

A Path Less Travelled: The Roadmap to Navigating Neurodiversity

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Presentation Overview

- Language matters: terminology
- Neurodiversity in Australia
- Disorder Vs Difficulty
- Labels: pros and cons
- Co-occurrence (“comorbidity”)
- The role of IQ in reading and language assessment
- Neurodiversity as a pseudoscience magnet
- So – what works?





**The language of
diagnostic
labels
matters
(but changes)**

Language matters: terminology

- Until the 1980s: handicapped; disabled people
- “Mental retardation” in DSM until 5th edition in 2013
- Cretin and moron – historical medical terms whose meaning was distorted in everyday use
- Vernacular use of “retard”; “spastic”/ spazzo.
- 1990s – person-first terminology: *people with* autism; *people with* ADHD; *people with* acquired brain injury; *people with* intellectual disability.



Language matters: terminology

- 2020s: push (by many but not all) for identity first terminology: autistics; ADHDers; AudHDers
- **BUT**
 - What about groups who do not have an audible voice – e.g., those with ID – who decides what they shall be called?
 - What about the voices of parents with offspring whose neurodiversity is severe and see this debate as misplaced?



Labels: pros and cons

Pros

- ✓ Affirming / reassuring / empowering
- ✓ Explain and predict behaviour and learning
- ✓ Access to specialist services
- ✓ May assist with tighter progress monitoring

Cons

- ✗ Play into stereotypes / prejudices / biases
- ✗ Used as an excuse for low expectations
- ✗ May be incorrect and/or change over time
- ✗ Labels and criteria change over time





Models of disability

Models of disability (1)

Medical model

- Dominant until the 1970s
- Focus on biomedical “abnormalities” and the extent to which they could be “fixed” , “treated” or “remediated”
- Allied health professionals and (to a lesser extent) medical practitioners seen as the main workforce
- Care provided in health settings
- Language of disability and handicap was dominant
- “Elevated” some diagnoses



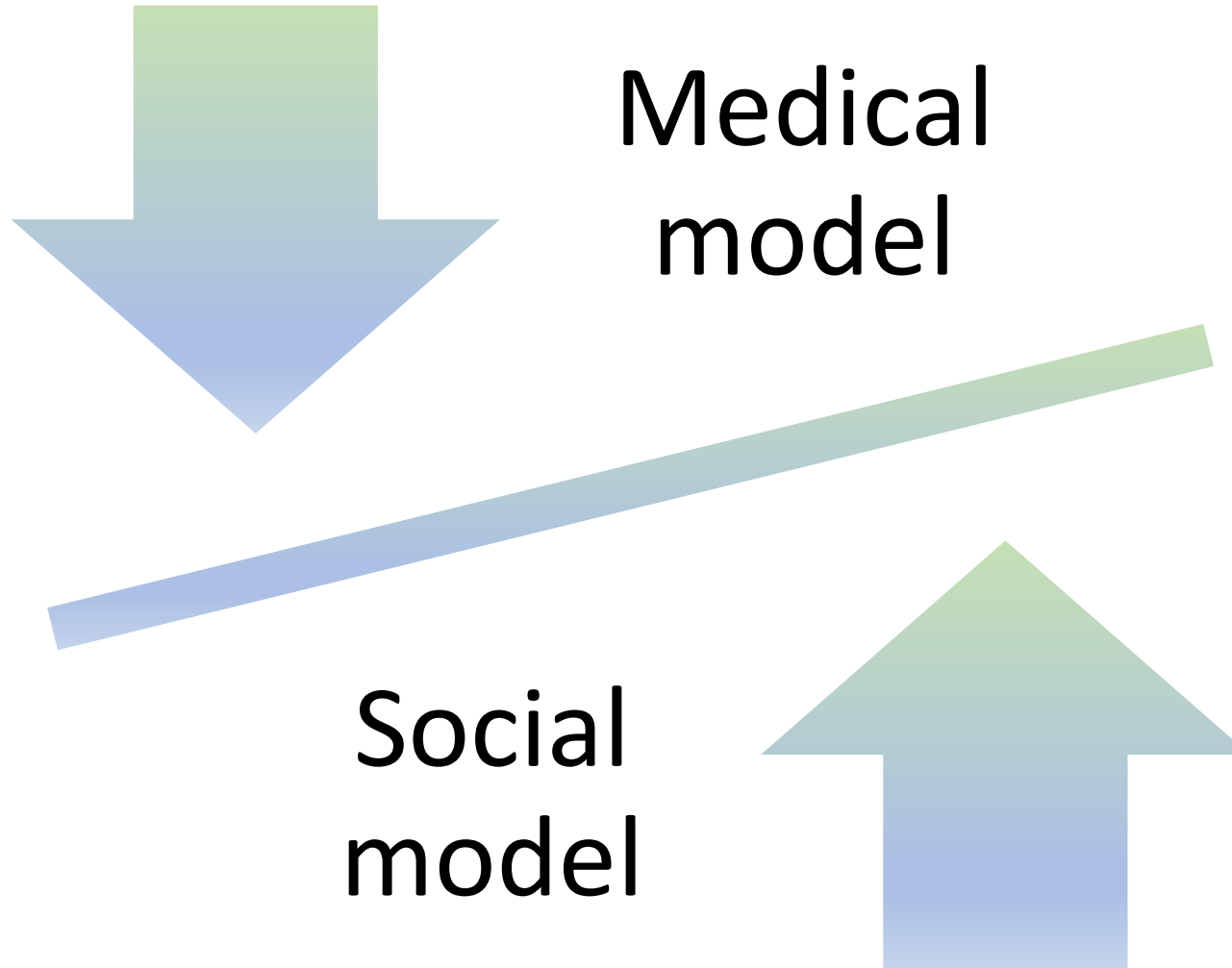
Models of disability (2)

Social model

- Emerged from social upheaval of 1970s and push against traditional values, assumptions, and power bases
- International Classification of Functioning, Disability and Health (WHO) resulted in shifts in language, from impairment -> disability -> handicap -> participation limitation
- Focus on social, ideological, and political factors (blind spots) that create barriers to participation – physical and otherwise
- Calls out “ableism”



Ideally in 2025





Neurodiversity in Australia

Depends on definitions and terminology.....and many other factors

- Some forms of neurodiversity have known causes (“aetiologies”), such as a chromosomal aberration (Down syndrome; Klinefelter’s syndrome; Fragile X syndrome) but the cause(s) of autism and ADHD are unknown; complex **biopsychosocial** factors are at play.
- Vaccines do NOT cause autism.
- Prevalence estimates vary
- Diagnostic classification systems have different criteria and cut-offs, e.g., DSM-5-TR Vs ICD-11



Depends on definitions and terminology.....and many other factors

- Terminology is variable
 - Disability Vs disorder Vs difficulty Vs diversity
- Inconsistent data collection protocols
- Stigma
- Gendered assumptions
- Somewhere between 10 and 20%
- **Is prevalence increasing?** Yes, but probably because of diagnostic net-widening.

