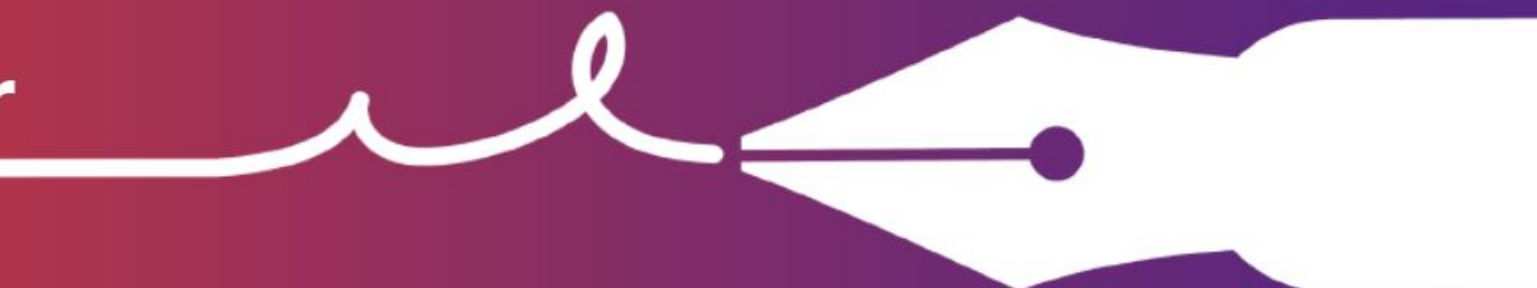




**Academic Writing and  
Neurodiversity: Pedagogies for  
Inclusion**

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**#IOEWritingSeminar**



- 1) The WHAT: the challenges presented by academic writing
- 2) The WHY: neurodiversity and cognition / cognitive overload
- 3) The HOW: pedagogies for inclusion
- 4) Future directions / current research

**Assumptions and disclaimers:**

Dyslexia the original focus

*Academic Writing, Assessment and Neurodiversity: Pedagogies for Inclusion (2024)*

ChatGTP

## 1) Writing is not natural!

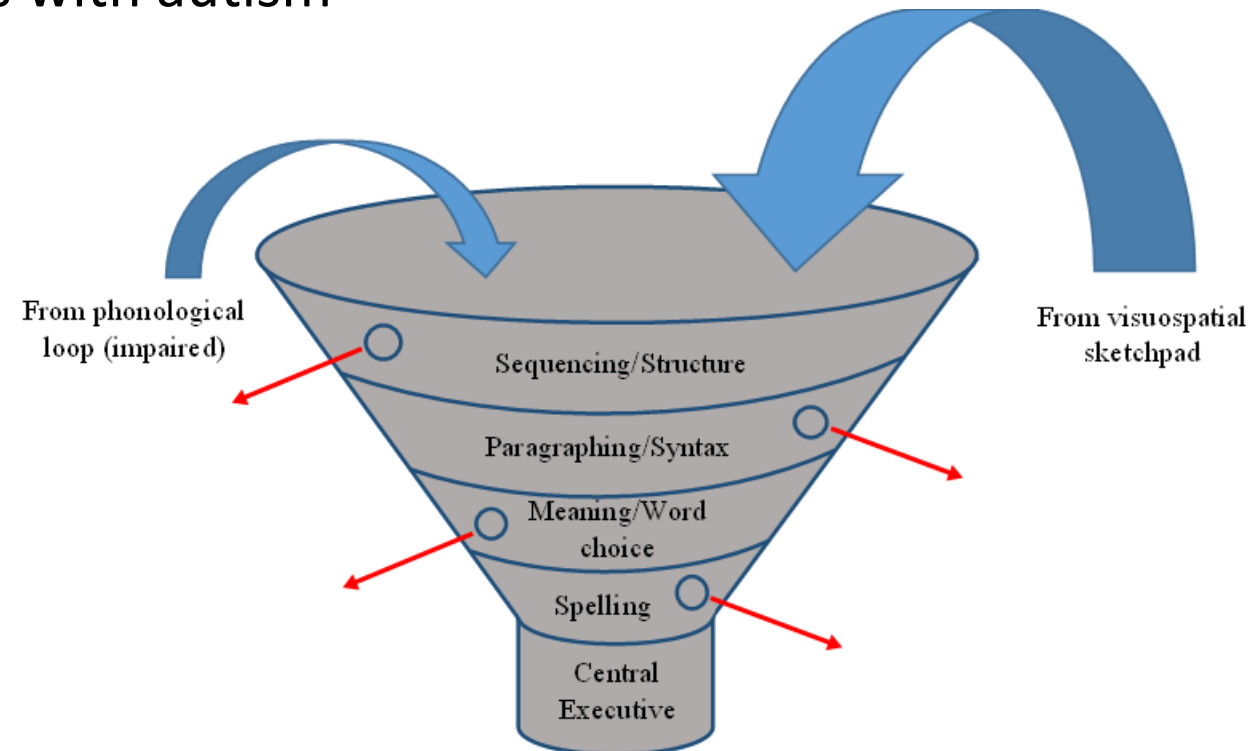
‘Everything about writing is deliberately fabricated...A key feature of conventional writing is its linearity...This linearity is of profound significance, because neither experience nor contemplative thought comes naturally in linear form. Contemplation and experience may have no beginning point and no orderly sequence: they can involve simultaneities unavailable on the written line and much more complex patterns of interconnection...Writing, then, is not the report of thought, but the production of a specific type of thought and a specific account of life. It is important not to lose sight of linearity’s artifice and cultural specificity...Writing is nothing but an invention, a concoction, an illusion...’ (Game and Metcalfe, 1996, p.109).

