

Making Active Learning Happen for All

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*Practical Ideas for Developing and Sustaining
Active Learning*

*EDITED BY SARAH WILSON-MEDHURST AND
JANET HORROCKS*

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And finally we thank you, the reader, for clicking on this book and reading it.

Introduction

SARAH WILSON-MEDHURST AND JANET HORROCKS

What is this book?

This is a guidebook for those who are thinking about embedding active learning in their own practice or within the practice and philosophy of their wider institutions. It goes beyond thinking about ideas for active learning within individual learning spaces to look at the wider context in which active learning takes place. For active learning to thrive and become sustainably embedded in an institution, individual enthusiasm, although important, is not sufficient. Staff, students and the institution need to work collectively with the common purpose of active learning to ultimately produce a milieu in which active learning will thrive and become a normalised, institutionally supported practice. To structure the guidance offered it presents a conceptual model of the university, or any other place of post-compulsory education, as a system with numerous interconnected 'parts' that include mindsets. It uses this systems thinking lens to provide a diagnostic leverage point framework in order to analyse the problem of how to embed and sustain active learning in day-to-day practices and learning experiences.

The aim of the book

The aim of this book is to provide navigable practical ideas in the form of strategies and approaches that educators can use to enable the systematic embedding of active learning in their own practice and their wider institutions, in a sustainable and inclusive way. It acknowledges challenges and barriers, but its focus is on offering solutions.

In this context, sustainable means how the strategy/approach/idea might be supported to last over time beyond one individual or annual cycle of implementation, and includes consideration of how the ideas or approaches could be adopted, or adapted, in other organisations or contexts. Inclusive means making everyone feel welcome and valued and that the thoughts, ideas and perspec-

tives of all individuals matter. Inclusivity might also consider how active learning might make learning more accessible for all students/staff within the group but especially those that might be excluded in other more traditional forms of teaching.

When proposing and developing their contributions, authors from the [Active Learning Network](#)'s global community were invited to respond to these definitions and to explore strategies, approaches and practices that focus on challenging and changing the status quo in relation to one or more stakeholder perspectives of staff, student or institution. Their responses are chapters, case studies and opinion pieces that provide strategies, examples and evidence-informed personal perspectives on how active learning can become embedded in individual and institutional practice.

Reflective of the Active Learning Network's global community, contributions and the perspectives they offer come from Australia, Canada, Greece, Hong Kong, Iceland, Ireland, Pakistan and the United Kingdom. This is a book by and for the active learning community in its broadest sense: that is, all those interested or who want to know more about making active learning happen for all. Its aim is to show not only what works, or what has been learnt by evaluating approaches and practices to sustain and embed active learning, but to enable others to adopt and/or adapt the approaches and practices within their own contexts. This aim is in keeping with the Active Learning Network's ethos of reciprocal sharing of practice for sustainable progress and combating isolated struggles for change.

What is active learning and why does it matter?

The definition of active learning used is that of the Active Learning Network available [here](#). This definition highlights that the core elements of active learning are learner activity and engagement in the learning process (see also Prince, 2004), which requires learners to produce *observable evidence* of their learning:

In active learning, rather than the teacher 'transmitting' knowledge through lectures or reading, learners engage in a series of activities which require them to produce *observable evidence* of their learning. Where possible, these individual, pair and group tasks should aim to develop higher order thinking skills, emotional connection with content and tactile or physical engagement with the environment. (Betts, undated)

As Chickering and Gamson (1987) note, active learning techniques underpin good practice in (undergraduate) education:

Learning is not a spectator sport. Students do not learn much just by sitting in classes listening to teachers, memorising pre-packaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences, apply it to their daily lives. They must make what they learn part of themselves' (Chickering and Gamson, 1987, p. 4).

There is strong evidence that active learning as opposed to 'drill and spill' or 'chalk and talk' is the most effective way to develop subject-specific knowledge, as well as other capabilities and attributes associated with a graduate, including critical thinking, problem solving and effective study habits (see, for example Deslauriers et al., 2019; Freeman et al., 2014; Prince, 2004). There is also evidence that it can narrow the attainment gap for under-represented groups (Ballen et al., 2017; Theobald et al., 2020).

However, it is still not routinely embedded in day-to-day higher, further and other post-compulsory education curriculum practices and this is a situation this publication and its contributions seek to address.

The origins of this book and its approach

The genesis of this book was a conversation about the challenges and barriers posed in embedding active learning in day-to-day practices and learning experiences. The [Active Learning Network](#) wanted to create a book that would act as a guidebook to navigate these challenges. As a group, colleagues explored the challenges of active learning in a festival moshpit (where else!), otherwise known as an asynchronous crowdsourced ideas generator, at the [Online Global Festival of Active Learning of 2024](#). Challenges were grouped into challenges for students, challenges for staff and challenges for institutions. The outputs from that moshpit are [here](#).

These challenges are rooted in the complex system that is higher education. To begin to address these challenges a systems thinking approach gives a framework for identifying sustainable solutions. The ambition is to move away from continually treating symptoms, such as lack of motivation, lack of resource or

resistance to active learning, to creating a situation in which active learning is normalised as ‘the way we do things around here’. This requires looking at the overall coherence of the social system that a university or another place of higher education is, and intervening or influencing across multiple points of leverage in an aligned way. Thus, all the valuable strategies, approaches and ideas in this book will each be even more powerful in making active learning happen for all when they are brought together in appropriate ways for your context. To this end the following structure is offered to help you navigate this guidebook.

Structure of the book

Like any good guidebook this book is structured in ways that aim to help the reader to navigate the territory, and then to explore the places and spaces that interest them.

Section one: So why is embedding and sustaining active learning a problem and what can we do about it?

[Section one](#) analyses the problem of making active learning happen for all and offers an overview of the territory with an accompanying ‘map’ to navigate the various ‘terrains’ within the organisation. This territory overview takes the form of a systems thinking lens where the university, or any other place of post-compulsory education, is viewed as a complex system which is made up of numerous interconnected ‘parts’. With this understanding the map is a leverage points framework which places systems parts into five categories according to their potential to effect (leverage) sustainable change: paradigm, purpose and goals, structure, self-regulation and adaptation, and elements and resources. For example, people, buildings and their rooms, learning technologies, teaching activities and teaching standards are examples of ‘elements and resources’, while deeply-held beliefs about what good teaching looks like are an example of paradigm or mindset. With the leverage points framework map it is possible to analyse the problem of making active learning happen for all and where interventions and influence might produce the most effect to achieve active learning for all. The analysis proposes that only aligned, appropriate interventions across all the lever-

age point categories are likely to produce the effect of sustainable and inclusive change.

Section two: Approaches to embedding and sustaining active learning across the institution

[Section two](#) brings together contributions that provide examples of adopting active learning at large scale across the institution. In line with the [section one](#) analysis, all the contributions in this section recognise the importance of different system parts aligning and provide the reader with illustrations of how the different institutions in question have sought to make changes across many if not all of the leverage point categories identified in section one. This provides the reader with useful insights into the form such an aligned approach across appropriate leverage points takes, including: staff and student empowerment and capacity building with a view to shifting mindsets; clear strategic intent and commitment from senior leadership; structural considerations that include policies, regulations, reward and recognition and resource flows; quality assurance processes; digital and learning space infrastructure; and curriculum templates.

