

Neurodiversity: What is it? Why is it important?

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I would like to show my respect to the Gadigal people who are the Traditional Custodians of the Land on which this lecture is currently taking place.

I acknowledge the Aboriginal and Torres Strait Islander peoples, the First Australians, whose lands, winds, and waters we all now share, and pay respect to their unique values, and their continuing and enduring cultures which deepen and enrich the life of our nation and communities.

I encourage all of you to also acknowledge the land on which you are attending this lecture.

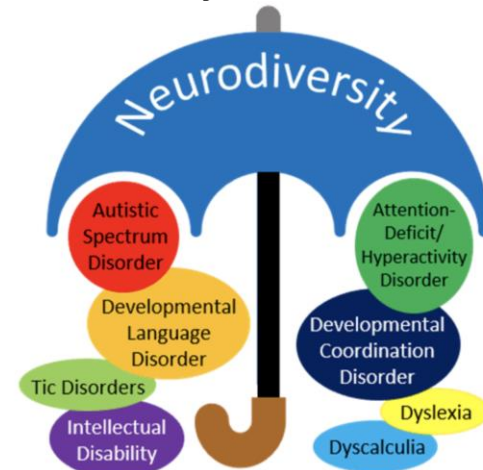


What Neurodiversity Means to Me

Neurodiversity

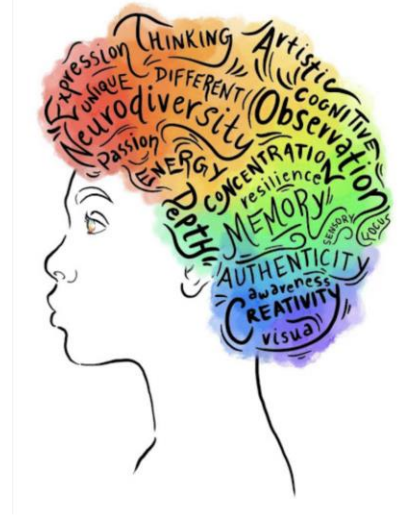
“Neurodiversity is:

- a state of nature to be respected
- an analytical tool for examining social issues
- an argument for the conservation and facilitation of human diversity” — JUDY SINGER
2020



Neurodiversity

- Neurodiversity is the range of differences in individual brain function and behavioural traits, regarded as part of normal variation in the human population. Neurodiversity embraces the idea that every human is unique with a unique combination of abilities and needs.
- The term neurodivergence usually refers to traits and characteristics associated with a number of diagnoses:
 - ADHD
 - Autism spectrum disorder
 - Developmental Coordination Disorder (Dyspraxia)
 - Developmental Language Disorder
 - Dyscalculia – a mathematical learning disability
 - Dyslexia
 - Intellectual Disability
 - Tic Disorders, including Tourette's Syndrome



Neurodiversity Terms to Know

Neurodiversity

Neurodiversity refers to the natural diversity of human minds. It is a biological fact that we are diverse in our minds just like we are diverse in our ethnicity, gender, sexuality, etc.

Neurodiversity acknowledges the whole spectrum of neurodiversity from neurodivergent individuals to neurotypical individuals.

created by Judy Singer

Neurodivergent

Neurodivergent is an umbrella term for individuals who have a mind or brain that diverges from what is typical. It can be acquired or genetic, an innate part of you or not.

Neurodivergence just means having a mind that functions differently to what is considered the norm including learning, processing, interpreting, feeling, etc.

created by Kassiane Asasumasu

Neurotypical

Neurotypical refers to having a mind or functioning that falls within the society standards of what is deemed "typical", "common" or "normal".

Neurotypical is the opposite of neurodivergent, someone who diverges, and it is not a negative word at all but a neutral word.

Neurodiverse

Neurodiverse is a term to describe a group of individuals who represent the spectrum of neurodiversity which includes neurotypical and neurodivergent individuals.

Remember, an individual cannot be neurodiverse. Individuals who aren't neurotypical would be neurodivergent.

Terminology

Inclusive and non-judgmental language may mean different things to different people- some prefer person-first language ("a person with autism", "a person with dyslexia"). However, some research suggests that many in the autistic community prefer the use of identify-first language ("an autistic person"). Rather than making assumptions, it is best to ask the individual about their preferred language.

