A Guide to Embedding Movement into Higher Education

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'We do not *have* bodies; we *are* bodies. (…) I am smart precisely because I am a body. I don't own it or inhabit it; from it, I arise'. (Claxton 2016, pp.2-3)

The importance of movement and physical exercise was brought into sharp relief during the COVID-19 pandemic with leading medical establishments such as the World Health Organisation (WHO) (2022) recommending physical activity because of its positive impact on physical and mental health. Concerned about the sedentariness of online teaching, in the academic year 2021-2022, I embedded mindful movement into my level one Spanish classes. This became the focus of my research for my NTU TILT mini-sabbatical which sought to explore how students would respond to doing mindful and other forms of movement in class. Dr Amanda Edmondson and Borna Loncar (Masters student and research assistant) from the Department of Psychology at NTU were also part of the research team for this project.

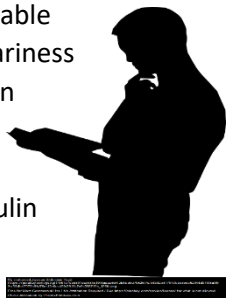
In this guide, I will present some reasons for embedding movement into Higher Education (HE) and suggest some ways of doing it. My research has taken me across the disciplines and creative practices and I have written previously on the ways in which writers and other creative artists situate the body, especially the body in movement, as pivotal to their thinking and creative processes (see Clughen 2017; 2014). Here, however, I will mainly refer to findings and ideas from neuroscience and neuroeducation which, I believe, have given a renewed vitality to calls for kinaesthetic, embodied pedagogies in Higher Education.

PART ONE

Why Embed Movement into Higher Education?

'Sedentarism (…) hinders learning.' (Doherty and Forés Miravalles 2019, p.2)

Calls to Reduce Sedentariness in Education



Academia can be a highly sedentary endeavour and students are considered a vulnerable group in terms of sedentariness (Castro et al. 2020). Given the links between sedentariness and poor health outcomes (WHO 2020, p.31 *et passim*), including negative impacts on brain health (Doherty and Forés Miravalles 2019, p.1), there have been many calls to educators from bodies such as the World Health Organisation (2020), Advance HE (Houghton and Anderson, 2017), within the academic literature (Hrach 2021; Moulin et al. 2021; Doherty and Forés Miravalles 2019; Clughen 2017; 2014) and beyond (Baybrook 2022) to reduce sedentary behaviours and bring movement into education.

Movement Enhances Wellbeing for Learning

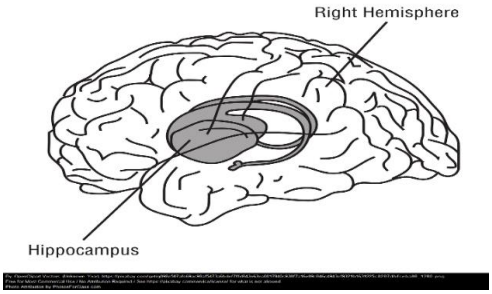
'Mainstreaming mental wellbeing is important because we know that wellbeing is necessary to our capacity to learn.' (Houghton and Anderson 2017, p.10)

Of particular concern to educators is that researchers have established links between poor mental health and poor learning outcomes (WHO 2021; WHO 2020; Houghton and Anderson 2017; Immordino-Yang et al. 2012).

There is considerable evidence to suggest that movement has a positive impact on mental health and on the types of challenges to wellbeing encountered during learning. These include stress, depression and anxiety (WHO 2021, p.2; Peiris et al. 2021; WHO 2020, p.34 *et passim*; van Dam 2020). Such are the benefits of movement for issues involved in wellbeing that the WHO can state unequivocally that 'Physical activity improves overall well-being' (WHO 2021, p.2).

Movement Enhances Mental and Cognitive Functions for Learning

'Embodied cognition science suggests that we learn best when we're moving.'
(Hrach 2021, p.122)



'Neuroscience research over the past 10 years has produced significant evidence that movement and cognition are favorably linked.' (Doherty and Forés Miravalles 2019, p.2)

'Physical activity enhances thinking, learning, and judgment skills.' (WHO 2021, p.2)

Movement is not just good for health, but, because of its impact on the brain, it is also good for learning. Indeed, the Professor of neuroscience, Wendy Suzuki points out that 'exercise is the most transformative thing that you can do for your brain today' (2017, 1,18 seconds) and there is a signficant amount of neuroscientific research that demonstrates how movement boosts brain health. Doherty and Forés Miravalles (2019) provide a useful introduction to this research and discuss three reasons why movement is so beneficial for the typical cognitive tasks involved in learning: 1. Increased blood reaching the brain (vascularization) through movement. 2. The release of mood-enhancing neurochemicals during movement (such as dopamine and serotonin and noradrenaline. 3. The impact of movement on neural networks – movement promotes neurogenesis in the learning and memory centres of the brain. Neurogenesis is the production of new cells (neurons) in the brain and this may improve memory. For a layperson's introduction to the link between movement, exercise and neurogenesis see Solan (2021).

