



U Inclusion, intersectional identities and biosocial learning: Or understanding that it's complicated and still knowing what to do



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Purpose of the paper

- What does it mean for our thinking and action around inclusion when we understand identities as intersectional and learning as biosocial?
- Intersectional identities and recognising learners
- Social and biological entanglements of learning
- Practice informed by understanding learners and learners and complex biosocial assemblages



Recognising learners

‘subjectivation’ denoted both the becoming of the subject and the process of subjection – one inhabits the figure of autonomy only by becoming subjected to a power, a subjection which implies a radical dependency.’ (Butler, *The Psychic Life of Power*, 1997: 83)

‘discursive performativity appears to produce that which it names, to enact its own referent, to name and to do, to name and to make’. (Butler, *Bodies that Matter*, 1993: 107)

Intersectionality

‘We regard the concept of ‘intersectionality’ as signifying the complex, irreducible, varied, and variable effects which ensue when **multiple axis of differentiation** – economic, political, cultural, psychic, subjective and experiential – intersect in historically specific contexts’ (Brah & Phoenix 2004:76 my emphasis)

Plains High, Sydney, Australia, English Less (students aged 14-15)


Ten minutes into the lesson. Miss Ellis is reading aloud from the textbook, *Rock and Rap*, about styles of popular music. The section is discussing Jimmy Hendrix. There is low-level activity and discussion while the teacher is reading. As Miss Ellis continues to read the room goes quiet. Paul is sitting upright in his chair with his hands on his head. As he sits he makes popping noises. The two boys sharing the six-seater table with Paul do not appear to pay attention to him. Miss Ellis says "Paul, I really do object!". Paul replies "Sorry Miss" and removes his hands from his head. As Miss Ellis continues to read Paul becomes restless, fidgeting in his seat, tapping his fingers on his desk. Several boys at an over-crowded six-seater table of boys are tapping and drumming in time together while the teacher reads. Miss Ellis does not acknowledge the drumming and tapping coming from this table of boys. Occasionally she looks over at Paul. Paul stands up from his seat and leans against the window that is directly behind his chair. Miss Ellis stops reading and asks Paul to move to another seat. Paul objects and the teacher asserts that there will be "no argument" and instructs him to stand outside the door. Paul leaves the room as instructed but instead of standing outside the door he appears to walk off across the quadrangle outside. A student calls out laughing "where's he going?" and another replies "to spend the period with Miss" as others call "Miss he's going!" and "you're losing him Miss!". Miss Ellis does not acknowledge these comments and continues to read. A few minutes later Paul returns to the door of the classroom, he stands at the window of the closed door, looking in and grinning and making faces at students in the classroom'. (DY Fieldnotes)

(Youdell, 2006, *Impossible Bodies, Impossible Selves* p126)

Recognition, relationality & learning

It is in the sustained acknowledgement of the unknowability of ourselves and each other that the basis for an ethics of relationality emerges. [...] Subjectivation in schooling, then, takes place within relationships and it is within these relationships that potential is found for new sites of recognition. The pedagogic relationship itself can offer a student a way back from the margins of school life rather than simply being a conduit for curriculum knowledge or, even, a place where teachers reinscribe identities for students. (Teague 2015, p. 149).

Teague, L. 2015. Pedagogy, Subjectivity and Counter Politics in the Primary School: an ethnography of a teacher's practices. UCL Institute of Education.

