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BIRMINGHAM

Education in Practice

Volume 7

Autumn 2026



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About Education in Practice

Education in Practice is the learning and teaching journal of the University of Birmingham. It provides an accessible publication route for all University staff and students looking to disseminate learning and teaching practices, ideas and developments in a scholarly and evidence-informed manner.

Education in Practice focuses upon educational practices within the University of Birmingham, and a range of contributions are sought from full scholarly papers, reflective or discursive articles, reviews, short case studies, examples of practice and 'how to' guides.

Contributions are aimed at informing the work of others and at directly influencing practices and approaches that enhance student learning.

The Editorial Board

Dr Alison Davies (Educational Development) a.davies.1@bham.ac.uk

Dr Marios Hadjianastasis (Educational Development) m.hadjianastasis@bham.ac.uk

Professor Michael Grove (DPVC Education Policy and Standards)
m.j.grove@bham.ac.uk

Contact: eip@contacts.bham.ac.uk

ISSN 2057-2069

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Editorial

Welcome to Volume 7 of *Education in Practice*. This volume includes papers which were published during the 2025-26 academic year on a 'rolling' basis on our website and reflect a wide range of scholarship carried out at the University of Birmingham, ranging from individual case studies of local practice to investigations of systems and wider practice. As is the purpose of our journal, our contributors are often at the start of their scholarly journeys, and some of their work has been developed as part of CPD programmes offered at our institution.

In the collection of papers for this issue, there is a strong emphasis on inclusive practice, with pieces focusing on neurodiversity, awarding gaps, emotions of learning, disability inclusion, and mental health. This perhaps demonstrates that a strong attention to the human dimensions of education has become an even more pressing priority in the age of artificial intelligence.

Although AI is not going to disappear from our lives any time soon, there seems to be an urgency in its use within sustainable and ethical frameworks, and in a way which accentuates human capabilities, especially that of critical thinking, the topic of a paper included in this volume.

Three further papers in this volume were developed out of a 'capstone' PGCHE assignment, and focus on the topics of neurodivergence (Qamar Natsheh and Rickson C. Mesquita), Disability (Katharine Wheetman), and the awarding gap (Dean PJ Kavanagh). We are also pleased to include Piyali Bhattacharya's paper on supporting diverse PG learners as this piece sprang out of a fellowship application on our Beacon Scheme. This demonstrates a culmination of the principles driving the Educational Development Team and our portfolio of support for scholarship through our CPD programmes, our Education Research and Scholarship Network, and EPF project funding - namely that it seeks to embed evidence-based practice and scholarly approaches into all aspects of its work, and connect the dots between such CPD programmes and scholarship is the natural outcome of this principle.

Marios Hadjianastasis and Alison Davies

October 2026

Neurodivergence in higher education: data, practice, and pathways to inclusion

Dr Qamar Natsheh, Department of Computer Science, Birmingham City University,
Contact: qamar.natsheh@bcu.ac.uk

Dr Rickson C. Mesquita (r.c.mesquita@bham.ac.uk) and **Swapnil Bhattacharya** (sxb1811@alumni.bham.ac.uk), School of Computer Science, The University of Birmingham

First published online 28 October 2025

Abstract

Neurodiversity is increasingly being acknowledged as a fundamental aspect of Equality, Diversity, and Inclusion (EDI) within Higher Education (HE). However, students who identify as neurodivergent still face obstacles in disclosure, navigating services, and implementing consistent learning support, despite the Equality Act (2010) providing a legal foundation for reasonable adjustments. This paper evaluates current practice about neurodiversity in the UK, and at the University of Birmingham in particular, utilising sector data, institutional trends, and relevant literature that frames neurodiversity as human variation rather than deficit. Throughout the discussion, we highlight areas for improvement while identifying persistent issues such as classification ambiguity, lack of visibility in national surveys, cultural stigma, and unequal staff awareness. Lastly, we present a logical course of action, including defining the institutional classification of neurodivergence; conducting programme-level pilot interventions at the orientation phase; integrating staff training on inclusive education and academic support arrangements; increasing the visibility of current supportive services; and investigating interdisciplinary solutions such as AI-supported analytics. These methods can be applied across disciplines and are in accordance with best practices for educational support by presenting neurodivergence as a valuable aspect of diversity.

Introduction

Commitment to expanding participation and Equality, Diversity, and Inclusion (EDI) within UK Higher Education (HE) institutions has put additional focus on acknowledging and promoting cognitive diversity (LSE, 2023). One important aspect of this is the recognition of "neurodivergence", which refers to a broad range of natural

differences in cognitive function, including Tourette's syndrome, Attention-Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD), dyslexia, and dyspraxia (MacLeod *et al.*, 2023). However, although the idea has become more widely recognised in practice and policy, there is still a disparity in how it is translated into regular, everyday support (Griffin and Pollak, 2009). Many institutions still base their service availability on formal disclosure and the validity of documented proof of diagnosis, which unintentionally excludes individuals who lack prompt access to diagnostic resources or who prefer not to disclose (Jacobs *et al.*, 2022). Furthermore, teaching and assessment strategies have not always kept up with the growing volume of research supporting inclusive pedagogy (Rose *et al.*, 2014).

The primary aim of this paper is to explore areas for improvement that will positively impact students, staff, and programmes throughout disciplines. In order to achieve this, the paper has three objectives. Firstly, it summarises major studies on neurodiversity in HE to present a conceptual structure that acknowledges requirements and capabilities. Secondly, it investigates sector-wide procedures and their corresponding consequences in educational institutions' data handling and decision-making processes, with a focus on the limitations of current categorisation and survey methods (Waisman and Simmons, 2018; OfS, 2022). Finally, it analyses one local environment at the University of Birmingham, integrating institutional patterns and empirical research to formulate an efficient, feasible, and adaptable improvement programme.

Literature Review

The current neurodiversity paradigm reformulates neurological discrepancies as a natural form of human variation, drawing on Judy Singer's work from the late 1990s (Singer, 1999; BPS, 2023). This paradigm raises awareness about deficit-oriented frameworks within HE settings and encourages universities to think about how educational environments can embrace such variations (Rose *et al.*, 2014; CAST, 2018).

The biodiversity analogy is useful because it demonstrates that diversity makes systems more resilient by offering a greater range of tactics, viewpoints, and methods to address issues. Similarly, the development of abilities such as innovative thinking, perseverance, and pattern recognition, which many neurodivergent individuals declare as valuable qualities in their studies, can enrich HE and is the focus of associated

fields of study, including constructive psychology (Snyder and Lopez, 2007). Nonetheless, critics have cautioned against an excessively euphoric rhetoric, warning that it risks undervaluing the support requirements for learning disabilities, ASD, or ADHD, particularly in cases of comorbidities (Costandi, 2021). A fair assessment, therefore, requires acknowledging both the possible positive strengths associated with neurodivergence and the actual challenges that students and staff face within academic environments.

Stigma and the potential negative consequences of disclosure are two of the most reported difficulties by students (Kendall, 2016; Jacobs *et al.*, 2022). Many worry about how disclosure might affect future employment prospects, fear being seen as less competent, or prefer to avoid administrative burdens and paperwork associated with official adjustments. These concerns are particularly pronounced among postgraduate researchers and students from underrepresented communities in HE, for whom lack of confidence and resources can make it especially difficult to access appropriate support or secure a formal diagnosis (Bhakuni and Abimbola, 2021).

Administrative barriers are also identified in the literature. When access to support depends on medical approval, it becomes a matter of healthcare access rather than educational need (Olivos, 2006). This not only creates inequity but also entrenches epistemic injustice (Bhakuni and Abimbola, 2021). Furthermore, institutional practices often rely on individual learning support agreements (LSAs), which are not always entirely integrated at the module level, or are inconsistently understood by staff.

From the viewpoint of teaching and learning, it has been shown that both neurotypical and neurodivergent students benefit from evidence-based approaches like Universal Design for Learning (UDL) (Rose *et al.*, 2014), flexible assessment methods, and planned timing and orientation. Multidisciplinary approaches, such as the use of data analysis to uncover behaviours associated with interaction patterns and music-informed strategies to enhance attention, expand the range of strategies that HE institutions might implement (Williamson and Eynon, 2020). The main takeaway is that inclusive frameworks minimise the need for customised considerations and are advantageous to all individuals.

How neurodivergent students respond to various educational settings is another crucial consideration. For instance, undefined (or loosely defined) responsibilities in

group projects can result in unequal disadvantages; similarly, crowded labs or fast-paced teaching sessions can be more difficult for them to handle. Deliberate curriculum planning and adaptive assessment methods that comply with academic criteria can help overcome these problems (MacLeod *et al.*, 2023).

Neurobiological Evidence of Neurodivergence

Recent advances in neuroimaging have provided new insights into the neural characteristics associated with neurodivergence. From this perspective, several studies have investigated how brain function and structure may differ between populations diagnosed with neurodivergence when compared to neurotypicals.

Among the available tools, Diffusion Tensor Imaging (DTI) – a magnetic resonance imaging (MRI) technique – has been particularly valuable for characterising white matter microstructure. In particular, DTI quantifies fractional anisotropy (FA), a metric that measures how easily water moves through brain tissue, which can tell us how well nerve fibres are organised. High FA values reflect well-aligned fibres and strong connections between brain regions, while lower values suggest that the brain fibres are less organised or follow more variable pathways.

Studies including populations with neurodivergence have observed reduced FA by up to 60% in regions such as the prefrontal cortex and the superior longitudinal fasciculus (MacLeod *et al.*, 2023; BPS, 2023). These regions are part of a major pathway linking frontal and parietal areas involved in attention, working memory, and language processing. These differences suggest changes in brain organisation, although these changes are associative rather than causal: lower FA does not necessarily imply dysfunction; instead, it may just reflect alternative patterns of neural development or adaptive reorganisation that support distinct cognitive strengths and sensory profiles.¹

The extent to which such differences translate into distinct learning needs or teaching styles requires further investigation. Nonetheless, recognising and accommodating these neurobiological variations through inclusive environmental modifications, such as reduced sensory stimulation, flexible timing, or alternative assessments, can produce dramatic improvements in academic performance (Williamson and Eynon, 2020; Rose *et al.*, 2014). This perspective aligns with the social model of disability,

¹ Draws on findings from a collaborative research project conducted as part of an MSc thesis by the authors.

showing that challenges result from mismatches between brain function and environmental design rather than inherent deficits, offering HE institutions empirically supported justification for investing in inclusive design principles (Olivos, 2006; LSE, 2023; OfS, 2022).

Current Practice in UK HE institutions

The Equality Act (2010) mandates that UK universities make Reasonable Adjustment Plans (RAPs) for students with disabilities (Equality Act, 2010). The Higher Education Statistics Agency (HESA) oversees the collection of data at the educational institution level, but neurodiversity is not consistently documented as a separate category. As a result, HE institutions have created their own categories, which are classified under general titles such as "mental health condition". These internal categorisations, while meant to enhance support systems, continue to obscure neurodivergent students and hinder efforts to assess the outcomes of those activities (Waisman and Simmons, 2018). Inconsistent documentation and assistance result from institutions frequently being left to interpret needs using disjointed categories.

Eligibility requirements, such as a medical certificate and a drawn-out application procedure, restrict access to the Disabled Students' Allowance (DSA), which provides financial assistance for educational needs. This option is still unavailable to many students, especially those who are waiting for an evaluation or who are receiving a delayed diagnosis (Jacobs *et al.*, 2022). The problem is made worse by delays in NHS medical diagnostics. Students who fail to declare their medical circumstances or who are unable to acquire certification in the required time frame are therefore not eligible for this assistance. This emphasises how important it is for educational institutions to offer proactive, inclusive, and stigma-free assistance that goes beyond DSA access alone.

The observations of neurodivergent students are not particularly captured by the National Student Survey (NSS), and published findings do not identify neurodivergence (OfS, 2022). Question 26 in the "Additional Questions" section is the only question that is possibly relevant. It asks about the communication of mental wellbeing support. Even though involvement is increasing, the absence of focused questions restricts evaluation and obscures the representation of students with neurodivergence in national data. Although some universities employ local committees or surveys to close the gap, methods are still not uniform.

Overall, HE institutions must embrace more inclusive and proactive strategies, in agreement with recent policy discussions (OfS, 2022). While there is a strong argument that neurodiversity should be considered a fundamental component of EDI agendas, the Office for Students (OfS, 2022) calls for a change from individual adaptations to integrating inclusivity across teaching, assessment, and learning environments. However, broad categorisation processes delay diagnostics, and inconsistent deployment restricts sector-wide development. Leadership is crucial in this regard; universities can create more efficient, tailored support that complies with regulatory demands by streamlining internal processes, enhancing data collection, and incorporating qualitative input.

Neurodivergence at the University of Birmingham

The percentage of students at the University of Birmingham who report having special needs has been gradually increasing over the past few years, similar to other research-oriented universities. In accordance with HESA, eight categories are used to capture those disclosures: learning difficulties, long-standing illness, mental health difficulties, physical disabilities, sensory disabilities, social impairments, other disabilities, information refused, and no known disability. Learning difficulties and mental health difficulties make up a significant percentage of these categories, and many neurodivergent students are likely included in these groups (Waisman and Simmons, 2018; MacLeod *et al.*, 2023).

To support students across the whole range of disclosures, the University employs a distributed scheme that blends local access with central supervision. School-level wellbeing teams serve as the initial source of contact, and the Disability Service Team (DST) drafts LSAs and communicates with schools to guarantee adjustments are made (Griffin and Pollak, 2009). Precise data collection on neurodivergent students demonstrates broader difficulties. Because of the intricacy of categorisation and governance, information requests are frequently routed between the DST, the Student EDI Team, and Registry services. Tableau dashboards show total proportions across the eight categories, but do not break down neurodivergent medical conditions. As a result, students with ASD or ADHD are probably listed with "learning difficulties," "mental health difficulties," or "social impairments", reflecting the wider lack of standardised categorisation in the sector as discussed above (Olivos, 2006; Bhakuni and Abimbola, 2021). Additionally, the experiences and support requirements of

neurodivergent staff are not well understood in current datasets, which only include student data. This information could help guide more comprehensive institutional actions.

Despite these challenges, the University of Birmingham continues to advance its inclusive methods. Education committees are progressively supporting neurodivergent students, such as utilising digital platforms with captioning and sharing educational resources ahead of time. This is supplemented by local initiatives within some colleges and schools, such as in the College of Engineering and Physical Sciences, which promotes outreach programmes, employability counselling, and assistance with academic writing. Strategies would be further improved, and the University would expand on effective procedures further, if internal categorisations were refined to better reflect neurodivergent observations (BPS, 2023).

Discussion

The literature review, national data, and University of Birmingham instructional design connect three themes relevant for neurodivergence in HE: structural barriers, cultural dynamics, and pedagogic design.

Structurally, strategic planning becomes more difficult due to the absence of a clear, distinct categorisation for neurodivergence in the institutional data. Without this specification, it is challenging to identify engagement trends, assess the effectiveness of interventions, and allocate resources explicitly. At the local level, educational committees and programme teams could more accurately evaluate requirements if internal categories were further explained while still being compliant with HESA. Focus group discussions and brief pulse surveys created in collaboration with staff and students can enhance analytical data and pick up on subtleties that big datasets overlook. A clear framework for assessment is offered by a straightforward logical scheme that connects inputs, activities, outputs, and outcomes, such as training, orientation workshops, involvement, and satisfaction, in sequence (Olivos, 2006).

Culturally, the stigma associated with neurodivergence and its disclosure continues to be a major obstacle in the academic environment. While educators might not have the self-assurance or experience needed to handle these discussions effectively, students frequently balance the advantages of requesting adjustments against the risks of being stereotyped or misinterpreted (Kendall, 2016; Jacobs *et al.*, 2022). Universities must

incorporate neurodiversity into every aspect of their educational environment in order to change this dynamic. This can be achieved through accessible declarations that describe adjustments as strategies for fairness, rather than favourable inclusive expressions, in curriculum handbooks, tutor-student collaboration activities, and induction resources. Reinforcing inclusivity as a core institutional commitment, rather than a 'corrective remedy', also requires developing encouraging, voluntary mechanisms for staff appreciation. Finally, clear and accessible communication about the purpose of adjustments is key to reducing misunderstandings and promoting a more welcoming academic environment.

Education research supports inclusive curriculum design, with tactics such as diversified evaluations, adaptable time management, and explicit guidance that boost performance for all students, not just those who are neurodivergent (Rose *et al.*, 2014; CAST, 2018). By providing a variety of ways to participate and describe themselves, strategies like UDL lower obstacles to learning. Similarly, making resources available ahead of time, organising workshops with clear signs, and providing options for assessment that are in line with learning objectives are examples of effective implementations. All students gain from affordable design options, and staff trust in putting LSAs into practice is strengthened. Moreover, reducing cognitive load through measures such as quiet study areas and consistent use of virtual learning environments (VLEs) can further support accessibility. Additional prospects for customised assistance can be presented by new developments in domains such as neuromusicology and analytics-driven feedback (PMC, 2024; Williamson and Eynon, 2020).

The intersection of these themes is illustrated at the University of Birmingham. There are centralised assistance mechanisms in place, although gaps remain in their practical implementation within educational environments. Staff training on neurodivergence is available but not consistently implemented, and although data is gathered, its usefulness and ability to provide further insights are currently limited by systemic categorisation. As a result, these points highlight the opportunity for further structural and cultural interventions that require collaborative efforts from academic and professional services.

Recommendations and Future Directions

In light of the research and the discussion above, the following suggestions are put forth as constructive opportunities for improvement that are feasible for all academic fields:

- 1) **Clear institutional categorisation and data flows.** Even though conditions like ADHD, ASD, and dyslexia frequently have comorbidities and require specialised procedures, neurodivergence is included under general disability classifications outlined by HESA in many universities, including the University of Birmingham. The absence of a unique categorisation for neurodivergence is a problem that prevents further tailored advances. By creating more detailed institutional categories that still align with global criteria but allow more specific student self-identification, universities can improve strategy while still adhering to HESA norms. Practical recommendations could be obtained through programme-based dashboards and brief pulse surveys if schools, disability services, wellbeing staff, and registries collaborated more actively. Going beyond the general "disability" umbrella allows for more precise data, fair services, quick turnarounds, and a sector-adaptable framework.
- 2) **Pilot interventions at the curriculum level.** Normalising the conversation about support and alleviating stigma are two benefits of incorporating neurodiversity awareness into empirical studies from the very beginning, for instance, through induction exercises (Kendall, 2016; Jacobs *et al.*, 2022). Co-created induction materials can address study techniques, disclosure choices, and supportive technology; focus groups and pre- and post-inspections can be used for assessment. Universities can improve and expand successful cross-disciplinary procedures through brief experiments.
- 3) **Staff training.** Variations in staff awareness are a significant aspect of the student experience (Griffin and Pollak, 2009; MacLeod *et al.*, 2023). Making the inclusive procedure regular and systematic would be facilitated by providing concise workshops centred on UDL, incorporating discussion into module evaluations, and incorporating short, discipline-relevant suggestions on LSAs into handbooks and briefs.

- 4) **Embedded UDL.** Both neurotypical and neurodivergent students gain an advantage from the creation of modules and examinations that take student diversity into account (Rose *et al.*, 2014). Examples that decrease the need for personalised adjustments involve more obvious scaffolding, various involvement channels, and adaptable evaluation methods.
- 5) **Create focused development groups.** By exchanging successful tactics across disciplines, successful inclusive practice can be disseminated more broadly (MacLeod *et al.*, 2023). Peer development and the dissemination of creative practices are made possible by frequent group discussions, staff committees, or workshops.
- 6) **Build towards scalability.** Extending the scope of neurodiversity-related initiatives after commencing gradually guarantees that interventions are still possible (such as awareness workshops). A progressive strategy can help control uncertainties while promoting sector-wide education and conformity, ranging from experiments and resources to expanded initiatives and periodic reviews (OfS, 2022; LSE, 2023).
- 7) **Create a standardised data-driven framework.** Educational institutions should create standardised, categorised databases for the voluntary disclosure of neurodivergence in place of inconsistent dashboards. These tools, when connected with safe statistical platforms, could foresee difficulties, identify trends in education and engagement, and guide preventative measures. Multidisciplinary cooperation between computer science and psychology guarantees that the tools are trustworthy, supported by scientific evidence, and efficient for improving inclusive practice (BPS, 2023; Williamson and Eynon, 2020).
- 8) **Correct terminology.** Lastly, to emphasise, a word on terminology: while certain societies would rather use terminology that emphasises identity (e.g., “autistic student”), others adopt terminology that emphasises individuals (e.g., “student with autism”). We suggest valuing choice and dignity by using

pragmatic terms while respecting personal perception – as we have attempted throughout this text. Furthermore, the term "neurodivergent" does not refer to disability; rather, it recognises inherent variance, some of which may be formally recognised as disabilities based on setting and impact (Olivos, 2006).

Conclusion

Neurodiversity presents not only major challenges but also valuable opportunities for HE institutions. Although sector data show a rise in disclosure, survey tools and categorisation mask nuances. The University of Birmingham's procedures mirror those of the UK as a whole: there are assistive systems in place, but they are not always implemented consistently, resulting in highly variable student experiences.

Research shows that proactive layout, inclusive teaching methods, and individualised viewpoints enhance the learning experience for all students. More precise categorisation, the integration of inclusive techniques, and the creation of standardised data-driven frameworks that surpass disjointed dashboards will all be necessary for progress. By following these suggestions, universities can move from reactive behaviours to proactive, research-based strategies where neurodiversity is acknowledged as a component of diversity that enhances society, research, and education rather than as a deficiency.

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Mind the gap: why higher education should move beyond awarding metrics to progress measures

Dr Dean PJ Kavanagh, Department of Cardiovascular Sciences, School of Medical Sciences, College of Medicine and Health, University of Birmingham

Contact: d.kavanagh@bham.ac.uk

First published online 3 June 2026

Abstract

The awarding gap is typically defined as the difference in the proportion of students from different demographic groups who obtain a “good” degree (first- or upper second-class honours). In UK higher education, it has become a central lens through which equity is monitored. However, this simple metric conceals a number of important caveats and shortcomings.

This paper critiques the awarding gap as a binary, end-point metric. It shows how reliance on the “good degree” threshold discards information, creates perverse incentives, and obscures the roles of non-continuation, inequitable access, selection effects, and compensatory advantage. Drawing on UK sector data, institutional practice, and the wider equity literature, it argues that a narrow focus on awarding gaps encourages institutions to intervene at the wrong point in the educational lifecycle, locates responsibility disproportionately within universities, and renders upstream inequalities less visible to scrutiny.

The paper argues for a shift towards more granular and lifecycle-oriented approaches to monitoring educational inequity. In particular, it proposes the inclusion of value-added measures framed as progress gaps, which assess outcomes relative to students’ starting points. Such measures offer a clearer way of distinguishing inequities that pre-date entry from those that emerge within the university environment, and provide a more precise basis for evaluating the contribution of higher education institutions to the production or mitigation of educational inequity.