# What's the problem with writing?

## 2) Writing creates cognitive overload

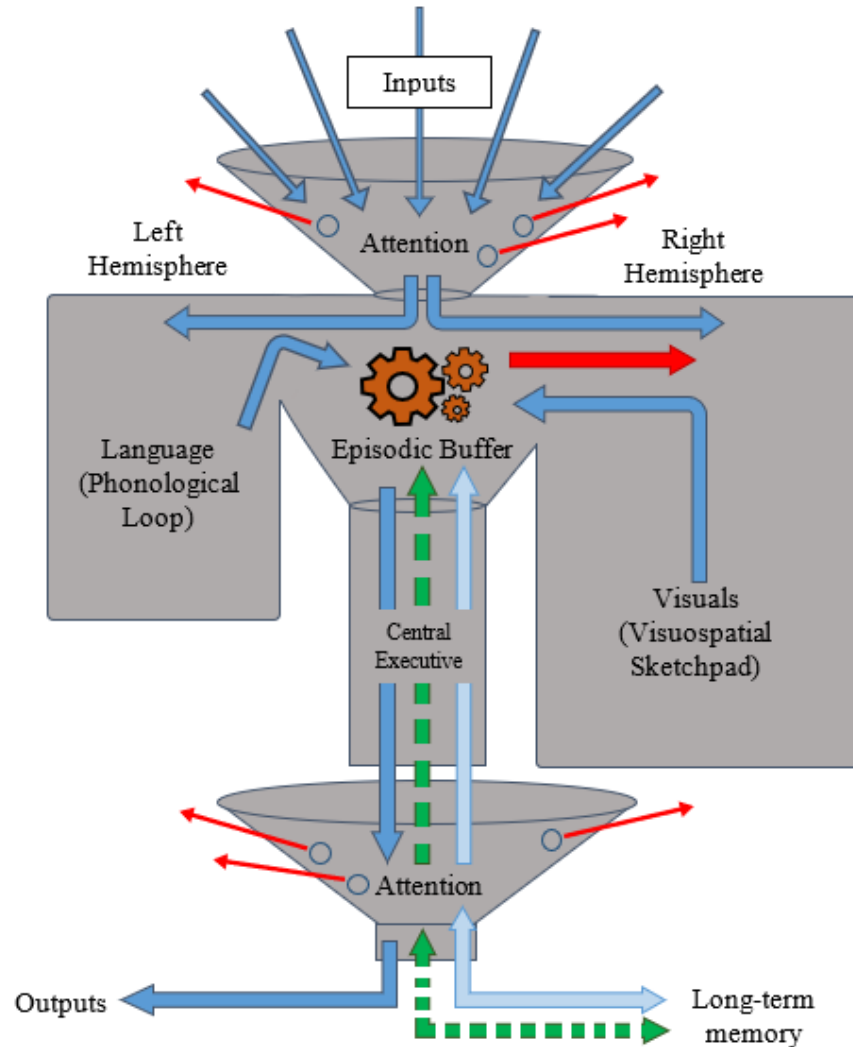
Working memory is the main impairment in dyslexia and ADHD (Taylor, 2021, Nicolson and Fawcett, 1990 & 2008), but also in students with autism

