Bringing embodied approaches to on-campus research methods teaching for large STEM cohorts: design, challenges, learning

Nicola Tomlinson
University of Manchester, UK

Sarah Kneen
University of Manchester, UK

Presentation abstract

In the post-pandemic world, Learning Development researchers have posited a 'new hybrid era of teaching', in which lessons from lockdown in best practice for online and remote teaching play a key role in increasing the inclusivity of higher education (Kantcheva and Bickle, 2023). At the same time, as many students have returned to campus, research has begun to interrogate the role that campus spaces and in-person interaction play in teaching and learning in this new era (Hrach, 2021; Cox et al., 2022). Whether through explicit pedagogical design or implicitly, courses with practical elements, particularly in many scientific disciplines, tend to favour principles of embodied learning through 'learning-by-doing'. Courses incorporate hands-on interaction with laboratory equipment and social constructivist approaches through student co-creation (Deshmukh, 2021), the centrality of which to students' professional training was made even more apparent during the move to remote learning. However, these same principles have not underscored the pedagogical approach to research methods education on the undergraduate Engineering degree programmes at the University of Manchester, which has typically been taught more didactically in recent years. This lecture-format approach has been used partially due to challenges of practicality, with the course unit being delivered to a large cohort that can reach 500 students in a typical year. With these principles in mind, this academic year, the Library Teaching, Learning and Students team has collaborated with academic leads across Engineering disciplines to deliver embedded research methods workshops that incorporate elements of an embodied, social constructivist approach, playing to the unique strengths of in-person group learning. This presentation charted the process of Learning Developers and academic staff co-designing these workshops, highlighting challenges

Tomlinson and Kneen

Bringing embodied approaches to on- campus
research methods teaching for large STEM cohorts:
design, challenges, learning

encountered, and outlining learning from the process to take forward into future
collaborations with disciplines with large cohorts.

Keywords: active learning; embodied learning; research methods; student writing.

Community response

As someone who not only enjoys writing but also writes about writing (Syska and Buckley,
2022), there have been times when I have found it difficult to fully appreciate the worries of
all those (many others!) who do not necessarily share that view. However, when writing
becomes a requirement, or a pressure, or a source of judgement – our own, and others' –
as seems to be the case for anyone writing in any capacity in higher education, then the
stakes seem so much higher and the benefits get lost. Having an opportunity to undertake
some freewriting is such a useful way to lower the stakes; not only is the blank page
overcome, but it is overcome in a way that prioritises the process itself, rather than the
product (Elbow, 1998), and therefore gives space to the thoughts behind the words. It also
connects to the physicality of writing, and the motor functions that power the need to keep
going.

I therefore really appreciated this session for helping me to think more explicitly about the
connection between writing and the body. My own experience has been of writing as a
process, a way to slow down my thoughts, and this is most effective for me when writing
with a pen or pencil, which is how I most like to think. The flipside, I think, is that when I
can't find the right words, I take a walk, and there's something about the movement that
frees up the thoughts so they are ready to form into words when I return to my document.
I've always been aware of certain great writers, notably Virginia Woolf and Charles
Dickens, who were known to walk considerable distances on a regular basis (Bowlby,
2012; The Dickens Society, 2018), but I was absolutely fascinated to discover that there is
a functional relationship in the brain between cognitive and motor processes, and that
physical activity can improve cognition (Leisman, Moustafa and Tal, 2016). Anything that
helps to situate the student writer, to engage body and mind, even in what is often
considered a purely cerebral activity (as opposed to, for example, laboratory-based
experiments, which are more visibly physical), must surely be welcomed and encouraged.

Tomlinson and Kneen   Bringing embodied approaches to on- campus
                                                       research methods teaching for large STEM cohorts:
                                                       design, challenges, learning

Next steps and additional questions

How can we better foreground the value of writing as a process to students, so they can take full advantage of the benefits offered by strategies such as freewriting?

Authors' reflection

We were delighted by how closely the focus of our presentation paired with the previous presenters' work (Suzy Beck and Jenny Eyley, the University of Leeds) on using text-scrolling in small-group tutorials for a large cohort of Chemistry students. It seemed that our experiences shared much in common regarding exploring the means in which students in more STEM-focused disciplines can be encouraged to engage actively with academic text, whether reading it or writing it themselves, and how embodied approaches can be used to facilitate a closer connection with long-form writing, making what can be challenging academic texts less intimidating. Our presentations both spoke to the challenges of innovating with large cohorts and working with large teams of academic colleagues, such as the time constraints around sharing materials with tutors, and generating buy-in for new teaching approaches. Jointly, our presentations reaffirmed the importance of running effective Train-the-Trainer sessions with academic colleagues and within our own team, where we are encouraging multiple teaching staff to facilitate these sessions.