Keywords: equity, awarding gap, equality, student progress, Office for Students

Introduction

Equity in education is an increasingly important consideration for modern higher education (HE) institutions across the world. This is not only a result of a straightforward moral duty to equity, but also due to increased outside pressure from governments, regulators, and the public at large (Conner and Rabovsky, 2011). Universities are expected to provide inclusive learning environments where all

students, regardless of background, have the opportunity to succeed. As such, equity is an important facet of shaping institutional priorities and policies. The pedagogical literature has broadly arrived on an agreed set of domains in which equity should be sought, although there are some differences between studies. Generally speaking, the six domains of the student lifecycle across which equity should be embedded are: Aspiration, Academic Preparation, Access, Experience, Progress, and Outcomes (Pitman *et al.*, 2020). In the UK, sector-wide analyses of equity are carried out by the Office for Students (OfS). Using data from HE providers, the OfS analyses equity across relatively similar but narrowed domains: Access, Continuation, Completion, Attainment, and Progression (Office for Students, 2024a).

It would not be unreasonable to state that – at least historically – institutional focus across these domains has not been equal. Many HE providers have focused more heavily on certain domains and not others; for instance, institutions have invested significant amounts of time and money on improving access, whilst paying less attention to other aspects of the student lifecycle (Brennan and Naidoo, 2008). Fortunately, this situation (at least in the UK) is improving. Many institutions have now implemented a variety of schemes that cut across the equity domains and work to ensure that students are provided with the opportunity to succeed, regardless of their background. While progress has been made in widening participation, gaps in continuation rates, academic performance, student satisfaction, and graduate outcomes continue to reflect persistent structural inequalities (Low and Kalender, 2024, Office for Students, 2023). These differential outcomes are often referred to as ‘gaps’, and have been used to reference differences in access (Martin, 2024), continuation (De La Torre and Dowie, 2023), and outcomes – the latter often referred to as the Awarding Gap. Historically, the Awarding Gap has been referred to as the ‘Attainment gap’. More recently, this terminology has changed to move away from the term attainment as a reflection of student deficit. The term ‘Awarding Gap’ identifies the potential role of the institution in this disparity.

The Awarding Gap in the UK: a national picture

In the UK, references to the Awarding Gap most often refer to the difference in degree-level outcomes between students of different ethnicities (Universities UK, 2022), although it is increasingly recognised that sizeable awarding gaps also exist between other subgroups of students, including those defined by socio-economic background, disability, and care-experienced status (Bolton and Lewis, 2024). The most common outcome measurement used in assessment of the awarding gap is the attainment of a “good” degree, considered to be either a 2:1 or a first-class honours. In this paper, terms that are common in the literature will be used, although it should be noted that there are significant difficulties with some of them, and their use does not reflect the author’s opinions on their suitability. A number of organisations have proposed that the term Black and Minority Ethnic (BAME) should be disaggregated and no longer used (Commission on Race and Ethnic Disparities, 2021); a recommendation adopted by the UK Government. Using BAME as an aggregated group can hide differences in the

underlying data, and although it is used extensively in Awarding Gap reporting, including by UUK (Universities UK, 2022), many are moving away from its use.

There are, of course, many other characteristics that can be examined in relation to awarding gaps, and not all of them show persistent disparities. For example, coinciding with substantial institutional work on Reasonable Adjustments (RAs) and disability support, the national awarding gap between students with and without reported disabilities has now closed (Office for Students, 2024a). Nevertheless, awarding gaps remain highly complex. Intersectionality between multiple demographic and contextual factors means that simple “Group A vs Group B” comparisons are often misleading or incomplete (Nichols and Stahl, 2019).

These complexities mean that awarding gaps should not be treated as a single, uniform phenomenon. Different student characteristics are associated with different patterns of access, continuation, completion and degree outcomes, and these patterns do not necessarily operate in the same way. In some cases, the gap is large, persistent and clearly visible in national data; in others, the evidence base is thinner, the direction of the gap has changed, or the relevant disadvantage is partly hidden by selection effects before students enter higher education. It is therefore useful to consider the major categories separately, while recognising that these categories often overlap and interact in practice.

Ethnicity

In the academic year 2022-23, across the entire HE sector, the awarding gap between BAME and non-BAME students was 11.6 percentage points (pp). Disaggregating this data, the largest ethnicity awarding gap exists between White and Black students, at 22.4pp. There is also a sizeable gap between Black students and those of other ethnicities; there is an almost 10pp awarding gap between Black students and the next nearest grouping of ‘Other’. The gap between White and Black students had been decreasing from 2018 through 2020 but increases in subsequent academic years have ultimately reversed some of that progress (Office for Students, 2024a).

Socio-economic background

The UK remains highly stratified by socio-economic deprivation, and this is also a major driver of differential outcomes. Deprivation is most commonly measured using the Index of Multiple Deprivation (IMD), which combines seven weighted domains to assign a deprivation score to small geographical areas (Lower Super Output Areas, typically covering around 1,500 households). For comparative analyses, these areas are usually grouped into quintiles, where Quintile 1 (Q1) represents the most deprived areas and Quintile 5 (Q5) the least deprived. The awarding gap between students in Q1 and Q5 is 18.3pp, and between students in Q1+2 vs Q4+5 the awarding gap is 13.9pp (Office for Students, 2024a). As with the ethnicity awarding gap, deprivation-related gaps narrowed between 2018 and 2020, but have reversed in recent years.

Dependants

Nationally, the impact of having dependants on Awarding Gaps is largely understudied, and solid data is lacking. It is only recently that sector-wide data collection processes have started including this category. No longitudinal data around dependants is available from the OfS, which makes it difficult to paint a national picture on how having dependants might influence a student's degree outcome. Indeed, the first UCAS cycle to collect data on dependants (both parenting and caring) was in 2023. Although there is little direct evidence on degree attainment for this cohort, there has been some work carried out investigating the impact of parenthood on the educational experience and subsequent outcomes. While the available evidence does not demonstrate a clear degree-awarding gap for students with dependants, it does show that student mothers experience a more constrained and demanding route through higher education (Lyonette *et al.*, 2015). This remains an area where further attention would be valuable. Indeed, an extensive review of the literature around students with dependants reveals that it is heavily skewed towards mothers, with limited attention focused on male, disabled, BAME, or LGBT+ parents or carers (Moreau and Wheeler, 2023).

Disability

Although historically there have been awarding gaps associated with students with disabilities, these have now largely closed (and in many cases, flipped) both locally and nationally. However, in the context of other awarding gaps, these have been quantitatively minor but strongly persistent. Between 2010 and 2018, there remained a 1 to 2% awarding gap between disabled and non-disabled students in every academic year (Hubble and Bolton, 2021, Office for Students, 2024a). This gap closed in 2019 and has remained reversed ever since. In every year after this, students with registered disabilities have outperformed those without. Some institutions and publications have described the Awarding Gap in such cases as a 'reverse' awarding gap (University of Reading, 2024, Advance HE, 2025). This terminology is unhelpful in general terms, as it treats the original direction of the difference (non-disabled students outperforming disabled students) as the 'default' or 'normal' position and any movement beyond parity as an anomaly. Statistically, the recent negative gap (at least nationally) is very similar in magnitude to the small positive gaps that preceded it, and it is perhaps better understood as minor fluctuations around parity thus avoiding overinterpretation.

Student age

As access to university increases, there are an increasing number of undergraduate students whose age at entry is considered Mature (21 and over). This has at least partially been driven by a range of institutional policy changes which have been aimed at widening participation and accommodating diverse demographics and the movement towards a model of the 'Age Friendly University' (Montepare, 2019). The proportion of undergraduate students considered mature is increasing; in the academic year 2022-23, 28.7% of students were mature, which represents an

increase of 4% compared to 2017 (Office for Students, 2024a). However, mature students still face significant challenges once within HE. Not only are they much less likely to complete their course of studies (10% less likely to complete compared to 'young' entrants), but for those that do, there remains a 9% awarding gap between Mature and Young students.

Local and/or 'commuter' students

A number of studies consistently show that students who live at home and/or commute to university have poorer outcomes than their peers. Nationally, there has been – and remains – a substantial gap in achievement between commuter and non-commuter students. In datasets, the OfS classifies these students as “local” or “not local to address prior to entry”; the Awarding Gap for students classified as local was 6.8% in 2010, and 5.4% in 2023, with a gap of between 5% and 7% maintained for every intervening year (Office for Students, 2024b). Interestingly, some studies suggest that the gap does not exist in mature commuter students versus non-commuter students, with mature commuter students generally performing better in terms of good degree achievement (Artess *et al.*, 2014). A number of studies have put forward suggestions for these underlying differences in outcomes including reduced engagement either due to, or alongside, poor student satisfaction, financial circumstances, travel impact, and general academic experience (Thomas, 2018, Maguire and Morris, 2018).

Parental experience in higher education

Parental experience of higher education is one of the strongest and most consistent predictors of who enters, navigates and benefits from university. Students without parental experience of HE completion are often referred to as first-generation students (FGS; i.e. students whose parents do not have a HE qualification). This can be understood partly through Bourdieu's concept of capital: parental HE experience may provide students with material, cultural and social resources that help them understand expectations, navigate institutional systems and access support (Bourdieu, 1986). This can provide significant attainment advantages to non-FGS students, with some referring to parental higher education experience as a form of 'educational capital' (Barsegyan and Maas, 2024, Giotakou, 2024). In terms of outcomes, FGS students do not perform as well as non-FGS students, with a persistent awarding gap of around 6% in favour of non-FGS students (e.g. 2012: 6.1%, 2023: 6.8%).

Finding the gaps in the Awarding Gap

The awarding gap is a valuable metric for understanding systemic inequalities in higher education. However, when metrics are applied at institutional level, there is often a tendency to focus narrowly on the numbers at the expense of context and nuance. In many universities, the awarding gap is reported as a single figure with a single dimension – typically a BAME vs non-BAME undergraduate comparison. This simplified approach is an unsurprising consequence of the wider “metricisation” of the sector: the drive to convert ever more aspects of university activity into quantitative indicators. Such metrics inevitably oversimplify complex underlying issues. Since the

late 1990s, metricisation has advanced steadily, beginning with reforms such as the Research Assessment Exercise (RAE), which arguably marked the start of the modern metrics-based governance of universities. Institutions now operate in an environment dominated by league tables, student satisfaction scores and global rankings. In 1975, the British economist Charles Goodhart wrote in an article, a statement which has subsequently been taken as “Goodhart’s law”: “Any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes” (Goodhart, 1975, p. 116). The British anthropologist Marilyn Strathern, phrased it unmistakably: “When a measure becomes a target, it ceases to be a good measure” (Strathern, 1997, p. 308).

Whilst the awarding gap itself has value as a metric, it has faced criticism on two main fronts: the analytical methodology used to generate the gap, and the sociological validity of how those figures are interpreted. Crucially, criticism of the awarding gap does not disprove the existence of inequity. Rather, such critiques remind us that quantitative values of this nature must be treated carefully: we need to be confident that they represent what we think they represent, and that they are applied constructively to the problem at hand. We should therefore ask ourselves a question posed by Gert Biesta: are educational institutions “measuring what we value, or [...] just measuring what we can easily measure and thus end up valuing what we (can) measure” (Biesta 2009, p. 35)? This distinction matters because the choice of metric does not simply describe educational priorities; it can also shape them. In the context of the awarding gap, this raises the possibility that a narrow, easily measurable outcome may come to stand in for the wider educational values it was intended to represent.

How much disadvantage is enough? It’s complicated

Students who enter university bring with them a wide array of lived experiences, resources, and constraints. It could be tempting (whether implicitly or explicitly) to consider disadvantage as some kind of quantitative concept, such that disadvantage can be modelled in a way that is additive. However, by accepting this idea, you must also accept that the inverse of disadvantage (i.e. advantage) can be used to offset one’s disadvantageous position. This significantly complicates the relatively simplistic view on disadvantage that is sometimes adopted at an institutional level when considering awarding gaps. For example, two students with *disadvantage X* may not carry the same consequence forward into their academic career. Yet, any quantitative assessment of performance based on categorisation would simply consider both students to have *disadvantage X*. This is a problem, and there is good evidence to suggest that this occurs continuously throughout the student lifecycle. This phenomenon, referred to as “compensatory advantage” (Bernardi, 2014), details how students from resource-rich or higher socioeconomic backgrounds are much less likely to suffer long-term disadvantage from any given environmental or social shock at earlier stages in their academic career. For instance, there is extensive evidence from a wide range of education systems which supports the idea that students from low

socioeconomic backgrounds are more likely to drop out of university completely following an adverse assessment outcome (Herbaut, 2021). Continuing with the idea of summation, some believe that disadvantage across multiple domains can be multiplicative and therefore interaction effects are important. This concept of “intersectional disadvantage” posits that multiple disadvantages can lead to significant barriers to achievement that become difficult to overcome (Loets, 2024). For instance, studies suggest that disabled women have higher attainment gaps over and above those experienced by disabled men and non-disabled women (Meadows-Haworth, 2023). Others suggest that those with multiple disadvantages should be considered as categorised by those disadvantages simultaneously in an almost separate joint category; Crenshaw puts this clearly in a piece discussing discrimination against black women in the late 1980s where she suggests that for the purposes of analysing discrimination, disadvantage is not simply summative:

I am suggesting that Black women can experience discrimination in ways that are both similar to and different from those experienced by white women and Black men. Black women sometimes experience discrimination in ways similar to white women's experiences; sometimes they share very similar experiences with Black men. [...] sometimes, they experience discrimination as Black women - not the sum of race and sex discrimination, but as Black women. (Crenshaw, 1989, pp. 149-50)

The intersectionality theory of disadvantage, however, is not a given. In a recent large cohort study, Brophy (2025) examined the interaction between gender, ethnicity, and socioeconomic status. Whilst some interactions between disadvantageous ‘categories’ were found to be statistically significant, their effect sizes were negligible, with any cumulative effect not necessarily altering the probability of obtaining a good degree. In fact, considering gender, ethnicity, and socioeconomic status independently was sufficient to explain attainment gaps.

Taken together, this evidence suggests that disadvantage rarely behaves as a simple summative criterion. The practical question for universities should not simply be *how much* a student is disadvantaged, but rather when does this disadvantage *become enough* to cause a change in outcome risk. In this context, disadvantages can be considered as threshold effects (effects that tip the student into failure risk) and saturation effects (effects that provide no additional risk of failure over and above the already existent risk). The bar for these threshold effects is also not the same between courses of study. In lab-heavy or placement heavy programmes (such as Biomedical Sciences, Nursing, or Medicine), learning and progression relies heavily on session attendance and cannot be readily compensated through extra reading, extra study, or additional sessions. As a result, some courses may have a significantly lower bar for these thresholds, and therefore considering student disadvantage across an institution as a homogenous entity is also slightly risky. These lower functional thresholds in lab- or placement-heavy programmes make institutional level analysis of awarding gaps (and even worse, national averaging) difficult; such compaction may hide the real size of awarding gaps in some courses.

Use of a threshold-based metric when better data is available

The generally accepted outcome metric for measurement of the Awarding Gap is a “good degree”. This is widely (almost exclusively) considered to be the award of a 2.1 or 1st class degree (Universities UK, 2022). As a result, selecting this binary yes/no outcome as measure for the Awarding Gap throws away the resolution provided by *detailed* student performance. This can mask underlying differences in distributions, oversimplify complex phenomena, and ultimately lead to misinterpretation by either erroneously identifying or masking the size of an Awarding Gap (Hubbard, 2024). Given that UK universities have standardised awarding thresholds for degree classifications, the only real justification for using threshold-based metrics can be simplification of data for stakeholders and the public. This rationale does not provide sufficient support for the loss of granularity of the underlying dataset of student performance.

Reducing a continuous achievement distribution into a single binary outcome of “good degree” discards a huge amount of relevant, important, and *available* information. A number of problems follow from this binary classification, including but not limited to:

The measure is overly sensitive around the boundary: Small shifts in average marks near 60% can generate big changes in the size of the awarding gap. If a student has an average mark of 59%, then they are not classified as having obtained a good degree. A mere 1% increase in the average mark generates a 100% return on the student’s binary outcome, and they have a good degree. In addition to being overly sensitive around the boundary, the measure is practically unmoved by huge swings far away from it. An institution with massive improvements in mark in the low 50% range is likely to see almost nil improvement in the awarding gap.

The measure masks actual differences in achievement: Two students - one with a “good” degree and one without could have either significant mark disparity or not, but with binary options it is almost impossible to identify. Consider two scenarios – student A scores 59% and student B scores 60%. The binary classification of “good degree” means that this result is classified no differently than a situation where student A scores 40% and student B scores 80%. Furthermore, all results that are not in the “good degree” category are lumped together and considered equally, when clearly they are not equal.

Perverse incentives exist around the 60% boundary and are masked by lack of granularity: Binary classification encourages providers to pay particular attention to the 60% boundary. For example, discretionary rounding, viva uplifts, and reallocation of support towards students at the borderline will all lead to an increase in the number of students obtaining “good degrees”. A report by Universities UK identified that most institutions permit students for borderline consideration at 2% from a grade boundary, which some institutions allowing a deviation of 3% from a grade boundary to be considered for an uplift (Universities UK, 2020). To be clear, I am not arguing for the HE sector to become harsher in their considerations of borderline cases, but from the

perspective of those considering the awarding gap, openness and transparency around the borderline cases would be beneficial. If nothing else, this would remove concerns levelled at the sector around classification ‘engineering’.

One, perhaps obvious, response to these limitations is to replace the binary “good degree” outcome with metrics that retain the full range of information relating to student academic achievement. At a minimum, we should consider differences in continuous final average marks and consider achievement across the full distribution of classifications. We could go further and question whether the current degree classification system is itself the problem; many have argued that the classification system is too coarse (Knight, 2002). This is not a new argument; in 1997, a national inquiry into HE (the Dearing Report) went as far as to say, “that the honours classification system had outlived its usefulness” and that “it no longer provided useful information” (National Committee of Inquiry into Higher Education, 1997, p. 139). Nearly two decades later, a sector-wide trial led by the Higher Education Academy examined the feasibility of introducing a grade point average (GPA) alongside existing classifications, and concluded that adopting a GPA system would likely be beneficial for UK higher education (Bloxham *et al.*, 2015). Although some institutions now report GPA-style scores in addition to the traditional honours classification, uptake and understanding across the sector remain variable. Wider adoption of more granular systems, used alongside rather than instead of existing classifications, would be an important step towards generating richer, more sensitive data with which to understand and address awarding gaps. Some have gone even further and suggested a complete removal of classifications and grading altogether, leaving just ‘pass’ and ‘fail’ with no other intervening classifications at all (Donald, 2025). Such a move would remove almost any ability to assess academic achievement and is unlikely to be a productive move.

Some confounding variables contribute quietly to the Awarding Gap

The underlying data for the awarding gap is based on a final outcome measure, and by its very nature, requires students to complete their studies in order to be a contributor to the dataset. Therefore, it is apparent that non-continuation is an important factor that should be considered when we think about the Awarding Gap. Those who withdraw before a final award is made simply disappear from the calculation. Yet non-continuation is itself strongly socially patterned. Sector data show that continuation rates are systematically lower for students from deprived areas, mature entrants, some minoritised ethnic groups, and disabled students, even after controlling for prior attainment and subject of study (Office for Students, 2020a). This is important, as the number of students in an institution that do not continue their studies into Years 2 and 3 may be significant.

In addition, simple comparisons between demographic groups does not take into account inequity in university access. For example, white males eligible for free school meals (FSM; a marker of deprivation) are less likely to attend university than any other

group of students when considering gender, deprivation, FSM status, and broad ethnic group (Bolton and Lewis, 2024). In simple terms, many of the most educationally disadvantaged white FSM-receiving students are simply not present in the undergraduate population at all. This means that those white FSM students who do enrol tend to be higher attaining and a more motivated subset, whereas for some other demographic groups a broader range of prior attainment and circumstances is represented. As a result, the demographic composition of the student body is *already* selectively filtered before any awarding-gap analysis takes place. This can contribute to the development of awarding gaps - the most disadvantaged potential students from some backgrounds have been filtered out at earlier stages of the educational journey. Meaningful interpretation of awarding gaps therefore requires us to think carefully about this issue and whether this access gap underlies (at least part of) the awarding gap.

The Awarding Gap focuses on outcomes and not processes – “gap-gazing”

The focus on quantitative outcomes tends to shift the focus of interventions towards outcomes and not processes. For instance, interventions that specifically work to raise grades, may not ‘fix’ underlying inequitable processes; additional examination support for disadvantaged students might improve grades temporarily, but this is not the same as supporting equal resource or facility access, or promoting peer inclusion. Furthermore, approaches of this nature can inadvertently reinforce deficit narratives, leading to blanket assumptions that students of a given demographic inherently require additional support (Davis and Museus, 2019). This focus on outcomes rather than processes has led some equity researchers to coin the term “gap-gazing” (Gutiérrez, 2008). Worse, by focusing on final degree metrics retrospectively, institutions are only identifying inequity at the point of failure, where no further meaningful support can be given. Essentially, by the time an institution calculates its awarding gap, for those students whom that calculation is derived from, it is too late.

One way to move beyond gap-gazing is to rethink equity monitoring more generally, moving from a single outcome measure to broader monitoring around the entire student lifecycle. This means pairing awarding gap data with a range of other progress indicators that capture how different groups move through their educational journey, e.g. patterns of application, offer and enrolment; early engagement with teaching and assessment; continuation and progression between years; use of mitigating circumstances and extensions; access to key learning resources and placements; measures of belonging; and group participation. These analyses can be used to provide proactive monitoring and measurement that identify differences in progression long before the point of final degree classification. Perhaps as importantly, they would help to shift the focus away from simple binary outcomes and direct attention towards aspects of curriculum, pedagogy and institutional structures that are amenable to change, allowing interventions to be designed around transforming processes that have impacts on the student experience.

The awarding gap shifts the blame, and the onus to fix inequity, onto the University

The shift from “attainment gap” to “awarding gap” was intended to move attention away from the idea of a student deficit, and to move towards institutional responsibility for gaps in “good degree” attainment. In some respects, this has been useful – it has meant that HE institutions have had to genuinely engage with their role in outcomes. HE institutions have taken this responsibility as an opportunity to explore how their curriculum, assessment practices, and educational environments may have contributed to inequity. However, this shifting of responsibility onto the university essentially fixes the cause of the disparity (and therefore the onus to fix it) at the level of the university. It contributes to an undercurrent which suggests that the University is the point at which this educational disparity first appears, which is clearly not the case. Many of the inequalities observed in degree outcomes reflect disparities that have accumulated throughout earlier stages of the education system and wider social structures.

By focusing almost exclusively on disparities observed *after* students have entered higher education, we risk allowing other parts of the system to face reduced scrutiny. This can allow upstream inequalities to lose focus from both policy and public viewpoints, with the problem being framed as belonging entirely to higher education. This is not to diminish the obligations of universities to address inequity in their own practices, but to emphasise that awarding gaps are the culmination of a longer chain of structural disparities that require coordinated action beyond higher education alone. A meaningful response requires coordinated action across the educational pipeline, rather than expecting universities alone to remediate decades of accumulated disadvantage in the final three or four years of formal education.