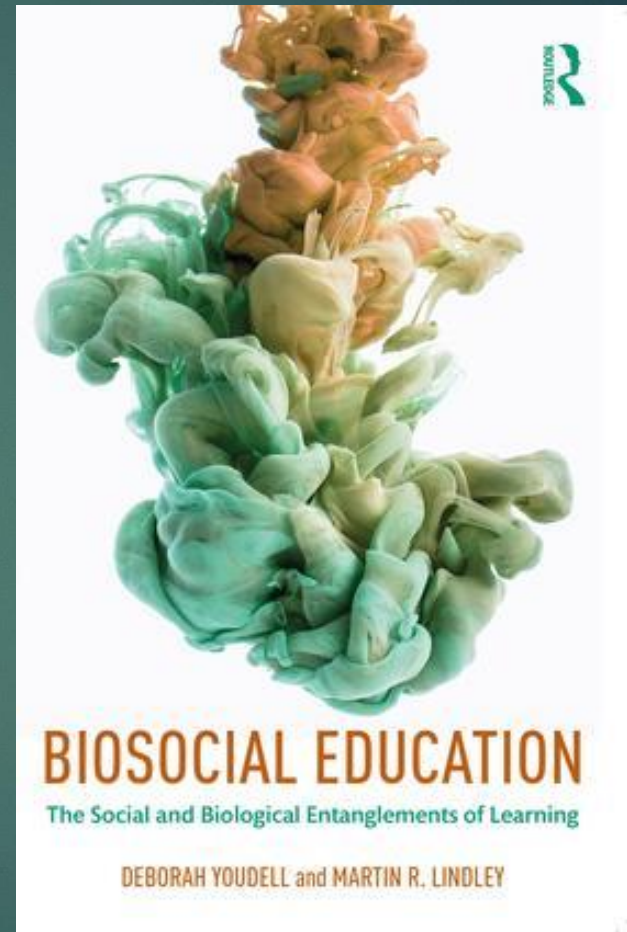


What else could the teacher (and school) have done? What other learner subjectivities might have been made available to Paul and the other students?

Biosocial Education

Synthesizing leading edge evidence from sociology of education and the biosciences to generate new understandings of learners, learning and our capacities to learn

[Youdell and Lindley \(2019\) Biosocial Education](#)

