

DEFINING HUMAN INTELLIGENCE TO CONTROL THE CURRENT DISSONANCE BETWEEN NEURODIVERGENT AND NEUROTYPICAL PEOPLE AMONGST YOUNGER YOUTH

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Abstract

The ongoing dissonance between young neurodivergent individuals who are diagnosed with any spectrum of Autism, Speech Delay, Dyslexia, OCD, etc. and neurotypical people has been pushed aside as a complex scenario for a long time due to the nature of difficulty and our lack of understanding of individual minds. Research shows that there are many factors e.g., increased awareness and societal shifts, contributing to the rising trend of neurodivergent children who need to be properly accommodated in modern social and educational settings. As a result of earlier negligence, studies predict that younger generations e.g., Gen Alpha and Gen Beta will encounter drastically worse effects of this disconnect with their neurotypical counterparts. My hypothesis is that current society tries to define human intelligence using either a standard intelligence quotient (IQ) or an emotional intelligence quotient (EQ) test to quantify specific analytical or mental abilities as well as empathy, motivation and social abilities. However, these techniques do not apply to all mental makeup equally and neurodivergent minds suffer from poor evaluation from these existing techniques. This fosters an inferiority complex amongst many neurodivergent young adults, showing a trend of lack of confidence and often depression. Many children who are tested as neurodivergent fall on the borderline and are often left in the wrong group of neurotypical children or clubbed with far extreme cases of neurodivergence which require medical therapy. These individuals are neglected today for whom a model is required to be built by integrating behavioral traits, learning abilities, and unique strengths and talents of these individuals alongside with their neurodivergence measure. Therefore, a tool that can assess neurodivergent minds e.g., developing neurodivergence quotient (NQ) is required to categorize their strength and make them feel wanted and useful for their contributions in society. This paper intends to establish the need of the model and initiate the formation of a methodology with a pilot study containing 70 survey respondents showing inherent natural inclinations for certain neurodivergent conditions, e.g., Autism, Asperger's, and ADHD.

Keywords: *Neurodivergent, neurotypical, human intelligence, youth, education.*

1. Introduction

As a 12th grade student who experienced both virtual and in-person learning in schools, I was a datapoint and during my in-person schooling, I felt outcasted due to my speech delay, context interpretation issues, and how I perceived the world. This led me to be placed in certain classes where “additional support” was needed during my elementary school. In the United States, these supplementary classes are a part of the Individualized Education Program (IEP). In theory, it sounds very beneficial for maximizing a neurodivergent child's potential, including myself. Unfortunately, my experience in this program was unsatisfactory. Being a part of the IEP program felt humiliating as my early childhood mind interpreted this deficiency as the reason why I was looked down upon. I realized that I was not alone, most of my neurodivergent peers in the IEP classes dealt with the same frustration and expressed that the program was not adequately helpful and challenged its existence. Moreover, the consensus experience was that being part of IEP sparked a barrier in creating friendships with the majority of neurotypical students in the classroom. This made most of the neurodivergent kids feel unfit in the class.

This observation has stayed with me since childhood because, even when an education system aims to support young children with challenges, if the approach fosters a sense of inferiority in the students, it becomes harmful. As I grew older, I realized many of my IEP peers proved to be quite intelligent and gifted in their own ways, yet they had to deal with the feeling of inferiority at an earlier age. This seemed unfair and requires it to be addressed with a proper model that can assess the mental and emotional abilities

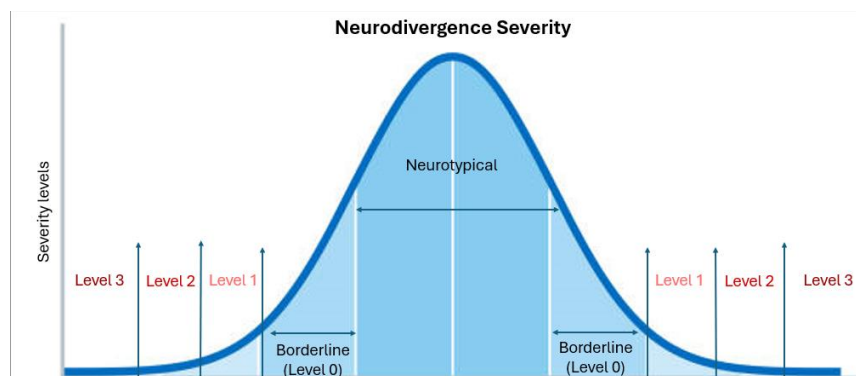
of these neurodivergent kids in a more sophisticated manner and protect their childhood mind for future nurturing. This disconnect looks magnified for “borderline neurodivergent” kids, because from many aspects – they appear neurotypical in a childhood classroom, but their minds require special nourishment. Due to their age bracket and impressionable state of mind, many complications in teenage and adult life can happen unless their mind requirement is detected early on and supported appropriately.