Attention span is also impaired

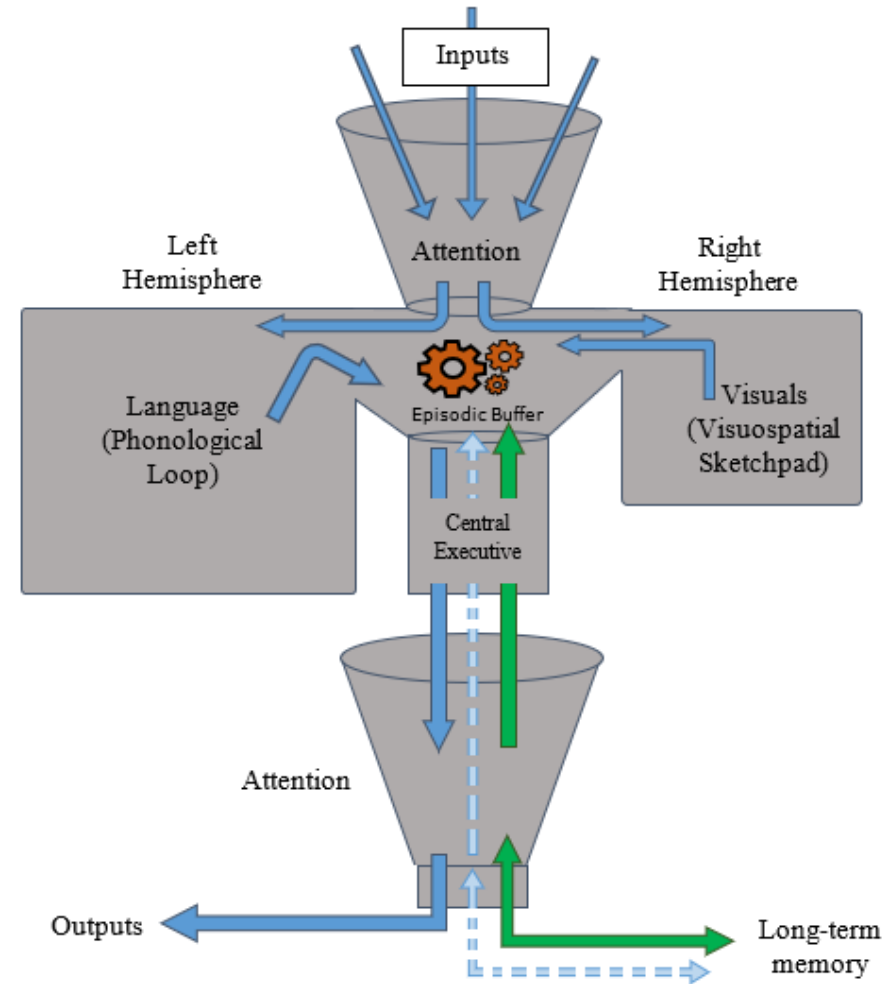


# What's the problem with writing?

Dyslexic working memory



Non-dyslexic working memory



# 'Schizophreneze' and 'word salads':

The work we encounter (either in draft or final submitted form) may appear to be 'schizophreneze' or 'word salads' (Clughen and Connell, 2015)

## Typical issues:

Lack of structure or disjointed structure

Lack of sequencing

Lack of focus

Too much detail / focus

Not answering the question / getting bogged down in detail

Grammar and spelling issues

Missing references / points / words

Time management / procrastination / perfectionism

Better verbal explanations – inability to translate ideas into written form

Fluency / automaticity

Neurological pathways within the dyslexic brain are further apart – there are more opportunities for seemingly unconnected ideas to merge

Drawing on Fuzzy Trace Theory, whilst non-dyslexic individuals remember things literally, people with dyslexia remember better via clues, ‘gist’ and ‘big picture’ context.

Eide and Eide (2011) have suggested that individuals with dyslexia excel at seeing ‘relationships of likeness and togetherness; connections between perspectives and fields of knowledge; and big-picture or global connections that create heightened abilities in detecting gist, context and relevance’ (p.105).

Whilst processing speeds associated with language-based inputs may be slower in people with dyslexia, the ability to make connections (especially via visual inputs) is actually faster – one of the so-called ‘paradoxes’ of dyslexia (Shaywitz, 1996).

If you take language out of the equation, individuals with dyslexia can perform as well as, if not better than people without dyslexia (Everatt and Denston, 2020, p.103).