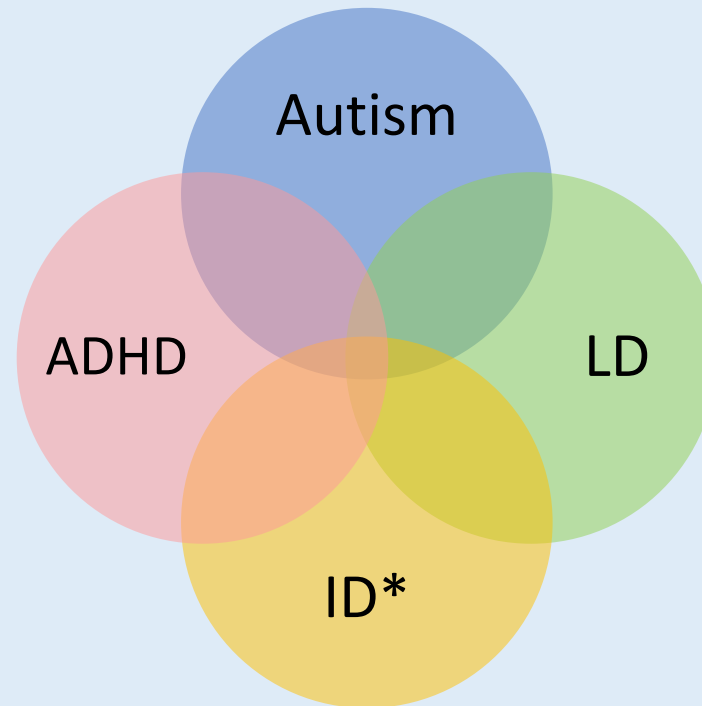


Diagnostic considerations

- Neurodiversity may be “invisible” and become gradually apparent over time
- Some conditions are very rare and/or as yet unnamed
- Antenatal screening – variable uptake; ethical considerations
- Neonatal screening – detects low prevalence but potentially catastrophic conditions, e.g., PKU
- Team approach is optimal
- Co-occurrence (“comorbidity”) is the norm



Co-occurrence (comorbidity) - 1



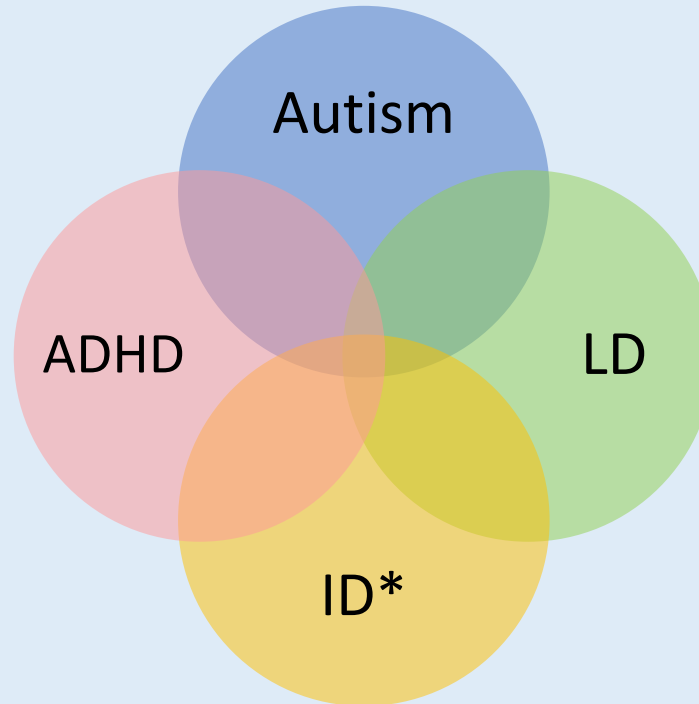
*Intellectual Developmental Disorder in DSM-5-TR (2022)



Co-occurrence (comorbidity) - 2

Consider also:

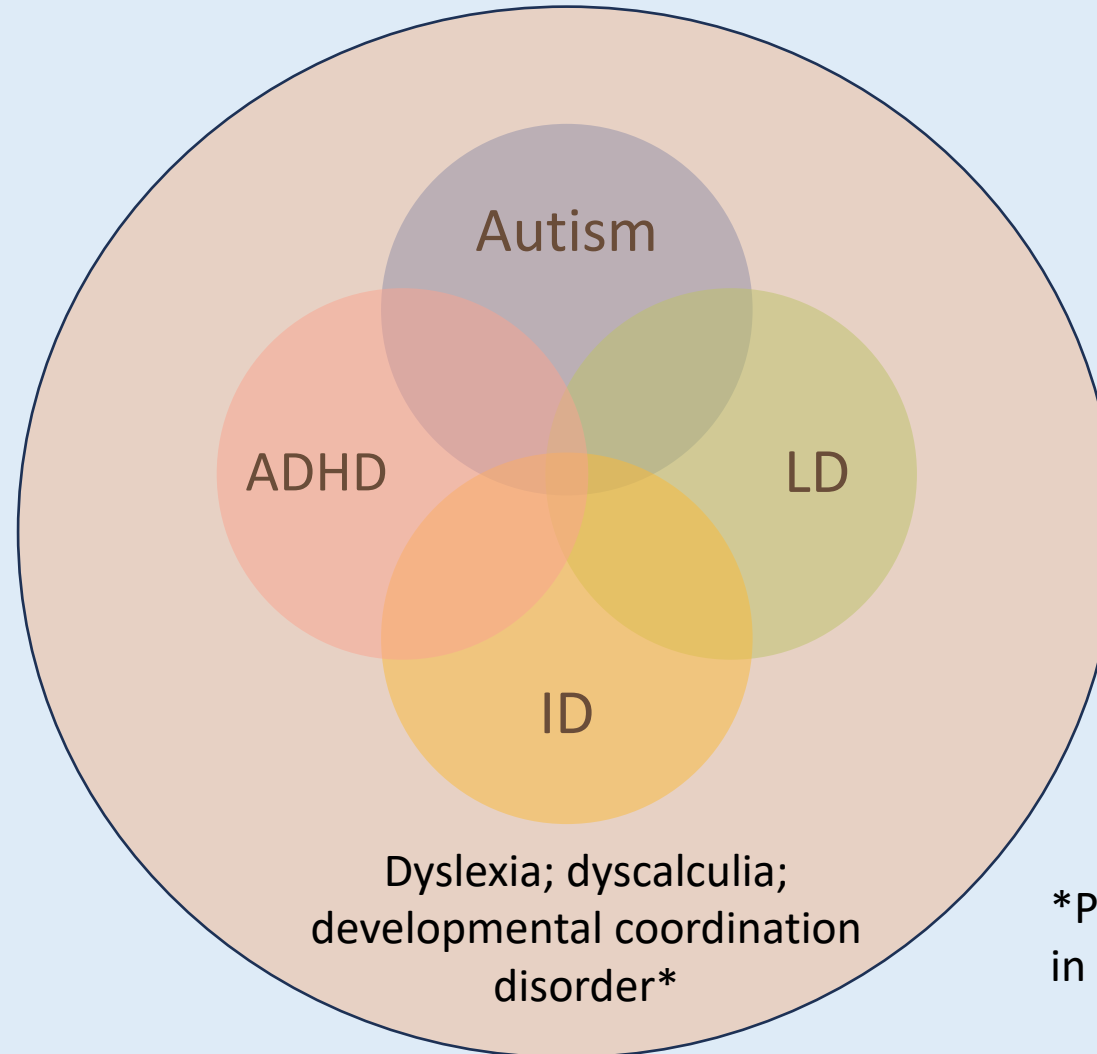
- Cerebral palsy
- Acquired brain injury
- Foetal alcohol spectrum disorder
- Syndromal and non-syndromal forms of ID
- Progressive neurological conditions



*Intellectual Developmental Disorder in DSM-5-TR (2022)
NB – in the UK, “learning disability” = intellectual disability



