Scientific Research Publishing

Health, 2022, 14, 1267-1273
https://www.scirp.org/journal/health
ISSN Online: 1949-5005
ISSN Print: 1949-4998

Autism Spectrum Differences: ASD and an Ordinary Life

Bob Bowen

Prag Consulting, Disability Complex Supports, Melbourne, Australia
Email: bob@matrixofneeds.com

How to cite this paper: Bowen, B. (2022) Autism Spectrum Differences: ASD and an Ordinary Life. *Health*, **14**, 1267-1273.
https://doi.org/10.4236/health.2022.1412089

Received: November 15, 2022
Accepted: December 17, 2022
Published: December 20, 2022

Abstract

The starting point for many research articles on the topic of Autism Spectrum Disorders (ASD) includes the following phrase: "ASD is a neurodevelopmental disorder…" The author agrees that ASD is neurodevelopmental, and calls into question the word "disorder", proposing that rather than being a disorder, autism and other neurodivergent traits are best understood as a way of utilizing the computational strengths of the human brain to adapt to the environments in which human beings live, learn, work and play. Building on research from the field of computational neuroscience, the author provides an alternative understanding of what it means to be autistic and how to best support people on the autism spectrum to successfully adapt to the world in which we all live.

Keywords

Autism, Neurodivergent, Developmental Order, An Ordinary Life

1. Introduction

Marvin Minsky's paper on Steps towards Artificial Intelligence in 1961 was the seminal work in the use of understanding natural intelligence as a path towards the creation of artificial intelligence [1]. The methodologies pioneered by Minsky and others have created opportunities to not only create artificial intelligence; these methodologies can enhance the efforts of humans, and specifically autistic humans, to better adapt to the environments in which we all live, learn, work and play. Minsky proposed a group of different functions interacting together in what he called a society of mind, teaching inorganic life forms, or robots, how to accomplish tasks in a functionally sequential manner [2]. The author has and continues to use this sequential approach to teach autistic children and adults how to use their unique strengths to address the barriers to success in

their lives.

By better understanding the ways in which natural intelligence is formed, we are able to focus on increasing those adaptive behaviors which improve the ability of people to adapt to a world which is dominated by uncertainty as a result of partial observability, sensory inputs which at times overwhelm our neurosensory systems, and randomness (stochasticity) [3]. Increasing the ability of people to observe their environments, minimise sensory inputs that may be overwhelming and decrease randomness by increasing predictability within their environments creates developmental order as opposed to disorder, and enhances the ability of people to utilize their natural intelligence to the best of their ability and hopefully increase their quality of life.

2. Developmental Order

In order to understand the term "developmental disorder," it is necessary to define developmental order. The human neurosensory system is designed to achieve long term survival not only of the individual but of the species [4]. Over thousands of centuries, human survival was accomplished by communication and collaboration with others. Where individual humans could not survive due to harsh environments and predatory animals, groups of humans could [5]. Developmental order evolved in ways that valued social cooperation as the preferred path towards minimizing uncertainty. By sharing the perceptions of many people, the larger group is able to increase their abilities to observe the environment and others. This social cooperation was manifested in small group interactions within hunter-gathering communities, villages and cities in which agrarian and urban communities built their relationships with each other, culminating in civilizations and cultures [6].

In this context, developmental disorders made social connections more difficult through decreased communicative skills, decreased social competencies, and increased sensory awareness to the point of being overwhelmed by sensory inputs. Intellectual disabilities, ASD, blindness, deafness, attention-deficit hyperactivity (ADHD), and cerebral palsy are among the more commonly known developmental disabilities. In the United States, it is estimated that 17.8% of children are affected by one or more developmental disabilities [7].

As cultures evolved through a complex combination of interactions between environments, personal traits of individuals and their behavioral choices as individuals and in groups, the ways in which people interacted with each other changed, resulting in significant cultural change and changes in the ways in which people interacted in normative ways [8]. As an example, mild intellectual disabilities in an agrarian setting will have much less of an impact on an individual than the same level of disability would within an industrial setting. The shift to an information economy has increased the impact of an intellectual disability, but decreased the disabling effects of autism due to a variety of accessibility and social factors [9] [10].