Albert Einstein made precisely this claim when he suggested that in his ‘mechanism of thought’, ‘signs’ and ‘images’ being ‘voluntarily reproduced or combined’, coupled with ‘combinatory’ or ‘vague play’ in the absence of the urge for ‘logical construction’ was ‘the essential feature in productive thought – before there is any connection with...words or other kinds of signs that can be communicated to others’. In essence, he claimed that ‘words or...language....do not seem to play any role in my mechanism of thought’ (1995, p.25).



# Why? Drivers for inclusion:

Equality Act (2010)

Public Sector Equality Duty

UNESCO (2017) definition of inclusion

'Route to excellence' / 'anticipatory approach' (Layer et al, 2017)

Disabled Student Commitment (OfS)

AdvanceHE Dimensions (K2: Inclusive approaches to facilitate learning)

NSS Assessment and feedback metric (average 69% satisfaction)

UK Higher Education Statistics Agency show that the number of students with a 'known disability' rose from 221,145 in 2012/13 to 331,170 in 2018/19 – an increase of 49.75%.

According to Hubble and Bolton (2020), the most common disability type in 2018-19 was a SpLD (36% of all declared disabilities).

At Royal Holloway, University of London, for instance, the number of students with a SpLD has increased from 389 in 2017/18 to 589 in 2019/20 and 655 in 2021/22. Of the 655 with a declared SpLD, 165 are not in receipt of specialist support, which means they are either accessing more generic support or none at all.

In the UK, the percentage of students in receipt of the DSA varies enormously across institutions with the University of Oxford only having 5.6% of their student body receiving a DSA whereas for Plymouth College of Art that figure is 30.9%. The average across the UK HE sector is 7.86% (HESA, 2019).

# What am I proposing?

- 1) The assignments we read, especially in their developmental/draft stages, are inescapably a microcosm of these students' neurodiversity, a linguistic map, and a barometer of their cognitive difficulties/strengths
- 2) We need to work with strengths rather than adopt a deficit approach / inadvertently project a 'pathologizing gaze' (Clughen and Connell, 2015) or react with 'unguarded statements' (Gordon, 2003)
- 3) Disability / disorder vs. skill set / talents
- 4) Visual pedagogies seem the most promising way forward

# What am I proposing?

5) That the challenges associated with dyslexia and other neurodiverse conditions can be dealt with via 'compensatory strategies' and that when these fail, increasingly complex / sophisticated 'compensatory strategies' need to be put in place so as to enable the continuation of 'self-scaffolding'.

6) That the core principles of good academic writing can be distilled into meaningful visual images, metaphors, templates and icons.

7) That 'seeing' and exploiting 'big picture' interconnectedness is vital, and that a reliance upon assistive technologies can be detrimental to this.

8) That speed is often a more productive way forwards, and that remedial 'slow down' approaches are detrimental.

# How? Pedagogies for inclusion:

## 1) Writing and neurodiversity needs to be seen within the context of search specialisation

Taylor and Vestergaard (2022) – explorative specialisation and local exploitation (evolution vis-à-vis specialisation in complementary search abilities)



Exploitation e.g.  
Autism



‘neurotypical’



Exploration e.g.  
Dyslexia and ADHD

## 2) Harness visual strengths / pedagogies:

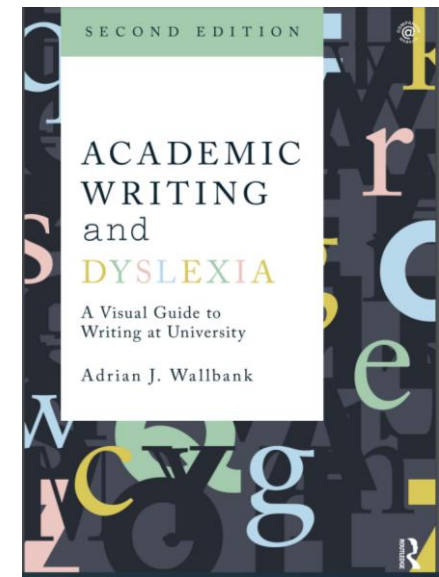
Neurodiverse students have particular strengths in visual learning (Cooper, 2019). It has been suggested (Eide and Eide, 2011, p.128) that in the case of dyslexic individuals for instance, ‘their conceptual knowledge is often stored in...images...rather than abstract principles and definitions’, and that they are potentially better than non-dyslexic individuals at tasks which enable them to see the ‘big picture’ and this ‘identify new connections’ (Wallbank, 2018, Cryer, 2013, p.8 and West, 1997).