Moving from an Awarding Gap to a progress gap

The awarding gap, as it is currently constructed, is an end-point metric: it captures differences in the proportion of students who reach a predefined outcome at the end of their studies. As a result, it tells us little about how far different groups have progressed during university relative to their starting point. A student who enters with strong prior attainment and graduates with a 2:1 may, in one sense, have underachieved relative to expectation, while another who enters with weaker preparation and attains the same classification may have made substantial progress. Collapsing these distinct trajectories into a single binary outcome obscures achievement and blurs the distinction between inequities that pre-date university and those that develop within it.

One way to address this is to complement awarding-gap analysis with explicit progress metrics that track how students develop academically over time. Rather than simply asking “*how many students get a good degree?*”, progress metrics would instead ask: “*how far do students move in their educational experience?*”. This form of measure is known as a “value-added (VA) measure”, which makes an assessment of the progress of students relative to their starting position. Although there is some work looking in

this area (Kandiko Howson and Buckley, 2020, Evans *et al.*, 2018, Arico *et al.*, 2018), the term “progress gap” is not as widely established as other disparity measures such as awarding, attainment, continuation, and completion gaps. In higher education, sector reporting tends to distinguish stages of the lifecycle (access, continuation, attainment, progression), but equity debates around attainment have remained anchored to end-point outcomes such as the proportion achieving a “good degree”.

The use of individualised student progress as a measure does have some precedent in education. Perhaps the most well-known measure is Progress 8, which aims to capture the progress that students make from the end of primary school up to the end of Key Stage 4 (end of secondary school). It is specifically described by the government as a VA measure (Department for Education, 2025) and is used to make comparisons between schools by assessing by how much students’ expected grades differ from their actual grades. In terms of equity, such measures are useful. Previous systems had focused on the percentage of students getting above a certain grade. This often meant that school focus could too often be placed on students close to the selected grade boundary. Systems such as Progress 8 which focus on *distance travelled* benefit from their design in that all students – including both those of higher and lower attainment – are contributors to institutional performance (Burgess and Thomson, 2020).

Translating this kind of approach into HE would not be straightforward. Unlike primary and secondary education, universities do not operate a standardised curriculum and there is no single definition of what constitutes “progress” across different institutions. Furthermore, the most obvious starting point for progress in HE are entry grades, whether this be measured in UCAS tariff points or some other measure. These measures are potentially problematic for a number of reasons. Firstly, the qualifications that contribute to a given student’s tariff points may differ in type/context compared to other students (e.g. BTEC, A-Level, T-Level, etc). Secondly, although entry grades are relatively strong predictors of achievement, they are nuances that should be considered. For example, the entry grades achieved by students are influenced by the type of school they have attended. It has been known for some time that students who attend private or independent schools achieve higher grades prior to university, but are less likely to achieve a first-class degree than state school attendees with the same grade profile (Ogg *et al.*, 2009, Higher Education Funding Council for England, 2014).

Nevertheless, the underlying logic of VA assessment is already present in higher education, albeit in fragmented form. In many institutions, academics are encouraged to provide students with feedback that identifies specifically what *they* have done well, and where *they* can improve going forward. This model provides students with personalised feedback that allows them to assess themselves against their own previous performance. For instance, a student who is suggested to improve X, and then does so for the next piece of assessment, can easily identify their own progress. This can sometimes be difficult to achieve, as very few students have continuity

between markers as they cross modules. This had led to some considering a more formal approach to integrating previous feedback with each marking task. This has been termed ‘ipsative assessment’, and compares a learner’s current performance with their previous performance (Hughes, 2011). The author suggests a ‘mixed model’ which stops short of full ‘ipsative grading’ (i.e. grading work against your last piece of work, which itself would have significant difficulties).

Much of the literature on differential attainment adjusts for prior attainment when modelling degree outcomes, and sector bodies routinely acknowledge that raw awarding gaps conflate institutional effects with differences in student intake. Similarly, a small number of institutions have developed explicit VA models that benchmark degree outcomes against expectations derived from entry qualifications and subject of study, with the aim of improving equity analysis. What is largely missing is a shared language and framework that frames these approaches as actual measures of progress, rather than simply technical adjustments to awarding-gap statistics. A move towards approaches that are more explicitly framed as progress gaps would be beneficial. It changes the question from “who is less likely to obtain a good degree” to “who makes less academic progress than would be expected from their starting point”. This matters for equity; analysis of progress gaps more directly interrogates what happens within the university environment itself. This provides a clearer idea of the contribution that the university might make to generation of mitigation of educational inequity.

One of the clearest examples of a progress-oriented approach to equity in UK higher education is the VA model developed at Kingston University, which benchmarked degree outcomes against expectations derived from entry qualifications and subject of study (Office for Students, 2020b, McDuff *et al.*, 2018). Expected outcomes are derived from national patterns of degree attainment for students with similar entry qualifications and studying similar subjects. By aggregating these expected probabilities across a cohort, the metric estimates how many students would be expected to obtain a “good degree”. The ratio of observed to expected outcomes then provides a VA score, indicating whether a group performs above, in line with, or below expectation. In this way, the metric adjusts for differences in intake profile and focuses attention on disparities that cannot be explained by prior attainment or subject mix alone. A value-added score of 1.0 indicates outcomes in line with expectation, while scores above or below this threshold indicate relative over- or under-performance, respectively. In the Kingston study, differences in VA scores were observed between BME and White students across a number of participating institutions (Office for Students, 2020b).

Taken together, this work suggests that VA approaches provide a useful way of reframing differential attainment as a question of progress rather than solely of outcomes. Although such measures do not eliminate all of the conceptual and methodological challenges associated with equity analysis in higher education, they offer a clearer means of separating disparities that largely pre-date university from

those that emerge within it. Framing these adjusted differences as progress gaps shifts attention towards institutional processes and environments, and provides a more direct basis for assessing the contribution that universities may make to the production or mitigation of educational inequity.

Conclusions

The awarding gap is a deceptively complex metric. Treating the binary “good degree” threshold as the sector’s primary indicator of equity obscures more than it reveals. Threshold-based measures discard information, are highly sensitive around classification boundaries, and invite perverse incentives in institutional behaviour. They also mask the contributions of non-continuation and unequal access, and sit uneasily with what is known about intersectionality, compensatory advantage, and the cumulative production of disadvantage across the educational pipeline. By focusing on retrospective outcomes, awarding-gap analysis further encourages a form of “gap-gazing” that locates both problem and solution at the point of graduation, while rendering upstream inequalities less visible to scrutiny.

The argument advanced here is not that awarding gaps should be abandoned, but that they require reframing and supplementation. Monitoring awarding gaps remains important, but it should be complemented by more granular measures of achievement (such as continuous marks, full classification distributions, or GPA-style metrics) and by value-added, lifecycle-oriented indicators that track access, engagement, continuation and progression. Taken together, these approaches would allow institutions to identify earlier points of divergence, design interventions that address inequitable processes rather than terminal outcomes alone, and situate their own responsibilities more clearly within a wider system of shared accountability for educational equity. Ultimately, equity in higher education cannot be adequately understood or addressed through end-point outcomes alone; it requires measures that capture how students progress, where divergence occurs, and which parts of the system are positioned to intervene.

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‘Feeling the code’: Emotions in programming and interventions supporting positivity

Liam Cremona^{1,2}, Niall Dunne¹, Archana Sharma-Oates¹, Phillip Smith³ and Lindsey Compton¹

¹School of Biosciences, University of Birmingham

²School of Life Sciences, University of Warwick

³School of Computer Science, University of Birmingham

Contact: l.j.compton@bham.ac.uk

First published online 28 November 2025

Abstract

Aims. Universities and disciplines may differ, but all face similar challenges in teaching programming, particularly the emotional responses of students learning to code. In our data-driven world, teaching students how to code is vital for their digital literacy and employability. The aims of this project were to understand the emotions students experience in introductory programming modules in different disciplines and contexts, the factors predisposing students towards negative emotional responses and what interventions can effectively promote positivity. **Methods.** We gathered data from MSc Bioinformatics and MSc Data Science students studying both on-campus and via distance learning. Surveys and focus groups explored emotional responses to learning coding languages. We conducted cross-disciplinary workshops with over 30 University of Birmingham staff to identify key barriers and challenging concepts in coding education. **Key findings.** Students report joy more frequently than any other emotion when learning to code. At the same time, students frequently experience frustration related to mismatches between expectations and the reality of coding. Assessment should encompass the learning process alongside the outcomes of coding tasks. While emotional negativity did not differ significantly by programme, fewer negative emotional responses were shown by males or students with prior coding experience. Based on our findings, we developed interventions aimed at humanising the learning experience to foster more positive engagement. **Practical recommendations.**

Student expectations need to be managed upfront, normalising the experience of learning to code and emphasising the need to expect and accept mistakes, as well as taking an iterative approach and adopting a growth mindset.

Keywords: coding teaching, computer science, bioinformatics, programming, emotions in learning, positivity in learning, engagement.

Introduction

Emotions lie at the heart of learning, while the experience of consistent positive emotions is a key requirement for learning in a classroom environment (Meyer and Turner 2006). Learning to write computer code ('coding') is widely recognised as one of the most cognitively challenging and emotionally charged learning experiences (Moskal *et al.*, 2017). Yet, the top three emotions highlighted by studies on coding are frustration, confusion and boredom, which can be classified broadly as negative, while positive emotions such as happiness are comparatively rare (Coto *et al.*, 2022). Considering that coding skills are becoming increasingly important across diverse disciplines, particularly in STEM subjects where big data has become the norm, it is important to understand the emotional experiences of students learning to code and to adopt sensitive approaches to teaching that support students to recognise and express their feelings (Chetty, 2003).

Emotions can be recognised as complex, multifaceted phenomena involving various processes in the body including physiological, affective, cognitive, motivational and expressive processes (Kleinginna and Kleinginna, 1981; Scherer, 2000). They can be measured in many ways from the use of simple self-reports to tracking physiological (e.g., heart rate) and behavioural (e.g., gestures) parameters to enable implementation of intelligent learning environments that track student emotions and respond to them in real-time (e.g., by offering tips for fixing errors in code; Drosos, 2017).

The primary emotion reported in the literature on coding is frustration, which is shown to be a key factor in learner disengagement, dissatisfaction and ultimately drop-out (Coto *et al.*, 2022). However, students also experience a broader range of academic achievement emotions (Pekrun *et al.*, 2002; Kinnunen and Simon, 2011), which

strongly correlate with academic performance (Rodrigo, 2013; Lishinski, 2017). There is a consensus that a certain degree of frustration can improve motivation to work on a problem, but beyond a certain threshold, in intensity and/or duration, the effects can become detrimental (Lee *et al.*, 2011; Coto *et al.*, 2022). This type of effect may occur when students meet ‘threshold concepts’ (e.g., how to write a ‘for’ loop) that are often transformative for students in terms of the way they think about a subject (Chetty, 2013).

Almost all investigations of student emotional responses in learning to code have focused on undergraduate computer programming courses, most often in controlled laboratory settings in a US or Philippine context (Coto *et al.*, 2022). Thus, there is a need to compare the emotional responses of students in the UK across different fields of study and modes of learning including on-campus and distance learning (DL). Towards this end, we set out to understand the student emotional experience of learning to code in bioinformatics and computer science disciplines. Specifically: **1)** What are the main emotions students experience in their introductory programming module?; **2)** How do the emotional experiences of novice students compare to students with coding experience?; **3)** How do the emotional experiences of on-campus students compare to DL students?; **4)** Given that sophisticated real-time interventions are out of reach for most teachers in practice, what simple interventions might help to improve the emotional experience of students learning to code?

Methods

We began by informally observing patterns in the learning experiences of students on our MSc Bioinformatics by distance learning programme at the University of Birmingham. Students often experienced what can only be described as a “system shock” in learning to code for the first time, and the feelings that arose in response seemed to present an even greater challenge than the technical aspects of learning to code. The need to investigate the feelings involved and find a way to humanise the experience of learning to code was reinforced by a staff workshop on teaching introductory coding. The workshop drew academic and professional services staff from across the University, spanning many disciplines (e.g., psychology, languages, biosciences, computer science, mathematics, IT services).

A collaboration arose that enabled us to investigate the experiences of students in two subject areas, bioinformatics and computer science, and compare the experiences of

students learning in person on-campus in Edgbaston compared with those learning online via distance learning. There is a clear parallel here between teaching introductory coding and teaching introductory statistics and/or research methods, both of which combine highly demanding academic challenge with an emotionally charged experience, including for example the widely reported phenomenon of statistics anxiety (Bromage *et al.*, 2021). The target populations in this study included students from the School of Computer Science enrolled in the MSc Data Science programme, with a cohort size of ~120 per year (and a handful of students from the MSc Fintech or MSc Responsible Data Science); and students in the MSc Bioinformatics programme, with a cohort size of ~40 students per year on-campus and ~25 students per distance learning cohort (with 3 cohorts per year).

Student emotions survey

Students were invited by email and via announcements on the virtual learning environment Canvas to participate in a 15-minute Microsoft Forms survey on the emotions they experienced during an introductory coding module during the MSc Bioinformatics or the MSc Data Science programmes. Students were asked to name their emotions by selecting words from Plutchik's wheel of emotions (Plutchik, 2001) (**Figure 1**; Semeraro, 2021, p. 6-7). When alternative words were used to express emotions, these were standardised using the Plutchik Wheel; each was independently recoded, and a consensus-based conversion dictionary was developed and agreed upon by at least three individuals. Survey responses were anonymised prior to data analysis.

Negativity scoring

An adapted 5-point Likert scale was used (Bieleke *et al.*, 2021) to develop an overall adjusted negativity score per survey response, where the most negative response (strongly disagree) to a statement (e.g., 'I am confident when coding') would be three points while neutral or positive responses score zero. For questions requiring named emotions, two negative emotions scored two points while neutral or positive emotions scored zero points. Negativity scores were adjusted based on the number of relevant questions participants answered and were compared between groups using the Wilcoxon Test.

Thematic analysis

Responses were drawn from three free-text survey questions exploring what aspects of the module worked best to help students to manage their emotions, suggestions for improvement, and any other aspects of their emotional experience students wished to share. An inductive thematic analysis approach was used, following Braun and Clarke's (2006) five-phase process: familiarisation, theme generation, review, definition, and final reporting. Two key questions guided the analysis: what were the similarities and differences between on-campus and DL student responses? and how did DL student responses differ between cohorts with and without interventions?

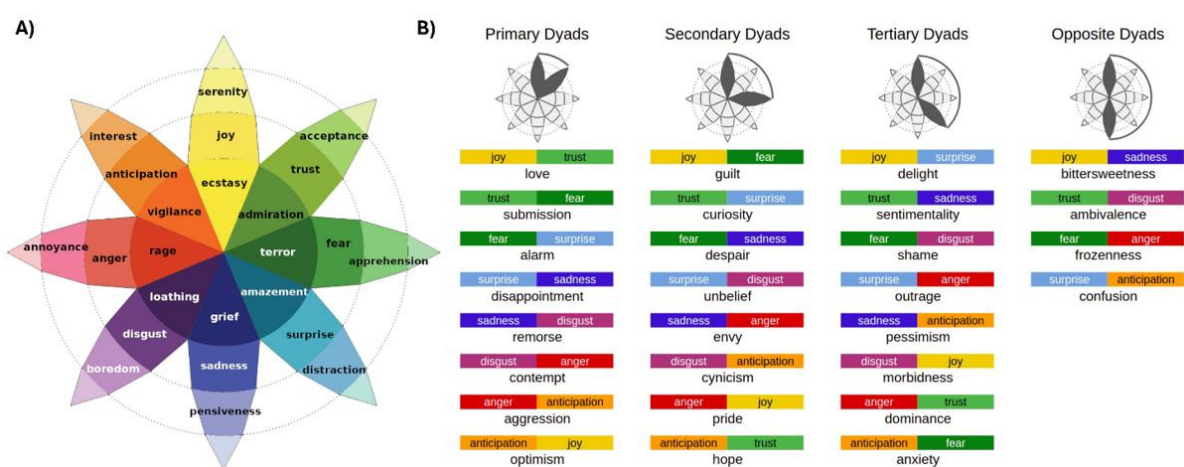


Figure 1: Plutchik's wheel of emotions. A) 8 primary emotions shown as petals on a flower with three degrees of emotional intensity from lightest (lower) to darkest (higher). B) Dyads arising from combinations of petals. Reproduced from Semeraro et al. (2021), pp. 6-7.

Interventions to humanise the experience of learning to code

For cohort 5 of the DL bioinformatics programme, we implemented interventions to improve the student experience of learning to code by building connection between students and staff, normalising the process of learning to code, and shifting the focus from purely technical competency to core transferrable skills. Interventions included a live optional online 'coding clinic' in the otherwise fully asynchronous course, reframing of online discussion board questions around the experience of learning to code rather than focusing purely on technical know-how, and informal weekly videos with reflections from the module lead. Topics for the reflections included: experiences of the emotional rollercoaster, challenges of learning to code when considered as analogous to learning a new language, personal tales of failure, frustration and perfectionism, and the need to take an iterative approach (your code will never work

first time). The revised summative assessment included a short answer question requiring reflection on the skills acquired during the experience of learning to code and identification of good practice to take forward into future modules.

Student focus groups

We held two focus groups, the first in Jan 2023 with 4 students from cohorts 1-4 of the bioinformatics DL programme and another in June 2023 with 3 students from cohort 5. Discussions were based on two orienting questions: 1) Building on the information you have already provided in the survey, is there any aspect of the emotional experience of learning to code that you would like to discuss in more detail? and 2) What kinds of learning support or resources would you like to have to help you with learning to code? In the second focus group, we introduced a third question to evaluate the impact of the interventions employed.

Staff workshop

A workshop was attended by more than 30 academic and professional services staff involved in teaching coding across disciplines. Participants worked in small groups to discuss student reactions to coding, their triggers and impacts, the aspects of coding that students struggle with most, and how we can best support as teachers.

Data visualisation

Box plots were generated with the ggplot2 package (Wickham, 2016) and radar charts were generated to represent the 20 most frequently expressed emotions using the fmsb package (Nakazawa, 2024) in R version 4.5.0.

Results

The student survey on emotions in coding received 117 responses with demographics summarised in **Table 1**.

Common emotional responses – from joy to frustration

To explore the range of emotions experienced during coding tasks, students were presented with five common scenarios and asked to name their two strongest emotions for each (**Figure 2**). 'Joy' was the only emotion featured in the top three reported emotions across all programmes and cohorts (**Figure 2**). 'Curiosity', 'anticipation' and 'anxiety' also featured among the top 3 emotions (**Figure 2**), indicating that the experience of learning to code is likely akin to a rollercoaster of

positive and negative emotions as students oscillate between states where their code is working as expected or not.

Table 1. Survey participant demographics.

Cohort	n	Gender			Age group					
		F	M	Other/ N/A	18-24	25-34	35-44	45-54	55-64	N/A
Bioinformatics DL (cohorts 1-4) 2022	27	16	11	0	4	12	7	3	0	1
Bioinformatics DL (cohort 5) 2023	19	10	7	2	3	6	4	4	1	1
Bioinformatics (Edgbaston) 2022	13	4	9	0	7	3	1	2	0	0
Bioinformatics (Edgbaston) 2023	6	4	1	1	3	2	0	0	0	1
Computer Science 2022	25	3	16	6	14	6	0	0	0	5
Computer Science 2023	27	14	9	4	13	11	1	0	0	2

N/A indicates no response given.

Predictably, feelings of annoyance or aggression (*i.e.*, frustration) were reported prominently in all programmes (**Figure 2**). Frustration also featured strongly in the student focus groups and the staff workshop, both of which highlighted how frustration frequently arises at the bridge between concept and application, where students need to progress from understanding the basics of the taught material (e.g., how to write a loop) to applying it to solve real problems. What can be helpful here is to address the mismatch between expectation and reality, by providing opportunities for students to share their experiences of learning to code with staff and fellow students; the staff workshop revealed a strong consensus for the need to assess the process as well as

the outcome of learning, allowing students to identify and articulate the skills they have learnt in addition to focusing on the correctness of their code. Both aspects were incorporated into the interventions employed with the DL cohort 5.

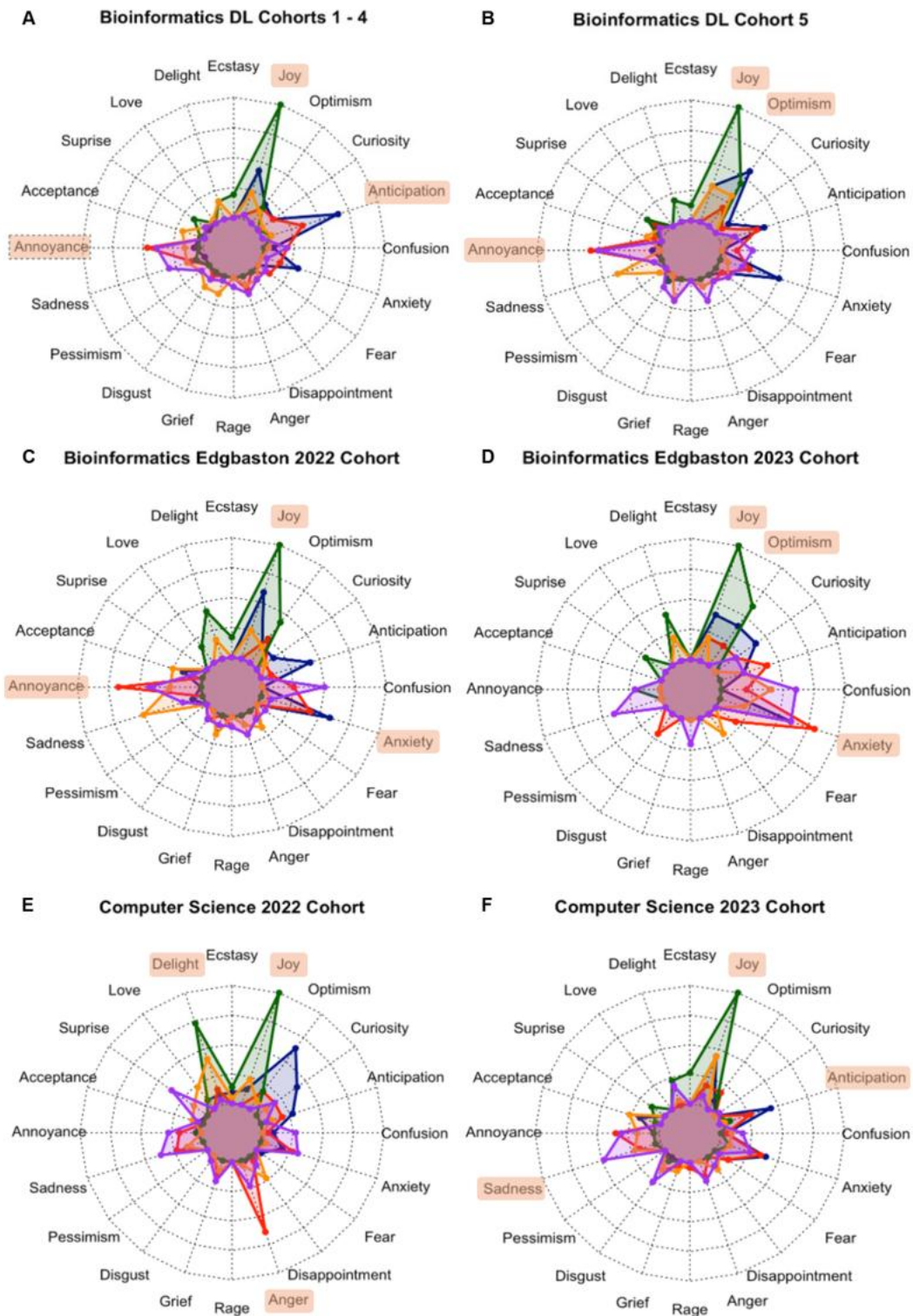


Figure 2: The nature of emotions by programme. Orange blocks highlight the 3 most frequently named emotions per cohort. Coloured lines indicate the response to 5 scenarios presented in the survey, including how students feel when: about to start a coding task (blue), when their code is not working (red), when the code doesn't work but does work after a long time debugging (green), or when using the model answers (orange), and when the

code does not work even when using the model answers (purple). Maximum frequency shown by the outer ring represents 26, 16, 12, 5, 22, and 23 responses (A-F).