The following visual model (**Figure 1**), based on the work of Albert Bandura,

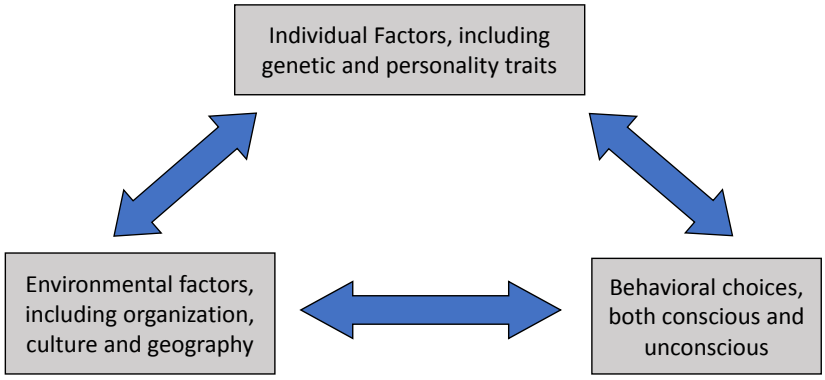

Figure 1. Reciprocal interaction.

presents the ways in which these complex interactions occur and have reciprocal effects on each other, with a specific focus on autistic individuals [11].

The genetics of autism are complicated to say the least, and there is no agreed upon cause of autism. The majority of people who are autistic had de novo mutations (genetic changes not related to hereditary factors. In families with at least one parent or sibling who is autistic, the percentage of individuals who inherited autism in such situations is the highest of any of the developmental disabilities [12]. It must also be highlighted that ASD is a spectrum, across which the traits of people who are autistic are expressed in many different ways. When cooccurring conditions such as an intellectual disability are also present, the expression of ASD is often intensified because of the presence of other conditions [13].

Research demonstrates that approximately 15% - 20% of the general population experience neurodivergence [14]. The process of epigenetics encodes the ways genes are turned on and off by the interactions between the organism (person, in the case of humans) and the environments in which behavioral interactions occur [15]. These different genetic traits can be thought of as a "floor" and not a "ceiling" regarding the potential for autistic people to live their lives. The presence of such a relatively large minority of individuals indicates that the behavioural traits which form the basis of neurodivergence have a functional purpose for society at large. The myths about autism which state that autistic people have no empathy, or do not want social relationships, which may be individually true but are not at all true about the vast majority of people who identify as autistic [16]. There are many professionals whose autism provided them with the skill sets that made them effective within their organizations and professions [17].

3. Autism Spectrum Differences

The term "neurodivergent" is, for many autistic people, interchangeable with the term "autistic". There has been a great deal of tension around "person first" versus "identity first" language, with many autistic people preferring to identify as autistic or neurodivergent, while non-autistic, or neurotypical, researchers and advocates prefer the term "person with autism" [18] [19].

The behavioural traits by which autism is diagnosed are clearly identifiable as strengths within settings that require a combination of behavioural traits that contribute to developmental order already identified, which include increasing observability, decreasing randomness, and minimising sensory inputs which may overload the neurosensory capacities of the individual. People such as Temple Grandin and Dawn Prince-Hughes have written about how their abilities to think in pictures and focus intensely for hours on specific behaviours of cows in Grandin's case and gorillas in Prince-Hughes' case made them not just good at their work, but exceptionally good [20] [21].

The word disorder means "a group of symptoms involving abnormal behaviors or physiological conditions, persistent or intense distress, or a disruption of physiological functioning" [22]. It is clear that many people who identify as neurodivergent or autistic are not at all disordered, but rather differently ordered. The term "Autism Spectrum Differences" has been suggested for use in understanding how to better support people on the autism spectrum [23].