We received some thought-provoking questions from audience members: one participant asked how students reacted to being asked to free-write, as from their experience this can be quite a daunting ask for students who are not accustomed to writing, least of all without a clear end goal or structure. We explained that we had set up the task by normalising the 'fear of the blank page' and explaining that there is no expectation for writing to be 'perfect' the first time of asking. We also gave students guiding prompts to think about the aims of their individual project and any conclusions that they wanted to convey to the reader at this point, thus giving them a familiar topic to write about. Perhaps as a result of this framing, students engaged positively with the exercise, and reported feeling more positive about their writing afterwards than they had before, attributing this to the sense of realisation that they 'had something to say'.

Tomlinson and Kneen

Bringing embodied approaches to on- campus
research methods teaching for large STEM cohorts:
design, challenges, learning

Colleagues expressed curiosity about low on-campus attendance patterns in the sessions reported in the study, as appears to be a theme across the sector at present. An audience member asked whether our academic colleagues had indicated that low attendance was common at these individual project sessions, regardless of LD involvement; we responded that yes, academic staff had expressed that attendance typically reduced dramatically towards the end of the second semester, with one lecturer present having given an on-campus lecture immediately before one of the sessions which had been attended by very few students for the size of the cohort. We had a discussion about the role that timing during the academic semester plays in student attendance; given that these sessions were held in early April, late in the academic year, the week after the Easter break and shortly before the students' independent project deadline in early May, we hypothesised that low attendance may have been caused by this pressing deadline and that of other pieces of coursework, as academic colleagues had told us. After discussion with the academic team for this unit, we have agreed to bring this session forward to earlier in the academic year in an attempt to facilitate more students attending. We will also explore whether encouraging 'buy-in' and attendance by academic staff at our sessions, and how to do this in practice, may have a positive impact upon student attendance levels next year.

Acknowledgements

References

Bowlby, R. (2012) 'Walking, women and writing: Virginia Woolf as flâneuse', in Armstrong, I. (ed.) *New feminist discourses: critical essays on theories and texts.* Abingdon, Oxon: Routledge, pp.26-47.

Tomlinson and Kneen

Bringing embodied approaches to on- campus research methods teaching for large STEM cohorts: design, challenges, learning

Cox, A. M., Benson Marshall, M., Burnham, J. A. J., Care, L., Herrick, T. and Jones, M. (2022) 'Mapping the campus learning landscape', *Pedagogy, Culture and Society*, 30(2), pp.149-167. Available at: https://doi.org/10.1080/14681366.2020.1788124.

Deshmukh, J. (2021) 'Speculations on the post-pandemic university campus – a global inquiry', *International Journal of Architectural Research*, 15(1), pp.131-147. Available at: https://doi.org/10.1108/ARCH-10-2020-0245.

Elbow, P. (1998) *Writing without teachers*. 2nd edn. Oxford: Oxford University Press.

Hrach, S. (2021) *Minding bodies: how physical space, sensation, and movement affect learning.* Morgantown: West Virginia University Press.

Kantcheva, R. B. and Bickle, E. (2023) 'Inclusive learning development practices: the consequences of flexibility and choice in the hybrid era', *Journal of Learning Development in Higher Education*, Issue 26, February, pp.1-8. Available at: https://doi.org/10.47408/jldhe.vi26.886.

Leisman, G., Moustafa, A. A. and Tal, S. (2016) 'Thinking, walking, talking: integratory motor and cognitive brain function', *Frontiers in Public Health*, 4(94). Available at: https://doi.org/10.3389%2Ffpubh.2016.00094.

Syska, A. and Buckley, C. (2022) 'Writing as liberatory practice: unlocking knowledge to locate an academic field', *Teaching in Higher Education*, 28(2), pp.439-454. Available at: https://doi.org/10.1080/13562517.2022.2114337.

The Dickens Society (2018) *Walking fast and far: Dickens, Europe, and restless pedestrianism*. Available at: https://dickenssociety.org/archives/1917 (Accessed: 8 October, 2024).

Tomlinson and Kneen

Bringing embodied approaches to on- campus research methods teaching for large STEM cohorts: design, challenges, learning

Author details

Nikki Tomlinson is a Learning Developer based at the University of Manchester Library. She has taught for over ten years across education settings in the UK and Spain, and holds a CELTA, PGCE and PhD. Nikki is passionate about supporting students to explore their approaches to learning, with the aim of inspiring a growth mindset and a lifelong love of learning. Her current research interests include embodied learning in HE, the 'internationalisation' of HE and the intersections of these areas with academic writing.

Sarah Kneen is a Teaching, Learning and Students Coordinator based at the University of Manchester Library. Having picked up a passion for learning development during her PhD and subsequent PGCertHE, she enjoys building close partnerships with students and researchers to co-create and deliver academic skills support and facilitate an empowering learning environment. A particular area of interest is how to boost wellbeing, confidence and efficacy in academic writing: developing a community-writing offer of Shut Up & Writes and Writing Retreats amongst other embedded support, and more recently encompassing research around embodied cognition theory.

Licence