Factors affecting the degree of negative response to coding

Based on a metric we developed for quantifying negative emotional responses to learning to code, we found that levels of negativity were similar in bioinformatics and data science degree programmes (**Figure 3**). Notably, students in the bioinformatics distance learning cohort 5 where interventions were implemented were less negative than students in previous cohorts 1-4, though the difference was not significant with the small sample size. In the focus group, cohort 5 students reported feeling reassured by hearing about the experiences of other students through discussion boards and live meetings and this helped them to feel that they belong (“I AM a programmer too.”). The weekly tutor-led reflections helped students to feel more confident, particularly when they featured relevant issues the students were currently struggling with, such as feelings of being overwhelmed, and provided important reminders of what is important; for example, you do not need to memorise everything or write code from scratch - just knowing what can be achieved with code is enough, then you can use examples to build from.

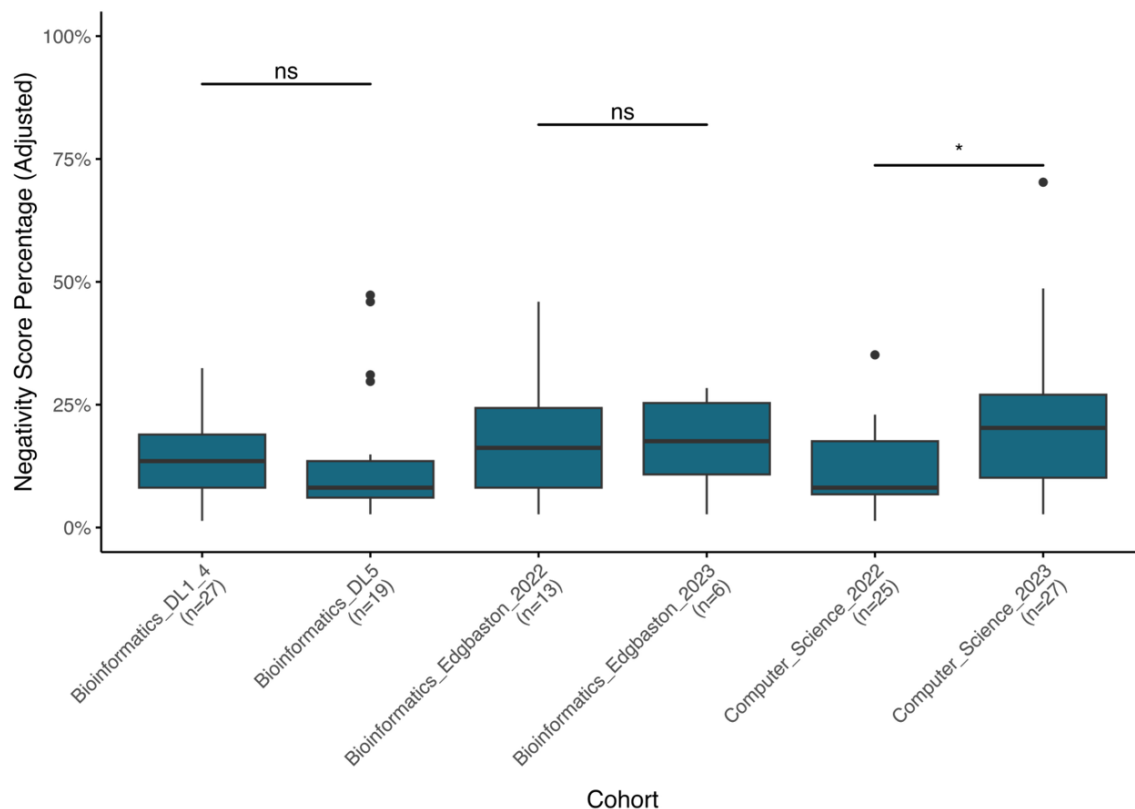


Figure 3: Relationship between negative emotional responses to coding and programme or discipline. Programmes included MSc Bioinformatics on-campus in Edgbaston or via distance learning (DL cohorts 1-4 and

cohort 5) and MSc Data Science (Computer Science). Significant p values are indicated with an asterisk ($p < 0.05$) and ns denotes no significant difference.

Across all programmes, the primary indicator of a more negative response towards coding was the level of prior coding experience. Students who had learnt coding previously showed a significantly less negative response (**Figure 4A**) regardless of whether they had learnt coding formally ($p = 2 \times 10^{-4}$) or informally ($p = 9 \times 10^{-4}$). Females expressed significantly more negative emotional responses than males (**Figure 4B**; $p = 0.017$). Therefore, interventions to improve the experience of learning to code need to focus particularly on the experiences of females and the complete novice.

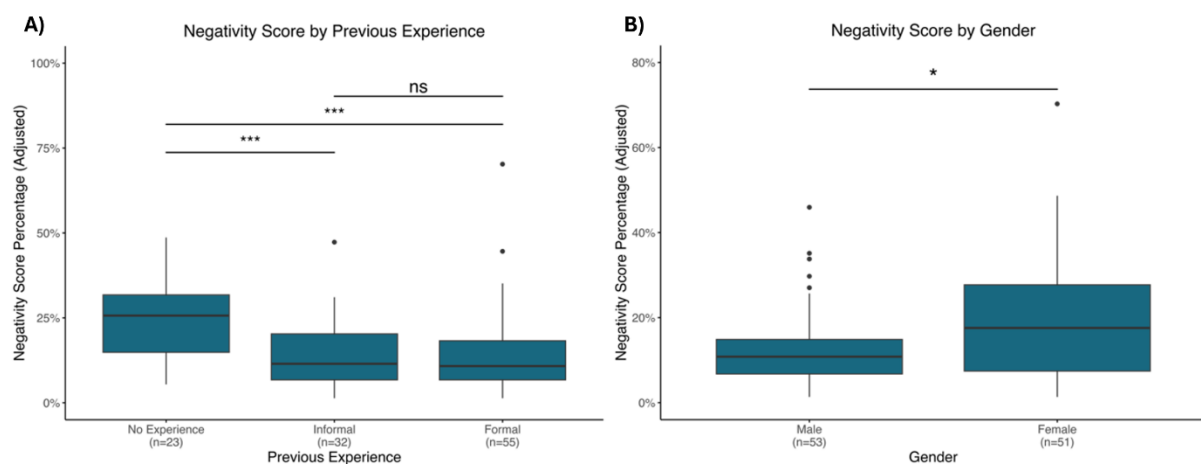


Figure 4: Relationships between negative emotional responses to coding and level of prior coding experience (A) or gender (B). Coding experience was categorised as none, informal experience or formal experience in a taught course. Significant p values are indicated with an asterisk and ns denotes no significant difference, * denotes $p < 0.05$, and *** denotes $p < 0.001$.

Experiences of students learning on-campus or via distance learning

Student experiences of learning to code were further explored through focus groups and qualitative analysis of free text survey responses. Common challenges reported by both on-campus and DL students included challenges transitioning between coding languages (primarily R and Python), managing inconsistent tutor instructional styles, and becoming independent coders. Emotional responses such as frustration and confusion were common. To help deal with these experiences, human connection and support was highly valued, with peer interaction highlighted by 11.4% of DL and 6.25% of on-campus students, and academic support cited by 13% and 15.6%, respectively.

The importance of timely feedback was emphasized by both groups (17.9% DL, 21.9% on-campus), which students associated with improved motivation and reduced emotional stress.

On-campus students benefitted from real-time group work and immediate feedback during practical sessions, with 12.5% highlighting peer collaboration as a key support. In contrast, DL students reported more intense feelings of isolation, with cohort 1-4 students explicitly noting the lack of live interaction (6.5%) and experiencing greater isolation (17.3%) compared to cohort 5 students (5.6%) who received interventions. DL students also struggled more with time management during self-paced learning, often describing the experience as overwhelming. By contrast, on-campus students had a more structured timetable and fewer reported concerns about course pacing, although 15.6% still desired more time for reflection. Cohort 5 students clearly benefitted from the interventions including live Q&A sessions and weekly reflections, helping them to feel more connected to the programme, with one student stating that it made them feel *“less isolated and more supported.”* Compared with 15.4% of cohort 1-4 students reporting feelings of being overwhelmed, only 7% of cohort 5 students felt overwhelmed by their work.

Discussion

We have shown that students in different disciplines frequently report positive emotions such as joy, in contrast to the three most reported emotions in coding: frustration, confusion and boredom (Coto *et al.*, 2022). Progress is never linear, and frustration is absolutely OK, but ultimately there is joy to be found in coding, which we should highlight and celebrate with students. Combining quantitative and qualitative analysis of the survey data with qualitative analysis of focus group outcomes, we conclude that teachers can make simple, practical interventions in introductory coding courses to making learning to code a substantially more positive experience for students, where they feel better supported and less overwhelmed.

We recommend that when teaching introductory coding, student expectations are managed upfront, to temper what can otherwise be a system shock of adapting to a new way of working. The experience of learning to code can be normalised by providing opportunities for community reflection with students and staff. Useful discussion topics include getting comfortable with accepting the feelings that often arise when coding (the emotional rollercoaster), the need to make copious mistakes

to eventually get your code to work, the importance of taking an iterative approach and adopting a growth mindset. If feelings of frustration are left unattended, they can easily grow into perceptions of not being capable of coding (or a fixed mindset) or of not being good enough. With careful scaffolding of discussion and sharing of selected personal stories, students can come to realise that their frustration is a sign they are committed to solving a problem, and that these are feelings everyone experiences, including the most experienced coders - who also never 'get it right first time'. They can also begin to recognise the value in attending to their own emotions during the learning process and showing self-compassion. Although community reflections can take place via online discussion boards in the virtual learning environment, there is no substitute for human connection experienced in a live session, a key consideration for distance learning programmes delivered asynchronously. Along with group discussion and reflection, opportunities for more peer-to-peer interaction, e.g., through group-based learning during hackathons, is likely to facilitate normalisation of the learning process and its challenges.

The importance of the learning process can and should be recognised as part of module assessment. In the bioinformatics programme, we required students to submit a short reflection on the skills acquired during the experience of learning to code and identify good practice to feedforward. More generally and considering the evolving ability of Generative Artificial Intelligence to produce correct code, it is important to capture the thinking and learning process, for example by asking students to annotate their code and explain its rationale, to demonstrate understanding of how and why it works. The central importance of making mistakes in learning to code can also be recognised by paying careful attention to the running order of course material. We recommend introducing the concepts and art of debugging from day one to reassure students that making mistakes is expected and is an important part of developing and testing code, no matter their level of experience.

While the above recommendations can make the experience of learning to code more positive for all students, specific attention should also be paid to complete beginners and female students who report particularly negative reactions to coding. For example, interventions may be designed to provide targeted support to students with no background in coding, possibly by working in groups with a range of experience levels. The emotional experiences of female coders and the relationship with academic self-

efficacy is worthy of further investigation, though in the meantime, Guest and Forbes (2024) provide a set of actionable guidelines for teaching coding more inclusively. It is possible that stereotype threat and/or implicit associations between being male and being competent in coding could play a role as female students are aware of their stereotyped inferiority in mathematics and related disciplines. Fine, 2010 describes how the ‘deadly combination of knowing and being’ (*i.e.*, women are bad at coding and I am a woman) can be a trigger for negative emotions. On the other hand, it is equally possible there were differences between genders in their emotional literacy and/or openness in expressing emotions via the online survey.

Conclusions

Teachers can help students to feel more positive about coding, better supported and less isolated through simple interventions that make space for students to reflect on their experiences and reduce the gap between expectation and reality. These interventions can take many different forms including opportunities for (ideally live) discussion of the challenges, sharing of emotional experience, group work and revision of assessments to adequately capture the learning process. In future, it will be interesting to explore the experiences of particular groups of students (*e.g.*, females) and the extent to which our findings may be replicated in other disciplines, levels of study and at other UK Universities.

Acknowledgements

This work was supported by the Education Enhancement Fund, reference EEFRD012.

Statement on ethics

The survey, focus groups and data analysis followed the ethical guidelines of the British Educational Research Association, Fifth Edition 2024, and was approved by the ethical review board at the University of Birmingham (application ERN_2022-0499).

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Built-in, not bolt-on: embedding employability in postgraduate study. A Film and Television placement module case study

Jemma Saunders, Department of Film & Creative Writing

Contact: j.j.saunders@bham.ac.uk

First published online 18 November 2025

Abstract

This case study reflects on the embedded 'Placement and Training' module that has been an integral part of the MA in Film and Television: Research and Production at University of Birmingham for almost three decades. Although this postgraduate taught degree has a specific vocational focus, its holistic approach of blending theory and practice with a range of core skills (that can be deemed to fall under the broad banner of 'employability'), may prove useful in informing other disciplines' approaches to equipping their students for entering the workplace after graduation. The case study contextualizes the author's position as both former student and professional services employee and provides an overview of the module; including reflections on its development since 2012, insights into some of the challenges inherent in working with external partners, and the positive impacts of such curriculum-embedded opportunities.

Introduction

The MA in Film and Television: Research and Production (hereafter FTV) at University of Birmingham has evolved through several iterations since its inception as an MPhil in History, Film and Television in the mid-1990s. It has always included an embedded 'Placement and Training' module, worth 40 credits, whereby students undertake work experience in industry. This case study explores the development of the placement module since 2012, drawing on Advance HE's assertion that 'To be effective, employability should be embedded into all aspects of education, from the curriculum to the wider student experience' (Advance HE framework 2024, p.3). The University of Birmingham's own guidance on placement learning similarly states that 'schools need to consider the contribution that placement learning makes to the overall aims of the programme and programme learning outcomes' (2025), pointing to the benefits of an integrated approach that extends beyond the module proper. Examples of current practice in the FTV staff team's approach of building-in, rather than bolting-on, pedagogical initiatives designed to support students through their postgraduate year

will be discussed, alongside reflections on the challenges in equipping them with a comprehensive toolkit for navigating an increasingly volatile job market.

Authorial context

In this study I present a unique dual perspective: I have been employed as the MA's placement coordinator since 2012 and was a student on the MA from 2010-11, in the last cohort to study as 'History, Film and Television' (HFTV), transitioning from a traditional academic BA in Medieval and Modern History. I have freelanced in several roles, including at a small Birmingham-based video agency where my tasks involved research and production coordination. My position on the MA became full-time in 2014, in recognition of increasing student numbers and the complexities of developing and maintaining effective placement relationships and opportunities. Since then, the placement provision has expanded beyond the experience itself to include preparatory workshops and post-placement debrief and development activity. My experiences as both a former student and new entrant working in production have been integral to these programme developments, as I understand first-hand that a professional journey neither starts nor ends with the placement. As such, the evolution of the MA to holistically integrate employability initiatives stems from personal experience as well as continued dialogue with industry.

This study does not seek to address the question of where the responsibility for preparing students for employment sits (as discussed by Cheng *et al.*, 2022), but to consider how embedded pedagogic initiatives can have a positive impact in a specific discipline. Much of the existing literature about employability in higher education institutions focuses on undergraduates (Cheng *et al.*, p. 18), but turning attention to a postgraduate taught example demonstrates how meaningful provision can be achieved within a relatively short timeframe.

Postgraduate programmes in the UK typically last 12 months, when studied full-time, and FTV is explicitly marketed as being built around two core pillars of employability and storytelling. Emphasising outputs such as the production of audiovisual material for a showreel or gaining professional credits through the various modules offers tangible value to students, in a way that is arguably more patent than opportunities to gain skills through extracurricular initiatives at undergraduate level, as these are seldom embraced by entire cohorts.

Solid foundations: the autumn term

The 'placement and training' module purposefully enables as broad a window as possible for students to engage with industry opportunities: placements can occur at any point between January and June, following focused workshops in the autumn term. For students who join the MA directly from arts and humanities undergraduate degrees, the intensity of the autumn schedule can be surprising (over 12 hours per week on campus), yet it is a vital introduction to how a working week may feel and expectations around engagement both in academic and professional contexts.

Prior to 2014, there was one CV workshop midway through the autumn term and further placement preparation consisted of 1-1 meetings I held with each student. It was clear from conversations with students and host organisations, however, that more could be done to manage expectations around placement opportunities and provide students with a solid understanding of basic workplace etiquette. Therefore, a suite of workshops was developed and gradually integrated into the timetable, now comprising sessions on cover letters, interviews, the role of social media in finding work, industry roles, production in Birmingham, email and phone skills, and client relationships. Creating dedicated teaching time for these topics has myriad benefits, not least highlighting to both students and industry that we are committed to developing mutually beneficial partnerships.

Race observes that one must want to learn in order for learning to be successful (2014, p. 11) and the placement is a motivational factor that underpins the necessity of these workshops for students. Creating a CV is not only framed as an opportunity for formative feedback, but as a skill that has applications beyond university life, even if the most immediate purpose is to secure a placement interview. Indeed, interviews are not a universal requirement of educational placement arrangements but are integrated for our students to replicate professional practices. Referring to the terms 'skills' and 'competencies', Tight argues that 'Part of the graduate's task in convincing a potential employer of their employability, therefore, is being able to articulate and exemplify the competencies they have developed' (Tight, 2023, p. 554). This is directly applicable to the bespoke CV, cover letter and interview provision for FTV students, whereby they not only gain an understanding of industry-specific conventions, but discuss how they can evidence their skills and competencies to positive effect across these contexts. Outlining that a customer service role, for example, showcases genuine transferable skills such as time management can sometimes be revelatory, as can reassurance that the practical training they receive in cameras, lighting, editing and sound is also valid to include.

As Mateer states, 'The importance of practitioners in media education has been touted since the emergence of formalized cinema' (Mateer, 2019, p. 3). While his subsequent discussion around perceptions of industry practitioners in academia lays bare the numerous contradictions that unfortunately characterise many such experiences, I shall focus on Mateer's opening statement and its prescience for the FTV placement module. Over many years I have increasingly embedded alumni guest speakers into the curriculum, who now occupy a variety of roles in production at both entry- and mid-level. These alumni speak meaningfully about their journeys from student to professional - whether as a production coordinator, editor, researcher or in development - which resonates for those in the classroom. My role also encompasses pedagogical practice, with bespoke CV guidance the first step to building confidence and trust. This is reinforced as I introduce our alumni speakers, with whom current students can see the continuing mutual rapport and respect between education and industry. To quote Calloway-Thomas, 'a pedagogy of empathy is a meaningful way of

interrupting coarse language and generating trust and goodwill among global citizens' (Calloway-Thomas, 2018, p. 496). It is vital to nurture goodwill with our students, not just for the benefits this yields to our professional working relationships, but to prepare them for placements and their future careers - in turn positively developing the reputation of the MA and University, while further building our alumni community.

The FTV team mantra is 'work hard, care harder', building on Harari's assertion that future education should consist of four key Cs – 'critical thinking, communication, collaboration, and creativity' - to which we have added our fifth C: care (Harari, 2018, p. 266). These '5 Cs' underpin the holistic learning design of the MA across industrial, academic and technical content. Guest speakers, while ostensibly attached to a certain module for timetable purposes, speak meaningfully to multiple modules and assessments, and exemplify the empathetic foundation we strive to embed. Placement teaching is grounded in real-world scenarios to reassure students that soft skills are often valued more than technical capability; for example, my email class focuses on how recipients may feel on being asked to contribute to a documentary project, rather than just what the student needs to convey. Client brief templates have been developed and refined to streamline filming requests that come to the department, and students are invited to reflect on anonymised versions so they can comprehend some of the processes we go through as staff when deciding which opportunities offer appropriate learning. Through a combination of workshops, guest speakers and pedagogical care, therefore, students experience not only the interconnectedness of their taught modules, but the network of relationships that is so crucial in the creative industries. This modelling of collective citizenship starts at induction, when we highlight that the students' professional network begins in the room, and is systematically developed through collaborative assessments and filmmaking projects as well as placements; continually fostering mutually advantageous practices across the year.

External partnerships and authentic, responsive provision

Placement relationships are tripartite, between the University, student, and hosting organisation; and the management of these opportunities sits across three broad phases, though these inevitably (and necessarily) overlap. Firstly, meetings with students and potential hosts; secondly, interviews, paperwork and the placement itself; and finally, feedback and reflection. As Advance HE notes, 'Embedding employability requires partnership between internal and external stakeholders' (2024 p.3) and this module is heavily reliant on facilitating opportunities with a range of external partners to be successful. A production company's confirmation that they are willing to offer a placement, however, is not sufficient alone to constitute an experience that is of mutual benefit to all parties. Hosts need to trust the facilitatory support of the institution and deliver a level of in-house training, and students must embrace the opportunity.

With regard to the wealth of writing about employability in HE, Tight observes that 'there is no general agreement on which skills employability encompasses' (Tight, 2023, p. 559). This is reflected in my experience of liaising with external partners

interested in hosting placements, with varying expectations between their concepts of a student being 'work-ready' and 'industry ready'; the latter going beyond a base level of professional etiquette to imply that new entrants should exhibit a detailed comprehension of production (or other specific) processes. There is little consensus from established industry professionals on whether students should have a clear career goal or maximise opportunities to explore different avenues. For a module that, in its very title, emphasises the inherent 'training' aspect, there are myriad companies who want students to 'hit the ground running'. Thus, it becomes essential to maintain ongoing conversations with existing or potential future partners to ensure their expectations are realistic, and that these can also be communicated effectively to the students hoping to work with them. I endorse Cheng's suggestion that 'Highlighting employability as a collaboration that equally engages all stakeholders can help bring closer attention to the external dimensions that influence employability', particularly with regard to television and film in Birmingham (where the majority of our placements occur) as there are numerous factors that impact on whether there is sufficient capacity to host (Cheng *et al.*, p. 26).

