Neurodiversity

Professor Amanda Kirby
Aims of the talk

• What is neurodiversity?
• Recognising challenges **AND** strengths
• Delivering a holistic ‘whole school/whole student approach” benefits all students.
What does neurodiversity/divergence mean?

• **Diversity**
• **Divergence**

A term that may be used to encompass people with a range of cognitive skills and profiles.

Moves away from terms like ‘disordered’.

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Neurodiversity or Neurotypical?

Other terms include:

- Developmental Disorders
- **Specific** Learning Difficulties/Differences
- Neurodevelopmental Disorders
- Hidden Impairments
- Differently abled
- Learning Difficulties

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The language we use has different meanings to different people

Disorder  
Difference  
Disability  
Condition  
Spectrum  
Syndrome

And changes over time........
Choosing the language

- Shame
- Different
- Not the ‘norm’
- Hidden
- Disorder
- Impaired

Sense of self

Feeling of Belonging

Defined by what you can do
Neurodiversity
Seeing the person’s strengths

Creative
Sporty
Artistic
Scientific
Caring
Analytical
Funny
Resilient
Entrepreneurial

Shame
Lonely
Unemployed
Homeless
Depressed
In prison
Excluded
Low self esteem

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In the classroom - learners are on a continuum

1 in 8 neurodiverse
1 in 4 if been Excluded

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Good at sports, science, art, maths, cooking, acting, writing...
Successful Neurodiverse people

"My childhood was extremely lonely. I was dyslexic and lots of kids make fun of me. That experience made me tough inside, because you learn to quietly accept ridicule."

— Tom Cruise —
Who here has a spiky profile?
When we talk about some ‘labels’ do they conjure up specific thoughts/views?

Have you some assumptions or fixed perceptions?
Could you have...

- Thought a student was lazy because they seemed to never start an assignment?
- Got annoyed at the student who kept getting out of their seat?
- Become so frustrated with the student in the back of the class banging his pencil on his desk over and over and over again?
- Reminded a student to bring home their book at least five times and then they still forget it?
- Been in the middle of a lesson when a student blurts out some random information irrelevant to the lesson?
- A student that takes ages to answer questions and others jump in and answer for them?
What may YOU see?

Distractible
Disinterested
Can’t be bothered
Doodling
Withdrawn
Clumsy
Rude
Fidgety
Dreamy
Not listening
Impulsive
Untidy
Lazy
Your students may behave because:

1. Feels frustrated because they have a different perception of the situation
2. Lacks structure - so don’t know what is happening next
3. Acts the role of being “bad” as expected
4. Doesn’t know how to ask for help - so act out
5. Distracted by class and so loses focus
6. Has difficulties expressing themselves and doesn’t understand
7. Feels overwhelmed with tasks assigned as doesn’t know where to start
8. Tired/hungry
“JUST BECAUSE I DON'T HAVE A DIAGNOSIS DOESN'T MEAN I'M MAKING IT UP.”

-- JESSICA JAMES
You see *overflow* when demands are greater than you can cope with.
The child in your class…
SPOT THE DIFFERENCE

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SPOT THE DIFFERENCE

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SPOT THE DIFFERENCE
SPOT THE DIFFERENCE
Why have Categories?

“systematically forms the objects of which they speak.”

Foucault (1972, p. 54)
We use categorisation to allocate resources..

Hacking (1986) said categories can form “looping effects” where the categories available for classifying people in specific manners will be used as resources for understanding what we encounter.
Labels people have may be dependent on the door(s) they go or have gone through
- now OR in the past
Autism diagnoses 'could be reduced under NHS plan'

By Jane Dreaper
Health correspondent, BBC News

Proposals to reduce the number of children being diagnosed with autism are being considered by NHS commissioners in south-west London.
Societies views

The great ADHD myth
By JENNY HOPE
Last updated at 22:34 09 March 2007

The psychiatrist who identified attention deficit disorder - the condition blamed for the bad behaviour of hundreds of thousands of children - has admitted that many may not really be ill.

UK children with ADHD years for diagnosis, say e

Postcode lottery chaos and misconceptions of condition lead to delayed treatment, harming chances of education and future prospects

‘When I started taking ADHD medication it was as if someone flicked a switch’
‘Better’ labels or ‘worse’ labels

50 Famously Successful People Who Are Dyslexic

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Brains are not in these neat boxes!