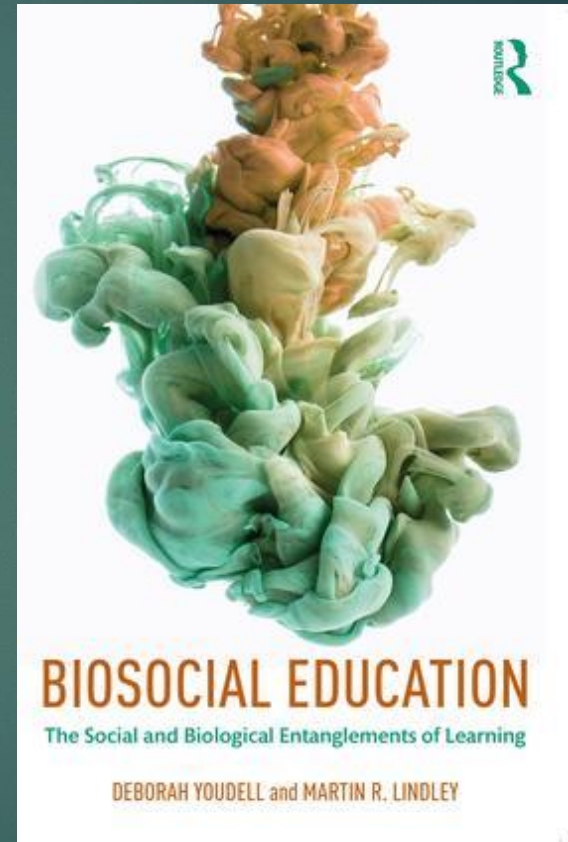


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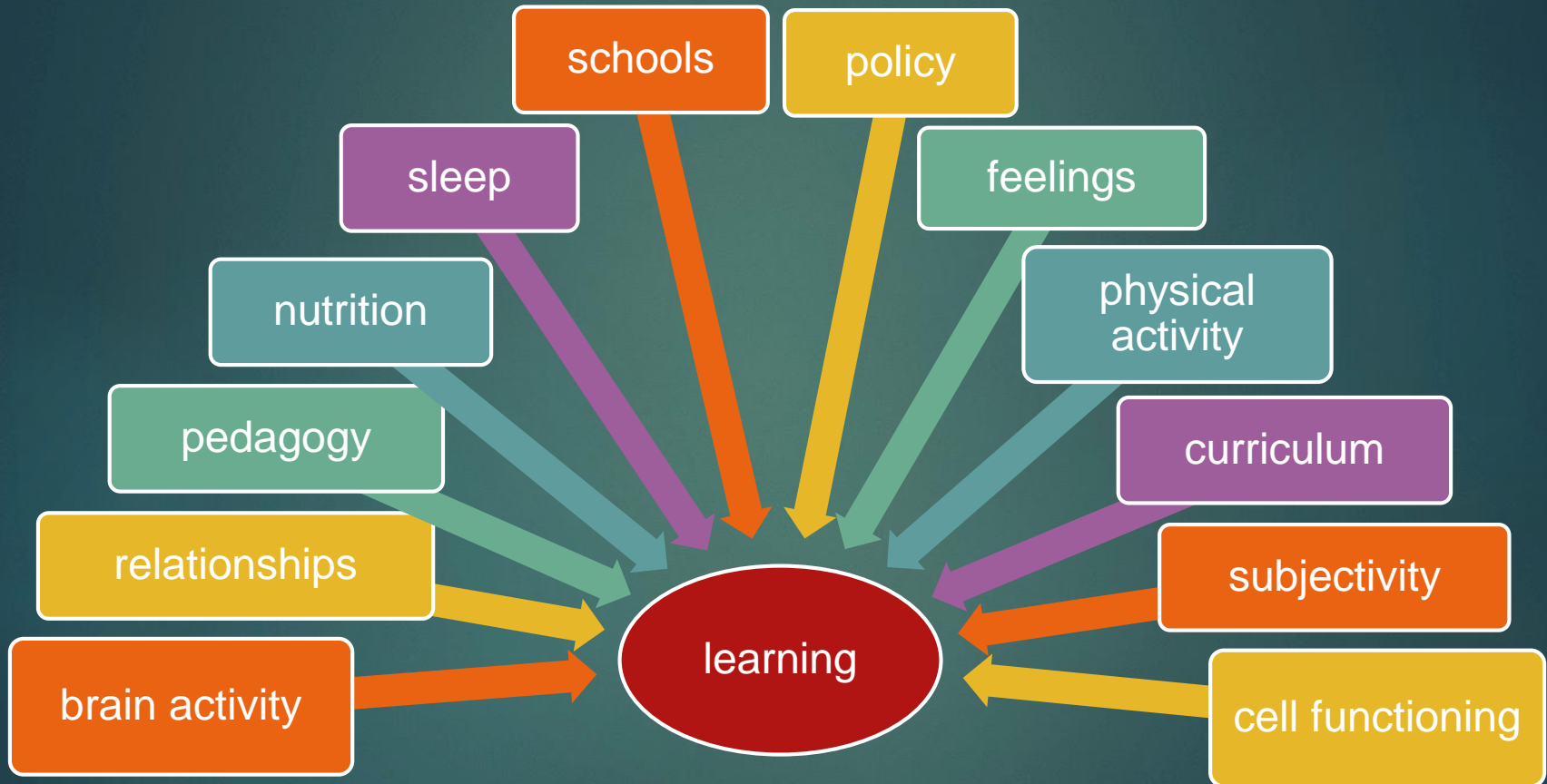
Social and biological entanglements of learning

Money, institutions, policy, pedagogy, assessment, food, everyday practices, feelings, relationships, subjectivities, sleep, cells, membranes, genes, brain activity, microbiota, hormones, neural networks, neurotransmitters, molecular functions, metabolic processes

Productive forces in assemblages (Deleuze), intra-action (Barad), biocultural creatures (Frost)