O'Connor, Gu and Vickery observe that 'Teaching staff experience tends to be academic and removed from industry' (2019, p. 95), which is also sometimes true of those offering careers guidance. When first employed in this role, my ongoing freelance work in industry and personal experiences of job hunting meant I had strong first-hand knowledge of the local production scene and could also empathise with students embarking on their careers. Over a decade later, it is paramount that I maintain an up-to-date knowledge of trends, challenges and developments with the local production landscape, and indeed more broadly; ensuring regular conversations with prospective host companies that inform both my workshops and the wider modules on the MA. As hooks alludes, our delivery should not be limited to the classroom space in which it occurs, as students 'rightfully expect that my colleagues and I will not offer them information without addressing the connection between what they are learning and their overall life experiences' (hooks, 1994, p. 19).

Cheng *et al.* 'not only recognise the importance of personal characteristics which make a graduate more likely to be employable... but also emphasise the influence of external factors on the opportunities for employability' (2022: 19). It is precisely this blend of supporting students to recognize and develop their individual attributes while augmenting their comprehension of general working practices within television that we try to encapsulate through the placement module. Entering the workplace presents a key opportunity for authentic engagement with industry, but foregrounding the experience with a flexible roster of guest speakers augments students' perceptions of what this will entail. We review our speakers each year, asking the cohort for feedback on what was useful as well as considering who may speak meaningfully to a different aspect of production; also focusing on increasing the diversity of those at the front of the room. To quote hooks, 'engaged pedagogy [must] recognize each classroom as different, that strategies must constantly be changed, invented, reconceptualized to

address each new teaching experience' (hooks, 1994, p. 11) and thus as shifts occur in the screen sectors, so we respond within the academy. Similarly, we continue to broaden our own definitions: the words on the degree title may state 'film and television' but this never was and never will be narrow definitions of just broadcast television or feature film. I cannot assume the same opportunities will be available year on year, so adapt accordingly, embracing relationships with film festivals, TikTok agencies and internal content production projects, alongside more 'traditional' placements in pre-production for factual TV.

Conclusion

While employability at postgraduate level is generally given less attention than at undergraduate level, building in holistic provision and legacy learning can prove effective for both students and external stakeholders. I concur with Cheng *et al.* that 'employment is different from employability' (p. 19) and refute the notion that success may only be measured in terms of being in a stable job that earns a certain salary. Indeed, short-term contracts are, unfortunately, the norm in entry-level television roles, yet if a graduate is satisfied with their early career trajectory and enjoying their work, surely this can be considered its own marker of success. Providing students with a grounding in the variety of career paths that may be open to them across film and TV, as well as insights into how recruitment conventions may differ from traditional graduate schemes, is an endeavour that arguably equips them strongly for post-university life, not least as it is underpinned by recognition of 'soft skills'. The fluctuations in industry, technology and expectations year on year must be acknowledged – what hooks describes as the engaged voice 'always changing, always evolving in dialogue with a world beyond itself' (hooks, 1994, p. 11) - but through embedding and evolving in-curricular initiatives we strive to ensure our students are confident to approach their post-university job hunt, and hopefully contribute to our own continued learning when they return to campus as alumni professionals; in many cases becoming placement hosts themselves.

Acknowledgements

The genesis for this case study was an informal blog post written for PlaceNet in 2018, on a website that is now defunct. Certain elements were also adapted and expanded from my 2021 application for Fellowship of the Higher Education Academy. I would like to thank Dr Richard Langley, who convened the MA in Film & Television for over 10 years, for his continued collegiality; not least instigating 'the 5Cs' and offering feedback on early drafts of this paper.

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Direct Generative AI interaction improves undergraduate critical thinking

Dr Catherine R E Lawler, Department of Biomedical Science, School of Infection, Inflammation and Immunology, College of Medicine and Health, University of Birmingham; Bath Spa University

Contact: c.lawler@bham.ac.uk

First published online on 20 February 2026

Abstract

Evaluation, a cognitive skill which underlies critical thinking, is a key graduate attribute. Simultaneously, teaching around Generative Artificial Intelligence (GenAI) has been incorporated into Higher Education. Barriers to learning are present in both areas, so it was hypothesised that the teaching of both may be enhanced using Experiential Learning. This study presents an intervention undertaken with multiple groups of undergraduate students with the intended learning outcomes of increasing critical thinking and knowledge of GenAI. During the intervention, students evaluated writing samples in three groups: those who interacted directly with AI, those who interacted indirectly with AI, and those who did not knowingly interact with GenAI. Students increased evaluative behaviour by 170% during the intervention, demonstrating acquisition of critical thinking skills. This effect was 29% stronger in students who interacted directly with GenAI, highlighting the importance of Experiential Learning in skills-based teaching. During the intervention, all students discussed prompt use and increased their understanding of GenAI. This intervention is predicted to be transferrable to many contexts. The results challenge current research that GenAI use by undergraduate students may be detrimental for the development of critical thinking, and highlight the need for further research into student-AI interaction.

Keywords: critical thinking, graduate attributes, experiential learning, higher education, skill retention, generative AI

Introduction

Critical thinking features as a graduate attribute at many universities, including the University of Birmingham, where evaluation underpins critical thinking (University of Birmingham, 2024). Evaluation features as a pinnacle cognitive skill in Bloom's Revised Taxonomy, and is highlighted as an appropriate learning outcome for sessions given to undergraduate students (Adams, 2015), making enhancing evaluation behaviour an appropriate short- and long-term intended learning outcome for undergraduate students. Teaching and learning of critical thinking skills, such as evaluation, can be knowledge-based or application-based, but instilling university students with critical thinking skills faces many barriers (Dwyer, 2023). Experiential Learning has been purported to aid in acquisition of higher order critical thinking skills (such as evaluation) in undergraduate students (Adams, 2015). This study sought to investigate if Experiential Learning was an effective tool facilitating critical thinking development in students whilst they gained knowledge about Generative Artificial Intelligence (GenAI).

GenAI, particularly Large Language Models (LLMs) have influenced higher education (HE), offering affordances and hindrances to instructors and students alike. Simultaneously, there is an increasing demand for AI-literate graduates (Demos, 2023). However, barriers exist to teaching GenAI to undergraduates, such as developing ethical considerations, and rapidly evolving technology (Demos 2023). Recent research showed adults have shown preference for human- over AI-generated text (Zhang and Gosaline, 2023). This study hypothesised that this preference would extend to undergraduate students. This hypothesis shaped the main aim of the study: to examine whether asking undergraduate students to evaluate AI-generated work improves student knowledge of GenAI whilst developing their critical thinking. To evaluate this, a one-hour intervention was developed with the Intended Learning Outcomes of 1) increase knowledge of GenAI and 2) enhance evaluation skills.

Due to the aforementioned challenges in teaching critical thinking and GenAI, significant instructor interaction was planned to support students in the Zone of Proximal Development (Vygotsky, 1978), encourage engagement, and support

reflection as part of Experiential Learning (Quibrantar and Obidimma, 2023). It was hypothesised that enhanced critical thinking would be seen in groups who learned experientially (Adams, 2015), so this was incorporated via direct interaction between students and GenAI. To evaluate if there was a difference in outcome between Experiential and non-Experiential Learning, not all students would interact directly with GenAI. ChatGPT (OpenAI, 2025) was the LLM chosen for use in this intervention due to its free access, popularity and ability to produce text. Prompt engineering would be introduced to students to encourage effective interaction with GenAI tools (Wu *et al.*, 2024), via examination of writing generated using different prompts. The intervention was designed to use repetition as a teaching tool for critical thinking (Adams, 2015), aiming to enhance retention of evaluation skills over the short- and long-term. As cognitive skills such as evaluation are considered higher order (Adams, 2015), Level 6 undergraduates were initially selected for this intervention. This intervention was subsequently repeated on second- (Level 5) and third-year (Level 6) undergraduate students. To ensure this intervention was transferrable to different subject areas, and that the outcomes of this study would be applicable across higher education contexts, reflective writing was the type of text chosen for evaluation, as reflective writing is considered a core student activity (Veine *et al.*, 2020)

Methodology

Study design

This research project was undertaken during academic years 22/23 and 23/24 at Bath Spa University (which acted as pilot studies), and 24/25 at University of Birmingham (which acted as the main study). Participants were undergraduate students studying Biological or Biomedical Sciences who gave informed consent to participate in this study. The number of participants were: 22/23 n=6, 23/24 n=5, and 24/25 n=27, with Group A n=9, Group B n=9, and Group C n=9. A one-hour in-person intervention was scheduled with the intended learning outcomes of increasing knowledge of GenAI and enhancing evaluative skills. Ethical approval for the research outlined in this paper was given by the University of Birmingham and Bath Spa University.

GenAI use and Experiential Learning

Group C interacted directly with GenAI, Group B interacted indirectly with AI and Group A did not knowingly interact with AI. The manner of this interaction was through

evaluation of text produced with GenAI. Students also evaluated their own reflective writing as part of the intervention. Sources of writing for evaluation were: Own Work (students' own writing), Sample 1 (generated by ChatGPT3.5 using a short prompt), Sample 2 (generated by ChatGPT3.5 using a long prompt), Sample 1o (generated by ChatGPT4o using a short prompt) and Sample 2o (generated by ChatGPT4o using a long prompt). Post-reveal indicates an evaluation stage students engaged in after being told the writing they were evaluating was produced by GenAI.

Evaluative behaviour

To measure evaluative behaviour, the metric “edits per minute (edits/min)” was developed. An edit was considered a single addition, deletion, annotation or rearrangement in a piece of writing, and number of edits made was self-reported by each student at the end evaluation stage of the intervention. The intervention was broken into five stages, during which students evaluated writing samples for five minutes. Students also qualitatively evaluated writing using a five-point scale, ranging from “very poor” to “very strong” for content, structure and clarity using a Mentimeter (Mentimeter, 2025). In the pilot studies, students evaluated Own Work, Sample 1, Sample 1 Post Reveal. In the first pilot study, students then analysed Sample 2, whereas in the second pilot study, students then interacted with ChatGPT (OpenAI, 2025). Both cohorts then finished the intervention to returning to evaluate their own work. In the main study, all students analysed Own work and Sample 1o. Group A analysed Sample 1o, Sample 2o and Own Work; Group B analysed Sample 1o Post Reveal, Sample 2o and Own Work; and Group C analysed Sample 1o Post Reveal, followed by a direct interaction with ChatGPT 4.o (OpenAI, 2025), then evaluation of Own Work.

Student Experience

To evaluate their experience of the intervention, students were asked to score statements on a five-point Likert scale (Likert, 1932), ranging from strongly disagree to strongly agree, with statements of “This session was X”, with X as “interesting”, “important”, “fun” and “useful”.

Data analysis

To compare between pilot groups, edits/minute was adjusted to relative edits/minute. Data are considered as Starting Evaluation Behaviour (SEB), Maximum Evaluation

Behaviour (MEB) (the highest evaluation behaviour observed during the intervention) and Final Evaluation Behaviour (FEB).

Statistical analysis

Excel was used to calculate means and standard deviations and perform statistical analysis including paired or unpaired two-tailed T-tests, with Bonferroni's multiple comparison test. GraphPad Prism was used to perform normalcy testing (D'Agostino and Pearson), one-way ANOVA with Bonferroni's multiple comparison test, and repeated measures ANOVA with Sidak's multiple comparison test. For all statistical tests, $\alpha=0.05$ was used, with $P<0.05$ considered statistically significant.

Results and Discussion

Impact of intervention on critical thinking

The first pilot study appeared to show students increased their evaluation behaviour following the intervention (Figure 1a), but this was not statistically significant, possibly due to high variation between students and a low number of participants. The second pilot study showed students increased their evaluation behaviour by 120% (Figure 1b). Students in both pilot studies were more critical of writing which was not their own (Figure 1). Students in the second pilot study were more critical of the same writing when they knew it was AI-generated ($P<0.05$), consistent with the hypothesis that students prefer text they thought to be human- versus AI- generated. This is consistent with research on adult populations (Zhang and Gosaline, 2023).

At the end of the intervention, students in the first pilot showed significantly less evaluation when returning to reviewing their own writing (FEB), compared with the maximum they had shown when they evaluated writing produced by others (MEB) ($P<0.05$). However, students in the second pilot did not. This difference was hypothesised to be due to the nature of the interaction with AI. These interactions were either indirect, as experienced by students in the first pilot study, or direct, as experienced by students in the second pilot study. This supported the hypothesis that Experiential Learning via direct GenAI interaction would be more effective in developing critical thinking in undergraduates than indirect interaction with AI. This was further investigated through revised design in the main study.

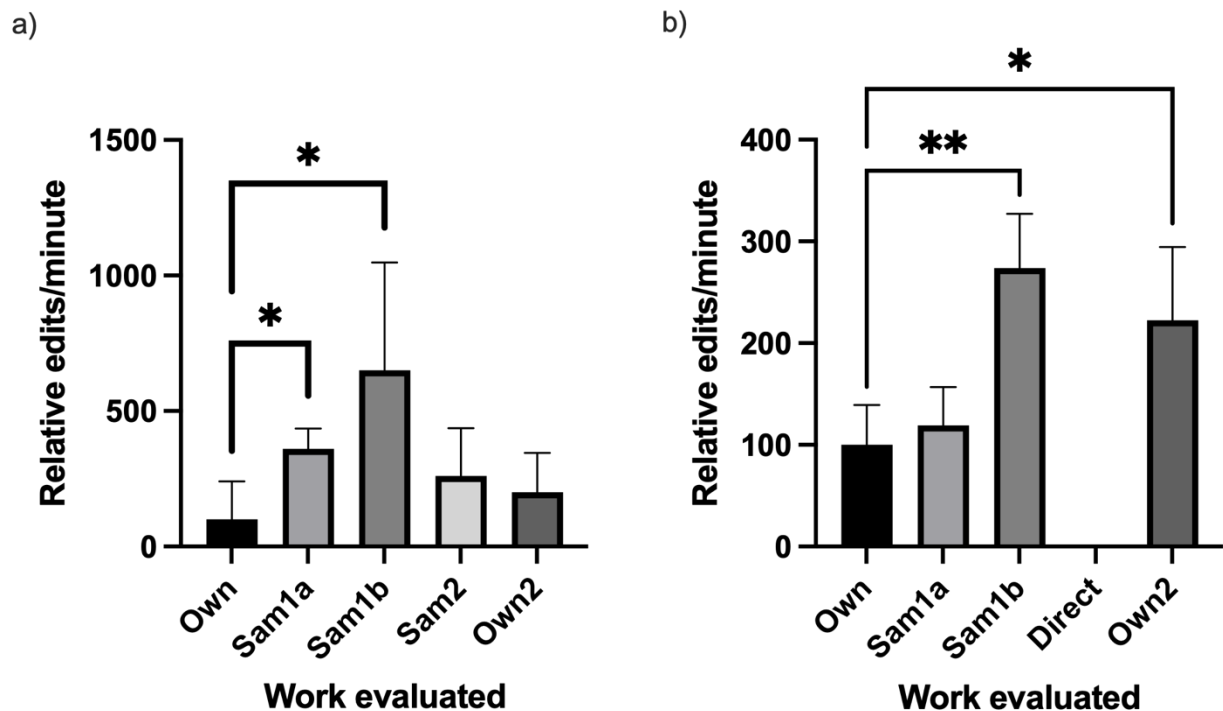


Figure 5: Student evaluative behaviour of writing from different sources with indirect and direct interactions with GenAI.

Students sequentially evaluated writing produced by themselves or GenAI. Data presented are means of relative edits per minute, $\pm$ SD. A) Students interacted indirectly with GenAI, $n=6$. B) Students interacted directly with GenAI $n=5$. A one-way repeated measures ANOVA and Sidak's multiple comparison test was used with $\alpha=0.05$, * = $P<0.05$, ** = $P<0.005$.

Comparison between pilot study cohorts was limited by an unexpected five-fold difference in initial edits/minute. This was partially accounted for by normalising to relative edits/minute. However, it was hypothesised that differences in Starting Evaluation Behaviour (SEB) could confound results. Furthermore, the temporal gap between pilot studies (one year) allows for confounding variables, such as changing student perception of GenAI, to occur. Therefore, the main study was designed which would split a single cohort into multiple groups to allow for direct comparison. Group A was a control group, who were not informed the writing they evaluated was produced using GenAI. This allowed for evaluation of the effect of that knowledge of GenAI use could have on development of critical thinking. Group B interacted indirectly with GenAI: they evaluated writing generated by GenAI, were told it was AI-generated, and asked to evaluate it again. Group C interacted directly with AI, by evaluating writing

generated by AI, being told it was AI-generated, and then being asked to use AI to generate similar writing themselves. In contrast to the pilot studies, no significant difference in starting critical thinking was found between groups regarding evaluation of their own work ($P < 0.9999$). This facilitated direct comparison of effect of interaction with GenAI on student evaluation behaviour.

GenAI interaction improves student critical thinking skills

Similarly to both pilot studies, students were more critical of writing they did not produce, compared to their own writing (+49%; $P < 0.0005$). This is consistent with other research, which indicates undergraduate students are less able to be critical of their own work (Guest and Riegler, 2021). Students were also more critical of the same writing when they knew it was produced by GenAI (+93%, $P < 0.0005$) (Figure 2). This was consistent with the hypothesis of this work, and other research on adult populations (Zhang and Gosaline, 2023). All groups increased in evaluation behaviour during this intervention (+214%; $P < 0.0005$) and finished the intervention more critical of their own writing (+170%; $P < 0.0001$) (Figure 2), meeting one of the intended learning outcomes of this intervention (enhanced evaluation).

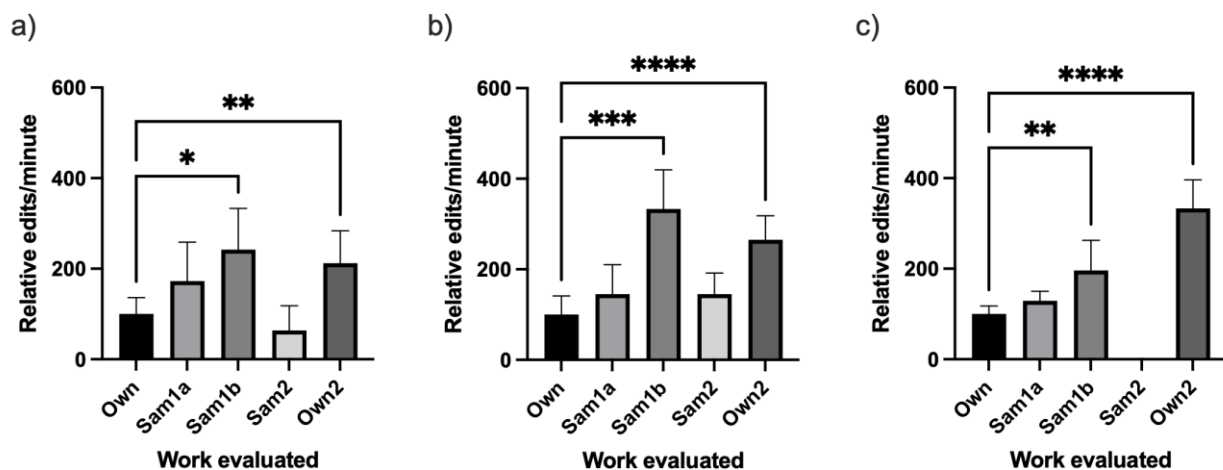


Figure 6: Student evaluative behaviour on writing from different sources, with no interaction, indirect interaction and direct interaction with GenAI.

Undergraduate students sequentially evaluated their own writing and writing produced by GenAI. A) Group A: control; B) Group B: indirect interaction with GenAI; C) Group C: direct interaction with GenAI. Data presented are mean relative edits per minute, $\pm$ SD; $n = 27$. A one-way repeated measures ANOVA and Tukey B post-hoc test was used with $\alpha = 0.05$, * = $P < 0.05$, ** = $P < 0.005$, *** = $P < 0.0005$.

Experiential Learning enhances development of critical thinking in undergraduate students

Students who interacted with GenAI during this intervention had significantly increased final evaluation compared with students who did not (+41%; $P < 0.0001$) (Figure 3a). Furthermore, students who interacted directly with GenAI showed significantly critical thinking than those who interacted indirectly (+26%; $P < 0.05$) (Figure 3a). This supports the hypothesis that direct interaction with AI enhances evaluation behaviour. When returning to evaluate their own writing at the end of the intervention, students who interacted directly with GenAI were now most critical of their own writing, whereas students who did not interact directly with GenAI were still least critical of their own writing ($P < 0.0005$) (Figure 3b). These outcomes support the hypothesis presented in the introduction: Experiential Learning enhances development of critical thinking.

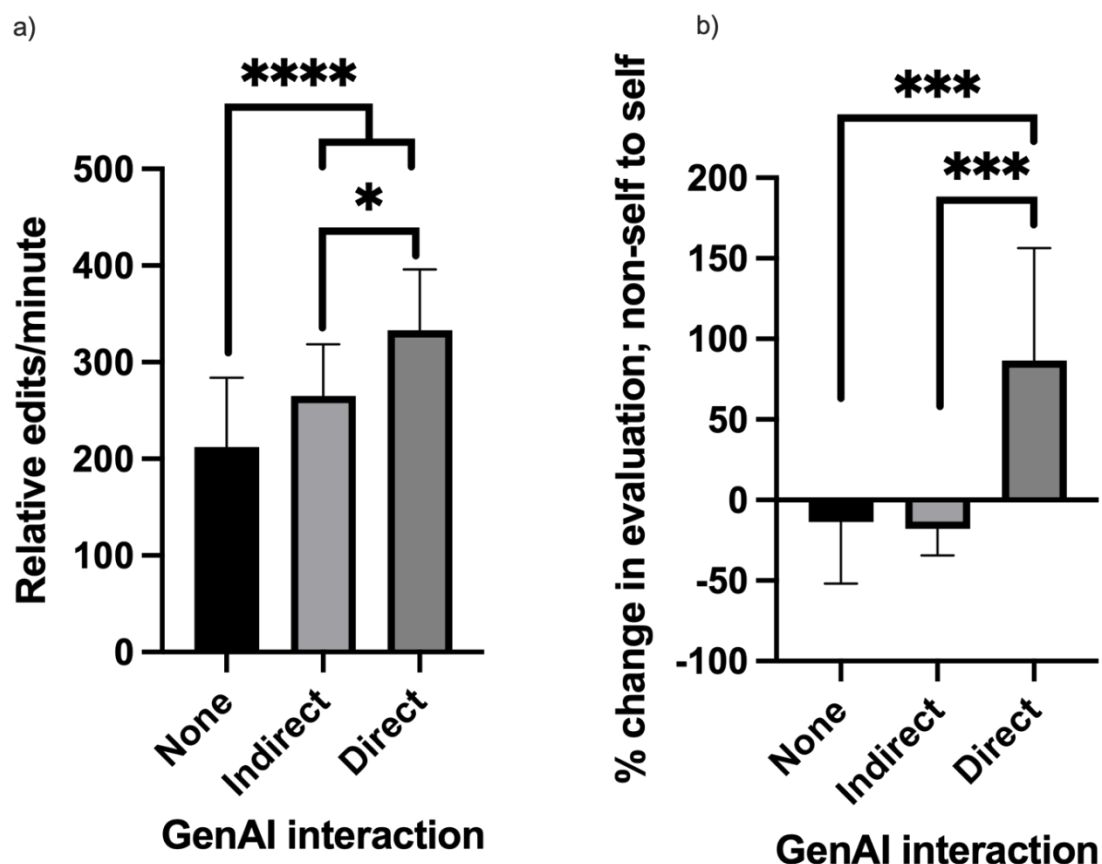


Figure 7: Effect of direct vs indirect interaction with GenAI on student evaluation.

