

# FINDING OUT WHAT NEURODIVERSE STUDENTS WOULD FIND HELPFUL

Systematic review of studies involving secondary and tertiary education

By: Paige Wise

**The aim of this project is to inform Higher Education on empirical, psychological studies to foster an environment that supports the neurodiverse student population (with an emphasis on the autistic community) and challenges preconceived social norms conducive to ableist notions.**

## Neurodiversity in higher education: a narrative synthesis

- Researchers: Clouder et al., 2020
- Aim: To explore how neurodiverse students experience higher education and the ways in which higher education institutions respond to these students.
- Method: Systematic review to provide insight of worth to higher education internationally. Research Questions were:
  - What is the experience of neurodiverse students in contemporary Higher Education HE?
  - How does HE respond to neurodiversity?
  - What strategies, processes, and resources are in place to support success?
- Details: 48 studies included in the final synthesis. Most were conducted by scholars from the USA (22) and the UK (14). Dyslexia (18), autism spectrum disorder (ASD; 14), and ADHD (attention deficit hyperactivity disorder) (12) studies were the most common.
  - 2 Asperger's syndrome studies were also used
- Limitations: English-speaking. Mainly white perspective. Mostly qualitative studies. Need more interventional and longitudinal studies.
- Findings:
  - Most experienced frustrations due to negative university experiences, especially if the learning tools were not easily available.
  - Stigma in autism has been associated with cultural difference and perceived need to conform to societal norms.
  - Students with ASD experience ambivalence, stress, and anxiety with challenges in HE environment.
  - Need more coverage of common comorbid disorders (especially for students with ASD and ADHD).
  - Neurodiverse individuals are inclined to isolate themselves even though they often want to make friends (fear of rejection...).
  - Unpredictability is often an added fear.
  - Neurodiverse students who struggle may not seek help on their own.
  - Students with ASD struggle with traditional teaching and assessment methods
  - Students with ASD and ADHD often stressed with how to cope with academic demands
- Evaluation:
  - Strength-based approaches and activities for self-determination and regulation
  - Institution websites (accessibility and visual appeal)
  - Students with ADHD mostly prefer interactive teaching approaches and group work.
  - Students with ASD prefer a personal coach or peer mentorship
  - Participatory transition programs and mentorship may be beneficial

- Fear of stigmatization and labelling is a large factor in HE anxiety.
- Conclusion: The response to neurodiversity between staff is often mixed, with few staff and faculty flexible to change lectures in a more supportive way. Universal design strategies that offer customized support services can help meet individual needs are not enough if there is not an inclusive environment.

Main Themes	Subthemes	Number of Studies supporting each subtheme
The experience of neurodiverse students in contemporary higher education	Emotional reactions and wellbeing	16
	Personal and social life	15
	Academic life	14
	Identify selves	10
Higher education's response to neurodiversity	Disclosure and diagnosis	11
	Reasonable adjustments	7
	Academic attitudes and expectations	12
	Institutional support and pastoral care	24
Teaching, learning, and assessment strategies	Teaching and learning approaches	15
	Technological support	13
	Assessment Approaches	8

## Reference

Clouder, L., Karakus, M., Cinotti, A. et al. Neurodiversity in higher education: a narrative synthesis. High Educ 80, 757–778 (2020). <https://doi.org/10.1007/s10734-020-00513-6>

## Chapter 15: The neurodiverse mathematics student

- Researchers: Trott 2015
- Chapter summary: Increasing diverse population of students entering mathematics courses in higher education. Specifically, Trott focuses on considering the impact for neurodiverse students regarding notes, lectures, assessments, and departmental provision. Main takeaway is implementation of checklists for staff and faculty (with cross references to neurodiverse students' responses to the same questions). These checklists may facilitate a more stable environment, reducing stress resulting from not knowing scheduling or transitioning into higher education (mentioned in Clouder et al., 2020).