Learning as a complex biosocial phenomenon



Food practices, nutrition and capacities to learn: polyunsaturated fatty acids

Omega-6 (vegetable oil):Omega-3 (fish oil) ratio has risen from 1-2:1 to 15-25:1

Omega-6 and Omega-3 compete for uptake

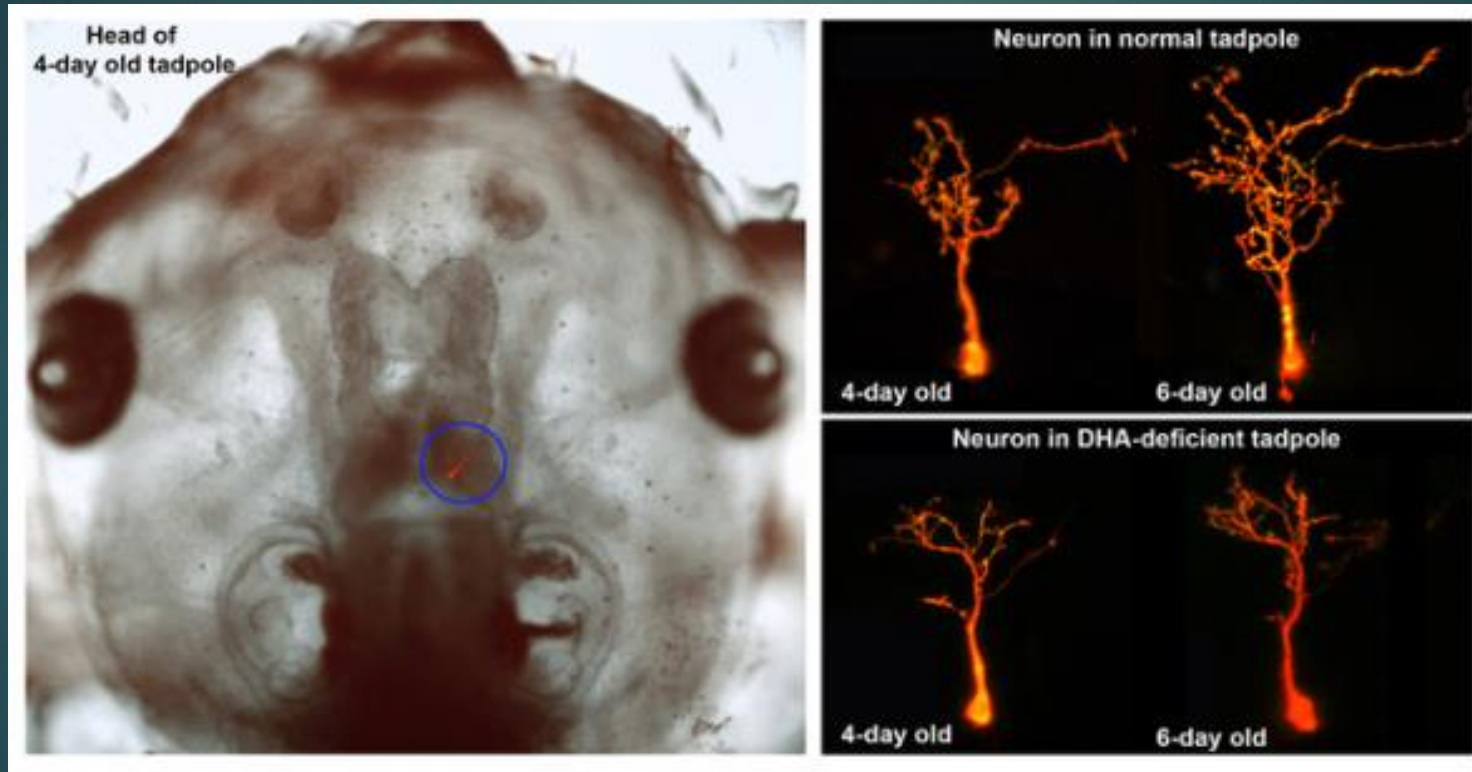
Omega-3 fatty acids Docosahexaenoic acid (DHA) and Eicosapentaenoic acid (EPA) are incorporated into cell membranes, therefore all tissues in the body

DHA is a major component of neurons and speeds up neuronal membrane 'fluidity'

EPA is involved in neural connectivity and reduced stress reactions

DHA & neuronal functioning

Supplementation studies in children are promising but equivocal (Kirby *et al* 2012)



The Cohen-Cory lab at Irvine, CA, shows the impact of maternal Omega-3 deficiency on size, shape and connectivity of neurons of their tadpoles, and reversibility with revised diet (Igarashi *et al* 2015).