A) Student evaluation of their own writing following different interactions with GenAI. Data presented are mean relative edits per minute $\pm$ SD; $n=27$. A two-tailed

heteroscedastic T-test was used, with Bonferroni's multiple comparison correction. $\alpha=0.05$, * = $P<0.05$, **** = $P<0.0001$. B) Change in student evaluation from writing produced by others (non-self) to their own writing (self), following different interactions with GenAI. Data are presented as % change in evaluation $\pm$ SD; $n=27$. A one-way ANOVA with Sidak's multiple comparison test was used with $\alpha=0.05$. *** = $P<0.0005$.

The findings of the main study corroborated the pilot studies, supporting the hypotheses that interaction with GenAI would enhance critical thinking, and that Experiential Learning via direct interaction with GenAI further enhances evaluative behaviour in undergraduate students. The intervention was successful over the short-term as one of the intended learning outcomes of increasing student evaluative behaviour (critical thinking).

Prompt length influences student perception of AI-generated work

The second intended learning outcome of the intervention was increasing knowledge of GenAI. Students were presented with two samples of writing which were produced by GenAI: one which was generated using a short prompt and one using a long prompt. All students evaluated these pieces of writing prior to knowing they were produced by GenAI, scoring them out of five across the criteria structure, content and clarity. Writing produced using a long prompt was scored higher by students in structure ($P<0.0001$) and content ($P<0.05$) than writing produced using a short prompt (Figure 4). There was no difference in perceived clarity of work produced using a short or long prompt. Following evaluation of the writing, the prompts used to generate the writing were revealed to non-control cohorts. Students were informed they had scored writing produced using long prompt higher than writing produced using a short prompt. This served as a mechanism of stimulating discussion of prompt engineering, enhancing student engagement with, and knowledge of, GenAI tools.

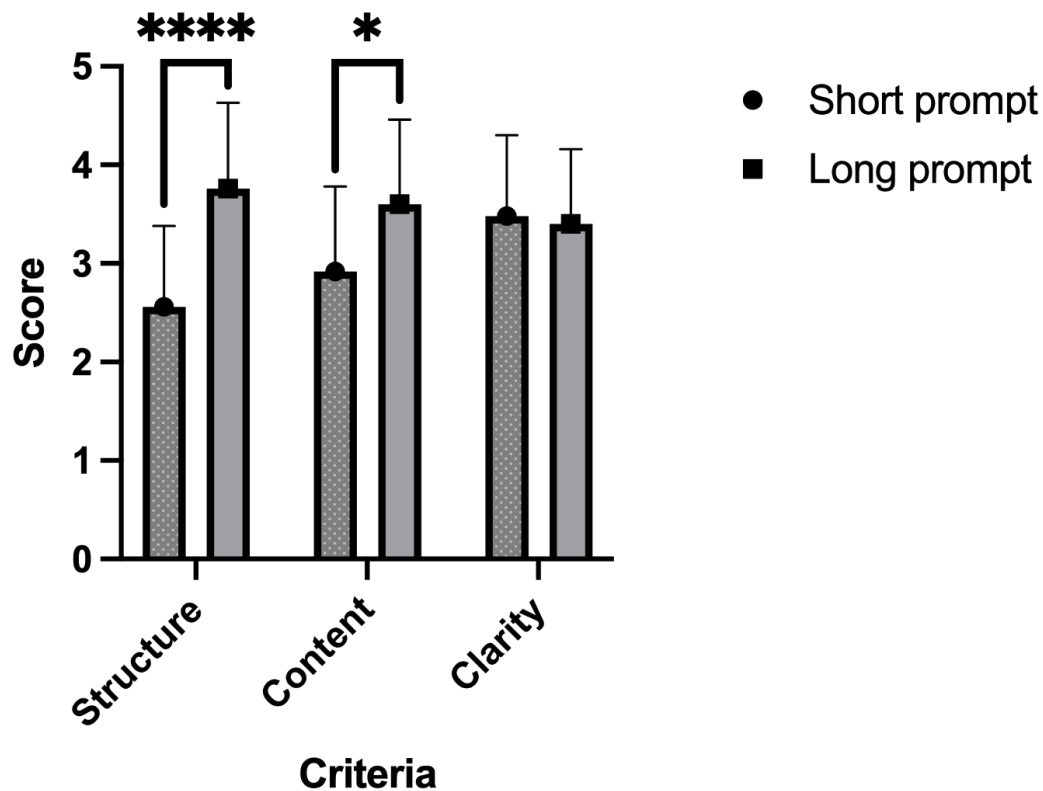


Figure 8: Effect of prompt length on student score of writing produced using GenAI.

Student evaluation of writing produced using GenAI, against criteria: structure, content and clarity. Data presented are mean score $\pm$ SD; $n=27$. A two-tailed heteroscedastic T-test was used, with Bonferroni's multiple comparison correction. $\alpha=0.05$, * = $P<0.05$, **** = $P<0.0001$.

Experiential Learning facilitates engagement in GenAI

To evaluate student experience and acquisition of knowledge, students were asked if they found the sessions interesting, important, fun and useful. They scored responses using a Likert scale (Likert, 1932) on Mentimeter (Mentimeter, 2025). Students scored the session a mean of 3.5/5 for interesting, 4.5/5 for important, 2.7/5 for fun and 4.3/5 for useful ($n=22$). Students who interacted directly with AI (Group C) scored the session higher across all metrics than those who did not ($P<0.005$). All groups had a similar level of student: instructor interaction during the intervention, so the increase in student engagement (as measured by interest and fun) appears to be due to direct student interaction with GenAI. Students who interacted with AI before discussing prompt engineering appeared to gain more knowledge on GenAI than students who only discussed prompt engineering, scoring the intervention higher on importance and

usefulness ($P < 0.005$). These findings support the use of Experiential Learning when teaching GenAI and critical thinking to undergraduate students.

Discussion and Conclusion

This study has developed an intervention which enhances evaluation skills to develop critical thinking in undergraduate students, whilst improving their knowledge of GenAI. In doing so, it demonstrated students acquire and retain greater critical thinking when interacting directly with GenAI (compared with indirect interactions). This is consistent with Experiential Learning theory and supports the recommendation of a practical approach to teaching critical thinking and GenAI skills to undergraduates.

Application in Different Contexts

Four main considerations have been identified when applying this intervention to different contexts. The first consideration is subject specificity. Whilst this study was performed with students studying Biological and Biomedical Sciences, GenAI knowledge and evaluation skills are graduate attributes which are near-ubiquitously desired, so this intervention is likely highly transferrable to other courses. The second contextual consideration is Level of study. Regarding the hierarchical development of skills in Bloom's Taxonomy (Adams, 2015) during undergraduate courses, this intervention is recommended for students in their second or third year of undergraduate study. However, emerging drive to embed GenAI throughout curricula may encourage the development of a similar intervention for first year undergraduate students, focussing on increasing GenAI knowledge and development of lower strata of critical thinking e.g. application skills (Adams, 2015). Class size is the third considered in using this intervention: significant staff: student interaction to facilitate the Zone of Proximal Development (Vygotsky, 1978) and to support Experiential Learning (Adams, 2015) was employed in this intervention. Future investigation could examine if similar outcomes can be achieved with less instructor: student interaction and a lower staff: student ratio. The final consideration for applying this intervention is format - this session has only been administered during face-to-face teaching sessions due to diminished frequency and quality of student: instructor interaction observed during online teaching (Wut and Zu, 2021), and the potential for this to negatively impact students successfully occupying the Zone of Proximal Development (Vygotsky, 1978). If this intervention were to be administered online, technology which stimulates

and facilitates instructor: student interaction should be used to maintain support for students.

Teaching Perspectives

Future interventions of this type will continue to use direct interaction between students and GenAI, in line with Experiential Learning, to support students to enhance their critical thinking and gain knowledge about GenAI usage. Discussion around prompt engineering will continue to be incorporated, to give students critical insight into how GenAI can be used effectively. This discussion will be expanded to include ethical considerations around how GenAI should be used.

Future Research

Continuation of this research will seek to investigate the long-term effects of this intervention, and how this intervention could be improved to maximise retention of evaluation skills over a longer period. The results of this study contrast with some current research which hypothesises a negative effect of AI-interaction on development of critical thinking in undergraduate students (Tian and Zhang, 2025). Importantly, students in this study gained insight into prompt engineering, which is considered critical for effective interaction with GenAI in Higher Education (Wu *et al.*, 2024). Therefore, when considering the results of this study alongside other works, it is hypothesised to be the type or quality of the interaction which students are having with GenAI which may be influencing their critical thinking. Therefore, more research into the nature of the GenAI: student interaction and how this affects the development of critical thinking in undergraduate students is required.

Acknowledgements

The author acknowledges the support of, and stimulating discussions with, colleagues at University of Birmingham and Bath Spa University.

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A critical narrative literature review on current practices of disability inclusion within healthcare education teaching and learning contexts²

Dr Katharine Weetman, Birmingham Medical School, School of Medical Sciences, University of Birmingham

Contact: k.e.weetman@bham.ac.uk

First published online on 10 November 2025

Abstract

The development and implementation of a wider vision and culture at the University that promotes equality and values diversity, and inclusion is not only a legal requirement, but also of societal benefit, and aligns with the University's ethos. Nevertheless, Higher Education institutions continue to be accused of ableism and exclusion of disabled staff and students. Such issues echo through the various teaching and learning contexts within HE, to include healthcare education contexts. This poses the question, how well versed are HE practitioners and institutions in supporting learners with disabilities? The evidence to support that healthcare students are not adequately trained to effectively utilise communication resources and meet the needs of disabled patients is well documented. This needs to be improved to better care quality and reduce health inequalities. This critical review on current practices of disability inclusion and accessibility within healthcare teaching and learning contexts explores this issue through narrative evidence synthesis and reflection. This review defines the problem of inclusion and accessibility for disabled staff and students, drawing on the author's context of practice, which is being that of a disabled educator of healthcare curricula. This is achieved through drawing on examples of common disabilities to illustrate ongoing areas for reform which are applicable to both HE and healthcare contexts, to include support for persons who are blind, deaf, or have

² I would like to acknowledge the support of the University of Birmingham, and particularly the teaching provided on the PGCHE programme by Dr Marios Hadjianastasis. I would also like to thank my line manager Professor Connie Wiskin and educational mentor Dr Amelia Swift for their guidance and input to my development and reflection as an educator.

learning disabilities. This review is juxtaposed with pedagogical evidence and consideration of the wider education context, analysis of institutional data, and external factors in Higher Education. The review concludes that through continual reflection, development, and improvement, Higher Education can be better enabled to educate the next generation of healthcare professionals on disability inclusion and accessibility. to be accessible to all.

Keywords: Higher Education, Teaching and learning, Disability, Inclusion, EDI

Introduction

Within healthcare, the ability to meet the needs of, and adapt communication for patients from diverse backgrounds is not only important for equitable and safe healthcare, but also a legal requirement (Equality Act, 2010). One such aspect of diversity is the protected characteristic of disability, sometimes described as one of the majority minority characteristics as Scope (2023) estimates that around 1 in 4 working age adults are disabled (~23%); as such healthcare professionals will commonly need to care for disabled patients, meeting their needs is a vital skill. However, evidence suggests that healthcare students are not adequately trained to effectively utilise communication resources and meet the needs of disabled patients (Sahin and Akyol, 2010; Iezzoni and Long-Bellil, 2012; Brown and Kalaitzidis, 2013). Nonetheless, such skills for maximising accessibility and providing equitable healthcare can arguably be taught and improved through thoughtful and inclusive healthcare curricula, such as that focussing on communicating with disabled patients (Lewis and Stenfert-Kroese, 2010; Geçkil et al., 2017; Kirshblum et al., 2020). This narrative evidence review focuses on this topic through reviewing existing evidence on disability and inclusivity practices and teaching within healthcare education contexts in higher education settings. The purpose and aim of the review is to make recommendations for how such healthcare education can be improved. This is achieved through: 1) Defining the contextual problem of representation of disabled staff and students within higher education and healthcare contexts, 2) Outlining key areas for improvement, as evidenced in the healthcare education literature, to include support for persons who are blind, deaf, or have learning disabilities, 3) Juxtaposing evidence with pedagogical considerations and possible interventions, and 4) Considering how improved policies and practices within healthcare education contexts may be implemented and applied more widely across the HE sector.

Defining the problem: Disability in teaching

To meet the needs of all patients in healthcare, regardless of background, it is apt for the healthcare workforce and so healthcare students to reflect the characteristics and diversity of the general population. However, this is not the case; The under-representation of disabled students is well documented, with estimations around 13% in UK higher education institutions, recorded in 2017 (Office for students, 2019), despite that Scope (2023) estimates that 23% of working age adults are disabled in the UK. Such under-representation is multifaceted and needs to be tackled at micro, meso and macro levels (e.g. lack of adequate ‘financial’ and ‘procedural’ provision for disabled students) (Madriaga, 2007). Organisations and bodies such as the Office of the Independent Adjudicator for Higher Education provide key guidance on supporting disabled students, with good practice case exemplars (*Office of the Independent Adjudicator for Higher Education*, 2017). However, this does not mean that individual academics cannot play an active role in critiquing and challenging accepted social and institutional norms which are exclusionary, for the benefit of students, but also to role model; this is pertinent at an individual level, as lecturer attitudes have been previously highlighted as a barrier (Madriaga, 2007). Academics need to ensure that the curriculum design meets the needs of the students through learner-centred environments (Doyle, 2008). Alongside this, the language and content of resources should reflect the diversity and identities of the student cohort and general public population, which the students seek to serve and care for, which relates to cultural competence and promoting health equity (Betancourt *et al.*, 2002; Sorensen *et al.*, 2017; Blanchard *et al.*, 2022). Therefore, aligning with critical pedagogical literature (Freire 1970; 2018; Giroux, 2011; hooks, 1994), further progression and improvement is needed, driven by educator and institutional engagement with this lack of disabled representation in higher education. Thus, HE practitioners and institutions should arguably give greater attention to better meeting the needs of their disabled communities as academic spaces are continuing to receive criticism, including accusations of “ableism” (Powell, 2021; Yerbury and Yerbury, 2021).

Compounding the problem: Representation of disabled educators

The issue of representation in healthcare education settings is not only of relevance to students but also to staff. As Scope (2023) estimates that around 23% of working age adults are disabled, if HE institutions are fulfilling and meeting the reasonable adjustment needs of the disabled working population, a similar proportion of staff may be expected to work in universities. However, a recent article (2023) in the *Times Higher Education* by a disabled academic (Wilkinson, 2023) reported that only 6% of academics in the UK report having a disability, reduced to 4% at senior academic levels. This seems a marked under-representation of this population, which will inevitably impact upon curricula, to include teaching surrounding inclusive healthcare practices for disabled patients.

Notably such data can only report disabilities *disclosed*, rather than those embodied. Therefore, the issue may be more complex and multi-faceted, with ableist norms (Mellifont et al., 2019) and reluctance to disclose perpetuated by societal structures, marketisation in HE (Archer, 2008), and pressures of academic excellence and outputs, as explored by Brown and Leigh (2018). This dilemma of disclosure in academia is not distinct to any single institution (Brown, 2020), but is an issue of national and international significance (Powell, 2021; Yerbury and Yerbury, 2021). Nonetheless, the need for “disclosure” is not the only barrier to recruitment, inclusion, and retention of disabled academics, and the burden should not fall solely on the individuals but rather the institution; scholarly literature on disability in academia (Crabtree et al., 2023; Mellifont et al., 2019; Waterfield et al., 2017) identifies and discusses structural and systematic barriers, compounded by a neoliberalist landscape (Archer, 2008) and pressures to ‘produce’ alongside lack of institutional support (Crabtree et al., 2023; Waterfield et al., 2017). The neoliberalist agenda in academia inherently pressures academics to ‘produce’ and to position themselves as ‘producers’ with monetisation of contribution and outputs, whereby volume of work and conformity to traditionalist norms may be indirectly valued above individuality of contribution and the drive for knowledge itself (Archer, 2008). Such neoliberalist contexts may frame disabled persons through an ableist lens of being ‘lesser producers’ (Waterfield et al., 2017); this likely means that HE institutions are not meeting the needs of a diverse cohort of staff and students in the way that they should and are required (Equality and Human Rights Commission, 2010). Thus, without

addressing such barriers at an institutional level, it is unlikely that representation and equality for disabled academics will be achieved in HE (see Brown, 2020; Brown and Leigh, 2018 and Mellifont *et al.*, 2019). Institutional strategies typically state that all educators, including healthcare educators, should have an ongoing commitment and duty to championing inclusivity and diversity to ensure and work towards student and staff equality and equitable learning and opportunity (e.g. University of Birmingham, 2023). However, translation of policy into practice can be complex and problematic and this narrative will be expanded in the following sections through evidence synthesis.

The healthcare education context: review of evidence and critical analysis

There is a wealth of evidence which suggests that physicians and healthcare students are not adequately trained or equipped to effectively communicate with and equitably meet the needs of disabled patients (Sahin and Akyol, 2010; Iezzoni and Long-Bellil, 2012; Brown and Kalaitzidis, 2013); this evidence base includes a recent systematic review on disability within healthcare curricula (Edwards and Hekel, 2021). Meeting the accessibility needs of such patients is not only a legal requirement (*Equality and Human Rights Commission*, 2010), but one that also aligns with EDI strategies and aspirations (*World Health Organisation*, 2011; *Healthy People*, 2020). Much of the existing literature focuses on healthcare students' attitudes towards persons with disabilities as this has been associated with inequalities and issues, both nationally and internationally (Wray *et al.*, 2008; Lewis and Stenfert-Kroese, 2010, Ryan and Scior, 2014; Ryan and Scior, 2016), such as in Turkey (Sahin and Akyol, 2010; Uysal *et al.*, 2014), Greece (Kritsotakis *et al.*, 2017; Polikandrioti *et al.*, 2020), Spain (Oliva Ruiz *et al.*, 2020), Poland (Tomczyszyn *et al.*, 2023), Australia (Brown and Kalaitzidis, 2013), and the United States (Smeltzer *et al.*, 2005). Within this literature there is some evidence of stereotyping and negative/unequal attitudes of students towards patients with disabilities. Relatedly, such negative attitudes have been shown to cause communication deficits, affect patient quality of care, and the potential suitability of treatment, as well as negatively influence the healthcare provider-patient relationship (Brown and Kalaitzidis, 2013; Uysal *et al.*, 2014; Kirshblum *et al.*, 2020; Edwards and Hekel, 2021). Consequently, addressing such attitudes and lack of competence/knowledge as well as barriers to inclusion and accessibility is important for good quality equitable care (Uysal *et al.*, 2014; Ryan and Scior, 2016). Education

enhancement and training may be proposed as one evidence-based way to work towards achieving this (Lewis and Stenfort-Kroese, 2010; Geçkil *et al.*, 2017; Kirshblum *et al.*, 2020), particularly as some studies have found students and professionals have anxiety/fear of caring for and communicating with disabled patients (Satchidanand *et al.*, 2012; Ryan and Scior, 2016). Communication training and simulation education (Smeltzer *et al.*, 2005; Baylor *et al.*, 2019), including the use of alternative and augmentative communication (McKelvey *et al.*, 2012), may aid better communication between healthcare students/providers and disabled patients (Brown and Kalaitzidis, 2013); Moreover, communication has been previously found to be a priority area for persons with conditions that affect communication such as Motor Neurone Disease (MND) (Paynter *et al.*, 2022). Encouragingly, literature suggests that students may be receptive to such educational interventions and training (Velonaki *et al.*, 2015). Narrative medicine holds particular relevance to any educational interventions centred on clinical communication, as it allows for exploration of how to better achieve patient-centred communication, as informed by real-life lived experiences (Denniston *et al.*, 2018). Narrative medicine may include but not be limited to those who are experts by experience (patients, carers, professionals) sharing their stories through text, film, simulation, and co-designing or co-teaching with direct narrative delivery (Denniston *et al.*, 2018; Remein *et al.*, 2019). Literature suggests narrative medicine can be a pedagogical tool, not just for communication teaching, but also for content centred on persons with disabilities (Anderson *et al.*, 2011; Guthrie & Charon, 2023).

Three examples of disability within healthcare educational contexts

Deaf awareness

A lack of education on deafness by healthcare professionals, to include qualified and training nurses, has been evidenced in research globally (McGlade *et al.*, 2013; Velonaki *et al.*, 2015). Relatedly, patients who have deafness report communication problems with healthcare professionals – this can cause mutual discomfort and may negatively affect care (Barnett, 2002). Research examining practitioner and student knowledge and attitudes towards d/Deaf patients, such as Velonaki *et al.* (2015), suggests educational and awareness programmes (Gilmore *et al.*, 2019; Terry and Meara, 2023) would be beneficial in tackling this deficit and improving care and safety for these patients (Morisod *et al.*, 2022). Several studies look at implementation and

evaluation of interventions on deaf education (Gilmore *et al.*, 2019), to include a recent systematic review by Morisod *et al.* (2022). A further example is Yuksel and Unver (2016) who examine teaching deaf communication skills to nursing students through the use of simulated patients. Role play encompasses all four of the “learning environments” described by Fry & Kolb (1979). Such work has been shown to better students’ communication skills in relation to key areas of communication adjustment such as pacing, language, posture and body language, eye contact, and alternative methods such as writing boards (Yuksel and Unver, 2016). Furthermore, Simulation has previously been used successfully for development of improving healthcare and nursing students’ ability to communicate and empathise with patients with disabilities (Traynor *et al.*, 2015; Yuksel & Unver, 2016; Levett-Jones *et al.*, 2017). Another more recent piece of literature is an evaluation of a deafness awareness workshop by Kruse *et al.* (2021) which evidences the importance of deaf awareness training for all medical faculties to improve competence, and suggests that without such training, accessible healthcare may not be adequately provided and there may be mistrusting relationship. Consequently, deaf patients may avoid or delay healthcare service engagement (Yuksel and Unver, 2016). Thus, this is a pertinent area for focus.