Understanding Neurodiversity

- Understanding and embracing neurodiversity in communities, schools, and workplaces can improve inclusivity for all people
- Creating an environment that is helpful to neurodiversity and recognises everyone's strengths and talents while also providing support for their differences and needs is important

Understanding Neurodiversity

Diversified

- Project Diversified Aims
 - **To encourage innovative and collaborative thinking** between neurodiverse students and course convenors
 - **To identify and share self-determined knowledge** and concepts about the opportunities and challenges neurodiverse students face in studying at UNSW.
 - **To promote student voice** in their courses through instructional **co-production** between neurodivergent UNSW students and their course instructors.

Understanding Neurodiversity

- Driven by both genetic and environmental factors, an estimated 15-20 percent of the world's population exhibits some form of neurodivergence.
- Neurodivergent conditions, including attention deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) are overrepresented in STEM fields.

Understanding Neurodiversity

- While some neurodivergent characteristics (e.g., difficulty with organization, sensory issues) present challenges in traditional work or educational settings, neurodiverse individuals possess unique strengths that can improve productivity, quality, innovation, and engagement.

Strengths: Autism

- average to very high intelligence
- good verbal skills, rich vocabulary
- ability to think in visual images and identify patterns
- propensity to think outside the box and generate novel solutions to problems
- ability to absorb and retain large amounts of information, especially about topics of special interest

Strengths: Autism

- detail oriented
- ability to focus for long periods on areas of interest
- ability to perform repetitive tasks where accuracy, rules and routine are important
- reliability and punctuality
- honest, loyal, fair and just
- non-judgemental listening

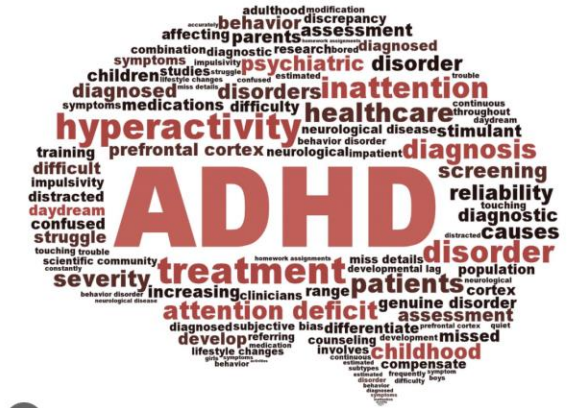


Strengths: Dyslexia

- improved visual processing and pattern recognition
- good spatial knowledge
- seeing the bigger picture, often seeing things more holistically
- mechanical aptitude
- picture thinkers
- sharper peripheral vision
- highly creative
- creativity and entrepreneurial proclivities
- 50% of NASA employees are dyslexic

Strengths: ADHD

- hyper-focused
- higher levels of creativity and curiosity,
- innovation and inventiveness
- leadership abilities
- high energy, spontaneity and productivity

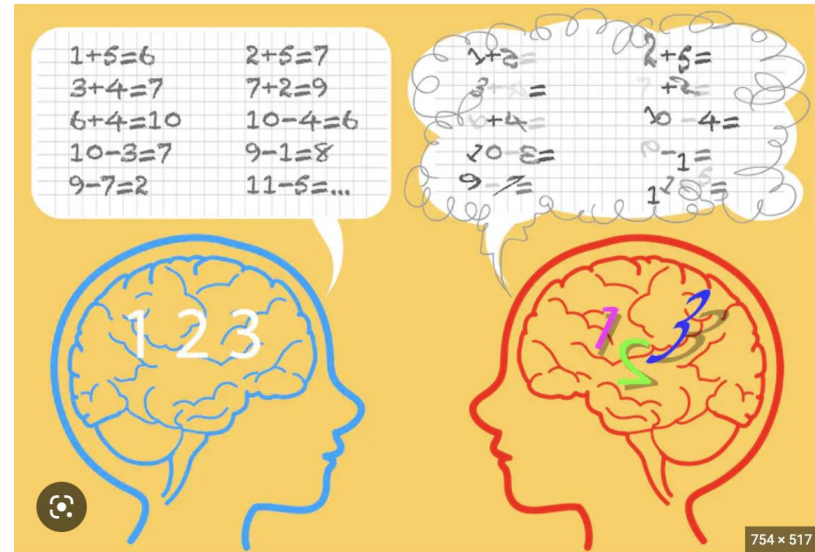


Strengths: Dyspraxia

- creativity and original thinking
- good strategic thinking and problem-solving
- determination and hard-working
- highly motivated
- able to develop their own strategies to overcome difficulties