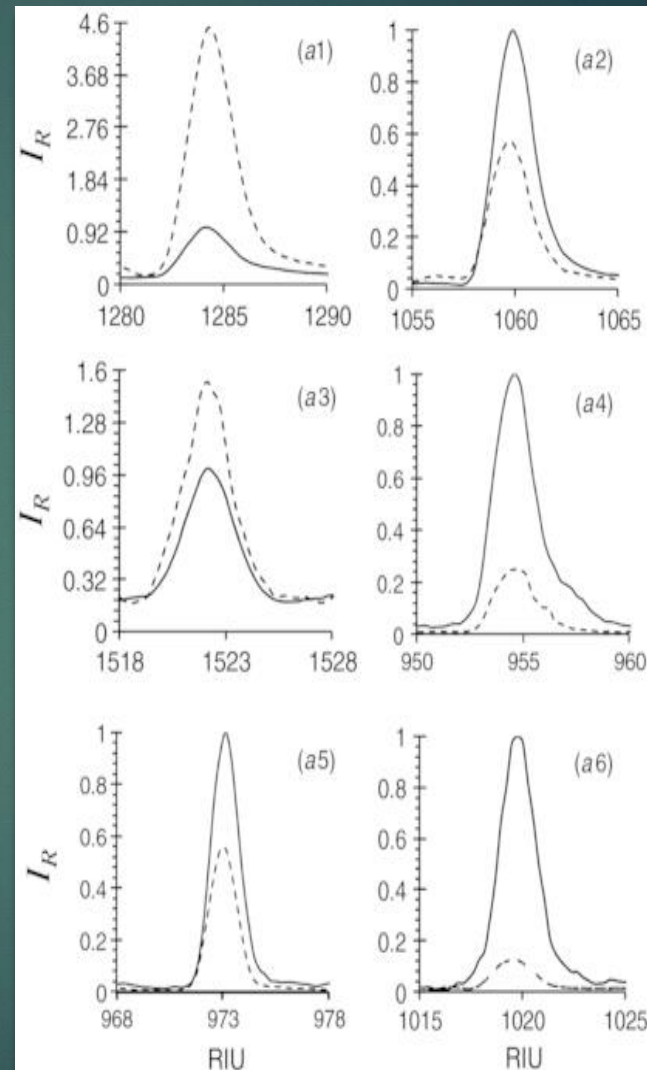
How we feel and the air we breath out

- Volatile organic compounds (VOCs) are produced throughout the body during metabolic processes and pass into the alveolar air to be exhaled from the lungs. Metabolic processes are impacted by multiple environmental factors so the types and concentrations of VOCs vary within and across people, experiences and situations (Heaney 2016).
- VOC analysis shows individual stress (Turner 2013) as well as 'emotional signaling molecules' in groups of people (Williams *et al* 2016) – what we might think of as social flows of feelings.
- This offers a new way into feelings and affective flows of learning and of classrooms.

Assessment stress:

Volatile Organic Compounds in Exhaled Breath during PASAT Test

Overlaid extracted ion chromatograms (XIC) responses for stressed experimental session (dashed line) and neutral experimental session (solid line) for stress sensitive breath components: indole (a1), 2-hydroxy-1-phenylethanone (a2), 2-methylpentadecane (a3), unknown terpene (a4), benzaldehyde (a5) and 2-ethylhexan-1-ol (a6) from a single male participant. The intensities (I_R) displayed have been normalized with respect to the neutral experimental session to indicate those components that have been up-regulated and down-regulated as a result of undertaking the PASAT. Source: Turner *et al* 2013.

