

# Unraveling Neurodiversity: Insights from Neuroscientific Perspectives

Subjects: [Behavioral Sciences](#)

Contributor: Hagar Goldberg

Neurodiversity is a concept and a social movement that addresses and normalizes human neurocognitive heterogeneity to promote acceptance and inclusion of neuro-minorities (e.g., learning disabilities, attention disorders, psychiatric disorders, and more) in contemporary society. Neurodiversity is attributed to nature and nurture factors, and about a fifth of the human population is considered neurodivergent. What does neurodiversity mean neuroscientifically? This question forms the foundation of the present entry, which focuses on existing scientific evidence on neurodiversity including neurodiversity between and within individuals, and the evolutionary perspective of neurodiversity. Furthermore, the neuroscientific view will be synergistically integrated with social approaches, particularly in the context of the normalization of neurodiversity and its association with the medical and social models of disability. This multidimensional analysis offers a cohesive and comprehensive understanding of neurodiversity, drawing insights from various vantage points, such as social, psychological, clinical, and neuroscientific viewpoints. This integrated approach fosters a nuanced and holistic discussion on the topic of human diversity.

neurodiversity

neurotypical

neurodivergent

neurominorities

neurodevelopmental

## Neurodiversity as a Social Movement—Reclaiming the Right to Be Different

While neurodiversity may sound like a term from a brain science textbook, effectively, it emerged from a social justice movement and social science research <sup>[1]</sup>. The term neurodiversity was coined by sociologist Judy Singer in the late 1990s <sup>[2]</sup> to offer a new perspective on human variation in perception and communication styles. Singer drew inspiration from social movements fighting for the rights and needs of social minorities and environmental science emphasizing the benefits of biodiversity for a thriving ecosystem. Singer suggested that neurological diversity is a healthy and natural characteristic of the human species and that neurological differences are part of natural human diversity and should not automatically be pathologized.

Since the 1990s, the neurodiversity movement has been directed at raising awareness and appreciation for the diversity in human cognition and breaking down structures of exclusion. However, within the neurodiversity movement, there is an ongoing debate about what self-advocacy means and the aspired social and political outcomes. Some argue that neurological differences should be normalized and accepted. This voice is expressed, for example, in the words of John: “As an adult with autism, I find the idea of natural variation to be more appealing than the alternative—the suggestion that I am innately bad or broken and in need of repair... Asserting that I am

different—not defective—is a much healthier position to take. Realizing the idea is supported by science is even better” [3].

Others argue against normalization and seek acknowledgment of the disability or illness related to their neuronal atypicality. An example of this approach is expressed in the words of Sue: “As a person who lives with autism daily and will not live a normal life, I find people who are high functioning and saying society should not look for a cure offensive” [4].

These two opposite approaches correspond (respectively) with the social and (classic) medical models of disability. According to the medical model, disability is caused by a dysfunction of the individual and requires treatment or a cure. The social model distinguishes between disabilities and impairments, focusing on social barriers that limit the accessibility of certain individuals, ultimately leading to disability (it is not the individual who is disabled; it is the environment that is disabling) [5].

This ongoing debate is part of a broader shift in awareness of the value and rights related to ‘difference’ within human society. The trend of promoting inclusivity and diversity as core values has a complex and evolving history, with its roots stretching back several centuries. However, it gained significant momentum and formal recognition during the latter half of the 20th century, particularly with the rise of civil and human rights movements. These movements have addressed a wide range of issues, including racial and ethnic discrimination, gender inequality, workers’ rights, LGBTQ+ rights, Indigenous rights, and political freedom. The increasing interconnectedness of the world through the internet and social media has also provided a platform for marginalized voices, facilitating the dissemination of information and awareness about social inequalities.

In response to globalization, changing demographics, and societal expectations, many corporations, educational institutions, and governmental bodies began implementing diversity and inclusion initiatives to promote equal opportunities and representation.

Such historical developments, alongside research progression, have led to a transition in the conceptualization of human diversity and a growing recognition and acceptance of neurodiversity. This entry takes a neuroscientific lens on neurodiversity, exploring neurodiversity between/within individuals, evidence of neurodiversity in the brain, evolutionary perspectives on neurodiversity, and neurodiversity in light of the medical and social models of disability.

## **A Neuroscientific Perspective on Neurodiversity**

While neurodiversity rose as a qualitative social concept, a semantic analysis of the term suggests a quantitative, scientific meaning attached to it. The word neurodiversity is composed of the word *Neuro*, which means nervous system and the word *diversity* which means a variety (e.g., various kinds or trait expressions measured in a

sample). To deepen our understanding of neurodiversity, it is worth asking what neurodiversity might mean neuroscientifically.

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## References

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