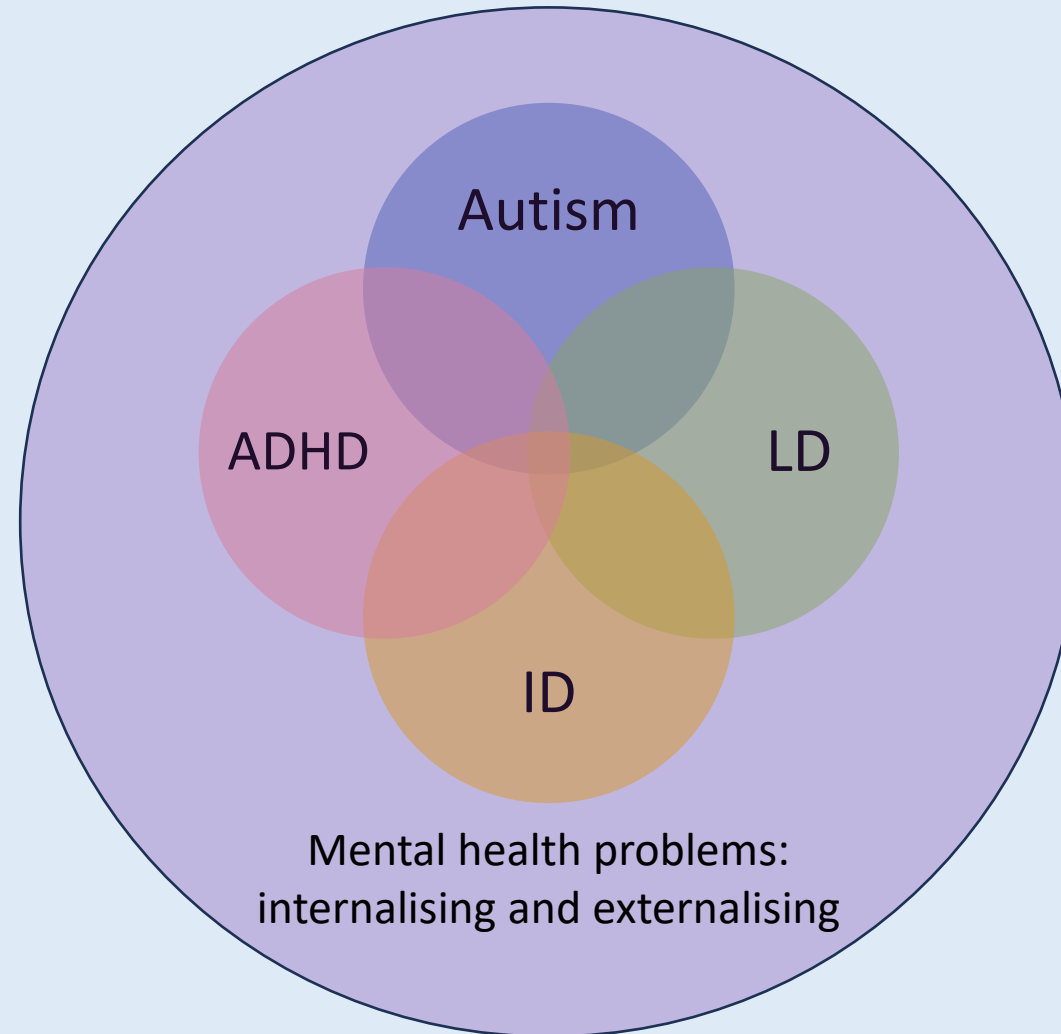
Co-occurrence (comorbidity) - 3



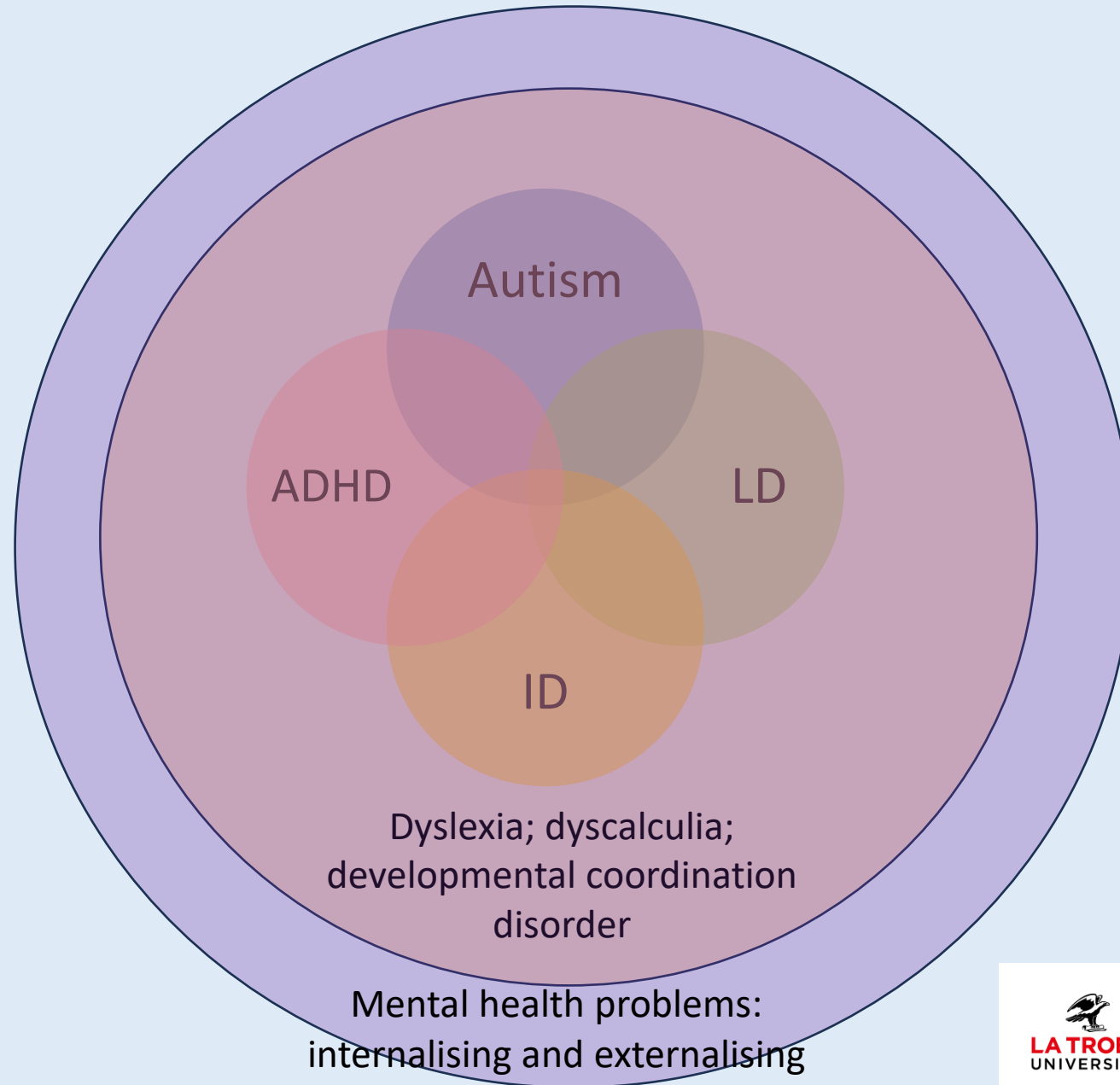
*Previously dyspraxia
in DSM-5



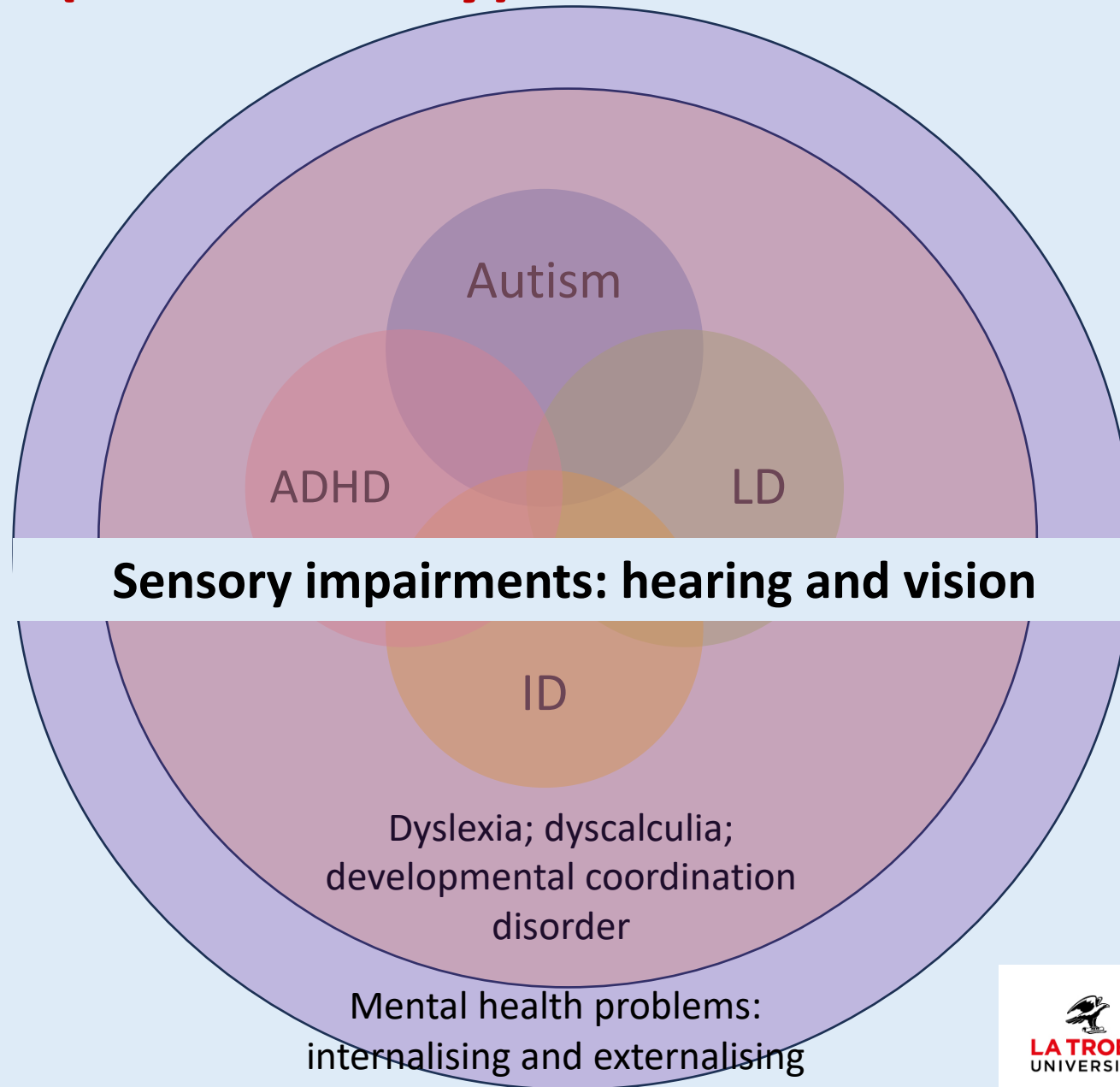