As Roberts (2019) has shown, Multimedia Learning, with its emphasis upon the visual, helps mitigate against the processing difficulties neurodiverse learners encounter with ‘text-centricity’. It also caters more appropriately to the ‘pictorial turn’ in contemporary, postmodern society (Roberts, 2019), and as such is arguably more accessible than other modes of delivery. Primarily visual pedagogies adopted owing to the extremely compelling results of Roberts’ (2016, 2018 and 2019) studies into the pedagogical efficacy of meaningful visuals in lectures.

In alignment with Layer (2017), Roberts found that visual pedagogies not only substantially increase learning in dyslexic students (especially in the areas known to be problematic such as memory, understanding and attention) but also produced comparable results in neuro-standard students (2016).

Owing to the dyslexic brain's preference for visual material, the more the information can be received or transmitted visually the better. It has been proven that reading techniques and compensatory strategies that exploit right-brain visual networks not only help improve the activation of that part of the brain but it results in better reading skills. Conversely, traditional techniques that persevere with improving reading and writing skills via left-brained, language-based systems can actually make matters worse (Waldie et al, 2017).

This is where the visual templates, icons, prompts and structures in my approach come in. By aligning the principles of academic writing to *meaningful* visuals, it can help students make sense of writing essays by a) harnessing their visual / 'big picture' strengths, and b) making the passage of information in and out of the working memory easier by harnessing the strengths of the right hemisphere of the brain.



## *Meaningful* visuals:

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Information and comparison between sources

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“This implies....” Author’s view based on the sources

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Weaknesses in the survey, so caution taken

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Relevant viewpoint and conclusion

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Gap in the literature, waiting to be filled!

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“Large numbers” means this is an important issue

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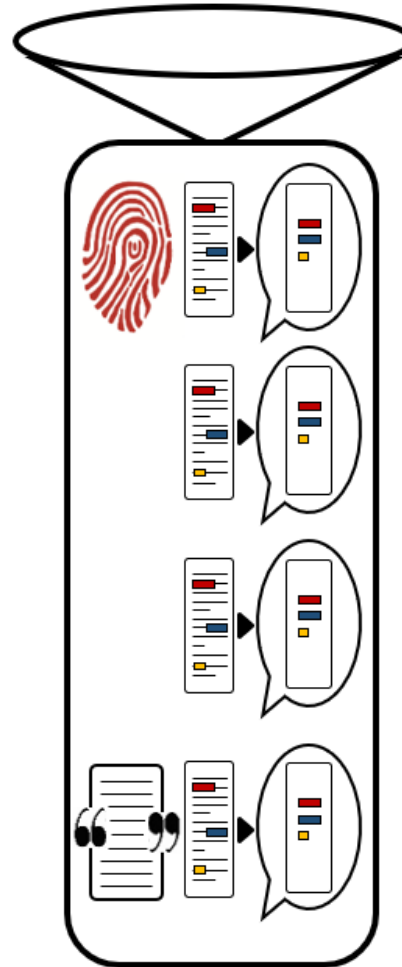
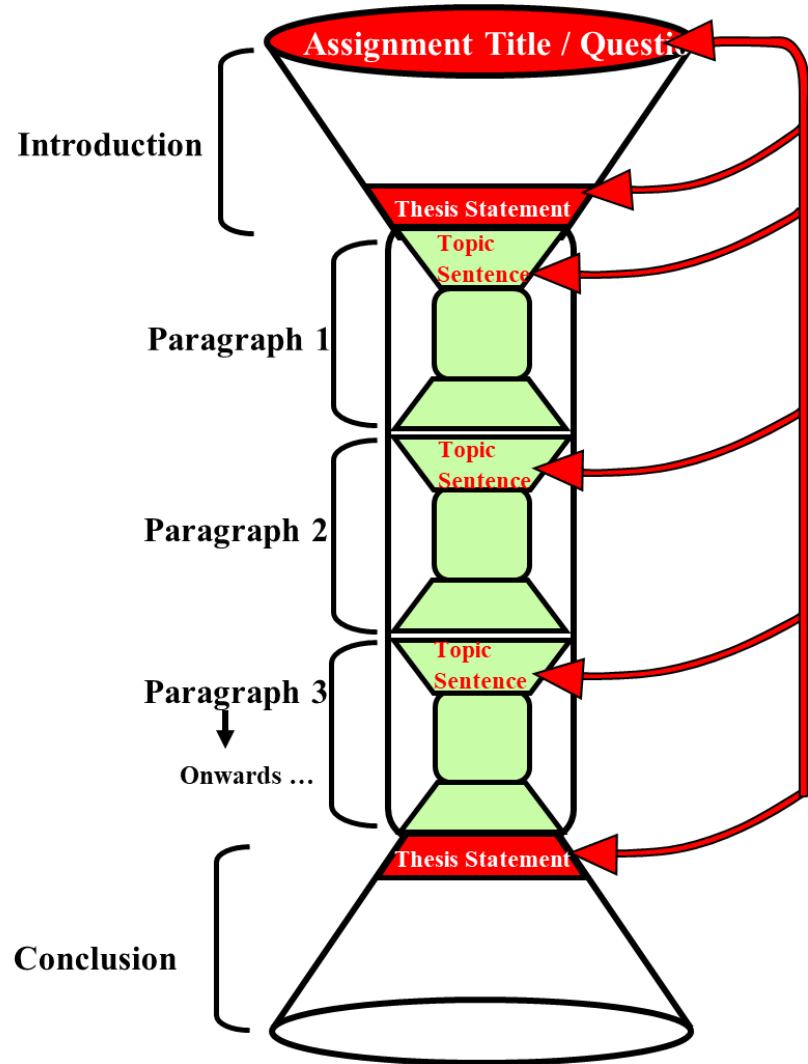
A question whether US-based research is suitable