- Depression
- Dyslexia
- SCLN/DLD
- ADHD
- ASD
- Dyspraxia/DCD
- Dyscalculia
- Anxiety

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Dyslexia +

+ ADHD+ DCD+ ASD
Extensive evidence of overlap between all four disorders (Kaplan et al 1998)

+ SCLI on a continuum with greater risk of later dyslexia difficulties in adulthood (Pennington and Bishop, 2009)

+ ASD (Nation et al, 2006; Griffiths, 2007)

+ ADHD in about 35% - 40% of cases showed a shared genetic basis (Willcutt, Pennington, Olson et al, 2007)

+ Dyscalculia

+ DCD (Ramus et al, 2003)
Motor/DCD/Dyspraxia +

+ **Maths** (Luo, Jose, Huntsinger, & Pigott, 2007; Pagani, Fitzpatrick, Archambault, & Janosz, 2010; Pieters, Desoete, Roeyers, Vanderswalmen, & Van Waelvelde, 2012)

+ **Dyslexia/Reading** - 40% (Cheng, Chen, Tsai, Chen, & Cherng, 2009; Fletcher-Flinn, Elmes, & Strugnell, 1997; Lingam et al., 2010, Ramus et al., 2003)

+ **ADHD** - in 25-40% (Kirby and Salmon, 2009; Rasmussen and Gillberg, 2000)

+ **ASD** - 70-80% of those with ASD traits showing motor deficits (Miller et al, Kopp et al, 2010)

+ **Language** (Hill, 2001)

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ADHD +

**ADHD + ASD** from 14 - 78%

**ADD + Dyslexia** (Loo et al., 2004; Gayan et al., 2005; Trzesniewski et al., 2006)

**ADHD + DCD 30-40%**(Salmon and Kirby, 2006)

**ADHD + Dyslexia + Dyscalculia (Maths) 30%**
Specific problems in spelling, reading and mathematics, unaccounted for by low intelligence
(Szatmari et al., 1989).
<table>
<thead>
<tr>
<th>Primary diagnosis</th>
<th>ASD</th>
<th>ADHD</th>
<th>DCD</th>
<th>DLD</th>
<th>Dyscalculia</th>
<th>Dyslexia</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADHD</td>
<td>6</td>
<td>18-53</td>
<td></td>
<td></td>
<td></td>
<td>7-18</td>
</tr>
<tr>
<td>DCD/Dyspraxia</td>
<td>6</td>
<td>19-53</td>
<td></td>
<td></td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>DLD</td>
<td>4-8</td>
<td>26</td>
<td>30-71</td>
<td>25</td>
<td>62</td>
<td>48-87</td>
</tr>
<tr>
<td>Dyscalculia</td>
<td>39</td>
<td>25</td>
<td></td>
<td></td>
<td>26-48</td>
<td></td>
</tr>
<tr>
<td>Dyslexia</td>
<td>18-50</td>
<td>15-25</td>
<td></td>
<td></td>
<td>39-48</td>
<td></td>
</tr>
</tbody>
</table>
Patterns are Interactional AND Cumulative

Adults with ADHD have been found to perform poorly in spelling, mathematics, and comprehension tests. (Barkley et al., 2008)

Inattentiveness might interfere with reading acquisition .....causing problems with reading comprehension (Rasmussen et al., 2001)

SLI on a continuum with greater risk of later dyslexia difficulties in adulthood  (Pennington and Bishop , 2009)
<table>
<thead>
<tr>
<th>Neurodevelopmental disorder</th>
<th>Other commonly co-occurring condition(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mental</td>
</tr>
<tr>
<td>ASD</td>
<td>Anxiety disorders, eating disorders, gender dysphoria, mood disorders, OCD, personality disorders, schizophrenia, substance use disorders, Tourette’s syndrome, tic disorders.¹</td>
</tr>
<tr>
<td>ADHD</td>
<td>Anxiety disorders, gender dysphoria, mood disorders, OCD, personality disorders, schizophrenia, substance use disorders, Tourette’s syndrome, tic disorders.³</td>
</tr>
<tr>
<td>DCD</td>
<td>Anxiety disorders, mood disorders, personality disorders, substance use disorders, tic disorders.⁵</td>
</tr>
<tr>
<td>DLD</td>
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</tr>
<tr>
<td>Dyscalculia</td>
<td>Mood disorders, schizophrenia.⁹</td>
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</table>
Heterogeneity is the rule

Dimensional
NOT
categorical
But more like the M25!
Brains don’t function in compartments
A lack of ‘zones of rarity’

(cf. Sneath, 1957)

Or... not much space between the boxes
Annual Research Review: Categories versus dimensions in the classification and conceptualization of child and adolescent mental disorder.  

