Student Paper

Rethinking Engagement with Learning for Neurodiverse Students

Julie Bailey & Sara T. Baker

Abstract

As we reform university teaching post-pandemic, we urgently need to know how best to meet the needs of all our students. By better understanding their experience, we can remove the barriers to inclusion for autistic and neurodiverse students. Building on existing conceptualisations of learning engagement, this study adapts *engagement* for neurodiverse students by reviewing conceptualisation and operationalisation of this metaconstruct for appropriateness and capacity to reflect the characteristics, complexity, and context of students' learning experiences. The adapted engagement framework supports the design of more appropriate instruments to measure the engagement of students with their learning activities. This in turn supports research that reflects the importance of context and has the potential to inform inclusive teaching practice.

Keywords: *First; Second; Third; Fourth; Fifth*

Introduction

The expansion of remote forms of learning as a result of the COVID-19 pandemic is likely to have a permanent impact on forms of teaching, particularly for undergraduate students. Students with autism, ADHD, and other neurodevelopmental conditions often experience poorer academic and wellbeing outcomes (Bolourian et al., 2018; McLeod et al., 2021). Whilst a broader and more flexible range of teaching methods has the potential to improve the learning experience for neurodiverse students, effective inclusion requires a deeper understanding of how students experience different modes of learning.

Neurodiversity

Neurodiversity frameworks are increasingly replacing the language of 'disorder' and 'deficit', reflecting an underlying change in the conceptualisation of conditions such as autism, ADHD, and dyslexia as differences within broader human variations (Singer, 2017). Taking a neurodiversity approach therefore means that students' learning experiences must be explored in a non-judgmental manner that allows for differences between, and within, groups of students to emerge. It is also important to address assumptions of neurotypicality through transparent methods of data collection that actively include the students themselves in the design of measures.

Autism

Autistic individuals themselves identify that understanding their experience is a priority for research (Pellicano et al., 2014). Characteristics of autism are increasingly understood to be dimensional, complex, and heterogeneous (Fletcher-Watson & Happé, 2019). There are several emerging strands of autism research that are highly relevant to educational experience. These include Laura Hull's (2017) concept of *camouflage* (the effortful adapting of behaviours in social situations) and what Damian Milton (2012) terms the *double-empathy problem* (difficulties for both autistic and non-autistic individuals in understanding each other's experience).

Formal diagnosis of autism is dependent on the presence of difficulties in three key areas: social communication and interaction, restricted or repetitive behaviour, and sensory sensitivity (American Psychiatric Association, 2013). Autism studies in cognitive and developmental psychology and neuroscience also identify differences associated with autism in a wide range of domains, including sensory processing, metacognition, reasoning, and anxiety (Fletcher-Watson & Happé, 2019).

Inclusion and Context

Given the wide scope of characteristics associated with autism, differences can manifest as difficulties in education relating to social, emotional and cognitive domains (Bailey & Baker, 2020). Importantly for understanding educational experience, neurodiversity frameworks locate difficulties in the interaction between the individual and the environment, rather than in the individual themselves. Context is highly relevant to inclusion for neurodiverse students insofar as the environment does or does not meet the needs of the individual.

Engagement

Engagement in learning implies that students actively participate in activities that have a meaningful impact on their knowledge, understanding, or skills. Disengagement implies that they either do not participate or that their participation does not lead to meaningful learning gains. 'Engagement' is a flexible and broad term that suggests more than superficial participation and has the benefit of being meaningful to students and practitioners (Christenson et al., 2012). Engagement merits attention from educators especially when modes of instruction are more varied and tapping into a range of different skills and preferences on the students' part.

Engagement is usually conceptualised as a multidimensional *metaconstruct* with 2-4 components (behavioural, social, cognitive, and emotional), each with multiple subconstructs reflecting specific aspects of engagement (Wang et al., 2019). Operationalisation of engagement varies, but most commonly self-report surveys are used. These are often lengthy and time-consuming to complete with 30 to 150 items. Intended to be used once, often at the start of a course, these measures use standard statements with agreement scales (e.g., Appleton et al., 2006).