1.1. Neurodivergence, its cause, current trends and impact

Neurodivergence refers to variations in cognitive functioning that deviate from what is considered “typical” or “neurotypical.” It encompasses a wide range of conditions and differences in how individuals think, process information, and experience the world. Example conditions include Autism, ADHD, Speech Delay, Dyslexia, Asperger’s, Obsessive-Compulsive Disorder, etc. that are often seen or felt as “shortcomings” by the majority of people in society. Recently, a rise of neurodivergence, primarily in Autism, has been observed in younger generations, with statistics rising from 6 in 1000 people in the year 2000 to 27 in 1000 people by the year 2020 (Richter, 2024).

The reason more and more children are being diagnosed on the neurodivergence spectrum today is mainly due to improved screening, information availability, change in upbringing environment, and continuous societal shifts. Some studies suggested that the percentage of cases of neurodivergence may have increased due to some genetic or other factors, which are yet to be proved. The diagnostic tools evolution not only played a critical role in identifying early childhood neurodivergence but also detected the severity level more precisely, e.g., level 1 showcasing mild/moderate behaviors that can continue the normal lifestyle with minimal support, to level 3 demonstrating extreme results, which will need medical intervention to a varied degree. Figure 1 describes a qualitative distribution of neurodivergence severity and its frequency.

Figure 1. Neurodivergence Severity.



Many neurodivergent individuals are inclined to pay attention to details, deep focus on niche subjects, display exceptional memory, unconventional problem-solving attitude, and a deep passion for learning – just at their own pace. Moreover, neurodivergence can often lead to a strong sense of fairness and justice, as many neurodivergent individuals are highly attuned to rules, equity, and ethical principles. For instance, individuals diagnosed with autism spectrum disorder might have a heightened sensitivity to unfairness or injustice, leading them to advocate for others and seek out fair solutions. Similarly, people with ADHD might be passionate and determined in fighting for what they believe is right, driven by their strong sense of integrity and empathy. However, due to the unique character of their mind, they struggle in communication or creating social connections. Research published by the NIH describes this interactive distancing between neurotypical and neurodivergent individuals exist due to the differences in perception formation in neurodivergent individuals. This study primarily focused on those diagnosed with autism (Sasson et al., 2017). Neurotypical individuals scored better than their neurodivergent peers on the IQ tests they were administered, which seem great for neurotypicals – but for neurodivergent individuals, these hurdles became sloppy. One example showed two experiments they were given (both $p < 0.001$, meaning statistically significant), autistic people scored very elevated in social awkwardness, whereas in likelihood of friendship, they scored much lower than in neurotypicals proving the challenges the autistic people face in making social connections.

Many great achievers are diagnosed with some form of neurodivergence e.g., Simone Biles with ADHD yet is considered one of the greatest American gymnasts of all time. Srinivasa Ramanujan with Asperger syndrome, an Indian mathematical prodigy who revolutionized the world of mathematics shown in the book/movie *The Man Who Knew Infinity*. John Nash, diagnosed with schizophrenia (which is in a

higher order in the spectrum), became a Nobel Laureate in his revolutionary work in game theory, shown in the book/movie *A Beautiful Mind*. Abhishek Bachchan, a talented Indian Bollywood actor – was diagnosed with dyslexia. Jimmy Donaldson, also known on social media as MrBeast, was diagnosed with a severe speech delay and level 1 OCD, became a successful businessman and social media influencer. Over the ages, many renowned reformers and talents, e.g. Michael Phelps, Albert Einstein, Neil Diamond, Woody Allen, etc. fell into the spectrum of neurodivergence. Table 1 below discusses the neurodivergent conditions and traits along with existing diagnostic tools and known personalities that lived with it.

Table 1. Conditions and Traits.