This change is broader than just one word—disorder to difference—it represents a shift from the medical model which sees autism as something to be cured or fixed, to the social model of disability, which understands disability in a social context in which the environments in which people live, learn, work and play is the primary factor that results in behavioural traits becoming disabilities. As an example, the capabilities framework enhances this understanding of the interplay between social contexts and capabilities to provide a new way of thinking about autism [24].

By shifting to the social model of disability as the framework for understanding who people are and what people do, professionals such as educators, behavioural specialists, occupational therapists, speech therapists and the many direct support professionals who provide support to neurodivergent individuals can truly move to a model of supports rather than services, with an individualised approach that supports the whole person, not just the visible behaviours the person is using.

The social model of disability empowers people to focus on environmental rather than behavioural modifications, which is consistent with over thirty years of history in positive behaviour supports (PBS) [25]. In PBS the focus is not on a pathologized behaviour of a pathologized person. Rather the focus is on the environments in which behaviours occur. In this way supports can be structured which modify the environment to modulate the visual auditory, tactile, olfactory and kinaesthetic elements within an environment to match the ways autistic individuals process incoming sensory inputs. In this way, behavioural outputs will fall within the norm of expected behaviours as the person will not be overwhelmed and as a result dysregulated. The behaviour of neurodivergent people will become, in a word, ordinary using the methodology of environmental supports.

The Honourable Bill Shorten, Minister for the National Disability Insurance Scheme in Australia, gave a speech in 2009 to the National Press Club in Aus-

tralia, in which he elaborated on the concept of "an ordinary life". In his speech, Shorten said that one could think of an ordinary life as "…*to not be thought of as amusing, or pitiable, or brave, or admirable, or coping wonderfully with difficult circumstances. Just to be one of the gang, a girl in the office, a bloke at the pub, not invisible but unremarkable, part of the normal order of things, a friend like any other, a neighbour, an average Australian, a citizen, another human being.*" [26].

The word "disorder" in no way captures the broad spectrum of needs and gifts, challenges and hopes, and the simple ordinary life described by Shorten. Rather, the differences that are encompassed within the neurodivergent community can become unremarkable and part of the normal order of things when environmental changes are made that take advantage of the neurodivergent abilities to observe details, create order through rearranging items in an environment by size, colour, and other variables. These autism spectrum differences can work together to enhance the quality of life of all people and empower all of to experience the joys of an ordinary life.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

[1] Minsky, M. (1961) Steps toward Artificial Intelligence. *Proceedings of the IRE*, **49**, 8-30. https://doi.org/10.1109/JRPROC.1961.287775

[2] Minsky, M. (1985) Society of Mind. Simon & Schuster, New York.

[3] van Gerven, M. (2017) Computational Foundations of Natural Intelligence. *Frontiers in Computational Neuroscience*, **11**, Article No. 112. https://doi.org/10.3389/fncom.2017.00112

[4] National Research Council (US) and Institute of Medicine (US) Committee on Integrating the Science of Early Childhood Development, Shonkoff, J.P. and Phillips, D.A. (2000) From Neurons to Neighborhoods: The Science of Early Childhood Development. National Academies Press (US), Washington DC. https://www.ncbi.nlm.nih.gov/books/NBK225562

[5] Cozolino, L. (2014) The Neuroscience of Human Relationships: Attachment and the Developing Social Brain. WW Norton & Company, New York.

[6] A LePoire, D. (2019) An Exploration of Historical Transitions with Simple Analogies and Empirical Event Rates. *Journal of Big History*, **3**, 1-16. https://www.researchgate.net/publication/331270228_An_Exploration_of_Historical_Transitions_with_Simple_Analogies_and_Empirical_Event_Rates https://doi.org/10.22339/jbh.v3i2.3210

[7] Zablotsky, B. and Black, L.I. (2020) Prevalence of Children Aged 3-17 with Developmental Disabilities by Urbanicity: United States, 2015-2018. National Health Statistics Report, Number 139, United States Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, Hyattsville.