Co-occurrence (comorbidity) - 4



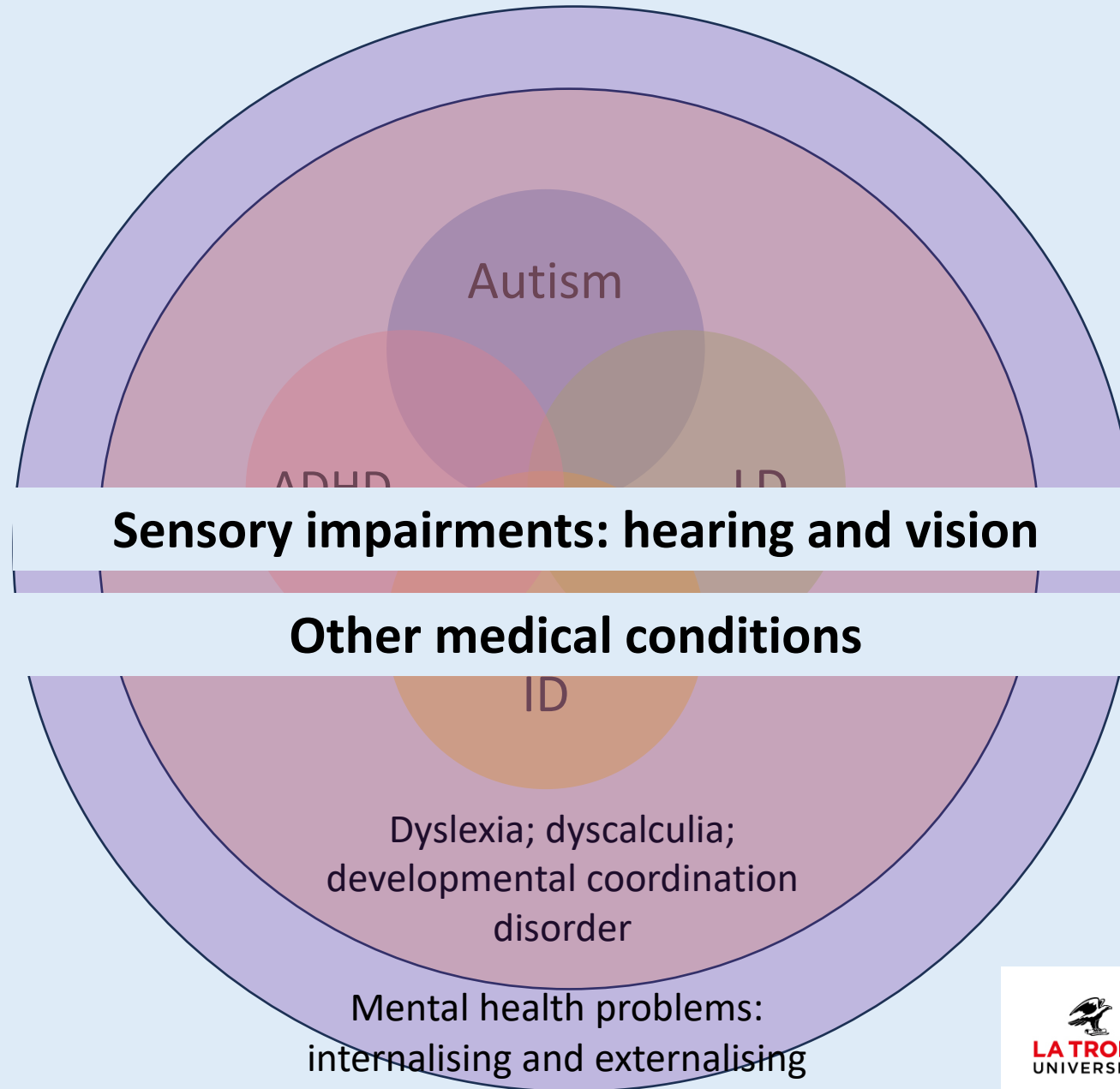
Co-occurrence (comorbidity) - 5



Co-occurrence (comorbidity) - 6



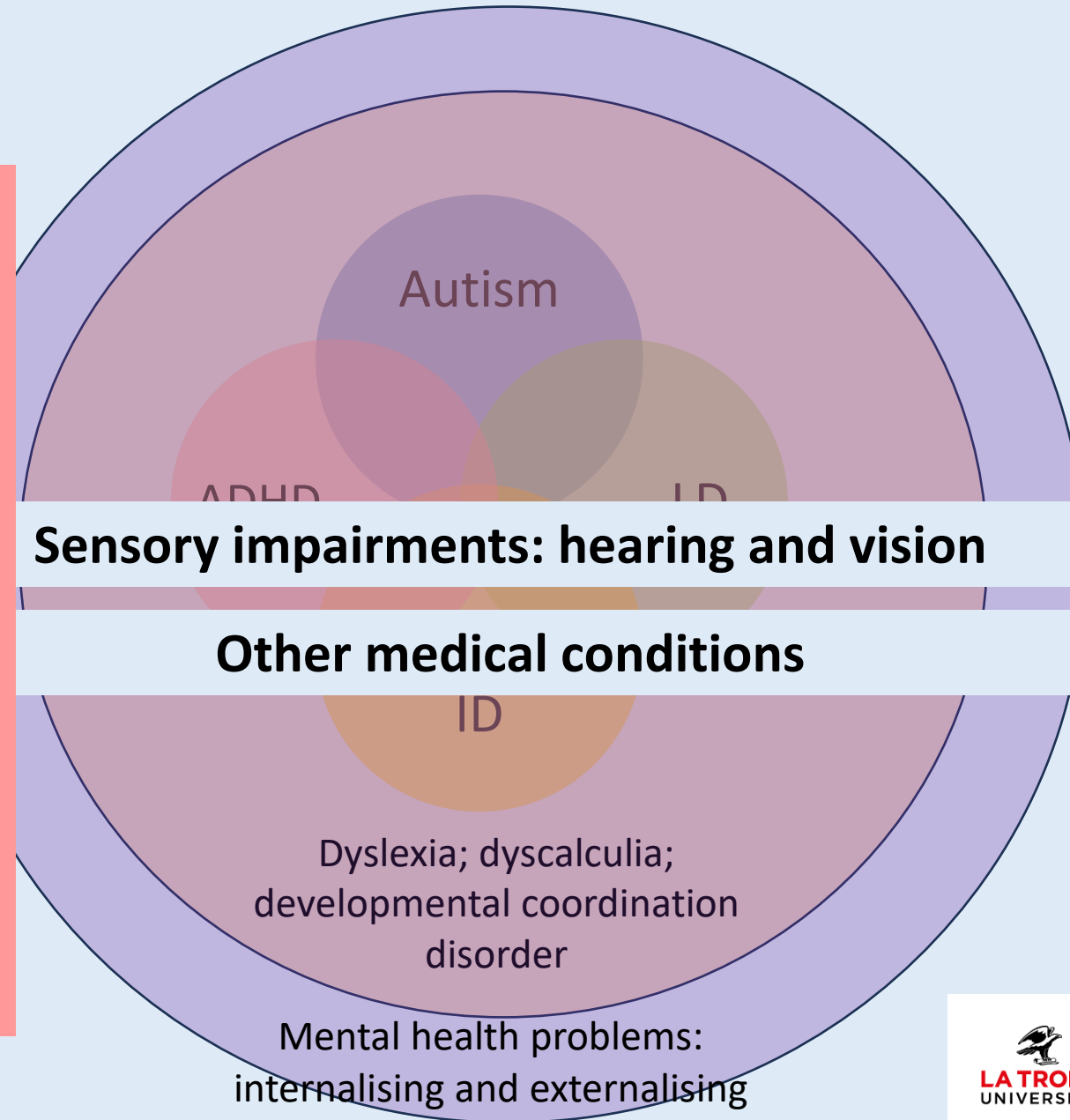