Conditions	Common Traits	Sample Tests	Personality ex.
Autism	• Difficulty with social interactions • Unorthodox problem solving • Difficulty with change in routine • Often takes info at face value • Like repetitive tasks	Autism Diagnostic Interview-Revised (ADI-R), Gilliam Autism Rating Scale (GARS), Autism Diagnostic Observation Schedule (ADOS)	Danny Keefe (Baseball player)
ADHD	• Hyperactive and energetic in behavior • Have a knack in orating • Can be impulsive in decision making • Do awful in confinement • Attention is all over the place	Conners 3, Vanderbilt ADHD Diagnostic Rating Scale, ADHD Rating Scale-5 (ADHD-RS-5)	Simone Biles (Gymnast)
OCD	• Obsessive around organization • Fearful of aspects in slight change • Rigid ritualistic, afraid if disrupted • Doubtful, and likes checking	Yale-Brown Obsessive-Compulsive Scale (Y-BOCS), Obsessive-Compulsive Inventory-Revised (OCI-R)	Cameron Diaz (Actress)
Asperger's	• Enjoy formal orating • Like autism, unorthodox problem solving and difficulty with social interactions • Sensory sensitivity • Eidetic memory	Autism Diagnostic Interview-Revised (ADI-R), Gilliam Autism Rating Scale (GARS), Autism Diagnostic Observation Schedule (ADOS)	Srinivasa Ramanujan (Mathematician)
Dyslexia	• Difficulty in learning and interpreting guidelines • Difficulty reading despite adequate intelligence	Dynamic Indicators of Basic Early Literacy Skills (DIBELS), Kaufman Assessment Battery for Children (KABC-II)	Neil Diamond (Singer)
Speech Delay	• Can be a symptom cohesive with other conditions, or can have its own entire spectrum • Develops and learns at their own pace. • Eidetic Memory • Tone-sensitive, interprets tone more than words	Caused by a combination of ADHD, Autism, OCD and Asperger, etc.	Albert Einstein (Speech delay till age 5)

Society still fails to recognize the potential of the neurodivergent people, and current methods often disincentivize and discourage them. I felt this in my own childhood. Although I was never medicated, I was diagnosed with Level 1 Autism and Asperger syndrome, alongside Level 2 ADHD, bringing into account my speech delay and how it shaped my mind to focus on individual's victim of bullying, social media impact on neurodivergence, as well as friendship tendency in virtual world (Chakraborty, 2023, 2024a, 2024b).

1.2. Shortcomings in existing evaluation in Classic Education System

Throughout human civilization, intelligence has played a critical role and is often considered an asset to possess. However, it is a philosophical question with no clear definition. There are different kinds of intelligence and different tests are applied to measure them, in the category of IQ and EQ tests.

For example, the Talented and Gifted (TAG) is a current sub-program under the Elementary and Secondary Act (ESEA) in the United States – which categorizes kids as “above-average” in certain abilities in an educational institute. The process of categorization is done through taking models from certain IQ tests such as Mensa and Wechsler with testing students to see if they are eligible for TAG courses. This framework worked amazingly amongst many neurotypical people (with 68% success rate amongst the Caucasian) but failed miserably for neurodivergent people – large majority of whom were non-whites – resulting in the concept of IEPs being implemented in the US school systems. The IEP accommodation included plans such as extra time on crucial exams, speech/behavioral therapy, and refinement of social skills. Unfortunately, they did not adequately serve the purpose, at least for me. Later, I found a study that shows statistically 45% of neurodivergent people were bullied in school (U.S. Department of Education, 2018), on top of being 3 times more likely to drop out of school due to dissonance with neurotypical peers, alongside 85% of them more likely to repeat a grade (Ravipati, 2017).

This proves that the current existing methods of the school system are non-accommodating towards the needs of many neurodivergent children yet if the “borderline neurodivergent” students are nourished on time, their rare mental qualities can bring out a disproportionate amount of value to the society and to the future. Therefore, the development of a model e.g., Neurodivergence Quotient (NQ) to evaluate the conditions, traits, and natural inclinations must be a priority today.