Section three: Shifting staff mindsets

[Section three](#) focuses on staff and the most challenging leverage point category highlighted in section one, that of paradigms or mindsets that include deeply held beliefs, attitudes and assumptions. An individual's view or belief about what good teaching looks like will be influenced by their own experience as a learner, personal preferences and other factors. Their beliefs about the form good teaching takes may not align with active learning, or they may assume active learning only takes specific forms or that certain tools, learning environments and even perhaps disciplines are not suited to it. The contributions in this section address common challenges and misconceptions about what active learning is and the forms it can take, especially if active learning is to be fully inclusive. The authors examine misconceptions about technology and active learning, offer an alternative integrated approach to design active learning experiences which iterates between the affordances of technology and underpinning pedagogy, and examine the role of silence in active learning. Together, they show the range of ways

active learning can be intentionally designed without prioritising the preferences or needs of one group of learners over another. Finally in this section, one academic explains how active learning helped them to find the joy in teaching and the changes it brought to their perspective on what good and enjoyable teaching is.

Section four: Promoting staff self-regulation and adaptation

One of the leverage point categories offered in section one is self-regulation and adaptation. This involves the use of feedback loops to influence university system functioning. When working well, timely, relevant data and information are used within a feedback loop to monitor system functioning and promote prompt action to maintain progress in a desired direction (to achieve system purpose). However, individual self-regulation and adaptation also need to occur if practices are to be developed and improved. Contributions here focus on promoting staff reflective practice as a catalyst for self-regulation and adaptation in the light of new information such as that gained when experiencing well-designed active learning for themselves. The contributions in [this section](#) also aim for a shift in mindsets as part of this process but focus on providing the experiences that will support that process and change practices. Thus, the contributions here all offer different, purposefully designed approaches to staff development that are intended to encourage staff to identify where their practice can be improved in terms of designing and using active learning in their teaching. The last contribution in this section also very deliberately draws our attention to an important point that by simply changing the facilities on offer such as learning spaces (physical and/or virtual) we cannot expect (teaching) practices to change, and that other work must be done at other leverage point categories including targeting mindsets and supporting the learning processes through which these might be shifted. This aligns well with the analysis offered in [section one](#) which highlights while it might be tempting to only adjust elements and resources and hope for the best, sustained change needs action within the other leverage point categories too. This also highlights that individual action alone will not, of course, embed and sustain change across the organisation.

Section five: Shifting student mindsets

[Section five](#), like [section three](#), focuses on the most challenging leverage point category highlighted in [section one](#), that of paradigms or mindsets that include deeply held beliefs, attitudes and assumptions. In this case the focus is on student ‘actors’ in the system and addressing common challenges and misconceptions about what good teaching is, the role of active learning in that process and the forms it can take. In this section a student offers their perspective on the process of becoming an active learner, giving helpful insights into some of the initial concerns they had, but also the significant gains they made from being an active learner. There can be hesitancy or resistance to engaging with active learning for a variety of reasons that might include expectations about what good teaching is (that don’t align with active learning), lack of confidence perhaps because certain skills and attributes need further development, or concerns about making mistakes. This section explores how student mindsets, including the confidence to engage with active learning, can be shifted through providing an appropriate learning environment where mistakes can be made, ideas shared and alternative perspectives and inputs valued. The authors suggest this creates a sense of belonging and connection and supports development of the capabilities and attributes, including critical thinking, creativity and reflection, needed to productively engage in active learning. [Section six](#) examines approaches to developing the knowledge, capabilities and attributes for active learning.

Section six: Promoting student self-regulation and adaptation

[Section six](#) focuses on students and supporting their capacity to be self-regulated active learners. Aligning with the analysis in [section four](#), the contributions here focus on students developing the knowledge, capabilities and attributes to be confident active learners. This involves creating the learning environment and conditions that will operate as catalysts for reflection, self-regulation and adaptation that then result in the development or enhancement of targeted knowledge, capabilities and attributes. Of course, such development and learning are taking place within an ever-evolving context in which tools like generative artificial intelligence (GenAI) are having an impact on the forms that active learning

might take, and perhaps inhibiting learning if not used appropriately. Contributions in this section examine ways in which such tools can be incorporated as part of active learning design strategies to support student development. The final contribution in part six also highlights the significance of considering other leverage point categories (see [section one](#)) when supporting individuals to self-regulate and adapt; in this case, how a core part of the digital infrastructure can help to sustain practice rather than relying on individual (staff) motivation to design the opportunities and on students to engage with them.

Section seven: Designing and implementing sustainable and inclusive active learning experiences

As shown in the analysis in [section one](#), active learning cannot happen for all without well-designed implementations that also prepare students for their next steps, whatever those may be. [This section](#) explores innovative approaches to embedding and sustaining active learning in day-to-day practices in a range of different disciplinary contexts. The authors highlight how their approaches can be adapted to other contexts. These examples in the leverage point category of elements and resources identified in section one form the largest section. They are subdivided into five sub-parts to facilitate navigation. These are: session design; incorporating gameplay; co-creation; interdisciplinary collaboration; and embedding the principles of Universal Design for Learning. This section therefore offers the reader the opportunity to explore ideas around implementing active learning experiences that they can adapt to their context.

Please use this guidebook to suit your needs

This book can support you in a range of different ways. If you are uncertain about using active learning, you will get some insight into the benefits of active learning from practitioners and students. If you are new to active learning, you should find some advice on how to get active learning to work for your students, and for your colleagues. If you are an active learning practitioner there are new ideas to adopt and adapt. If you are supporting staff to develop their active learning practice, there are examples of how to support staff and enable them to systematically embed active learning in their practice. If you have an opportunity

to influence institutional strategy and its implementation, then there are examples of how institutions have approached embedding active learning at an institutional level. If you want fresh insights into how all the parts of the educational system can be connected to work better together to sustain active learning for all then there is a framework that can help. We invite you to select and use relevant sections, chapters, case studies and opinion pieces to meet your needs.

Finally if you would like to get involved in the network or set up and lead your own local satellite group, please get in touch by sending us an email to active-learningnetwork@gmail.com, or by visiting our website at www.activelearningnetwork.com.

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1 SO WHY IS EMBEDDING AND SUSTAINING ACTIVE LEARNING A PROBLEM, AND WHAT CAN WE DO ABOUT IT?

A variety of barriers and challenges continue to be cited as the reasons why active learning cannot be routinely embedded in day-to-day higher, further and post-compulsory education. These barriers and challenges include staff and student attitudes, beliefs and expectations, institutional structures and processes, resources including (lack of) time, and many others. This section uses a systems thinking lens offered by [Wilson-Medhurst](#) to visualise and analyse the problem of embedding and sustaining active learning. Wilson-Medhurst presents a conceptual model of the university, or other place of higher education, as a system with many interconnected 'parts' that include beliefs, attitudes and values (mindsets). These parts are then placed into categories to support analysis of the problem. This diagnostic leverage points framework offers new insights into how practitioners and leaders might disrupt the existing situation to make active learning happen for all. The analysis suggests that deep systemic change, such that active learning happens for all, requires aligned interventions or influence across *all* the different leverage point categories. Illustrations of some of the forms these interventions and influence might take are provided.



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Chapter: A Systems Thinking Informed Framework for Making Active Learning Happen for All at Your Institution

SARAH WILSON-MEDHURST

Summary

Many of the reasons given for lack of engagement with active learning, such as lack of time or lack of training, are surface level symptoms that often have deeper structural causes. A systems thinking lens offers fresh insights into these deeper level or root causes. Systems thinking approaches allow practitioners and leaders to see beyond events and symptoms, thus moving them from implementing short-term fixes that do not have lasting value, to giving them understandings that allow more productive interventions addressing systemic issues. Such systemic solutions are also more likely to be resilient to external pressures such as changes in funding or policy and therefore to be sustainable beyond one individual or annual cycle.

