DIVERSITY OF EXPERIENCES: CASE STUDIES OF NEURODIVERSE STUDENTS IN A FIRST YEAR PHYSICS SEQUENCE

Thanura Ediria, Anna McLean Phillipsa

Presenting Author: Thanura Ediri, (thanura.ediri@monash.edu)

aSchool of Physics and Astronomy, Monash University, Clayton, Victoria, 3800, Australia.

KEYWORDS: neurodiversity, self-efficacy, universal design

SUBTHEME: Equity, diversity and inclusion

BACKGROUND

Despite increasing numbers of university students identifying as neurodiverse (Hiller, et al., 2018), there has been little work done on how to support them in university science classrooms. Existing work is in early stages of building theoretical frameworks (McDermott et al., 2023) and identifying themes in the experiences of students with ADHD (James et al., 2020). We build on this work to support further development in understanding how to develop tools for supporting neurodiverse students in classrooms.

CURRENT WORK

We present three case studies of neurodiverse students in an introductory physics sequence. We highlight the *diversity* in neurodiverse students' experiences by showing how these three students navigated their physics classes, focusing on their relationships to peers, their self-efficacy, and access to support services. For one neurodiverse woman, the physics classroom is a supportive, comfortable environment where she finds community with other women. Another neurodiverse woman feels uncomfortable accessing the supports available to her and attempts to hide her autism from her peers. A neurodiverse man describes challenges in knowing if he is the only one struggling with understanding the content of the class. We look across these three case studies to describe the range of needs of neurodiverse students and conclude with a discussion of the need for universal design as well as supports for first year students.

REFERENCES

Hillier, A., Goldstein, J., Murphy, D., Trietsch, R., Keeves, J., Mendes, E., & Queenan, A. (2018). Supporting university students with autism spectrum disorder. *Autism*, *22*(1), 20-28.

James, W., Bustamante, C., Lamons, K., Scanlon, E., & Chini, J. J. (2020). Disabling barriers experienced by students with disabilities in postsecondary introductory physics. *Physical Review Physics Education Research*, 16(2), 020111.

McDermott, L. G., Mosley, N. A., & Cochran, G. L. (2024). Diverging nonlocal fields: Operationalizing critical disability physics identity with neurodivergent physicists outside academia. *Physical Review Physics Education Research*, 20(1), 010111.

Proceedings of the Australian Conference on Science and Mathematics Education, The University of Canberra, 18 – 20 September 2024, page 30, ISSN 2653-0481.