Awareness of blindness and visual disabilities

Notably, literature searching on education of healthcare students on blind and visually disabled patients yielded fewer results of relevance compared with deafness. Several studies that featured “blind” in the title were puns, “blind spots”. Studies on general physical disabilities often did not make explicit reference to the awareness and communication needs of blind patients (Tomczyszyn *et al.*, 2023). Of the pieces of literature that were found, such as Silverman (2015), Áfio *et al.*, (2017) and Nikbakht Nasrabadi *et al.*, (2022), most referred to simulation teaching, but none were based in the UK. However, it is acknowledged that this is not a systematic review and searching was not exhaustive. Nonetheless, the distinct lack of evidence on teaching on blindness was remarked on in the literature that was identified (Áfio *et al.*, 2017). This educational gap is likely to result in inequitable and non-inclusive care for these patients and must be explicitly addressed as a priority area in healthcare education.

Learning and intellectual disabilities

There is a need for healthcare students to receive education regarding learning and intellectual disabilities, just as there is for other conditions in healthcare (Hoan, 2003). However, literature suggests that students may be lacking education on learning disabilities, with over half of universities in an Australian study by Trollor *et al.*, (2016) having no content on learning disability. A paper by Emerson and Baines (2011), specific to the UK setting, evidences the health inequalities experienced by people with learning disabilities. A literature review by Bradbury-Jones *et al.*, (2013) found that people with learning disabilities in acute settings are at risk of sub-standard or unequal care with the issue of communication, and so misunderstandings, raised in 7 of the 8 synthesised publications. This literature review also highlighted issues with staff attitudes towards persons with learning disabilities (Bradbury-Jones *et al.*, 2013). This remains a current issue, with some studies specifically focusing on attitudes of healthcare students (Werner and Grayzman, 2011; Kritsotakis *et al.*, 2017). The study by Kritsotakis *et al.*, (2017), although based in Greece, includes nursing students, and reported that these students had poor attitudes towards people with intellectual disabilities. The authors suggest that healthcare curricula require updating to begin to tackle this issue as well as knowledge gaps and anxiety of working with this population (Kritsotakis *et al.*, 2017). The consequences of such knowledge gaps are potentially severe, with an inquiry in England published in the *Lancet* by Heslop *et al.* (2014) finding that persons with learning disabilities are at risk of premature death, with evidence of avoidable deaths due to healthcare disparities. Therefore, any interventions to prevent and reduce such mortalities should be urgently prioritised and enacted.

Wider intervention context and external factors

This review addresses external factors and institutional priorities within UK higher education and healthcare education settings. Firstly, the equal treatment of persons regardless of disability, and a commitment to equality and diversity, is a legal requirement of the Equality Act. Mirroring such obligations within the HE context so that this can be replicated in future encounters externally (e.g. healthcare contexts) is key. Secondly, in accordance with this legal basis, a commitment to championing equality and accessibility is typically part of institutional strategic frameworks and vision. Thirdly, there are evidence-based approaches to educational interventions,

which may be described as under-utilised in this area; one such example is narrative teaching (including narrative medicine) whereby content is informed by real-life lived experiences (Denniston *et al.*, 2018). This can be a pedagogical tool for content centred on persons with disabilities (Anderson *et al.*, 2011; Guthrie and Charon, 2023). Such teaching can foster imagination, imbue meaningfulness, and humanise encounters (Remein *et al.*, 2019; Guthrie and Charon, 2023). The incorporation of lay or lived experienced narratives allows for increased diversity of voice and perspective in the medical curriculum, to include those seldom heard or whose perspectives may challenge previously accepted norms, beliefs, and assumptions as well as cultivate empathy and reflection (Baines *et al.*, 2019; Remein *et al.*, 2019). This therefore arguably enriches the student learning experience as they can develop their skills and approaches in speaking to people from different backgrounds, with varying characteristics and communication needs (Denniston *et al.*, 2018). Fourthly and finally, greater representation of disabled academics and students in HE is necessary if institutions are to work towards and achieve the wider professional goal of equality and inclusivity in the sector. Through critical reflection of development and external contexts, alongside actively challenging barriers, HE can become a more diverse sector where educators continue to develop and challenge their own and others' assumptions to better themselves and this context.

Conclusion

This review has synthesised evidence on healthcare student education within higher education settings in regard to meeting the needs of disabled patients. This review also contextualised the representation of disabled healthcare students and staff within the higher education setting, as this inevitably impacts upon teaching and learning practices. The review has drawn on evidence of issues surrounding inclusion and accessibility with relevance to equality, diversity and inclusion within healthcare settings, alongside consideration of how this may be continually impacted within undergraduate settings by wider policies and initiatives at institutional and national levels. Pedagogical tools to be drawn on include role play simulation and narratives from experts by experience. Improving communication with patients from disabled and diverse backgrounds requires healthcare students to have knowledge, awareness, and understanding of these patients and their needs. This must be paralleled by adequate representation of staff and students within healthcare education settings as

well as reflection of the narratives of disabled patients in healthcare curricula. Given the wealth of evidence on healthcare inequalities associated with disability, this is a pertinent topic. For curricula to progress, learning spaces should seek to actively challenge assumptions about disabled persons to counter “ableism”, which may be particularly harmful in healthcare contexts for equitable and high-quality healthcare. Such change should be in conjunction with opportunities to provide anonymous feedback, so that students can provide honest responses on improving this area without fear of rebuttal. With such changes, we can hopefully aspire to better enable and educate the next generation of healthcare professionals to meet the needs of a diverse and disabled patient population through improved inclusion and accessibility.

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Designing an inclusive digital mental health module: a case study in supporting diverse postgraduate learners

Piyali Bhattacharya, School of Psychology, College of Life and Environmental Sciences, University of Birmingham.

Contact: p.bhattacharya@bham.ac.uk

First published online on 8 June 2026

Abstract

This case study outlines the inclusive learning design and pedagogical approaches used to support a diverse and international cohort in the Digital Mental Health module of a distance-learning MSc programme at the University of Birmingham. The international cohort comprised working professionals and learners with diverse educational and cultural backgrounds. Recognising that traditional didactic approaches were unsuitable for this group, the module was redesigned using micro-lectures, case-based learning, and scaffolded materials informed by the Jisc Digital Pedagogy Toolkit. Constructive alignment ensured coherence between learning outcomes, activities, and assessments, including higher-order MCQs validated by external examiners. This case study highlights how flexible digital pedagogies, cultural responsiveness, and iterative student feedback can enhance engagement, confidence, and critical application of knowledge in an internationalised online environment. The study concludes with recommendations for HE educators designing inclusive learning in digitally mediated postgraduate programmes.

Keywords: online learning, distance learning, flexible digital pedagogy, digital mental health teaching

Context and rationale

Online learning has become an increasingly central feature of higher education worldwide, driven by technological advances, widening participation agendas, and the need to offer flexible learning pathways for diverse student groups. Research widely recognises that online and blended learning environments provide significant benefits, most notably flexibility, accessibility, and learner autonomy (Müller, Mildemberger and Steingruber, 2023). Consequently, distance learning modules for diverse international postgraduate cohorts must move beyond traditional lecture-based delivery, which often fails to address the complexities of online engagement, cultural diversity and independent learning (Müller and Mildemberger, 2021; Santiago *et al.*, 2021).

As module lead for the *Digital Mental Health (DMH)- Research, Intervention and Youth* module, I oversaw a component of an MSc programme that is delivered entirely through distance learning at the University of Birmingham. Cohorts are typically composed of international students, practitioners balancing work and study, mature learners returning to education, and students with a range of academic and cultural backgrounds. Many were unfamiliar with UK academic standards, varied widely in digital confidence, and lived across multiple time zones. These characteristics made it clear that traditional lecture-based teaching would be unsuitable. What was required was a flexible, culturally responsive design that respected learner diversity, promoted meaningful engagement, and supported the autonomous learning demanded by a postgraduate distance-learning environment.

I developed the module during the early stages of the programme, when opportunities for student feedback were limited. In developing the content, I drew on guidance from experienced mentors, academic experts, and literature reviews on emerging practices in digital mental health.

The design of the module, therefore, aimed to:

1. Increase accessibility and flexibility;
2. Promote culturally informed and authentic application of knowledge; and
3. Create aligned assessments that supported higher-order thinking.

Designing the Digital Mental Health module

Designing and developing a module from scratch on digital mental health for MSc cohorts required me to carefully align learning outcomes, assessment strategies, and teaching activities, while also integrating current research, relevant digital tools, and inclusive pedagogical practices. Through initial consultation with the DL teaching team, informal feedback from colleagues, and my own observations of early iterations of the programme, I identified several key steps to develop the module that promote effective learning. The following actions were taken to make the module coherent, inclusive, and effective for online postgraduate learning.

My first step was to design a learning environment that ensured flexibility and accessibility while retaining the academic rigour expected at the postgraduate level. Flexible learning helps expand access by allowing students to balance education with professional, familial, and personal responsibilities, while also accommodating diverse paces, time zones, and learning preferences (El Galad, Betts and Campbell, 2024). These considerations are particularly critical in online contexts, in which our postgraduate learners often balance study with full-time employment, caring responsibilities, and professional placements across multiple time zones. Evidence from large-scale evaluations of flexible online programmes demonstrated that reducing rigid contact hours and replacing them with well-designed online components

can preserve, and sometimes enhance, learning effectiveness, provided that the course maintains strong structure, interaction opportunities, and timely feedback (Müller, Mildenerberger and Steingruber, 2023).

Recognising the international composition of the cohort, I intentionally integrated culturally diverse and inclusive case materials as the international cohorts bring varied linguistic repertoires, communication norms, and prior educational experiences. Reviews of culturally diverse engagement in online higher education show that linguistic clarity, accessible materials, and compassionate teaching significantly shape participation and persistence for diverse learners (Tereshko *et al.*, 2025). To operationalise this, the Digital Mental Health (DMH) module required students to critique tools from their home countries. Grounded in critical and humanistic pedagogies, this approach shifted the power dynamic of the classroom by valuing and centering the students' own realities and localised contexts (Markey *et al.*, 2021). This approach not only connected global theory with local practice but also fostered an inclusive environment in which international perspectives are central to the learning process. By ensuring international perspectives were central, rather than supplementary, to the learning process, the curriculum moved beyond standard Western narratives to foster authentic global inclusivity (Arday *et al.*, 2021; Reyes *et al.*, 2021). Moving forward, I will continue to apply and build on this strategy in future teaching contexts and relevant modules to strengthen global inclusivity and engagement further.

The overall structure of the module followed a scaffolded progression: I began with foundational principles of digital mental health, moved into the evaluation of interventions, examined key ethical considerations, and concluded with the design of digital interventions. This structure supported diverse learners by gradually increasing complexity in a manageable way and reducing potential for students to be overwhelmed when they encountered more advanced content. Moreover, to enhance comprehension, I supported the material with videos, visual aids, concept maps, brief expert interviews, and discussion-based activities. These multiple representations of information helped break down complex ideas and manage cognitive load while accommodating self-paced learning (Castro-Alonso *et al.*, 2021). Interactive activities formed the core of the weekly engagement. Students were asked to analyse real digital mental health interventions, critique their theoretical foundations, and evaluate cultural and ethical implications.

Research shows that while facts can be delivered effectively (cognitive presence) and structure can be provided consistently (teaching presence), establishing a genuine human connection is far more challenging in online environments, particularly across different time zones and diverse learner backgrounds (Budhai and Williams, 2016). With this in mind, I incorporated deliberate *human* touchpoints into the module design, and I scheduled office hours twice a week to offer students an informal space to ask questions, seek clarification, or simply check in. I also made it clear that students in

different time zones, or those unable to attend, were welcome to request an alternative meeting time or contact me via email.

Assessment design was a major area of development. Multiple-choice questions (MCQs) were used not as low-level knowledge tests but as tools to assess analytical reasoning. I created scenario-based MCQs which required students to evaluate ethical implications or identify the most appropriate intervention strategy. This aligned with the module's learning outcomes focused on the critical application of theory, and was informed by Wiggins' seminal work on authentic assessment which argues that tasks should mirror the complexity and ambiguity of real-world professional challenges, requiring learners to apply knowledge rather than recalling it in decontextualised formats (Wiggins, 2011).

Outcomes

The initial implementation of the Digital Mental Health module produced a set of encouraging and informative outcomes that directly indicate the effectiveness of my pedagogical design choices. While formal student feedback is not yet available, as the module is running for the first time, emerging outcomes can be inferred from monitoring the discussion forums, learning analytics, assessment results, and moderator feedback. Furthermore, as the assessor, my review alongside the moderator reports for both assessments offered rich insight into how students engaged with the learning structure, the authenticity of the assessment tasks, and the inclusive, scaffolded environment that supported their learning.

The module's external examiners praised the alignment between learning outcomes and assessments, specifically noting the strong emphasis on higher-order cognitive skills. Their feedback informed refinements to the assessment's questions, such as expanding scenario detail and increasing opportunities for students to demonstrate evaluative reasoning. This aligns with contemporary analysis by Koh (2017) and practice-oriented guidance from UK universities emphasise authenticity as essential for developing higher-order thinking and bridging the gap between academic and professional competence.

Students engaged well with the scenario-based MCQs, which were intentionally designed to test analytical reasoning rather than factual recall. The assessment produced a cohort mean of 82.29% with no failed scripts. As the assessor, I observed that overall performance was strong and that students showed confident understanding across the foundational themes introduced early in the module. This outcome is consistent with the module's intentional scaffolding, multimedia explanations, and structured progression aimed at managing cognitive load and supporting self-paced engagement (Castro-Alonso *et al.*, 2021). However, topics such as digital ethics, privacy, AI-driven mental health tools, neurodevelopmental considerations, and emerging technologies prompted more varied responses, confirming the need for deeper exemplification in these higher-order areas. This offers

a valuable direction for strengthening explanations, examples, and guided practice in these nuanced areas in the next phase.

The research proposal assessment also showed a healthy grade distribution ($M = 63.55$, $SD = 9.85$). As I was grading, I noted that many students demonstrated thoughtful integration of literature, clear articulation of a problem rationale, and an emerging capacity to apply methodological principles to the design of feasible and meaningful digital mental health interventions. This outcome evidences the module's emphasis on authentic, complex tasks and culturally responsive learning, where students draw on diverse contexts to inform design decisions (Morong and DesBiens, 2016). Moderator feedback also highlighted clear structure, evidence-based justification, and thoughtful innovation in many submissions, indicating that the scaffolded curriculum effectively supported analytical skill development. Students proposals, many of which drew on tools, challenges, and health systems from their own cultural or national contexts, also showed me that integrating globally diverse examples and encouraging students to examine tools from their home regions positioned their lived experiences as a central resource for learning. The depth of applied reasoning demonstrated across the assessments reinforced the value of the internationally inclusive, case-based approach in supporting relevance, transfer of learning, and deeper engagement. At the same time, a number of submissions revealed that the level of design detail expected at postgraduate level would benefit from further guidance in future iterations.

Moderation further confirmed that the feedback I provided to students was clear, detailed, specifically tailored to the strengths and developmental needs of each submission and consistent across submissions, effectively supporting learning across a diverse cohort. This outcome reflects my deliberate emphasis on teaching presence and personalised touchpoints embedded throughout the module design. The moderator also noted the value of summarised observations in my feedback and recommended strengthening explicit connections between these summaries and the marking rubric in future cycles. These insights directly inform iterative enhancement in accordance with design-based and evidence-informed teaching approaches. These operational insights reinforce the module's responsiveness and provide a clear direction for enhancing transparency, consistency, and student understanding in future deliveries.

As I monitored the discussion forum, I observed strong participation, with students frequently engaging in weekly activities and collaborative analysis. The resulting discussions were notably rich, as students drew on their own professional and regional experiences, thereby deepening peer learning. This aligns with the Community of Inquiry framework, which emphasises that meaningful online learning relies on a balance of teaching, social, and cognitive presence rather than content alone (Garrison and Arbaugh, 2007). Research demonstrates that active learning strategies enhance engagement and retention in online environments (Khan *et al.*, 2017), making

this an essential element of my module design. Learning analytics also indicated consistently high engagement with the asynchronous materials.

In future iterations, I will move beyond these emerging indicators by implementing a more systematic evaluation strategy. I plan to gather student feedback iteratively through informal check-ins and mid-module surveys, alongside analysing performance data and reviewing external examiner commentary. Together, these sources will enable me to corroborate and extend the preliminary outcomes identified in this first implementation and guide the ongoing, evidence-informed refinement of the module.

Recommendations for designing similar online modules

Educators designing comparable online modules may consider the following recommendations:

- **Use micro-lectures to reduce cognitive load and increase flexibility.** Research suggests that flexible online learning structures improve learner persistence and reduce dropout rates (Müller, Mildemberger and Steingruber, 2023). Incorporating short micro-lectures and asynchronous components can reduce rigid contact requirements while allowing students to engage with content at their own pace. This approach is particularly beneficial for working professionals and international learners who may be balancing study with other commitments. Moreover, pairing this approach with a scaffolded progression from foundational concepts to more complex tasks can further reduce cognitive overload and support learner confidence and mastery (Castro-Alonso *et al.*, 2021).
- **Incorporate culturally diverse case studies to enhance relevance and belonging.** The heart of a successful online classroom lies not only in technological design but in its human application: students need more than just a screen, they require explicit guidance, meaningful interaction, and a sense of belonging in order to truly thrive (Swan *et al.*, 2014). Evidence shows that culturally responsive materials increase online participation and strengthen students' sense of belonging, particularly among international learners (Tereshko *et al.*, 2025). Perhaps most importantly, the approach acknowledges diversity not as a challenge to be managed but as a resource that enriches learning. When students can bring their cultural and professional identities into discussion, learning becomes deeper, more relevant, and more collaborative.
- **Prioritise authentic, applied learning rather than transmissive teaching.** Designing tasks that require students to apply concepts to real-world contexts encourages deeper engagement and supports the development of practical analytical skills (Lowell and Moore, 2020).

- **Adopt open-source tools to improve accessibility.** Using open-source platforms and resources can reduce financial barriers for students while increasing access to learning materials and analytical tools (Adil *et al.*, 2024).

Conclusion

As the inaugural delivery of the DMH module, these initial outcomes offer compelling, evidence-informed indicators that the underlying design decisions are functioning as intended. By consciously moving away from traditional, transmissive lecture modes toward a highly active, asynchronous learning environment, this module demonstrates that meaningful engagement in distance learning contexts can be deliberately designed rather than assumed. The strong participation, high levels of analytical performance, and absence of failed scripts collectively underscore the value of an educational architecture that integrates structured human touchpoints with flexible digital delivery, an area where engagement is often difficult to sustain.

Central to this success is the deliberate use of constructive alignment not only as a curriculum design principle, but as a mechanism for inclusive learning. Through the careful synchronisation of learning outcomes, culturally responsive content, and higher-order, scenario-based assessments, the module creates equitable opportunities for diverse postgraduate learners to demonstrate understanding in ways that are both meaningful and authentic. In this sense, student diversity is not treated as a logistical challenge to be managed across multiple time zones, but as a pedagogical asset. By enabling learners to draw on their own cultural and professional contexts, the module challenges Eurocentric norms and fosters a more globally relevant and humanistic learning community. Hence this framework empowered international postgraduate learners to bridge global theory with local realities.

At a broader level, this case study contributes to ongoing scholarly discussions on inclusive digital pedagogies by evidencing how intentional, constructively aligned design can enhance both engagement and academic performance in online postgraduate education. At the same time, the findings highlight areas for continued development, including supporting deeper engagement with complex ethical and emerging technological topics, and refining expectations around postgraduate-level design detail. These challenges, however, are integral to the iterative nature of responsive teaching.

Ultimately, this work highlights a key insight for higher education practitioners by reinforcing a powerful narrative: when digital learning environments are built with deliberate empathy, scaffolded clarity, and structural coherence, they do more than accommodate diverse distance learners, they actively enable them to thrive. The planned programme of systematic evaluation will further extend these insights, ensuring that the module continues to evolve as a robust, inclusive model for digitally mediated postgraduate education.

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Acknowledgements

I would like to thank the Programme Lead, Dr. Roxana Baiasu, for ensuring the smooth running of the module and for believing in my ability to lead it. I am also grateful to all my colleagues in the DL team (Dr Paul Pope, Dr Anke Buttner, Dr Francesca Brencio, Dr Zlatomira Ilchovska, Ms Megan Pope, Ms Valeria Khudiakova, Mr Mathew Wilbourn, and Mr Richard Middleton), who provided support and feedback whenever needed. This work would not have been possible without the entire team working collaboratively, even though I served as the module lead.

Reflections on Short CPD Training and Long-Term Mentoring Communities of Practice for Public Managers

Shailen Popat DPhil (Oxon), Department of Public Administration and Policy,
University of Birmingham

Contact: s.popat@bham.ac.uk

First published online on 20 October 2025

Abstract

This reflective essay explores the comparative benefits of short-term Continuing Professional Development (CPD) training and long-term mentoring Communities of Practice (CoPs) for city managers, drawing on two interlinked initiatives between the University of Birmingham and the Ghana Institute of Management and Public Administration (GIMPA). The first initiative involved a three-day CPD workshop in Accra, designed to co-develop a training framework for local government officers. The second was a transnational CoP hosted in Birmingham, which brought together Ghanaian city managers and academics for a week of collaborative learning and institutional exchange. Through these experiences, the essay examines how CPD offers structured, time-efficient learning while CoPs provide sustained, relational, and context-sensitive development. The essay argues that these approaches are not mutually exclusive but can be integrated into a hybrid model that leverages the strengths of both. CPD can serve as an entry point for skill acquisition and mindset shift, while CoPs can deepen learning, foster innovation, and inform future CPD design. The hybrid model is positioned as a dynamic and cyclical learning ecosystem that supports adaptive leadership and institutional transformation. The essay concludes by advocating for universities to play a central role in convening and sustaining such models, particularly in the context of global public sector reform. This reflection contributes to the discourse on professional education by demonstrating how academic institutions can bridge theory and practice through collaborative, international partnerships.

Introduction

As a researcher and practitioner engaged in the professional development of public managers, I have had the opportunity to participate in and help shape two distinct but

complementary initiatives aimed at strengthening city management in Ghana. These experiences have deepened my understanding of the comparative value of short-term Continuing Professional Development (CPD) training and long-term mentoring Communities of Practice (CoPs) as mechanisms for building public sector capacity. The first initiative took place in March 2024, when I travelled to the Ghana Institute of Management and Public Administration (GIMPA) to deliver a three-day CPD workshop funded by the University of Birmingham. This workshop brought together over forty senior officers from local government institutions across the Greater Accra Region. Through a series of participatory sessions, we explored themes such as cultural intelligence, organisational culture, and change management. The workshop was designed not only to deliver technical content but also to co-develop a CPD framework that would be contextually relevant and practically useful for Ghanaian public managers.

The second initiative occurred a year later, in March 2025, when a delegation of fourteen Ghanaian city managers, directors, and academics visited the University of Birmingham's Edgbaston campus. This visit marked the formal launch of a transnational Community of Practice, supported by the UK's International Science Partnerships Fund. Over the course of a week, participants engaged in strategic dialogues, institutional visits, and collaborative workshops focused on decentralisation, participatory governance, and urban resilience. The aim was to foster mutual learning, co-produce training materials, and build enduring institutional partnerships between Ghanaian and UK stakeholders (Popat, 2025). In this essay, I reflect on these two initiatives to examine the comparative benefits of CPD and CoPs for city managers. Drawing on both empirical insights and academic literature, I argue that while CPD offers efficiency and targeted skill acquisition, CoPs provide depth, sustainability, and the opportunity for collaborative innovation. I conclude by advocating for a hybrid model that integrates the strengths of both approaches to support adaptive leadership and institutional transformation in public administration.