A university behaves as a complex system which is made up of numerous interconnected 'parts'. These 'parts' include students, staff, courses, administrative functions, learning resources, policies, and so on. A systems thinking lens allows practitioners to see how the parts influence one another, identifying cause-and-effect relationships and creating an understanding of how change in one can impact others. The systems thinking lens also looks beyond events and patterns of behaviour to explore systemic structures which include beliefs, attitudes and assumptions, and established practices (see Senge, 2006) often neglected when trying to make active learning happen for all.

Given the challenges in making active learning happen for all across places of

higher education, a framework for strategically prioritising the embedding of active learning is needed. This chapter seeks to address that need by outlining a structured approach to applying systems thinking to identify the components of a system, categorise them and look for leverage points for positive change and thus:

- Offer a conceptual model for understanding a university or other institution of higher education as a system that includes attitudes, values and beliefs
- Provide a leverage points framework to offer new insights about where practitioners and leaders might intervene or offer influence to help make active learning happen for all
- Illustrate the application of the leverage point framework to an example to demonstrate how change might be enabled beyond one individual or annual cycle of implementation of active learning, and in an inclusive manner that reaches all learners studying any programme or course at a university or other place of higher education.

Introduction

Making active learning happen for all is an ambition that many universities have but then do not achieve, certainly not systematically across all programmes of learning and disciplines. This systematic embedding is important so all learners, regardless of existing levels or types of social, cultural, social-bonding and financial capital, can avail themselves of the opportunities active learning offers for their learning and development. Here the definition of active learning used is the one offered by Betts and used by the Active Learning Network:

In active learning, rather than the teacher ‘transmitting’ knowledge through lectures or reading, learners engage in a series of activities which require them to produce *observable evidence* of their learning. Where possible, these individual, pair and group tasks should aim to develop higher order thinking skills, emotional connection with content and tactile or physical engagement with the environment. (Betts, undated)

Active, as opposed to transmissive, education has many benefits for student learning and student outcomes (see for example Prince 2004; Kuh, 2008; Freeman et al., 2014) and yet is still not routinely embedded in day-to-day teaching

and learning practices within higher education. Chickering and Gamson (1987) noted that active learning techniques underpin good practice in (undergraduate) education, highlighting:

Learning is not a spectator sport. Students do not learn much just by sitting in classes listening to teachers, memorising pre-packaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences, apply it to their daily lives. They must make what they learn part of themselves (Chickering & Gamson, 1987, p. 4).

Given the long-standing evidence of active learning's productive role in student learning, it is questionable whether universities can effectively achieve the first of their three main purposes of education, research and societal engagement (Hurth & Stewart, 2022), especially inclusively, if they do not employ active learning systematically. Indeed, given the evidence for the benefits of active learning on student engagement and attainment including cutting failure rates, Dirks (cited in Waldrop, 2015, p. 273) suggests that 'at this point it is unethical to teach any other way'.

Despite this, to this day, there are lots of reasons given for not using active learning in its various forms. Arguments provided for not using active learning from a staff perspective include:

- Our discipline is special
- My students don't like/want this
- Active learning doesn't work
- Professional body requirements won't allow it
- Developing and using it takes time away from things that really give recognition and reward/are important
- Resource availability and access e.g. timetabling constraints, time
- It's not relevant (to my role)
- Lack of skills and capabilities.

The main message is that embedding active learning in day-to-day practices is still a challenge. We will revisit the above list later in the chapter and see what insights the proposed leverage points framework might offer in terms of understanding these reasons and identifying how we might productively intervene systematically to address them.

University as a (complex) system

Goodman (2018) suggests that using a systems thinking lens is useful when:

- the issue is important
- the problem is chronic, not a one-time event
- the problem is familiar and has a known history
- people have unsuccessfully tried to solve the problem before.

Certainly, the problem of making active learning happen for all fits the above. A university also fits the definition of a system as 'any group of interacting, interrelated, or interdependent parts that form a complex and unified whole that has a specific purpose' (Kim, 1999, p. 2). A university is also a complex system, which is defined as

the system where there is a bidirectional non-separability between the identities of the parts and the identity of the whole. Thus, not only the identity of the whole is determined by the constituent parts, but also the identity of the parts are determined by the whole due to the nature of their interactions. (Estrada, 2023, p. 1143)

Systems thinking is a *way of thinking* about situations and problems within systems (Hoverstadt, 2022). It also employs methodologies and tools to help understand and analyse what is going on and where one might make improvements or fundamental changes to things. It also enables the user of systems thinking to visualise and understand why certain behaviours or patterns might be emerging because of interactions between different actors and parts in the system.

A system's parts can be tangible (physical) things such as buildings, students, staff, learning resources and IT equipment, but also intangibles such as standards, ideologies, decision-making processes, goals, capabilities, academic expertise, or 'the way we do things around here' (Meadows, 2008). As we will see the intangibles are just as significant as the tangibles in the way a system behaves. As highlighted in the definitions above a system's parts are interdependent, thus the behaviour of each part is influenced by the behaviour of others. Therefore, when thinking about why active learning isn't happening for all, a systems thinking lens alerts us to the fact that this is not down to individual actors on their own (such as academic staff) or not having the right strategy (although both working in alignment will definitely help) but because of an inter-

action between all the system parts. Many of the interconnections in systems operate through the flow of information ‘signals that go to decision points or action points within a system’ (Meadows, 2008, p. 14). Meadows (2008) also notes that a system’s function or purpose, can be the least obvious (noticed) part of the system and yet have the most profound effect on its unique characteristics; we turn to purpose now.

Across the sector, both nationally and internationally a university’s purpose is typically ‘divided’ into three main areas education, research and societal engagement (Hurth & Stewart, 2022). And while students may have a different emphasis, in the UK at least they generally acknowledge all these purposes too (Shutt & Shutt, 2019). Clearly, different universities and other places of higher education in different contexts will place different emphases and have different resources available to them to achieve that purpose. Different actors in the system (those working and studying within a university context) will also have different mental models of that purpose and what that means for them. For example, some staff may believe their primary purpose (and that of their roles) is to discover and preserve knowledge and pass it on to new generations, closely connecting their own and the university’s research and education purposes. This will then influence their view of their role and purpose as an educator. Others, perhaps in universities with a strong emphasis on their education purpose set within a widening participation framing may be less focused on the preservation of knowledge *per se* but rather on critical engagement with the discipline(s)/knowledge(s) in hand and on critical thinking and problem solving in that context. We might see therefore how the orientation and mental models around purpose can influence orientation to active learning and engagement with it as a pedagogical approach. These mental models will be conveyed in the form of beliefs about the ‘correct’ way to teach and support learning and influence attitudes towards active learning.

The table below seeks to draw together this high-level view of the university system and its components.

Table 1: The main components of a university system

Components	Examples
Elements	Tangibles such as buildings, staff, students, learning resources, IT equipment, etc. Intangibles: ideologies, pride in achievements, goals, capabilities, academic expertise etc.
Interconnections (relationships that hold elements together)	Knowledge sharing and exchange, funding streams, entry and degree standards, examination results, the 'whisper mill' of gossip, etc. Also physical flows such as students transitioning in, through and out of their studies at university.
Purpose	The university's main (three) purposes are typically education, research and societal engagement (Hurth and Stewart, 2022) and each university may place a slightly different emphasis on each of these. Meanwhile different 'parts' of the system may have their own focus or purpose. For example, a student to get high grades, a finance officer to balance the accounts, and an academic to get promoted to professorial grade. It is easy to see how these different sub-purposes may come into conflict with each other and mis-align with the university's purpose (for further discussion, see Meadows, 2008). A successful system manages to maintain accord between purposes and sub-purposes.