Co-occurrence (comorbidity) - 7



Co-occurrence (comorbidity) - 8

Consider also:

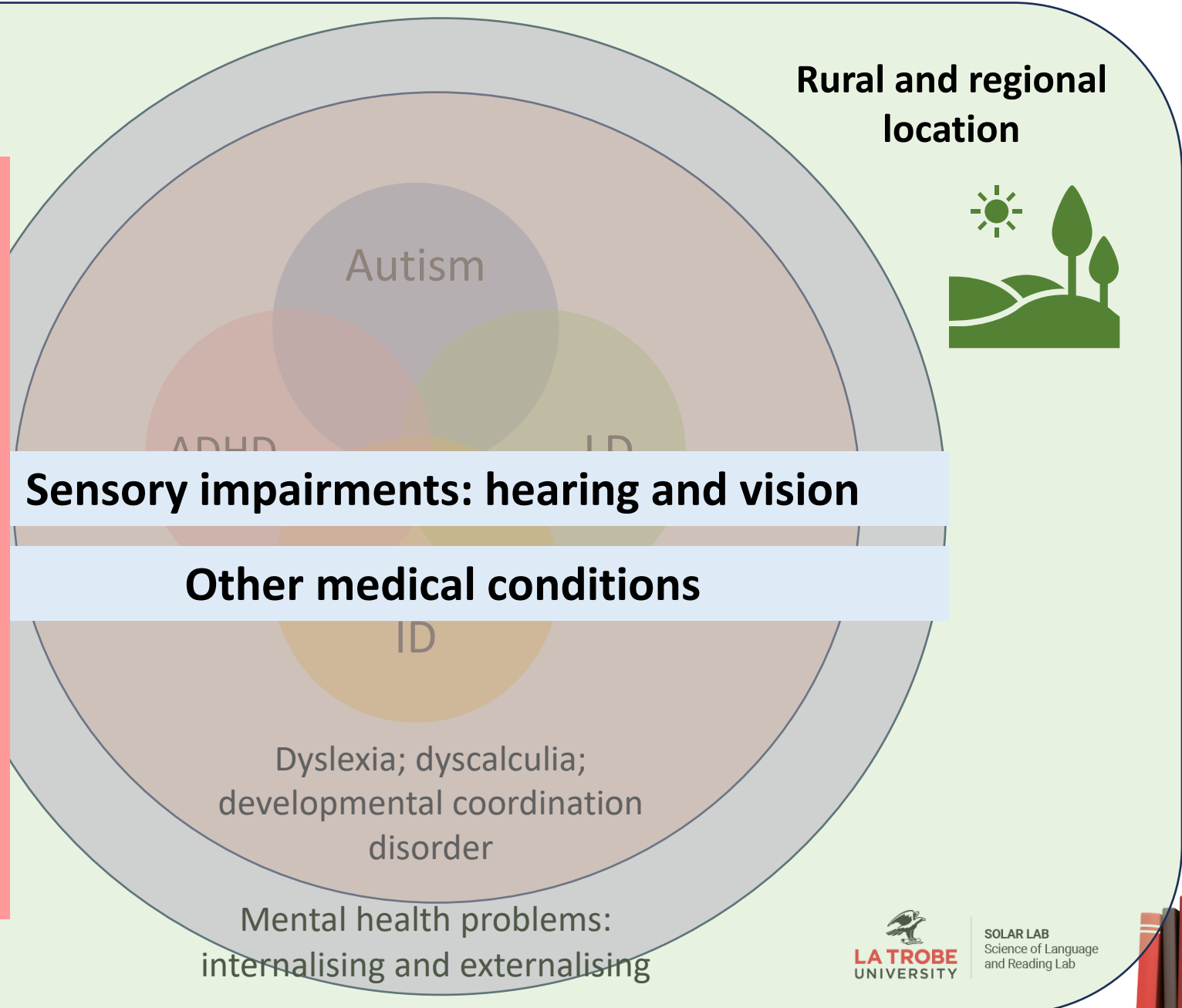
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Co-occurrence (comorbidity) - 9