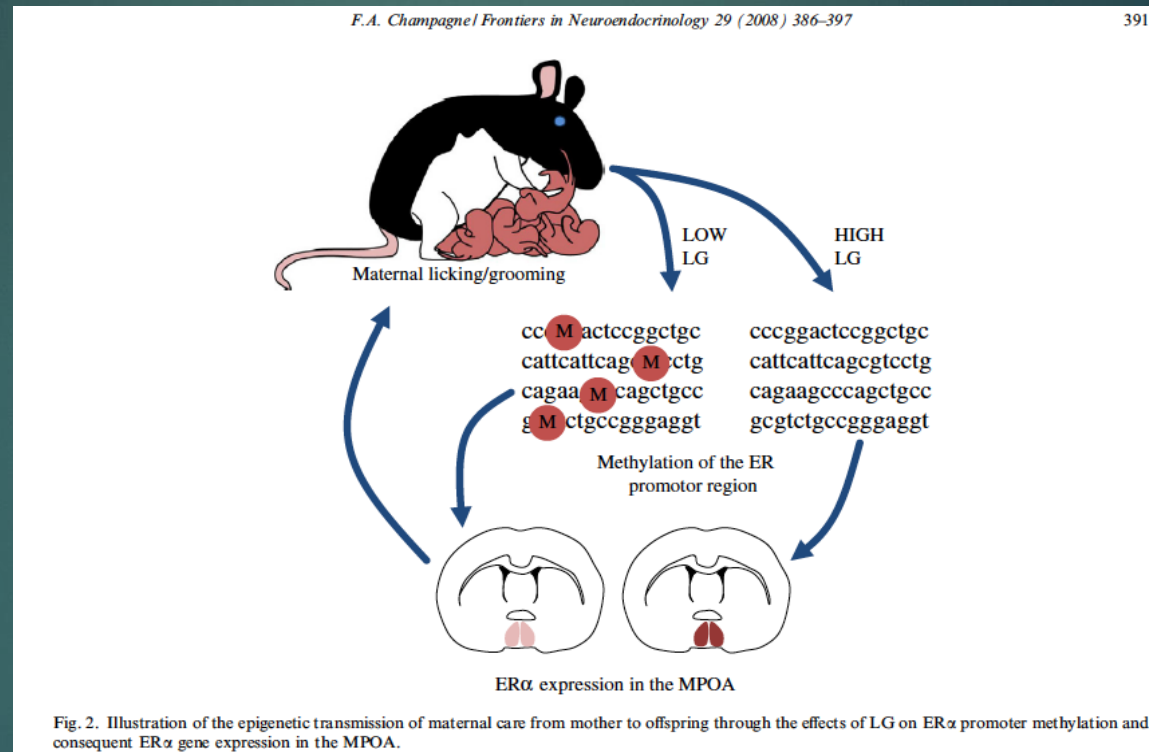


Epigenetics

'The term epigenetics, literally "above genetics," has been coined to describe mechanisms that alter gene expression without altering the underlying DNA sequence. [It concerns] ways in which DNA is regulated and how precise control over gene expression exponentially extends the computational power of the genome'.

Molfese, D. 2011. "Advancing neuroscience through epigenetics: molecular mechanisms of learning and memory." *Developmental neuropsychology* 36 (7):810-828


Epigenetic effects in offspring of low lick-groom rats



Champagne, Frances A. 2008. "Epigenetic mechanisms and the trans-generational effects of maternal care." *Neuroendocrinol.* 29 (3):386-97.

Biosocial thinking

- The centrality of porosity and plasticity (of bodies, subjects and knowledges)
- Trans-domain 'degrounding' (Judith Butler 1993) and transformation (Youdell 2017) or 'metamorphosis' (Catherine Malabou 2013) of concepts
- '[B]ring to light a systemic traffic in disquiet that cannot be fully grasped by either neuroscientific or critical texts, but can be glimpsed at these moments of disjuncture where neurological data and critical inquiry meet and cut across (cleave) each other' (Elizabeth Wilson, *Gut Feminism*, 2015:176)



Accounting differently for
difference – what might
we do Miss Ellis' this
classroom now?

Optimization

'The differential susceptibility model predicts that carriers of these risk genotypes profit most from interventions changing the environment for the better.'

Bakermans-Kranenburg, Marian J., and Marinus H. van IJzendoorn. 2015. "The Hidden Efficacy of Interventions: Gene x Environment Experiments from a Differential Susceptibility Perspective." *Annual Review of Psychology*, Vol 66 66:381-409. p381

Race, class, gender and differential assessments of the 'inadequate' and the 'optimal'

Gillies, V. 2008. "Childrearing, Class and the New Politics of Parenting." *Compass* 2 (3):1079-95.

Biosocial learning

The ambition to augment, extend and transform sociological, pedagogical and other educational understandings of learning with biological knowledges

Social processes and biological mechanisms are enfolded together in the dynamic production of learning. Bodies' molecular activities are folded into everyday life in school (e.g. in institutional and pedagogic practices, relationships, modes of identification and recognition)

Biosocial analyses can offer new insights into how we might change schooling, curriculum, pedagogy, relationships in order to accommodate and respond to the social and biological influences on children's bodies, selves, and capacities for learning

We are biosocial