As Senge (2006) highlights, by using systems thinking we can appreciate the underlying structures that are producing patterns of behaviour and the events that arise from those structures and behavioural patterns. As a result, rather than reacting to events we can take action that is more likely to result in sustainable change in a 'desirable' direction according to some agreed goal or purpose. This is not to suggest this is straightforward to achieve, but one thing a systems thinking lens enables us to do is to visualise these interactions and also recognise that attitudes, values and beliefs are in themselves structural in the systems thinking sense. That is, they are generative producing patterns of behaviour that ultimately result in (reactive) events. In turn attitudes, values and beliefs can themselves be influenced by the systemic context in which they take place. For example, an individual academic within a university system may have the belief that research has greater value than teaching and that belief is reinforced by cues within the system and that influences or sustains that belief. Similarly, measures of performance may be focused on certain types of indicators as well as privileging individual over collaborative effort. These beliefs and other influences in turn can sway behaviour and then how events unfold when, for example,

someone is asked to spend time working with others to develop their teaching according to an active learning paradigm.

To make sense of this and identify a framework to support analysis we now turn to leverage points or places to intervene in a system.

Places to intervene in a (university) system to make active learning happen for all

Leverage points are ‘places in the system where a small change could lead to a large shift in behaviour’ (Meadows, 2008, p. 145). Of course, this requires a sound understanding of the system, its constituent parts and their interactions and the awareness that even if you understand where these leverage points might be you can make a change that pushes the system behaviour in the ‘wrong’ or undesirable direction. Nonetheless a leverage points lens can offer a framework that provides fresh insights on making active learning happen for all and for interrogating interventions that are designed to achieve that purpose to determine how effective they might be.

While acknowledging scope for refinement, Meadows (2008) organises leverage points into a hierarchy based on their potential to produce system-wide change and the degree of difficulty in applying them. In their list of leverage points, the higher the number the easier it is to apply that leverage point, but the less likely it will support system-wide (lasting) change. Conversely, the lower the number the more likely the resultant change will reach deeper into the system with a better chance of the change being sustained, but the greater the degree of difficulty in applying it to effect change.

The most influential leverage point in Meadows’s hierarchy are paradigms or deeply held beliefs, while the least effective are what she refers to as ‘numbers’, i.e. constants and parameters like subsidies, taxes, or standards. An example in the university context is teaching standards. Meadows highlights that ‘numbers’ are where at least 95% of our attention is typically directed when trying to make a change within a system, but ironically, they have the least leverage potential. This finding is supported by the work of Malhi et al., (2009) when investigating the types of leverage points that had been applied to complex food systems to make them more healthy, green, fair and affordable. Malhi et al. found that most efforts

were indeed directed at these ‘lower order’ elements which had least leverage potential and noted the on-going work needed to achieve systemic change.

In the university context, this is not to say that we should ignore ‘numbers’ such as teaching standards in relation to making active learning happen for all, but if we only pay attention to ‘numbers’ we are unlikely to see the change we want to see in terms of systemically embedding active learning. This may also be in part because the standards are not reflective of the active learning paradigm and also ‘speaks to’ how different parts of the system interact, but this is jumping ahead a little and more of this later.

Others, including Malhi et al. (2009) as indicated above, have taken Meadows’s leverage points and applied them to different contexts including complex food systems (Malhi et al., 2009), campus building sustainability efforts (Posner & Stuart, 2013), obesity policy (Johnston et al., 2014) and to disrupt systemic racism (Watson & Collins, 2023). In doing so, while retaining the integrity of Meadows’s structure and insights, these researchers have grouped these leverage points into layers or categories to facilitate application and insight in their context. To reflect analysis of important factors in the university educative context, here Meadows’s 12 leverage points are placed into five categories. The five categories are: elements and resources; self-regulation and adaptation; structure; purpose and goals; paradigm. This grouping aims to make the application of the ideas feasible in practice and in a way that draws on understanding of the specific challenges of operating in university environments to make active learning happen for all. It is acknowledged that these are provisional groupings pending further critical review and development, but provide an initial leverage point framework to review a university system in the context of its educative purpose.

Table 2 below lists Meadows’s (2008) 12 leverage points positioned within the five categories. It then illustrates them with examples from a university system, before finally (final column) providing an aligned worked example operating through all the leverage points with the aim of promoting active learning systematically.

Table 2: Leverage points framework with illustrative examples

Leverage point (Meadows, 2008)	Examples related to university system with a focus on its educative purpose	A worked example showing how these leverage points might be addressed to promote active learning
Elements and resources		
12. Numbers – Constants and parameters (e.g. subsidies, taxes, standards)	Teaching standards Income per student	Standards that align with an active learning pedagogy predicated on indicators of engagement rather than satisfaction
11. Buffers (the sizes of buffers and other stabilizing stocks, relative to their flows)	Availability of people, rooms, technology, skills, finance Room/other facility capacities	Sufficient learning spaces are <i>available</i> to accommodate active learning pedagogy for <i>all</i> students within timetabled sessions
10. Stock-and-flow structures (physical systems and their nodes of intersection)	The buildings and other learning spaces used for teaching and the facilities they offer for active learning	All learning spaces are <i>designed</i> to support active learning or can easily accommodate active learning formats
Self-regulation and adaptation		
9. Delays (the lengths of delays relative to the rate of system change/ the lengths of time relative to the rates of system changes)	Information on student attendance and/or engagement	All teaching staff are provided with / able to access real-time information on student attendance and engagement and they, or those who support this monitoring and support, provide timely interventions to support students' best interests
8. Balancing feedback loops	Quality assurance. Taking action to stabilise a part of the system to achieve a specific goal such as changes to a module after interim or post module evaluation/other feedback/self-evaluation indicates there are improvements to be made	When teaching does not conform to active learning standards timely action is taken to support change/take corrective action
7. Reinforcing feedback loops	Innovation and best practice. Initiating a movement toward a target that is self-reinforcing and growing exponentially in the desired direction, such a pilot leads to successful change and taken up more widely	Opportunities for innovation are available and supported including the opportunity to share and learn from best/innovative practice in active learning
Structure		

6. Information Flows (the structure of who does and does not have access to information)	Who has access to timely data on student progression, retention etc.	All relevant staff (not only heads/leads) receive timely information that they can act on within appropriate time-frames/planning cycles
5. Rules (e.g. incentives, punishments, constraints)	What does or does not get rewarded in terms of recognition, remuneration and promotion, but also in terms of prestige and other factors	Rewards for teaching are comparable to those of research so investment (of time and other resources) is seen as worthwhile and valued within the academy
4. Self-organisation (the power to add, change, or evolve system structure)	The ability to adapt in the face of changing conditions or new realisations	“Grassroots” driven active learning innovations are encouraged and there is a mechanism to feed learning into relevant decision-making fora so changes can inform policy and practice
Purpose and Goals		
3. Goals (what the system is trying to achieve) The whole system goal(s)	University's purpose and goals are explicit and e.g. people's roles and job descriptions align such that all roles administration, estates, academic etc., reflect an understanding of the active learning paradigm and its implications for their work	The educative purpose of the university is framed to emphasise that the only types of learning and teaching that are approved and valued are those that utilise active learning
Paradigm (mindset)		
2. Paradigms (deeply held beliefs) i.e. the mindset of which the system – its goals, structure, rules, delays, parameters – arises	A population-level shift in fundamental beliefs (e.g. cultural shift) on how to respond effectively to complex problems (a change in ‘the way things are’)	All staff in all roles believe that teaching using active learning matters and is important to achieve the university's educative purpose
1. Transcending paradigms	Realising and accepting the uncertainty inherent in any worldview or ‘the way things are done around here’ and that another paradigm may achieve a particular purpose more effectively than the current one (or at least the flexibility to consider this)	Staff and students maintain a critically self-reflexive mindset (open to change)

Table 2 aims to illustrate the twelve different leverage points and provide a categorisation that facilitates insight and action. Returning to our list near the start of the chapter of reasons given for not engaging with active learning, we can see the categories into which they might fall in table 3 below. It may be a useful exer-

cise when someone gives a reason for not engaging with active learning to use the categories provided in the leverage points framework to help you determine what that might tell you about the systemic issues and actions that might be taken.