Consider also:

- Cerebral palsy
- Acquired brain injury
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- Progressive neurological conditions



Reading and language assessments and IQ (1)

- Historically, an **IQ-achievement discrepancy** was needed for a diagnosis of dyslexia, on the erroneous assumptions that “bright children don’t have reading difficulties” and “the presence of reading difficulties means a child is not very bright”.
- Children needed to have reading problems in the context of average IQ, to be eligible for dyslexia diagnosis and services.

This is problematic because:

- IQ is correlated with reading proficiency but not as highly as phonological awareness. High IQ does not lead to reading proficiency and low IQ does not lead to poor reading.
- Using a discrepancy model, children with reading difficulties and lower-than-average IQ scores may not be classified as learning disabled and so may not be eligible for special educational services to help them learn to read.

<https://www.nih.gov/news-events/news-releases/nih-funded-study-finds-dyslexia-not-tied-iq>



Dyslexia and IQ (2)

- The time and cost of IQ tests cannot be justified for meeting criteria to receive services, as this is inequitable and perpetuates a “wait to fail” scenario.
- Children who are average readers, but who have **high IQ** scores are obviously not “reading disabled” by virtue of a **discrepancy** between IQ and reading skill.
- “....**dyslexia occurs across the IQ spectrum**, although it needs to be borne in mind that, in terms of reading comprehension, those with higher IQ are likely to do better”
(Snowling, 2013, *J. Res Spec Educ Needs*, p. 2).
- My preference: to focus on building **reading and writing skills** and monitor progress through high-impact teaching, rather than bringing in another diagnostic label.



Why is neurodiversity relevant to learning?

Because of its implications for:

➤ Executive functions

❖ attention; concentration; self-regulation; consequential thinking

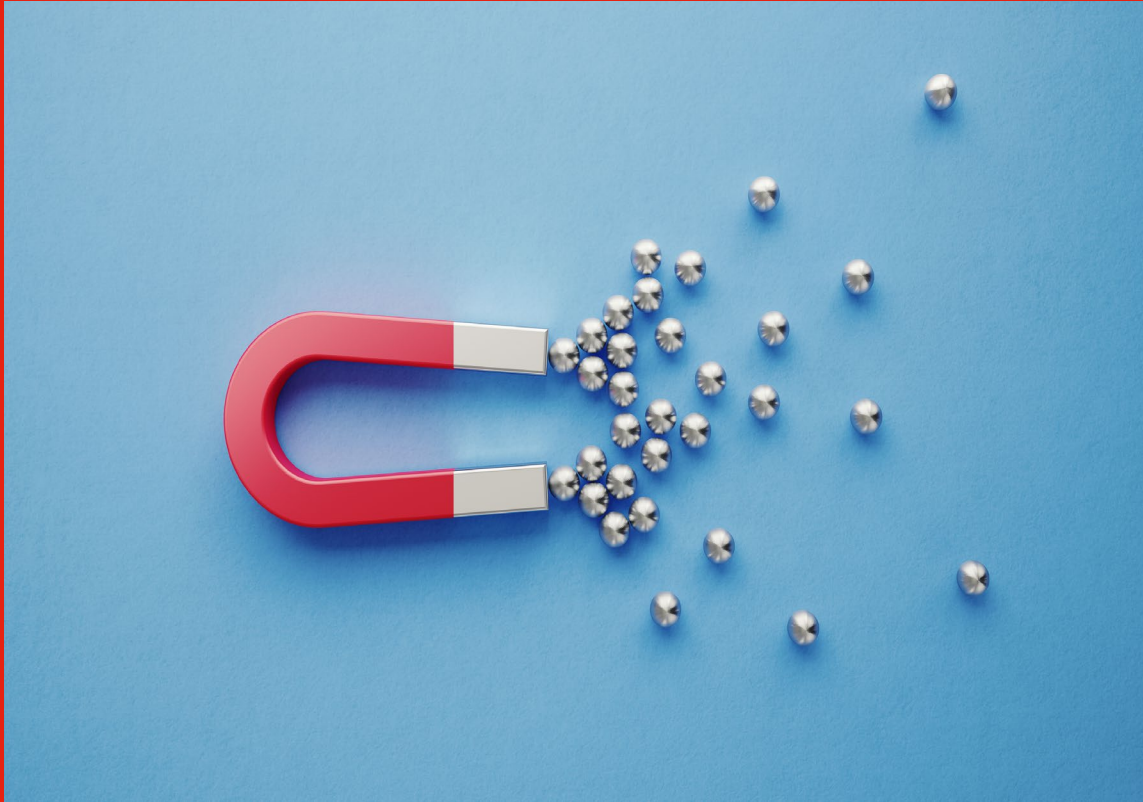
➤ Language skills

❖ expressive and receptive; pragmatic language skills; literal and figurative;

➤ ...and by extension, for reading and writing

But there is a problem.....





**Neurodiversity is
a
pseudoscience
magnet**

How strongly would you advocate for the application of science in other fields?



What does “evidence-based” mean with respect to instruction?

- Despite an ideological leaning towards student-led, discovery-based learning in most faculties of education, the evidence-base for this as Tier 1 teaching is **not strong**.
- We have known for decades that when teaching complex new knowledge or skills to novices, explicit teaching produces better **learning outcomes** for a larger number of students, than student-led approaches.
- Interventions are delivered with **fidelity**.
- Remember: “learning” means knowledge has been transferred into longterm memory.



Don't leave the door ajar for pseudoscience



<https://www.thecttl.org>



Pseudoscience and neuromyths in education

- ❌ In any classroom, there are left-brain and right-brain learners
- ❌ We only use 10% of our brains
- ❌ Mirror writing is a sign of dyslexia
- ❌ Children have a “learning style”
- ❌ All children learn differently
- ❌ Because reading is about deriving meaning, instruction must begin with meaning
- ❌ Children diagnosed with dyslexia need a different kind of intervention from other struggling students
- ❌ If parents read to their children more in pre-school years, reading problems would disappear.