The positive effects of the above factors on the brain lead Doherty and Forés Miravalles (2019, p.2) to emphasise the benefits of moving for learning and to conclude that: 'neurophysiological and neurochemical changes improve brain function, alter brain structure, lead to greater well-being and improve learning.'

For an excellent introduction to embodied cognition, see Shapiro (2014).

Learning Requires Rest / Active Relaxation

Rest is fundamental to the learning process. This is often argued with recourse to neuroscientific findings that it is through rest that the brain can process the information it has recently received. This occurs through a process of 'hippocampal/neural replay', a process that is crucial for the consolidation of learning and memory (Buch et al. 2021; Ólafsdóttir et al. 2018; Terada 2018). As Immordino-Yang et al. (2012) put it, 'rest is not idleness' - the brain actively processes material when given time to rest. One way to support this process is by activating brain networks (such as those involved in movement) which offer 'distraction' (Immordino-Yang et al. 2012) and engaging in what van Dam calls 'active relaxation' for general recovery (2020, p.4). Extrapolating from this research, then, it is not a waste of classroom time to do a movement activity that does not focus on academic content. Movement is good for learning *per se*.

Moving Promotes Pleasure and Pleasure Promotes Learning

Core aspects of cognition that are essential to learning processes, are, according to neuroscientists, profoundly affected by emotions (Immordino-Yang and Damasio 2007). Neuroscience has demonstrated that emotional connections are fundamental ways in which we acquire knowledge

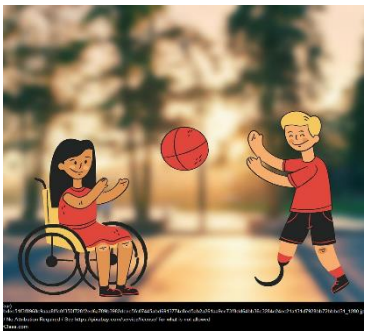
(see Hrach 2021, p.15; Immordino-Yang and Damasio 2007) and that gratifying, pleasurable connections not only link to memory, but to other important states for learning such as motivation and engagement (Moccia 2018; Kringelbach and Berridge 2010). Bringing movement into the classroom responds to this as researchers have found that movement can generate feelings of pleasure or enjoyment (Peiris et al. 2021; Strean 2011). My TILT mini-sabbatical research also demonstrated this with several students pointing to the fun factor and pleasure they felt when moving in class. As one student said quite simply: 'It's good for making learning more enjoyable'.

PART TWO

How Can we Embed Movement into HE?

'There is value in thinking through how students can be encouraged to move around during, or between teaching sessions, within the room or outside it.'
(Houghton and Anderson 2017, p.22)

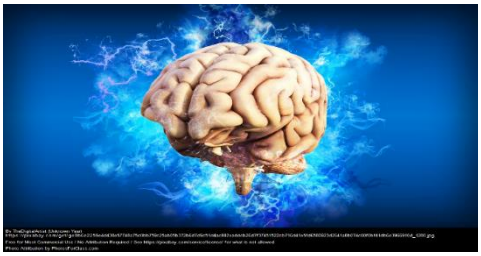
Movement can seem unusual in academia (Clughen 2014) and 'social acceptability' has been identified as a barrier to integrating movement within HE classrooms (Cowgill et al. 2021). It is therefore vitally important that staff and students are comfortable with the type of movement to be introduced and understand why it is of benefit for learning. The best type of movement or exercise is the type people will actually do. The activities below are, therefore, to stimulate ideas only as tutors and students are best placed to decide what movement would be most suitable within a given cohort.



It is also important to note that movement practices should be inclusive and that students who cannot avoid prolonged sitting can be encouraged to move *in situ*. WHO (2020) guidelines for physical activity include people living with disability (WHO 2020, pp.60-65) and note that sedentary behaviours can be minimised through physical activity while remaining seated. I include the work of Breathworks in this guide as an example of inclusive mindful movement activities but any standing movement should always be adapted for sedentary movement.