Table 3: Placing reasons for not adopting active learning into categories for further analysis

Reason (for not using active learning)	Source
• Our discipline is special • My students don't like/want this • Active learning doesn't work • Professional body requirements won't allow it	Paradigm (mindset)
• It's not relevant (to my role)	Purpose and goals
• Developing and using it takes time away from things that really give recognition and reward/are important	Structure
• Resource availability and access e.g. timetabling constraints, time • Lack of skills and capabilities	Elements and resources
Noting relevant self-regulatory feedback loops operating across the system's parts and interconnections will maintain, exacerbate (or de-escalate/disrupt)	

Applying the leverage points framework to identify interventions that will support sustainable change

Table 4 below now takes these five categories of paradigm, purpose and goals, structure, self-regulation and adaptation, and elements and resources and applies these to another example. This example illustrates how misaligned components within the system in each of the different categories can interact and then interfere with making active learning happen for all. Table 4 then highlights interventions that may improve alignment and system functioning in relation to making active learning happen for all.

Table 4: Applying the framework's typology to identify potential points of leverage and intervention possibilities (CC BY-NC-ND)

Leverage point category	Paradigm (mindset)	Purpose and goals	Structure	Self-regulation and adaptation	Elements and resources
Example	Belief about what constitutes 'good teaching'. May misalign with paradigm that underpins active learning (at an institutional, local and/or individual level)	Different actors in the system including staff, and students, working and studying within the university context will have a different mental model of the university's educative purpose and what that means for them and their roles/study.	Reward and recognition for teaching versus research. Prestige associated with research versus teaching. Lesser value associated with teaching results in failure to allocate sufficient time in workload for learning and teaching development (workload allocation policy).	Reward and recognition for teaching not as 'secure' as that for research therefore reinforcing lack of investment of (teacher) time in acquiring skills/ knowledge such as those associated with active learning and perpetuating inconsistent application of the principles of active learning.	Criteria for 'good teaching' not stable/aligned, may be generated with no (explicit) reference points that align with indicators of active learning such as indicators of engagement. Quality ratings/teaching awards can favour 'quick wins'/popularity such as 'going the extra mile' in an unsustainable way.
Intervention possibilities	Surface and discuss what 'good teaching' looks like and what our current perceptions might be so they can be discussed. The revised criteria (standards) for good teaching might then be considered in this context.	Conduct evidence informed discussion of the university's educative purpose and how that can best be achieved through active learning. This discussion to be facilitated across the academy for all staff and students alike and external stakeholders.	Create equally valued career pathways suitably rewarded, role models, consistent messaging, adjust workload allocation model, etc. Teaching prestige is signalled and reified (Wenger, 1998) within the academy.	Change (disruption of above reinforcing/ amplifying feedback loop) can only successfully be achieved with aligned interventions across the leverage points discussed here and timely monitoring of appropriate indicators of progress.	Review of criteria (standards) for 'good teaching' to ensure they reflect the active learning paradigm and working with leads in relevant areas including programme leads to ensure consistent interpretation/use. Socio-cultural artefacts (documents, images etc.) in the academy signal the value placed on teaching using active learning.

A systems thinking lens offers other tools such as feedback loops that we can employ once system components are identified. To complement the analysis in table 4, the feedback loop tool is used below in figure 1 to help to analyse the interactions between system parts that may be exacerbating the system behaviour that maintains unequal access to active learning opportunities, especially for under-represented student groups.

Figure 1 below thus illustrates how, set within a feedback loop analysis, the typology offered by the leverage points framework might help to scrutinise an existing situation with a view to identifying where we might intervene to effect desirable change across the university system. In figure 1, ‘R’ indicates this is a reinforcing (amplifying) loop, with the arrows showing the interactions between the components each positively reinforcing the other and maintaining, if not escalating, unequal access to active learning opportunities.

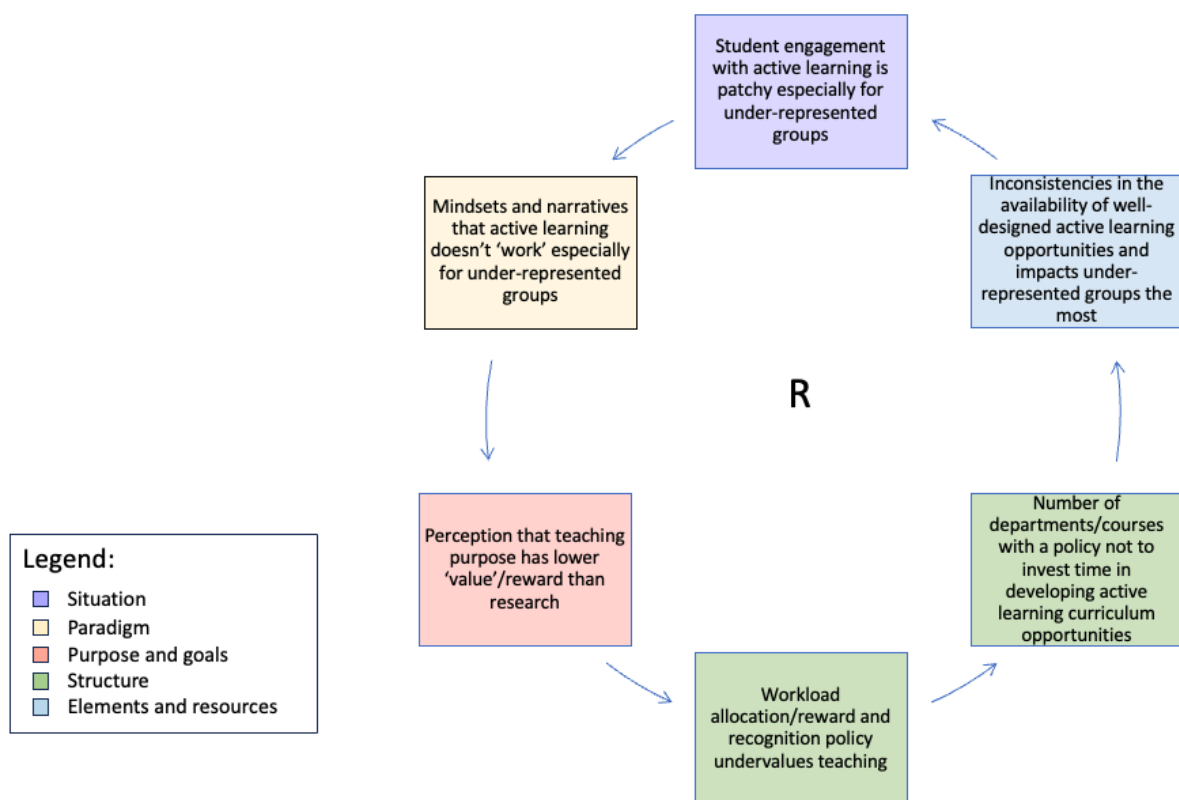


Figure 1: Interaction map (reinforcing loop) illustrating some of the interactions between system components that maintain existing disparities in availability of active learning.
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The analysis afforded by the above interaction map, in combination with table 4,

helps to visualise why if we simply intervene, say, in the structural component of reward and recognition, we will likely effect some initial change but this will be difficult to sustain unless other components across the system are also adjusted. For example, someone on a teaching reward and recognition pathway may encounter a (local) departmental environment where others do not invest the same amount of time in teaching development as they do, or do not engage in using active learning for teaching. This individual is rewarded for their efforts but may feel as though they are 'swimming against' a cultural tide that make it hard to sustain their practice. Their students may also question why they are being taught differently in that practitioner's module/course and may resent what they perceive as additional effort if they are mainly focussed on good grades alone. This may prove to be too challenging an environment for the individual to sustain their active learning practice and as a result they may do one or more of the following: move elsewhere where teaching using active learning is more systematically embedded and rewarded; form connections primarily externally to sustain their effort/feel valued/collaborate; decide the effort of maintaining active learning is not sustainable personally or professionally and so not continue to develop their practice in this regard; leave the profession altogether. In any of these scenarios the individual's commendable practice is not easy to sustain and consequently the student (learning) experience is the worse for it if we accept, as argued here, that active learning techniques underpin good practice in education.