Things that don't work / have no / weak evidence-base

- ❖ CogMed
- ❖ Neuro-feedback
- ❖ Brain Gym
- ❖ Special diets
- ❖ Coloured lenses / overlays
- ❖ Arrowsmith Program
- ❖ Learning Styles
- ❖ Whole-Brain / Brain-Based Learning
- ❖ Reading Recovery
- ❖ Story Dogs
- 💣 Facilitated Communication / Spelling to Communicate / Rapid Prompting Method
- ❖ **Remember – there is an opportunity-cost associated with time / money / hope wasting**

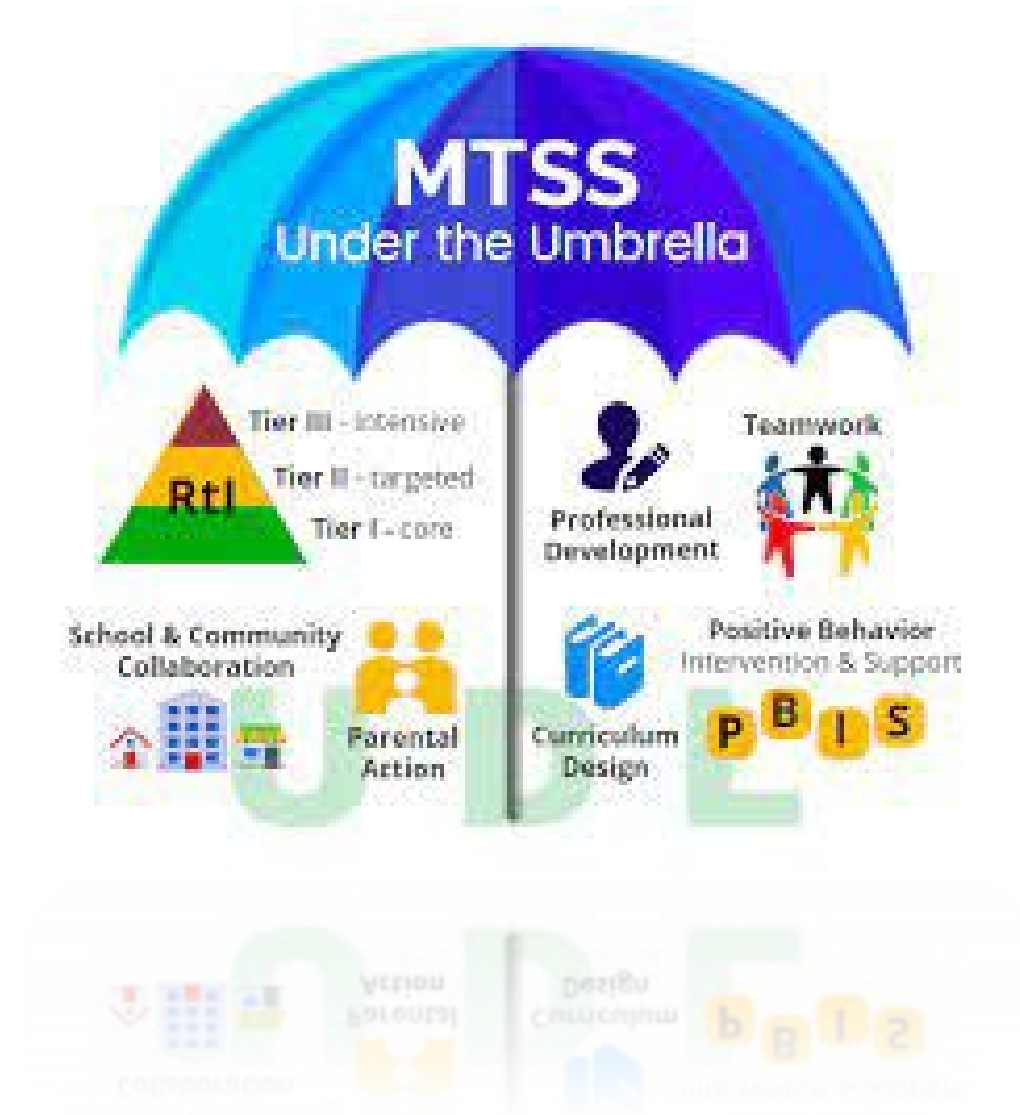


Helpful frameworks for teachers and schools

- ✓ Understanding typical brain/cognitive development, including development of executive functions and self-regulation
- ✓ Cognitive Load Theory – no less relevant for neurodiverse learners than neurotypical students
- ✓ Explicit teaching by knowledgeable teachers
- ✓ High-quality progress monitoring by data-savvy teachers
- ✓ High expectations of and for all students
- ✓ MTSS and RTI



Multi-Tiered Systems of Support



RTI definition

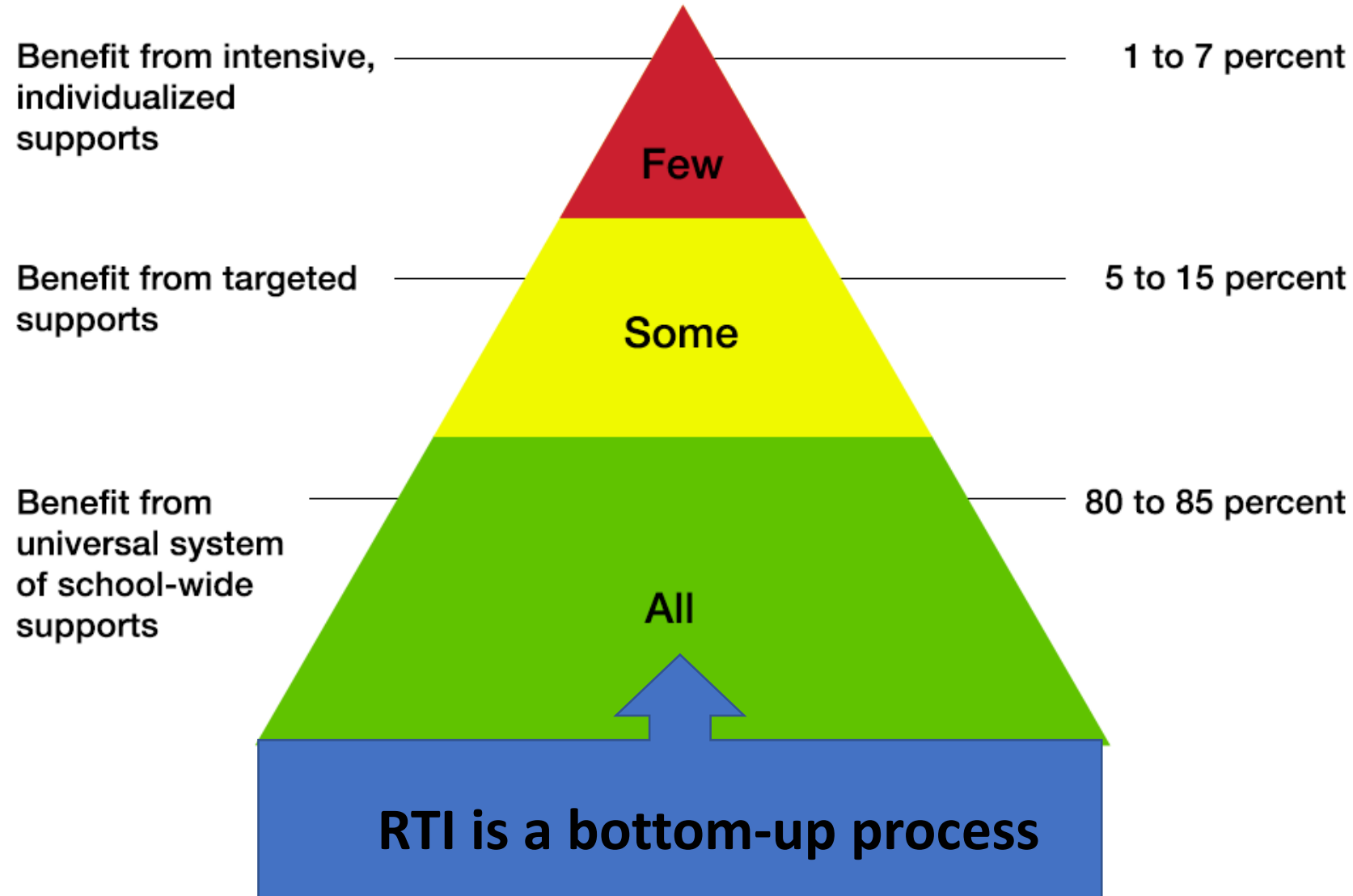
“A knowledge base, skills, and a service delivery system that is intended to provide an educational experience to all students that is focused on delivering effective education and intervention programs and on frequent progress monitoring of student outcomes using those measured student outcomes (RTI) to adjust and change programs and interventions as necessary”.