Movement for Pre-Learning/Breaks from Learning

Movement for Active Relaxation



The following are ideas for incorporating 'brain breaks' (Desautels 2015), 'exercise breaks' (Terada 2018) or 'mini breaks' (van Dam 2020, p. 4) into the curriculum. The idea of such breaks is to distract one's attention from studying to give the brain a pause and the requisite space to process information. It is argued that rest is as important for learning as practice (Buch et al. 2021; Immordino-Yang et al. 2012) and movement provides an excellent opportunity for an active approach to rest.

Stand up and Stretch

There are health benefits to be derived from simply standing up (WHO 2018, p.14). For example, it is claimed that standing up and stretching can increase the flow of oxygen to the brain by 7% (Krock and Hartung 1992), so students could be invited to stand and stretch or to stretch from a sedentary position. This can be accompanied by an online 3 minute breathing space activity or a body scan where gentle awareness is taken to different parts of the body.

Mindful Movement

In his talk at Harvard university, Jon Kabat-Zinn, a world leader in mindfulness, offers an introduction to the benefits of mindfulness in education (Harvard Graduate School of Education 2013). Ramon Gabrieloff-Parish's (2019) work presents the case for bringing movement into mindfulness practices and argues that embodied pedagogies that integrate body, mind and heart speak to philosophical goals of education that seek to educate the whole person. In terms of the theory and practice of mindful movement in education, I also recommend the work of somatic movement expert, Martha Eddy (2016).

If you would like to build mindful movement into the curriculum (either during or outside of class), Qigong, an ancient Chinese movement practice for promoting health and wellbeing, is very inclusive as it can be done standing, sitting or lying down. I will be producing a series of mindful movement video clips adapted from qigong that I am tying to educational needs for release in the academic year 2022-23. They can be used by any student or member of staff and you will find further information about them via NTU's TILT web page.

Many qigong masters have online resources and some I have experienced myself are: Chunyi Lin and other masters at Spring Forest Qigong; Mington Gu; Lee Holden, Roger Janhke, Brian Simpson and Faye Lipp. I have used the final move in this sequence at the beginning of my classes to assist with focus for learning: 3 Best Qi Gong Exercises for Beginners. Here is the qigong sequence I adapted for use with my students in class as performed by a qigong Master: Shibashi 1, Master Wing Cheung.

University mindfulness centres include mindful movement activities which may also be of interest. EG: Oxford University's mindfulness centre; University of Minnesota; Brown University.

For ideas on how you can ensure that mindful movement is inclusive: The sitting and standing movement activities offered by Breathworks demonstrate a way to make movement inclusive of people living with a disability or with low mobility: peeling off a top; hugging arms; wrist rotations. See also: Mindful Movement at The Centre for Mindfulness Studies.

Moving with the Experts in Learning and Teaching

If you want a quick brain break and would like to exercise with neuroscientist, here's a one minute activity with Professor Wendy Suzuki: 1 Minute IntenSati Class.

And here is a 2 minute Brain Break with Mike Kuczala, an expert in kinaesthetic learning.

Movement for Content Learning

Tutors can also tie movement to the content of the lecture or course and/or use it for revision purposes.

'Find Someone Who' / Class Surveys

Class surveys are an excellent way of engaging students with subject content and of testing knowledge. Modern Languages pedagogies are replete with movement activities and 'Find Someone Who' is often used to practise a specific grammar point or as an icebreaker, but can also be used to practise and revise any content learning. It is very simple – students walk around the class with specific questions (either provided by the tutor or self-generated) to see whether they can find someone who can answer them.

Snowballs

Elizabeth Barkley and Claire Major (2020, pp.138-140) offer some useful techniques for incorporating movement in the classroom. Their 'snowball' activity (Barkley and Major 2020, p.140) invites students to write on a piece of paper in response to a tutor prompt. Students throw their snowballs around the classroom and, when the tutor gives a signal, they pick up a snowball and respond to the writing on the paper. This can be adapted for several purposes: the comment could be an opinion about the class learning; they could share something they have learned during the lecture or ask the finder of the snowball a question. The students could share their response to their snowball with somebody standing near to them and then with the group as a whole.

Off-screen Activities for Online Teaching

Embedding movement into online teaching is an exciting challenge. Here, Johanna Payton, Lecturer in Journalism at City University, London, demonstrates how you can use 'off screen activities' to get your students moving during online teaching: Fashion and Lifestyle Journalism Goes Digital.

Movement in the Disciplines

To see how different disciplines have embedded movement and other embodied practices into their curricula, colleagues may consult The Role of the Body in Creative Processes and Practices (Clughen 2017).

Lisa Clughen, April 1st, 2022

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