Conclusions and key takeaways

Given the evidence of its efficacy some may be surprised that active learning is not happening for all in our universities and other places of higher education. This chapter offers a conceptual model of a university as a system and a leverage points framework to offer new insights about where practitioners might intervene or offer influence to help make active learning happen for all. The framework categorises the leverage points into five groupings of: paradigms (mindsets); purpose and goals; structure; self-regulation and adaptation; elements and resources. It identifies the ways in which interactions between different system parts and actors within each of these categories may inhibit or act against the uptake of active learning for all and how we might visualise and identify points of leverage to shift things so that this is no longer the case. This systems thinking framework provides a starting point for further analysis. It aims to

support practitioners, leaders, and other stakeholders in getting a better sense of the ‘big picture’, as well as gain insight into places to intervene to create change within the system. While, as hopefully this chapter has demonstrated, there are no ‘silver bullets’, i.e. the ‘one place’ to intervene that will make the difference; if there is one action at all that makes a real difference it is gaining an understanding of mindsets. This includes understanding our own mindset and how that relates to what we see as the university’s and our own purposes and goals. To this end, the following are the three main takeaways from this chapter:

- Mindsets or mental models drive system structure which in turn is the source of system behaviour. System behaviour reveals itself as a series of events over time (such as some staff or students not engaging with active learning) and to first understand those events and why they are happening we need to first surface and engage with paradigms (mindsets).
- Intervening in one place or leverage point, such as teaching standards or ‘training’ staff, will not drive engagement with active learning both on the part of students and staff. Rather, we need to understand how the various parts of the system interact if we want to achieve our goal of making active learning happen for all.
- By understanding leverage points we are more likely to be able to take action or focus our efforts in ways that will maximise the chance of our interventions resulting in a more systematic engagement with active learning for the benefit of our students, ourselves and, it is hoped, the university system and the wider society it serves.

Finally, this chapter offers a starting point to gain a more systematic understanding of how we might make active learning happen for all. It is hoped and anticipated that the lens it offers provides a springboard to further analysis using the systems thinking leverage points framework provided.

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2 APPROACHES TO EMBEDDING AND SUSTAINING ACTIVE LEARNING ACROSS THE INSTITUTION

This section brings together contributions that highlight how practitioners have sought to embed and sustain active learning across all disciplines and places of learning at their institutions. Aligning with the analysis offered in [Section 1](#), they all adopt an approach that explicitly considers important parts of the system that need to align to bring about active learning for all.

[Gower's](#) opinion piece highlights the elements that need to be in place to sustain staff engagement with active learning. Gower emphasises that while vital, a strategic approach and commitment from senior leadership on their own are not sufficient to make active learning happen for all. Policies, regulations, curriculum templates and quality assurance processes all need to align with active learning principles and intent. Spaces for staff to grow and develop their active learning teaching practice, such as within communities of practice, are also vital so that staff can build confidence and collective expertise.

The next three contributions all illustrate the ways in which they and their institutions have sought to align these and other system parts to make active learning happen for all.

[Nicholson et al.](#) explore their strategy-led integrated approach to embedding active learning in curricula. Set within a clear strategic intent, they employ an institution-wide Innovation Scholar Scheme that seeks to grow and sustain active learning institutional capacity by building communities of practice. The authors recognise the significant challenge for any strategic direction is to balance consistency of approach with scope for innovation and agency within different disciplines, which the Innovation Scholar Scheme approach seeks to address. Their contribution illustrates important system components across different leverage points working in alignment to facilitate consistent and sustained implementation of active learning.

[Perkins and Thomson's](#) case study explores their institutional approach to advancing active learning underpinned by a Global Changemaker Curriculum Framework (GCCF). This framework operates across five global campuses, all of which have the same policies and procedures, which supports the adoption of active learning. They engage staff through a three-pronged approach that combines raising staff awareness and buy-in, structured training to encourage experimentation and reflection, and providing a range of active learning toolkits, methods and resources for staff to choose from. They illustrate how by taking a principle-led sustained strategic approach and aligning this with other important system components that includes structural considerations such policies and regulations, as well as supporting staff buy-in can help secure active learning for all.

The case study contribution by [Dale et al.](#) also illustrates how, set within a clear and sustained effort and strategic intent, their university has gone about aligning relevant university system parts to make active learning happen for all. They offer a clearly articulated strategic purpose underpinned by core values and enabled by important system components; these include physical and digital infrastructure, reward and recognition (for teaching) and supporting staff and student preparedness (for active learning). Curriculum design, assessment and feedback and student skills development are also among the components explicitly considered. Dale et al. highlight the importance of staff and student confidence and preparedness, noting some resistance from both staff and students and steps they have taken to encourage and support engagement and shift mindsets. [Section 3](#) and [Section 5](#) provide a deeper dive into shifting mindsets in staff and students respectively.



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Opinion Piece: Sustaining Staff Engagement in Active Learning

ISOBEL GOWERS

Active learning has gained momentum across higher education as a growing body of evidence suggests increased engagement and better outcomes for students (Freeman et al., 2014). While implementation of active learning can create some enthusiasm, sustaining staff confidence and commitment is more challenging. Without ongoing support, active learning is not always sustainable over time, so what can be done to create longer-lasting cultural change?

Staff engagement is central to the success of active learning. When academics feel confident and supported, they are more likely to experiment, adapt and embed active learning within their practice. This benefits students by fostering a more inclusive and dynamic learning environment. Institutions must invest in long-term strategies that enhance this development.

University leadership plays a vital role in sustaining active learning. At Anglia Ruskin University (ARU) in the UK, active learning has been central to the education strategy for nearly a decade. A two-year collaboration between staff and students led to the Active Curriculum Framework, which was embedded into courses via Course Design Intensives (Middleton et al., 2021). Even embedded within their university's strategy, many staff remained unaware or unconvinced of the evidence base for the active curriculum framework (Thomas et al., 2023). This highlights that a strategic approach alone is not sufficient and demonstrates the need for broader support for active learning.

Involvement with the wider global [Active Learning Network](#) in combination with running a satellite community within ARU has provided a space where staff can share ideas, reflect on experience and build collective expertise. One of the advantages of this group is that it can help normalise active learning and reduce the isolation felt by staff when they are introducing new active learning techniques into the practice, giving them confidence to continue.

One area that still needs development is alignment of institutional systems with active learning. Paperwork, curriculum templates, policies and quality assurance processes should reflect and reinforce active learning principles. Avoiding paperwork that suggests all teaching falls within the categories of lecture/seminar/practical would be a starting point. Furthermore, ensuring that regulations allow the use of alternative assessments which combine alignment of active learning principles and inclusion are key, especially considering recent guidance on supporting disabled students (Office for Students, 2025).

Sustaining active learning needs more than just a few enthusiastic individuals; it requires infrastructure, culture and appropriate support. By utilising institutional frameworks, communities of practice and appropriate development, we can ensure that active learning is not just a short-term activity but a sustainable practice.