“The strict application of categorical diagnostic rules can also result in individuals with significant symptoms and impairments, but who fall just short of the diagnostic criteria, being denied support and treatment.”
Are services boxed?
Some learners are:

- Missed
- Misidentified
- Misdiagnosed
Why is this?

• **Awareness** and training by professionals and parents
• **Time pressures**
• **SES**
• **Gender**
• **Access and levels of services** e.g. for one condition or another
• **Attitude** e.g. ADHD v better to have Dyslexia =‘gifted’
Teachers well placed to identify kids with neurodiversity

• See every day
• Can make comparisons

“all teachers are recognised as being teachers of children with special educational needs (SEN)”

(Broomhead, 2013)
Teachers in England and Wales and asked whether dyslexia was sufficiently covered during their Initial Teacher training (ITT) course. 72% felt that it was “not covered well at all”. (Knight, 2018)

Rottgers et al, (2014) discovered that during ITT, students are likely to be provided with a ‘one off’ lecture in relation to ASD.

Insufficient to create belief and confidence that they will be able to support students with ASD in their classrooms, once qualified.

(Dillenburger et al, 2016)

In the United Kingdom, less than half of children with ADHD have used specialist health services or been clinically diagnosed

Most parents of children will have discussed their concerns with teachers

Lack of staff knowledge of ASD/ADHD/DCD means conversations can be missed. 
Glennon, 2016
Gillespie-Lynch et al, 2015

Teacher knowledge of ‘specific learning difficulties’ has been linked to confidence in teaching.
(Alkahtani, 2013)

55% of parents with dyslexic children reported that the school teacher did not notice that their child was experiencing literacy difficulties.
(Dyslexia Action, 2012)
Time pressures and a lack of knowledge has been cited by teachers as factors which negatively influence their ability to support pupils with ADHD.

(Richardson et al, 2015)
Low Socio-Economic-Status (SES)

Children living in low income families are less likely to have their symptoms recognised as being a learning difficulty and are more likely to be labelled as having an Emotional and Behavioural Disorder (EBD).

*McCoy, Bankd & Shevlin (2012)*

- Parental resources
- Locality of the school and quality of teaching
- Disconnect between home and school

Early life experiences + SES

SES links to longer term outcomes and increased risks as children progress

(Lee and Burkam, 2002
Downey et al, 2004)
Gender

Girls less likely to be recognised

e.g. dreamy = ADD?
5-17 years LAC in England:
14% had speech or language problems;
significant co-occurrence between S and L and ADHD in these children

Sample of all LAC aged 7-15 years (n=193) in a single Local Authority:
67% and 68% obtained lower reading and spelling scores, than predicted by their cognitive ability;
18% had literacy scores at a level that would typically warrant intervention, more than 3x the rate in the ‘norm’ sample.
In UK **1 in 5 children** with ASD are excluded from school (Dillenburger et al, 2015) = 20x the national average

ALSPAC cohort (longitudinal cohort of live births): of those excluded by age 8 years, **19.1% had ADHD.**
**22.5% had language development in bottom 10% at age 3 years.**

Children in a **EBD school** in one English LA: 65% had ADHD; many of these had co-occurring disorders; very few had an ADHD diagnosis before entering this school

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Awareness leads to better support

Greater awareness of ADHD (along with other neurodevelopmental disorders) within teaching supports the development of classroom strategies for ADHD

(Moore et al, 2017)
Each student has a unique pattern of strengths and challenges
But the picture of a child changes over time

Children diagnosed with language impairments are heterogeneous and may change across the age range, and in the course of development.

Known to be at increased risk of a range of social, emotional and behavioural difficulties (SEBDs) (Yew & O’Kearney, 2013), and

Strongly associated with social communication problems in children with ASD (Hus, Bishop, Gotham, Huerta, & Lord, 2013).

Several studies in UK and Sweden show that some children with language delay at 2 - 4 years go onto have a diagnosis of ASD at 9-11 years.
Different for different people and dependent on the needs, circumstances and preferences, skills and challenges of the individual at a particular time and in a particular context.
Starting with a framework

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....More in the workshop.. What to do practically!
Professor Amanda Kirby

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