[8] Creanza, N. and Kolodny, O. (2017) Cultural Evolutionary Theory: How Culture

Evolves and Why It Matters. *Proceedings of the National Academies of Science*, **114**, 7782-7789. https://doi.org/10.1073/pnas.1620732114

[9] Scanlan, M. (2022) Reassessing the Disability Divide: Unequal Access as the World Is Pushed Online. *Universal Access in the Information Society*, **21**, 725-735. https://doi.org/10.1007/s10209-021-00803-5

[10] Sahu, A. (2022) Hiring Autistic Workers: 4 Companies Embracing Neurodiversity in Tech. https://www.turing.com/blog/hiring-autistic-workers-neurodiversity-in-tech

[11] Bandura, A. (1978) The Self System in Reciprocal Determinism. *American Psychologist*, **33**, 344-358. https://doi.org/10.1037/0003-066X.33.4.344

[12] Yoon, S., Munoz, A., Yamrom, B., *et al.* (2021) Rates of Contributory de Novo Mutation in High and Low-Risk Autism Families. *Communications Biology*, **4**, Article No. 1026. https://doi.org/10.1038/s42003-021-02533-z

[13] McCauley, J.B., Elias, R. and Lord, C. (2020) Trajectories of Co-Occurring Psychopathology Symptoms in Autism from Late Childhood to Adulthood. *Developmental Psychopathology*, **32**, 1287-1302. https://doi.org/10.1017/S0954579420000826

[14] Doyle, N. (2020) Neurodiversity at Work: A Biopsychosocial Model and the Impact on Working Adults. *British Medical Journal*, **135**, 108-125. https://doi.org/10.1093/bmb/ldaa021

[15] Moore, S., Kinnear, M. and Freeman, L. (2020) Autistic Doctors: Overlooked Assets to Medicine. *The Lancet*, **7**, 307-308. https://doi.org/10.1016/S2215-0366(20)30087-0

[16] Medline (2022) What Is Epigenetics? https://medlineplus.gov/genetics/understanding/howgeneswork/epigenome

[17] Hadjikhani, N. (2014) Scientifically De-Constructing Some of the Myths about Autism. *Swiss Archives of Neurology and Psychiatry*, **165**, 272-276. https://doi.org/10.4414/sanp.2014.00297

[18] Ekblad, L. (2013) Autism, Personality, and Human Diversity: Defining Neurodiversity in an Iterative Process Using Aspie Quiz. *SAGE Open*, **3**. https://doi.org/10.1177/2158244013497722

[19] Baron-Cohen, S. (2019, April 30) The Concept of Neurodiversity Is Dividing the Autism Community: It Remains Controversial—But It Doesn't Have to Be. *Scientific American*. https://blogs.scientificamerican.com/observations/the-concept-of-neurodiversity-is-dividing-the-autism-community

[20] Grandin, T. (2022) Visual Thinking: The Hidden Gifts of People Who Think in Pictures, Patterns, and Abstractions. Riverhead Books, New York.

[21] Prince-Hughes, D. (2005) Songs of the Gorilla Nation: My Journey through Autism. Crown Books, New York.

[22] American Psychological Association (2007) APA Dictionary of Psychology. American Psychological Association, Washington DC.

[23] Harvey, C. (2018) Difference Not Disorder: Understanding Autism Theory in Practice. Jessica Kingsley Publishers, London.

[24] Burchardt, T. (2004) Capabilities and Disability: The Capabilities Framework and the Social Model of Disability. *Disability & Society*, **19**, 735-751. https://doi.org/10.1080/0968759042000284213

[25] Carr, E. (2007) The Expanding Vision of Positive Behavior Support: Research Perspectives on Happiness, Helpfulness, Hopefulness. *Journal of Positive Behavior In-*

terventions, **9**, 3-14. https://doi.org/10.1177/10983007070090010201

[26] Shorten, B. (2009, April 1) The Right to an Ordinary Life. Speech to the National Press Club, Canberra. https://formerministers.dss.gov.au/3220/right-to-an-ordinary-life-national-press-club/