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Chapter: Integrating Active Learning in Curricula: A Strategic, Thematic Approach

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Summary

Active learning is a student-centred approach to education that develops in learners the attributes employers seek in 21st-century graduates. Active learning also closely aligns with many of the priority-enabling strategies pervading Higher Education in the UK, such as embedding Education for Sustainable Development, work-integrated learning, flexible and authentic assessment, student partnerships and co-creation, and belonging and mattering. Recognising its crucial role, Manchester Metropolitan University in the north of England, UK, has placed transformative active learning at the core of its education strategy. To realise that ambitious goal, an institution-wide Innovation Scholar Scheme has been established. In this chapter we describe and explain the scheme and its thematic structure, and illustrate selected applications through a series of thematic case studies. We discuss outputs and impacts of the scheme and identify areas of challenge and opportunity. We close with some ‘takeaways’ for institutions considering a similar path.

Introduction

Active learning is a constructivist student-centred approach to education (Erbil, 2020) that emphasises student engagement and participation in meaningful learning activities, interactions and experiences (Bonwell & Eison, 1991). This is in contrast to the traditional view of passive learning largely through didactic transmission (Prince, 2004). Active learning is rooted in Dewey’s (1963) concept

of ‘learning by doing’, and it enables and empowers students to take ownership and ‘construct’ their own knowledge. Constructivism in active learning is essential for realising learning gains (Andrews et al., 2017) and can promote higher order thinking through exploration and application of new knowledge (Bonwell & Eison, 1991). Active learning is often collaborative, providing opportunities to promote peer learning through social integration (Vygotsky, 1978).

Strategies that embed active learning in curricula have gained significant traction in Higher Education (HE) in recent years. These call for learning environments that actively *involve* students in their learning through structured activities designed to foster engagement and provide ample opportunity for students to reflect, evaluate, and act based on feedback (Cullen & McCabe, 2022). Thus, contributions from both students and teachers are required for active learning to be effective (Middleton, 2022) and this shared responsibility is not without challenge. Integrating active learning in HE curricula is challenging for a variety of reasons including pedagogical and disciplinary complexities, influences of market forces and financial pressures, implications for staff development, power relations, and physical infrastructure constraints. There is also some conceptual confusion for staff and students (Prince, 2004; Børte et al., 2023), and there are inherent difficulties in evaluating efficacy and obtaining meaningful metrics. These and other barriers are considered in-depth by Børte et al. (2023).

Despite challenges, there is extensive empirical evidence of the powerful intrinsic benefits of active learning approaches (Bonwell & Eison, 1991). These are explored at length by Prince (2004), and include enhancements in long-term information retention (Ruhl et al., 1987), individual and collective academic achievement through improved engagement (Astin, 1993), inter-personal skills, social integration, confidence and self-esteem (Johnson et al., 1998), diversity awareness and cultural literacy (Nicholson et al., 2023), and problem solving and critical thinking skills (Prince, 2004). Furthermore, active learning approaches equip students to enter the workplace as highly skilled, adaptable graduates capable of critical thinking and self-management, and in this sense, they are very employable (Kember & Leung, 2005).

It is in this context that Manchester Metropolitan University in the United Kingdom has placed active learning at the heart of its education strategy. In this chapter, we set out a unique institutional approach to ensuring successful implementation of active learning through our Innovation Scholar Scheme. We provide background and details for the scheme, and illustrate its application across

several themes using case studies. We discuss the long-term sustainability of our approach, its benefits, and wider application.

Institutional Context

Realising an Institutional Education Strategy

At the heart of Manchester Met's Education Strategy (Manchester Metropolitan University, 2023) is an aspiration to build a *Transformative Active Learning Community* (Figure 1). Five key action areas have been prioritised to realise this ambitious goal: future-focused curricula; excellent graduate futures; engaging, digitally enhanced teaching, learning and assessment (DELTA); staff supported and empowered to deliver transformational outcomes for our students; and outstanding student experience. The latter includes co- and extended curricular opportunities facilitated by [RISE](#), our award-winning provision.

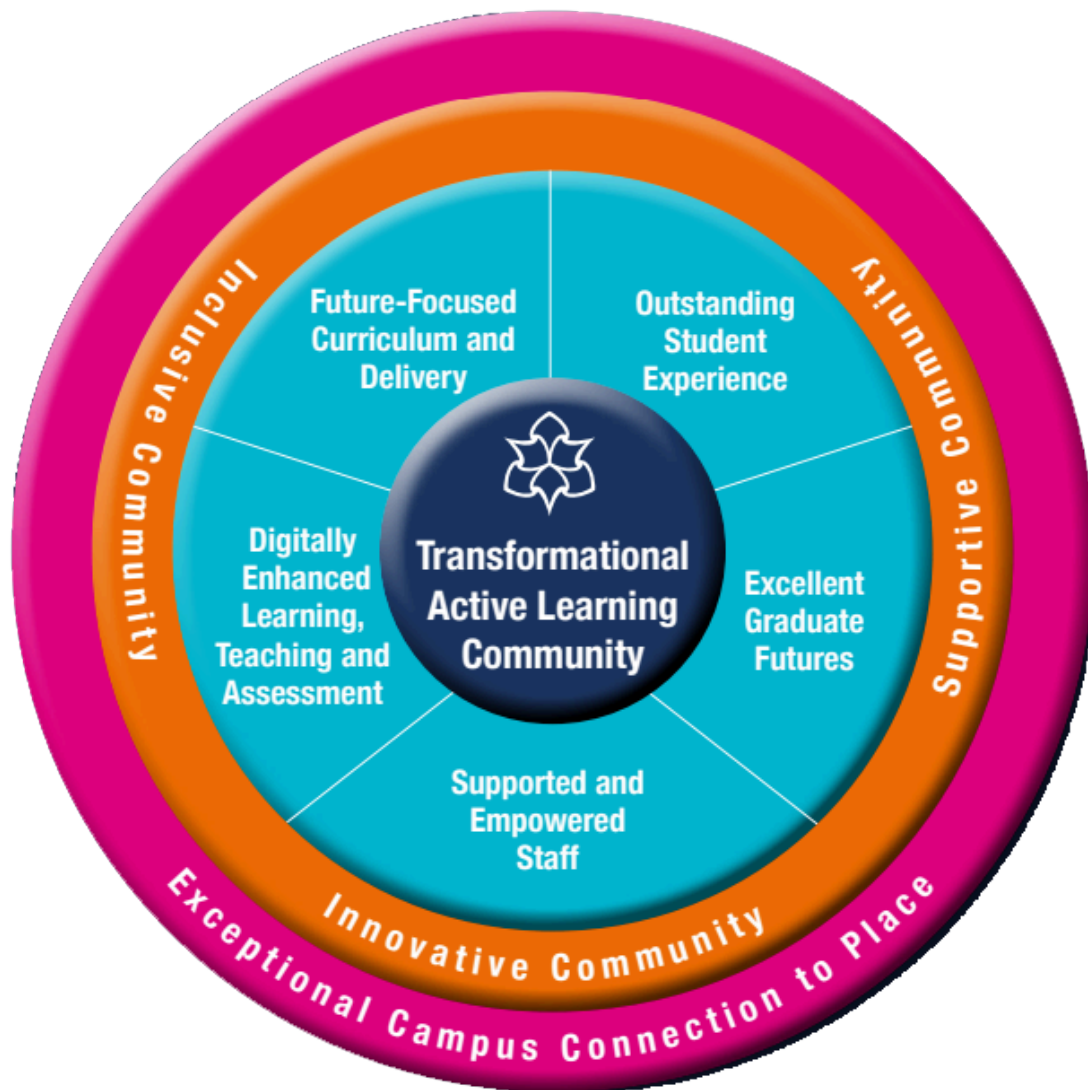


Figure 1: The Manchester Metropolitan University Education Strategy. © Manchester Metropolitan University, 2023. CC BY-NC-SA 4.0

The Manchester Met Innovation Scholar Scheme

Seen as a crucial driver for the institution's education strategy is the Innovation Scholar Scheme. The scheme enables academic staff on an education career track and those in education-facing professional services roles (such as Library, Careers, or Technical Services) to be fractionally seconded to our academic development unit, the Centre for Learning Enhancement and Educational Development. Successful applicants are responsible for:

- identifying and raising the profile of innovation;
- galvanising activity, creating momentum, and building a learning community;
- capturing and reinforcing the essence of active learning at our institution;
- supporting and driving pilot projects and/or institutional initiatives;
- developing practice through training, resources, exemplars, and master-classes;
- nurturing professional development, raising the profile of excellence, empowering staff.