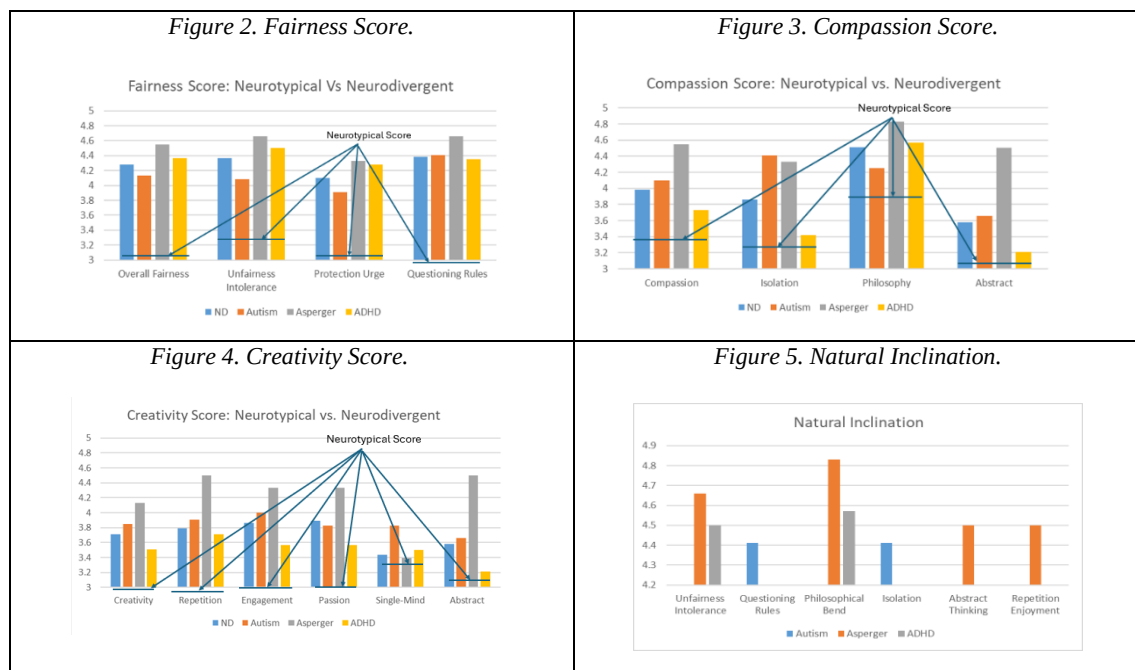
2. Methodology

My methodology includes survey-based data acquisition, converting the ordinal data into a composite score with ranges and mapping the traits to measure the natural inclinations of the neurodivergent participants. A 16-questionnaire survey is devised to identify three traits e.g., Fairness, Compassion, and Creativity among the “borderline” and formally diagnosed neurodivergent responders. The severity of the conditions being confidential was not added to the questionnaire. To limit the scope of this initial pilot study, I only chose to focus on Autism, Asperger’s, and ADHD as the primary causes of neurodivergence. The study will extend in the future to include the other conditions as listed in Table 1. In the “Fairness” category, this survey digs into an understanding of personal justice system, which includes questioning the validity of an established rule or custom, intolerance towards injustice, and temptation or compulsion fixing the perceived unfairness observed in society. In the “Compassion” category, this survey explores the degree of selfless motivation to help the needed even when aiding can cost inconvenience, plus delves into bent on philosophy and spirituality as a guideline for life, as well as the affinity towards abstract thinking. In “Creativity”, the survey tries to find out the degree of passion, intrinsic motivation, and effort an individual commits even when the return isn’t materialistic or a self-gain.

Statistically, only 10-12% of the population are neurodivergent globally, getting a high number of neurodivergent respondents became a difficult task for me. The survey contains 70 responses: 35 neurodivergent and 35 neurotypical. 33 are diagnosed with Asperger’s, ADHD, Autism, or any combination. Participants who identified themselves as neurotypical are used as a reference baseline.

3. Results interpretation

The results described in Figures 2, 3 and 4 show bar graphs, each indicating an overall score alongside the components that make up the overall score. Figure 2 deals with Fairness, Figure 3 describes Compassion, and Figure 4 with Creativity. It appears that neurodivergent respondents are significantly more sensitive towards Fairness and Compassion for the affected around their surroundings. The data isn’t indicative in Creativity disparity between neurotypical and neurodivergence however it showed a distinction for Asperger conditions to be abstract-minded. In addition, Figure 4 shows that ADHD and Asperger conditions tend to incline towards unfairness intolerance and philosophical bend. Autism inclines towards questioning existing rules and customs also making them very isolated from the rest of society. Additionally, Asperger tends to enjoy repetition in activities they love.



4. Conclusions

Though my sample data sets were limited, the research presented shows a strong possibility to build a model that can identify early on the knacks of neurodivergent individuals and build career paths for them along with subjects where they can excel. For example, “social injustice whistleblowers” or “student assistance for whistleblowing in school systems” do not exist today, yet these may be very required. Whistleblowing can help protect the upbringing of foster children in displaced/broken families. This trait can also bring great value in school safety related issues such as alerting guns, drugs, or mental instability in their surroundings. Today, senior care is becoming a big need of the society and often that is not nursing necessarily, but providing companionship and compassion. Neurodivergent individuals with a high compassion score can fit this bill effectively. Similarly, in the field of creativity, AI is going to revolutionize the perception and the way concepts are formed. I believe neurodivergent minds will play a major role, in conjunction with AI. This pilot study is simply to bring focus in something I believe is very crucial and much of the work may be in the rudimentary stages, but the payoff of such models and further research is immensely rewarding to the society.

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