### Checklist formed, which can be addressed at both the individual and departmental level

Notes: Do you...	Yes	No
Provide full notes?		
Offer alternative routes/solutions where possible?		
Provide electronically available notes/handouts?		
Provide accessible format (for example, not pdf)?		
Give well-structured and logical notes?		
Have clearly labelled diagrams in correct position?		
Use bullet points where possible?		
Use clear headings throughout?		
Provide definitions of all notation and terms used?		
Lectures: Do you...	Yes	No
Provide a list of pre-requisites?		
Build in frequent recaps?		
Use real and practical scenarios where possible?		
Have video recordings of lectures?		
State the aims and summarize key points?		
Use consistent color where possible?		
Provide a glossary of all notation and terms used?		
Recommend a textbook with a clear layout?		
Assessment: Do you...	Yes	No
Give due weighting to coursework other than tests/examination?		
Not use answer only coursework?		
Consider the 'wordiness' of questions?		
Give clear instructions for coursework, including hand-in?		

Provide feedback as an audio recording when requested?		
Offer a range of assessments to demonstrate ability?		
Try to remove barriers to group work for neurodiverse students?		
Departmental Provision: Do you...	Yes	No
Prioritize reading lists?		
Have a departmental guide to your section of the library?		
Have departmental exemplars to guide essay-style work?		
Have a departmental calculator policy with advice for dyslexic learners?		
Have a departmental policy to ensure notation consistency?		
Provide departmental initiatives to aid the transition to higher education?		
Have a designated departmental disability coordinator?		

### Reference

Trott, C., 2015. The neurodiverse mathematics student. IN: Grove, M. ... et al, (eds). Transitions in Undergraduate Mathematics Education. Birmingham: University of Birmingham, pp. 209 - 226.

## **Autistic Acceptance, the College Campus, and Technology: Growth of Neurodiversity in Society and Academia**

- Researchers: Robertson and Ne'eman 2008
- Aim: To provide an in-depth examination of autistic acceptance challenges and potential solutions from the perspective of two academic scholars who are autistic.
- Suggestions:
  - Providing tools to assist planning and organization that may enhance executive functioning (day-planners, calendars, tasks lists, organizers, checklists, outlines, concept mappings, charts, sticky notes...)
  - Using computers and technology (personal digital assistants, electronic organizers, calculators, design-oriented software applications like OmniGraffle and Adobe InDesign...)
    - Online communication (messaging, threaded forums, email lists, 3D virtual worlds...)
    - [Wrongplanet.net](http://Wrongplanet.net) includes discussion forums and posts about college selection, coursework, campus living, etc.
    - AutUniversity is an email list that provides an outlet for autistic people to discuss challenges, aspirations, and successes of life in college.
    - Facebook has many neurodiversity-oriented groups (Neurodiversity Advocacy, the Autism Acceptance Project, the Autistic Self-Advocacy Network, Aspie Underground)
    - Second Life (<http://www.seconddlife.com>) is a popular 3D virtual world that has hosted many autistic communities
  - Sensory processing adjustments (dimming or removing fluorescent lights, room alterations that reduce background noise)
  - Transparency from course instructors, advisers, and mentors about personal experiences with managing stress and the advantages of seeing a counselor
  - Host gatherings and events supporting neurological diversity
    - Neurodiversity-focused events could include film festivals, art galleries, poster sessions, essay writing contests, symposia, and readings of poetry and stories written by the neurodiverse community
    - Such events could collaborate with organizations that have contributed to events in the past, such as the Autism Acceptance Project, Autism Network International, and the Autistic Self-Advocacy Network.
  - Additional trainings for the residence assistants (RAs), as well as student-run community service organizations

## Reference

Robertson, S. M., & Ne'eman, A. D. (2008). Autistic Acceptance, the College Campus, and Technology: Growth of Neurodiversity in Society and Academia. *Disability Studies Quarterly*, 28(4), Article 4. <https://doi.org/10.18061/dsq.v28i4.146>