profiles both within and between different cognitive typologies are unique, evidence supports the idea that particular strengths often, although not always, go hand-in-hand with ADHD, dyslexia, autism, and other types of neurodiversity.
- ADHD: Recent studies have shown that ADHDers are more likely to think originally and flexibly, often creating completely new concepts in creative tasks. Hyperactivity and impulsivity are seen as drivers of these achievements.
- Dyslexia: Dyslexic individuals are often better at recognizing connections between disparate concepts, objects, or perspectives, suggesting compensation for difficulties in reading and writing through enhanced creativity. They often perform better in tasks requiring original and combinatorial thinking.
- Autism: Autistic individuals typically demonstrate objective and rational decision-making, less susceptibility to cognitive biases, and superior visual-spatial and pattern thinking skills. Other strengths include attention to detail and original thinking.
- Synesthesia: Synesthesia is a neurodivergent cognitive typology where the various senses (sight, hearing, taste, smell, and touch) get crossed up. Synesthesia has been found to be overrepresented in the creative arts and music professions.

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- The most important asset all neurodivergent people bring to the equation is a divergent perspective: a way of seeing the world and approaching tasks and problems that will almost certainly be uncorrelated to the dominant vibe permeating any organization; a whole personal life history of traveling an unconventional path with new and rare insights to contribute.
- The strengths-based model leverages behavioral, observational, evolutionary, and cognitive data and research to reframe neurodivergence as a community-level asset contributing cognitive diversity, creativity, originality, and a wider menu of search strategies and perspectives—all critical factors for organizational success. Yet, most organizations continue to exclude the neurodivergent and the value they have to offer.