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Important conclusion for the chapter’s focus



# Meaningful visuals:



Although somewhat contentious, it is possible that arranging workforces into teams may lead to high levels of employee performance. It has been claimed that **when an individual worker is positioned in a team, they can draw on the knowledge and skills of their peers and thus maximise their ability to function effectively** (Fenwick 2006; Landri 2014). **Organising a workforce into teams may also encourage workers to transcend their own self-interest and prioritise the collective good of the organisation** (Guzzo and Ditson, 2012). Moreover, as Polanyi (2010) argues, **if team members are able to participate in joint decision-making, then task motivation may increase**. However, Hockman (1990) suggests that a high level of employee performance is “not inevitable” when a workforce is organised into teams. He claims that there is a tendency to “romanticise” the idea of the team and suggests that there is little empirical evidence to support the widespread belief that team-working is the most effective way of organising a workforce.

The visual pedagogies proposed in the original book were tested over the course of 1 academic year across 2 scenarios using self-reporting confidence questionnaires and feedback, data and EE reports, and compared with generic / open to all provision:

- 1) With 40 undergraduate students registered as having a SpLD in one-to-one academic writing study skills sessions (from a range of disciplines and with varying support packages) compared with 126 students accessing generic academic writing tutors
- 2) With 158 Foundation Year students (49% BAME, 43% WP and 22% disabled / Specific Learning Difficulty) across two core strands (humanities and sciences) in a mix of academic writing workshops, personal tutorials and one-to-one interventions

- 1) Student confidence in academic writing rose by 46.75%. 74% of students found the sessions 'useful' in developing their academic writing. This compares favourably with 66% for the generic provision
- 2) 76% 'agreed' or 'strongly agreed' that the interventions improved their confidence in academic writing – 10% higher than generic provision. Progression was 75% non-disabled, 80% disabled, first-year average grades 2% higher than direct entry, progression 10% higher for FY students than direct entry despite entering with CCD-EEE. 'TEF Gold offering', 'innovative' and 'sector leading' - EE

## **ADHD:**

'Very little is known' vis-à-vis interventions (Weyandt and DuPaul, 2008)

Working memory impairments (Soto et al, 2021)

Need to reduce demands on working memory – self-regulated strategy development (SRSD) effective (Jacobson and Reid, 2010)

Search bias (Taylor, 2022)

Advanced organisers, modelling, guided practice (Allsopp et al, 2005)

## **Autism:**

Research 'remarkably thin', support 'inadequate' (Cox et al, 2021)

Linear learning / linearity (Cox et al, 2021)

'Priming' and predictability (Meeks and Geither, 2014)

Organisation – graphics / outlines / story boards (Meeks and Geither, 2014, Fleury et al, 2014)

Enhanced perceptual functioning when engaged in visual processing, enhanced visual thinking in brain imaging (Fleury et al, 2014, Samson et al, 2012)

Detail-focused processing (Taylor, 2022, Fleury et al, 2014)

## **ChatGPT: ??????**





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