Strengths: Dyscalculia

- creativity
- strategic and intuitive thinking
- practical ability
- problem solving
- love of words



Strengths: Dysgraphia

- Good verbal reasoning



Supporting Everyone

- **It's not about curing or normalising**
- **Remove stigma, create accommodations**
- **Accept unfamiliar characteristics that cause no harm**
 - **Being forced to learn neurotypical behaviours results in masking, which can have serious mental health repercussions**
 - **Highlight each person's strengths**

Understanding Neurodiversity

- Supervisors and mentors can promote neurodivergent-friendly environments by proactively offering:
- Telework, work from home, and remote work flexibility.
- Flexible work hours and modified workspaces (e.g., noise-cancelling headsets; alternative lighting, full-spectrum, or natural lighting products; written forms, prompts, and instructions; recorded directives, messages, materials).

Universal Design for Learning (UDL)

- a scientifically valid framework to improve and optimise teaching and learning for all people.
- based on the learning sciences: neuropsychology, human development, and education
- a set of principles for course design and delivery that gives all individuals equal opportunities to learn.
- provides a blueprint for creating instructional goals, methods, materials, and assessments that take the needs of everyone into account; flexible approaches that can be adjusted for individual needs.

AFFECTIVE NETWORKS:
THE **WHY** OF LEARNING



Engagement

For purposeful, motivated learners, stimulate interest and motivation for learning.

RECOGNITION NETWORKS:
THE **WHAT** OF LEARNING



Representation

For resourceful, knowledgeable learners, present information and content in different ways.

STRATEGIC NETWORKS:
THE **HOW** OF LEARNING



Action & Expression

For strategic, goal-directed learners, differentiate the ways that students can express what they know.

Universal Design for Learning (UDL) by CAST www.cast.org

Diversified: Administration/Processes

- **Make slides and other materials more accessible - fonts, colour contrast, amount of information, etc. and provide ahead of time.**
- **Use disability confident communications guidelines when designing all course materials including lectures.**
- **Provide close captioning and transcriptions (both Teams and Zoom support these).**
- **Structure courses with clearer logical progression.**
- **Provide students with timely feedback.**

Diversified: Spaces (environments, buildings, infrastructure, facilities, technology)

- Think about layout and the activities that are planned
- How will you control for noise?
- Does the lighting cause sensory processing issues for neurodiverse students?
- Is the level and type of lighting conducive to working/learning?

Diversified: Student Identity

Faculty level/School level

- Make student programs and experiences collaborative across faculties; currently siloed. For example, **there are different orientations for different faculties, different supports, and different expectations.**
- Guidance for staff on how to support neurodiverse students is also different across faculties.

Course/Instructor level

- Trust students regarding special consideration; procuring documentation can often compound the problem, particularly if it is anxiety and/or burnout.

Diversified: Staff Culture

- Please remember that the early part of a course shapes the culture.
- Greater flexibility in delivery and assessment – one size does not fit all.
- More options for students to choose projects and how they want to be assessed.
- Unconditional access to lecture/meeting recordings.
- Make lecture slides available ahead of classes.

Diversified: Staff Culture

- Disability/confidence training for student presentations.
- Greater availability and approachability (links to training).
- Link learning outcomes to what is being covered each week and to assessments.
- Remember that engagement looks different for different people.

UDL Framework

- The UNSW UDL framework includes the following suggestions:
 - Present information in a variety of formats in a way that is clear, engaging and accessible
 - Provide various means for students to communicate and input information
 - Ensure that physical actions are able to be carried out by as many students as possible
 - Ensure instructions are clear and are easy to understand

UDL Framework

- Ensure safety equipment and mechanisms are able to be used and understood by as many as possible.
- Create a climate that values and respects diversity
- Maintain regular interactions between students and instructors
- Provide specific feedback on a regular basis
- Assess performance by a variety of means
- Familiarise yourself with university policy and means of accommodating student needs

Contextualise

Think about some ways that you can take the recommendations of Diversified and the UDL Framework and apply them to your current context

What do these look like in a lab setting?

In other settings?



Resources

UDL on Campus

http://udloncampus.cast.org/page/udl_landing

UNSW UDL page

<https://www.teaching.unsw.edu.au/universal-design-learning-udl>

Diversified

<https://www.disabilityinnovation.unsw.edu.au/inclusive-education/diversified>

Neurodiversity Hub

<https://www.neurodiversityhub.org/what-is-neurodiversity>

Thank you!

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