RTI Action Network <http://www.rtinetwork.org/learn/what/whyrti>

**NB- RTI is not a program –
it is a conceptual framework**



What does RTI “look” like?



Assumptions underlying RTI

- ✓ All children can learn, including those who are neurodiverse
- ✓ Learning is strongly influenced by the quality of the instruction students receive
- ✓ All students are exposed to evidence-based instruction
- ✓ Student progress is monitored via the use of valid screening, diagnostic, and/or curriculum-based measures
- ✓ Tier 1 is characterised by high-quality explicit instruction
- ✓ Adaptations are made for context of students
- ✓ Tiers refer to instructional type and intensity, not to children



Progress monitoring in an RTI framework

- Integral to RTI b/c **data-driven**
- **Continuous and timely**
- Needs to consider all of the “**Big 5**”
- Not “**wait to fail**”
- Must articulate to **actions**
- Relies on use of **valid and reliable** tools, administered and scored as intended by the publisher
- Optimal if done in the context of **whole-school** policy and practice
- “Dose” is **titrated** according to response
- Decisions are **data-driven**

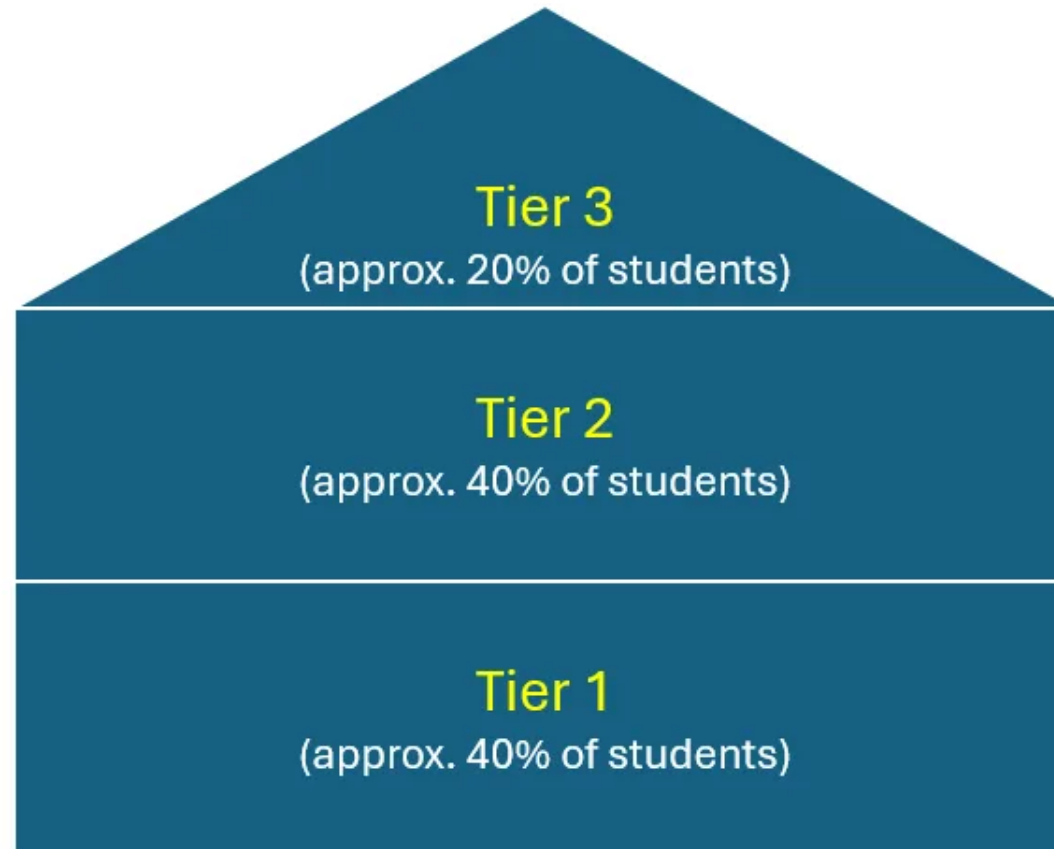


Intervention in an RTI framework

- Assuming a **strong Tier 1** is in place:
 - Does **not mean doing something different** at Tiers 2 and 3 from what was happening at Tier 1;
 - Means an **increased dosage / modified delivery** of Tier 1 instruction at Tiers 2 and 3
 - Greater intensity
 - Increased frequency
 - Longer duration
- **BUT – if Tier 1 is weak, the model falls over**
 - Too many students need extra support (rarely readily available)



What happens when Tier 1 is not strong?



The 'RTI House' – The distribution faced by schools at the beginning of their journey into low-variance, evidence-informed reading and spelling instruction

Bill & Christie-Lee Hansberry

<https://playberrylaser.com.au/articles/playberry/to-stream-or-not-to-stream-in-structured-reading-and-spelling-lessons/>



My position on neurodiversity and reading... (1)

My [main] expertise: science of language and reading.

- Children who are neurodiverse and/or have complex communication needs are not given access to a different (easier) writing system* simply because it is harder for them to master the one that other children need to master in order to succeed academically.
- It is up to the adults to create ways for the writing system to be made accessible from a learning perspective.

**notwithstanding the fact that alternative forms of communication often need to be made available to some such children.*



My position on neurodiversity and reading...(2)

- Teachers of neurodiverse children require the same knowledge and skills as other teachers PLUS specialised expertise in meeting the needs of diverse learners.
 - This is not easy, but it is achievable.
- We must not allow **the soft bigotry of low expectations** to get in our way.
- If it's important, **we must teach it**: academics and behaviour routines
- We must promote access to evidence-informed teaching / therapy:
no pseudoscience
- As with all children, **academic achievement and wellbeing** are closely interconnected for neurodiverse learners.





Our obligations to neurodiverse students?

Our responsibilities concerning research translation for all students, including those who are neurodiverse:

Remember that a neurodiversity diagnosis is one piece of (important) information but not the whole story. Core principles still apply

- ✓ **Foster** the translation of robust findings into everyday practice to *let the “good stuff” in*.
- ✓ **De-implement** superseded approaches.
- ✓ **Resist** the adoption of pseudoscientific / under-powered approaches that (by definition) do not have an evidence-base, to *keep the “bad stuff” out*.
- ✓ **Remember** that *support* for an approach $\neq$ *evidence* for an approach
- ✓ **Remember** that when something sounds too good to be true.....
- ✓ Extend **kindness and compassion** to parents





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Thank

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