Despite the limitations of existing measures of engagement, it is broad, flexible, and dimensional. Engagement is a concept that is familiar and supports communication of research findings to educational practice. However, there are tensions between neurodiversity approaches and existing engagement frameworks that consider engagement as a trait of the individual rather than contextualized in the relationship between the individual and the learning activity. So, to what extent does conceptualisation and operationalisation of engagement need to be adapted for neurodiverse students?

Adapting Engagement for Neurodiverse Students

Our work aims to adapt 'engagement' for neurodiverse students by reviewing conceptualisation and operationalisation of this metaconstruct for appropriateness and capacity to reflect the characteristics, complexity, and context of students' learning experiences. Skinner et al.'s (2008) conceptualisation of engagement as behavioural and emotional dimensions of engagement or disaffection has influenced much of the recent research. This framework has been further developed with the addition of cognitive (Skinner & Pitzer, 2012) and social dimensions (Wang et al., 2019). Engagement is most often measured with lengthy self-report questionnaires using statements and agreement scales (e.g., Student Engagement Questionnaire, SEQ; Coates, 2011). However, this is the first attempt, to our knowledge, to explore engagement from a neurodiversity perspective. Table 1 shows that some key features of engagement work well for neurodiverse students, whilst others need to be adapted.

<<<Table 1 about here>>>

Maintaining the appropriate elements of engagement and adapting where required, the neurodiversity engagement framework is:

- Engagement *conceptualised* as an individual's social, emotional, cognitive, and behavioural experience in a specific learning context.

- Engagement *measured* by the subconstructs that the student selects to describe their experience in a specific learning context.

The adapted engagement framework fits well in the existing literature as educational engagement has been frequently reconceptualised to reflect evolving education research priorities(Christenson et al., 2012). The next step is to work with neurodiverse students themselves to develop a measure that is clear, meaningful, and relevant to their educational experience.

For further information on the project, visit the website at https://learningengagement.org/

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The Authors

Julie Bailey

Faculty of Education, University of Cambridge, 184 Hills Road, Cambridge, CB2 8PQ, UK.

Sara T. Baker

Faculty of Education, University of Cambridge, 184 Hills Road, Cambridge, CB2 8PQ, UK.

Correspondence

Julie Bailey

Faculty of Education, University of Cambridge, 184 Hills Road, Cambridge, CB2 8PQ, UK.

Email: jb658@cam.ac.uk

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Table 1

Summary of Appropriateness of Features of Existing Engagement Frameworks for Neurodiversity

	Existing frameworks	Appropriate for neurodiverse students?
Conceptualisation	Adaptable metaconstruct	Yes, metaconstruct allows for complexity.
	Trait/quality of the individual	No, engagement better seen as arising from the interaction between the individual and the learning environment.
Component Structure	3/4 components - behavioural, cognitive, emotional (and social)	Yes, a four component structure reflects complexity and dimensionality.
	Positive/negative aspects, as disengagement and engagement	No, avoid negative judgement of experience such a ‘passivity’ and ‘restlessness’ with single list of constructs that reflect a range of experiences, all of which are valid.
Subconstructs	Clear, unambiguous language	Yes, allows for transparency and low inference.

	Some reflect neurotypical assumptions, judgement, or inference	No, constructs locating difficulties with engagement within the individual rather than the context (e.g., ‘half-hearted’ or ‘unwilling’) removed and constructs emerging from research and communities as salient (e.g., overwhelm, misunderstood) added, with neurodiverse students leading the selection of subconstructs.
Operationalisation	Measured once for student, usually at the beginning e.g., SCEQ[1], SEQ[2], SEI[3]	No, compare engagement between different learning contexts.
	Statements with agree/disagree scale	No, reduce assumptions of neurotypicality by replacing with a ‘menu’ of simple words from which students only select the terms that are meaningful for them in the specific context, with the further option to self-describe their experience. For example, a student may describe their engagement with pre-recorded lectures as ‘frustrating’ and ‘superficial’ whilst in-person seminars are ‘purposeful’ but ‘overwhelming’.

[1]Student Course Engagement Questionnaire (Handelsman et al., 2005); [2]Student Engagement Questionnaire (Coates, 2011); [3]Student Engagement Instrument (Appleton et al., 2006)