Theoretical Foundations of CPD and CoPs

Continuing Professional Development (CPD) is a widely adopted framework for ensuring that professionals maintain and enhance their skills throughout their careers. In the public sector, CPD is often used to address competency gaps, introduce new policy frameworks, or support reform agendas (Boud and Hager, 2012). It is typically

structured, time-bound, and often mandated by professional bodies or regulatory frameworks. CPD is grounded in adult learning theory, particularly Knowles' (1980) concept of andragogy, which emphasises self-directed learning, relevance to practice, and problem-solving orientation. However, CPD has also been critiqued for its limitations. Fraser et al. (2007) argue that CPD often adopts a transmission model of learning, where knowledge is delivered by experts to passive recipients. This approach can be effective for technical skills but is less suited to the complex, adaptive challenges faced by city managers. Moreover, CPD is frequently evaluated based on attendance or satisfaction rather than long-term impact on practice or organisational change (Kennedy, 2014).

In contrast, Communities of Practice (CoPs) offer a more relational and situated model of learning. Originating in the work of Lave and Wenger (1991), CoPs are defined as groups of practitioners who engage in collective learning through shared practice. Wenger (1998) later elaborated this concept, identifying three core dimensions: mutual engagement, joint enterprise, and shared repertoire. CoPs are not merely social networks; they are purposeful communities that generate, refine, and apply knowledge in context. The theoretical appeal of CoPs lies in their alignment with constructivist and social learning theories. Learning is seen not as the acquisition of abstract knowledge but as participation in a community of meaning-making (Vygotsky, 1978). In the public sector, CoPs have been used to support policy learning, foster innovation, and build cross-sectoral collaboration (Smith, 2020; Bate and Robert, 2002). They are particularly valuable in addressing “wicked problems” that require adaptive, iterative, and context-sensitive responses (Rittel and Webber, 1973; Ansell and Gash, 2007). Moreover, CoPs align with the principles of collaborative governance, which emphasise shared decision-making, trust-building, and joint problem-solving among diverse stakeholders (Emerson et al., 2012). In this sense, CoPs are not only learning mechanisms but also governance tools that can enhance institutional resilience and responsiveness.

Reflections on the GIMPA CPD Workshop

The GIMPA CPD workshop was designed to be participatory and reflective, drawing on experiential learning theory (Kolb, 1984). Participants engaged in syndicate exercises to analyse their own organisations through the lenses of power, roles, rituals, and cultural intelligence. These exercises revealed the often-unspoken dynamics that

shape public service delivery in Ghana, including hierarchical decision-making, informal power structures, and resistance to change. One of the most valuable aspects of the workshop was its emphasis on mindset shift. Rather than simply imparting technical skills, the training encouraged participants to reflect on their own assumptions and behaviours. For example, discussions around cultural intelligence (C-Q) helped participants recognise the importance of empathy, adaptability, and self-awareness in leadership. This aligns with recent scholarship that highlights the role of emotional and cultural competencies in effective public management (Grant, 2007). However, the workshop also revealed the limitations of short-term CPD. While participants were enthusiastic and engaged, several expressed concern about the lack of follow-up mechanisms. Without ongoing support, there was a risk that the insights gained during the workshop would not translate into sustained behavioural change. This echoes findings from the literature that CPD, when delivered in isolation, often fails to produce long-term impact (Kennedy, 2014).

Reflections on the Ghana CoP Visit to Birmingham

The Community of Practice initiative, by contrast, was designed to foster sustained engagement and mutual learning. The week-long visit to the University of Birmingham included plenary sessions, thematic workshops, and site visits to institutions such as the West Midlands Combined Authority and the Lord Mayor's Office. These engagements provided participants with a comparative perspective on governance structures, civic leadership, and inter-agency coordination. What distinguished the CoP from the CPD workshop was its emphasis on co-production. Rather than being passive recipients of knowledge, participants were actively involved in designing training materials, sharing case studies, and identifying research priorities. This collaborative approach not only enhanced the relevance of the outputs but also built a sense of ownership and trust among participants (Gaventa and Barrett, 2012). The CoP also had tangible institutional outcomes. It led to the formalisation of partnerships between GIMPA, the Office of the Head of Local Government Service, and the University of Birmingham. Plans were made for joint research projects, staff exchanges, and future funding applications. These developments illustrate the potential of CoPs to act as incubators for policy innovation and institutional transformation (Nutley et al., 2007).

The Case for a Hybrid Model

While CPD offers efficiency and accessibility, it is often limited in depth and sustainability. CoPs, on the other hand, require more time and resources but offer richer, more transformative learning experiences. The two approaches are not mutually exclusive; rather, they can be integrated to create a more holistic professional development ecosystem.

Feature	CPD Workshop	Community of Practice
Duration	3 days	Ongoing
Focus	Skills and mindset	Collaborative learning and policy co-design
Learning Mode	Facilitated training	Peer-to-peer engagement
Outcomes	CPD framework, cultural awareness	Institutional partnerships, co-produced materials
Sustainability	Limited without follow-up	High with continued engagement

Table 1: The comparative strengths and limitations of Continuing Professional Development (CPD) and Communities of Practice (CoPs)

The comparative strengths and limitations of Continuing Professional Development (CPD) and Communities of Practice (CoPs) suggest that neither approach alone is sufficient to meet the complex and evolving learning needs of city managers. Rather than viewing them as discrete or competing strategies, I propose a hybrid model in which CPD and CoPs are mutually reinforcing components of a dynamic professional learning ecosystem. This model is not only theoretically grounded but also practically validated by the two Ghanaian initiatives I have been involved in. In this model, CPD serves as a structured entry point into professional development. It introduces foundational concepts, frameworks, and skills in a time-efficient and accessible format. For instance, the GIMPA CPD workshop provided participants with analytical tools to examine organisational culture, power dynamics, and the role of cultural intelligence in public service delivery. These sessions were instrumental in surfacing latent institutional challenges and building a shared vocabulary among participants. CPD's structured nature makes it particularly effective for addressing immediate training

needs, standardising competencies, and aligning practices across diverse jurisdictions (Kennedy, 2014).

However, as the workshop participants themselves noted, the impact of CPD is often limited without mechanisms for follow-up and contextual adaptation. This is where CoPs become essential. The Ghana City Managers CoP, launched a year later, provided a sustained and relational space for participants to revisit and deepen the insights gained during the CPD workshop. Through collaborative workshops, site visits, and strategic dialogues, participants were able to reflect on their experiences, share challenges, and co-develop solutions. The CoP thus functioned not only as a continuation of the learning journey but also as a platform for identifying new learning needs. Crucially, the CoP helped determine the direction of future CPD. For example, discussions around digital governance, urban resilience, and inter-agency coordination revealed specific technical gaps that could be addressed through targeted CPD modules. Thus, the relationship between CPD and CoPs becomes cyclical and generative with CPD initiating learning and building capacity followed by a CoP that sustains that learning, contextualises it, and generates new learning needs. These needs then inform the design of future CPD. This feedback loop aligns with the principles of learning organisations (Senge, 1990) and adaptive governance (Emerson et al., 2012).

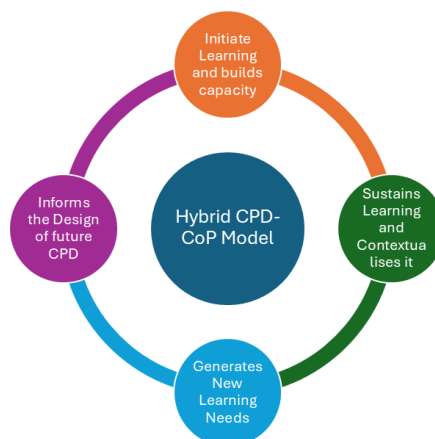


Figure 9: The Cyclical Generative Process of a Hybrid CPD-CoP Approach

This hybrid model also reflects broader shifts in public sector professionalism. Noordegraaf (2015) argues for a move from “pure” professionalism - based on technical expertise and autonomy - toward “hybrid” professionalism, which integrates

managerial, collaborative, and contextual competencies. In this view, professionals must navigate ambiguous environments through both formal training and informal learning networks. The integration of CPD and CoPs supports this hybridity by combining structured skill development with relational and reflective practice. Moreover, this model addresses the limitations of each approach. CPD's tendency toward abstraction and standardisation is balanced by the CoP's emphasis on contextualisation and co-production. Conversely, the informal and sometimes diffuse nature of CoPs is anchored by the structure and accountability of CPD. Together, they offer a more holistic, sustainable, and responsive approach to professional development.

This model also has important implications for institutional design and policy. Rather than treating CPD and CoPs as separate or sequential initiatives, they should be integrated into a coherent strategy. For example, CPD modules could be co-designed by CoP members to ensure relevance and ownership. Participation in CoPs could be formally recognised as part of CPD requirements. Evaluation frameworks should capture both the immediate outcomes of CPD and the longer-term impacts of CoPs on practice, policy, and institutional culture.

In the Ghanaian context, where local government reform is ongoing and capacity gaps are unevenly distributed, this hybrid model is particularly relevant. CPD can help build baseline competencies and introduce reform agendas, while CoPs can support the deeper cultural and systemic changes required for sustainable transformation. The two initiatives I participated in - one focused on structured training, the other on collaborative learning - demonstrate the feasibility and value of this integrated approach.

Conclusions

Reflecting on these two initiatives has reinforced my belief that universities must play a more strategic and sustained role in shaping the future of professional education. The CPD workshop in Accra and the Community of Practice in Birmingham were not isolated events; they were part of a broader learning journey that exemplifies how academic institutions can act as conveners, facilitators, and co-creators of public sector innovation. In the context of university professional education, the hybrid model I propose is not just a pedagogical preference but a necessity. CPD alone, while efficient and scalable, often lacks the depth and contextual sensitivity required for

meaningful change. CoPs, on the other hand, offer the reflective space and relational infrastructure needed to embed learning into practice. When combined, these approaches create a feedback loop: CPD introduces new ideas and skills, while CoPs provide the environment to test, adapt, and refine them. This cyclical relationship ensures that professional development is not only continuous but also responsive to real-world challenges.

Universities are well-positioned to support this model. They possess the research capacity to generate evidence-based content, the credibility to convene diverse stakeholders, and the infrastructure to sustain long-term engagement. However, this requires a shift in how universities conceptualise their role in professional education. Rather than delivering knowledge from a distance, they must embed themselves within the ecosystems they seek to influence. This means co-designing curricula with practitioners, facilitating peer learning across borders, and evaluating impact not just in terms of knowledge acquisition but in terms of institutional transformation. The Ghana initiatives demonstrate what is possible when universities embrace this role. The CPD workshop catalysed a shift in mindset among participants, while the CoP fostered enduring partnerships and co-produced tools for governance reform. Together, they created a professional learning ecosystem that is both grounded in local realities and enriched by global perspectives. As we face increasingly complex governance challenges, such as climate change, urbanisation, digital transformation etc., the need for adaptive, collaborative, and context-sensitive leadership has never been greater. Universities must rise to this challenge by reimagining professional education as a shared, iterative, and relational endeavour. The hybrid model of CPD and CoPs offers a compelling blueprint for this transformation.

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Strengthening Public Management through International Collaboration: The Ghana City Managers Community of Practice

Shailen Popat DPhil (Oxon), Department of Public Administration and Policy, University of Birmingham

Contact: s.popat@bham.ac.uk

First published online on 3 November 2025

Abstract

In my article, '[Reflections on Short CPD Training and Long-Term Mentoring Communities of Practice for Public Managers](#)' I argued on the need for a combination of Continuous Professional Development activities (CPD) and Communities of Practice (CoP). This case study examines the development of a transnational CoP focused on public management and governance. A pivotal event in this development was the CPD that took place at the University of Birmingham in March 2025, involving Ghanaian public managers and academics. The initiative, supported by the UK's International Science Partnerships Fund (ISPF), aimed to foster collaborative learning, capacity building, and the co-production of knowledge between Ghanaian and UK institutions. Drawing on the theoretical foundations of CoPs (Wenger, 1998) and collaborative governance (Ansell and Gash, 2007), the visit brought together senior officials from Ghana's local government sector and academic leaders from the Ghana Institute of Management and Public Administration (GIMPA), alongside UK-based scholars and practitioners. The programme included plenary sessions, institutional visits, and strategic dialogues designed to integrate academic theory with practical governance experience. These engagements facilitated mutual learning and the co-design of training materials tailored to the Ghanaian context. The case study analyses the visit's objectives, activities, and outcomes, drawing on qualitative evidence to assess its impact on institutional collaboration, policy development, and professional practice. It also considers the implications for future research and international partnerships in public administration. The findings underscore the value of CoPs as mechanisms for transnational knowledge exchange and highlight the role of universities as conveners of global public sector innovation.

Introduction

The governance challenges facing public institutions in the Global South are increasingly characterised by complexity, interdependence, and the need for adaptive capacity. In response, scholars and practitioners have turned to collaborative models

of learning and innovation, such as Communities of Practice (CoPs), to enhance public sector performance (Wenger, 1998; Bianchi et al., 2021). CoPs are defined as groups of individuals who share a concern or passion for a domain of knowledge and engage in collective learning through sustained interaction. In the context of public management, CoPs offer a platform for bridging the gap between academic research and policy implementation, enabling practitioners and scholars to co-produce knowledge that is both theoretically robust and practically relevant (Smith, 2020). The University of Birmingham (UoB), in collaboration with the Ghana Institute of Management and Public Administration (GIMPA), has initiated a transnational CoP aimed at strengthening public management capacity in Ghana. This initiative is supported by the International Science Partnerships Fund (ISPF), a UK government programme that promotes global research collaboration and innovation. The ISPF Institutional Support Grant, secured by Dr Shailen Popat (Department of Public Administration and Policy, UoB), allocated approximately £50,200 to this project, building on earlier funding from the Birmingham International Engagement Fund (BIEF) and departmental research grants.



CPD participants and some trainers at the Edgbaston Campus

The visit to Birmingham in March 2025 marked a critical step in operationalising the CoP. It brought together a delegation of 14 senior Ghanaian officials - including city managers, civil servants, and academic leaders - for a week-long programme of knowledge exchange. The visit aimed to consolidate previous training efforts, co-develop contextually relevant training materials, and explore pathways for expanding

the CoP to other jurisdictions. The initiative aligns with broader strategic goals at UoB, including enhancing international partnerships, increasing research impact, and positioning the university as a leader in global public policy innovation. Moreover, the initiative reflects a growing recognition of the importance of collaborative governance in addressing “wicked problems” in public service delivery—issues that are complex, multi-sectoral, and resistant to simple solutions (Ansell and Gash, 2007; Torfing and Ansell, 2017). By fostering sustained engagement between academics and practitioners, the CoP model supports the co-design, co-production, and co-assessment of policies that are responsive to local needs and grounded in shared expertise. This case study situates the Ghana CoP initiative within this broader theoretical and practical landscape, offering insights into the dynamics of international collaboration in public administration.

Purpose and objectives of the visit

The March 2025 visit of Ghanaian public managers and academics to the University of Birmingham (UoB) was conceived as a strategic intervention to advance the development of a transnational Community of Practice (CoP) in public management. The initiative is grounded in the recognition that effective governance in the 21st century requires not only technical expertise but also collaborative learning environments that bridge the divide between theory and practice (Fung, 2015; McCourt, 2018). The visit aimed to operationalise the CoP model by fostering sustained engagement between Ghanaian and UK stakeholders, thereby enabling the co-production of knowledge and the contextualisation of governance frameworks. The specific objectives of the visit were fivefold. First, it sought to enhance institutional collaboration between UoB and the Ghana Institute of Management and Public Administration (GIMPA), building on prior engagements and formalising pathways for joint research and training. Second, the visit aimed to contribute to applied research in public administration by generating empirical insights into the challenges and innovations in local governance in Ghana. Third, it was designed to position UoB as a global leader in public policy education and international development, in line with its strategic goals. Fourth, the initiative aimed to build capacity among Ghanaian public managers through exposure to UK governance models and peer learning. Finally, the visit was intended to strengthen UoB’s eligibility for future funding under the International Science Partnerships Fund (ISPF) and similar programmes. By aligning these objectives with the principles of collaborative governance and experiential learning, the visit exemplifies how CoPs can serve as vehicles for both academic inquiry and practical reform. It also reflects a broader shift in international development practice towards partnership-based models that prioritise mutual benefit and knowledge reciprocity (Gaventa and Barrett, 2012).

Activities and engagements

The visit was structured around a series of carefully curated activities designed to facilitate knowledge exchange, relationship-building, and collaborative learning. These engagements were informed by the CoP framework, which emphasises the importance of shared practice, joint enterprise, and mutual engagement (Wenger, 1998). The programme included plenary sessions, thematic workshops, and institutional visits, each contributing to the overarching goal of co-producing knowledge and strengthening governance capacity. The Opening Plenary, held at the University of Birmingham, served as the formal launch of the Ghana Community of Practice initiative. It featured keynote addresses from Prof. Samuel K. Bonsu (Rector, GIMPA), Dr Nana Ato Arthur (former Head of Local Government Service, Ghana), and Mo Baines (CEO of the Association for Public Service Excellence, UK). These presentations set the tone for the week, highlighting the shared challenges and opportunities in local governance across both contexts.

Subsequent workshops and roundtables focused on thematic areas such as decentralisation, participatory governance, and sustainable urban development. These sessions were designed to be dialogic, allowing participants to share experiences, interrogate assumptions, and collaboratively design training modules tailored to the Ghanaian context. The workshops also drew on comparative case studies and theoretical frameworks from public administration literature, thereby integrating academic rigour with practical relevance (Osborne, 2006). The delegation also undertook institutional visits to key governance bodies in the West Midlands. At the West Midlands Combined Authority (WMCA), participants engaged in a knowledge exchange session with the Deputy Mayor, exploring regional governance structures, economic development strategies, and inter-agency coordination. A subsequent visit to the Lord Mayor of Birmingham provided insights into civic leadership, ceremonial governance, and the symbolic dimensions of public office.

The week concluded with a Closing Plenary, which provided a platform for reflection, feedback, and forward planning. Participants articulated their key takeaways, identified areas for further collaboration, and committed to sustaining the CoP through virtual engagements and future in-person exchanges. The session also included a preliminary roadmap for the development of co-authored publications and joint funding proposals. Collectively, these activities exemplify the principles of experiential learning and collaborative inquiry. They also demonstrate how CoPs can function as dynamic spaces for professional development, policy innovation, and institutional transformation (Bate and Robert, 2002; Smith, 2020).

Key findings and outcomes

The Ghana Community of Practice (CoP) visit to Birmingham yielded several significant outcomes, both immediate and strategic, that underscored the value of transnational collaboration in public management. These findings are drawn from participant reflections, workshop outputs, and institutional feedback, and are situated

within the broader literature on collaborative governance and experiential learning (Bate and Robert, 2002; Wenger-Trayner and Wenger-Trayner, 2015).



The Head of the Ghanaian Local Government Service, Dr Stephen Nana Ato Arthur and the Chief Director of the Office of the Head of the Local Government Service, Madame Felicia Dapaah Agyeman-Boakye, honouring Shailen at the end of the CPD in Edgbaston

Institutional strengthening and partnership development

One of the most tangible outcomes was the deepening of institutional ties between the University of Birmingham (UoB), Office of the Head of Local Government Service (OHLGS), and the Ghana Institute of Management and Public Administration (GIMPA). The visit facilitated the formalisation of collaborative pathways, including plans for joint research projects, co-authored publications, and reciprocal staff exchanges. These developments align with the literature on academic-practitioner partnerships, which emphasises the importance of sustained engagement and mutual benefit (Nutley, Walter and Davies, 2007).

Capacity building and professional development

Participants reported enhanced understanding of governance frameworks, particularly in areas such as decentralisation, intergovernmental coordination, and participatory planning. Exposure to UK models of local governance—through both plenary discussions and site visits—provided comparative insights that participants found directly applicable to their own contexts. This aligns with Kolb's (1984) experiential learning theory, which posits that knowledge is constructed through concrete experience and reflective observation.

Co-production of training materials

A key deliverable from the workshops was the co-design of training modules that integrate academic theory with practical case studies from Ghana. These materials are intended for use in future capacity-building programmes and reflect the CoP principle of shared repertoire—tools, documents, and concepts developed through collective practice (Wenger, 1998). The collaborative nature of this process also supports the notion of “knowledge democracy,” where diverse forms of expertise are valued and mobilised (Gaventa and Barrett, 2012).

Policy influence and strategic alignment

The presence of senior civil servants and city managers ensured that the insights generated during the visit would inform policy and practice upon return to Ghana. Several participants indicated plans to adapt workshop content into local training initiatives and governance reforms. This outcome reflects the potential of CoPs to act as incubators for policy innovation, particularly when embedded within institutional structures (Smith, 2020).

Emerging Research Themes

The visit also surfaced several thematic areas for future research, including urban resilience, digital governance, and inclusive service delivery. These themes will inform the next phase of the CoP’s development and provide a basis for collaborative grant applications. The identification of shared research priorities is consistent with the literature on transnational policy learning, which highlights the role of networks in shaping research agendas (Stone, 2004).

Implications and future directions

The outcomes of the Ghana CoP visit to Birmingham have several implications for the theory and practice of public management, particularly in the context of international collaboration. First, the initiative demonstrates the utility of Communities of Practice (CoPs) as vehicles for professional learning and institutional innovation. By fostering sustained interaction among diverse stakeholders, CoPs can bridge the gap between academic knowledge and policy implementation, thereby enhancing the relevance and impact of public administration research (Wenger-Trayner and Wenger-Trayner, 2015).

Second, the visit illustrates the importance of context-sensitive capacity building. Rather than imposing external models, the initiative prioritised mutual learning and the co-production of knowledge. This approach aligns with postcolonial critiques of development practice, which call for greater recognition of local expertise and the decolonisation of knowledge systems (Chilisa, 2012). The co-designed training materials exemplify this ethos, blending global frameworks with Ghanaian case studies to produce contextually grounded learning tools.

Third, the initiative highlights the strategic role of universities as conveners of global networks. UoB’s leadership in this project not only enhances its international profile

but also contributes to its mission of civic engagement and global impact. The university's ability to leverage funding, convene stakeholders, and facilitate knowledge exchange positions it as a key actor in the global governance ecosystem (Marginson, 2011).

Looking ahead, the CoP will continue to evolve through virtual engagements, annual in-person exchanges, and collaborative research projects. Plans are underway to expand the network to include public managers from other African and UK cities, thereby increasing its reach and diversity. Future funding applications under ISPF and similar schemes will be informed by the documented impact of this visit, ensuring the sustainability and scalability of the initiative.

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