The scheme appoints Lead Scholars to provide cross-university leadership, crafting pathways through institutional strategies and practices, and Associate Scholars to mobilise grassroots action (Table 1). All Scholars represent a theme aligned to one of the priority action areas identified above.

Table 1: Structure and practicalities of the Manchester Met Innovation Scholar Scheme

Role	Practicalities	Activities
Lead Innovation Scholars	Two-year thematic leadership (up to 0.4 workload) across the university to facilitate delivery of a specific aspect of the Education Strategy (e.g. active learning) with expectation of broad impact.	• Establish and convene thematic Communities of Practice (CoPs). • Raise the excellence and profile of innovative practice through staff workshops, discussions, student fora, guidance, resources and projects. • Disseminate and communicate impact widely within and beyond institution. • Provide mentoring for Associate Scholars.
Associate Innovation Scholars	One-year project (up to 0.1 workload) focusing on a department or faculty priority linked to the Education Strategy with expectation of local impact.	• Develop and implement projects. Examples include: A departmental support package for students with ADHD; a digital financial literacy tool (open to all students); and an Active Learning Spectrum resource showcasing examples from across the institution. • Actively engage with relevant CoP(s) and promote activities to colleagues. • Engage with our supportive professional development programme alongside project work.

The scheme is a key enabling mechanism driving implementation of the education strategy. In the first 18 months since the scheme was launched, Lead

Scholars have established and now convene several institution-wide thematic Communities of Practice (CoPs) (Figure 2), which are vital to the success of the scheme (Nicholson & Herrero, 2023).

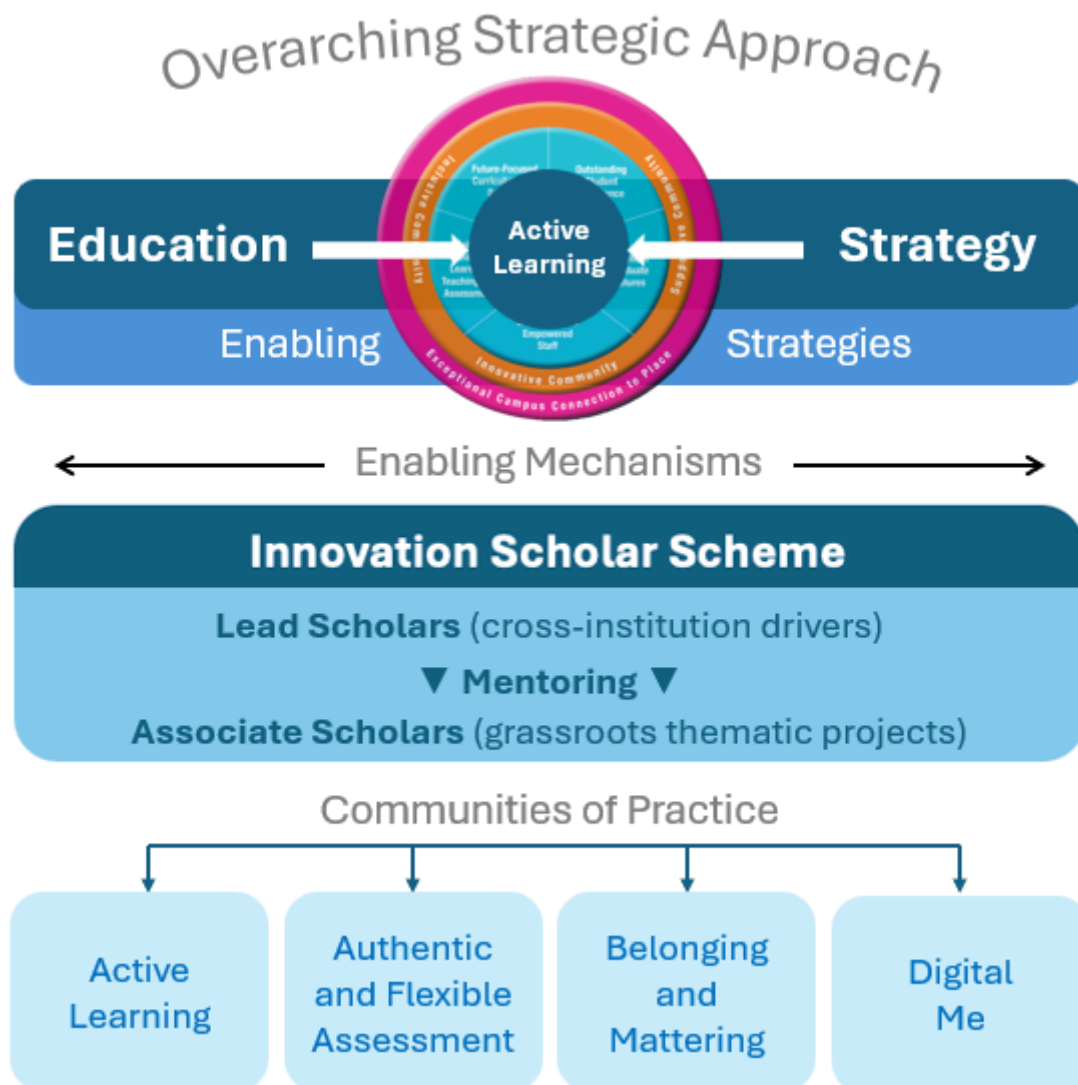


Figure 2: Relationship between the Education Strategy, Innovation Scholar Scheme, and CoPs linked to active learning. © ManMeInnovationCOPs, Nicholson et al., 2025. CC BY 4.0

Collectively, the Lead Scholars also mentor 30-50 Associate Scholars recruited annually to lead small-scale projects and initiatives at department or programme level (Table 2). These include projects aligned to a 'Closing Differential

Gaps’ theme that cut across those discussed herein, in addition to a wider range of themes beyond the scope of this chapter.

Table 2: Thematic summary of Associate Scholarships linked to active learning themes

Year	Total applications	Linked Strategic Theme			
		Active Learning	Authentic and Flexible Assessment	Belonging and Mattering	Digital
2023-24	36	12	2	8	4
2024-25	52	33	11	32	16
2025-26	63	14	8	21	11

Note: The four themes most closely aligned with active learning are shown here. Applicants may align with more than one theme. The total number of themes has expanded from six in 2023-24 to ten in 2025-26. In 2023-24 and 2024-25, all applicants were successful. A further 30 Associate Scholarships have been successfully awarded for 2025-26.

Active Learning Framework

Following one-to-one dialogue with around 50 innovators from disciplines across the institution, the Lead Scholars for the ‘Active Learning’ theme devised the Manchester Met Active Learning Framework (Figure 3). This captures the essence of active learning practices at our institution, identifying and categorising its most common features and framing a helpful set of principles for developing active learning curricula going forward.

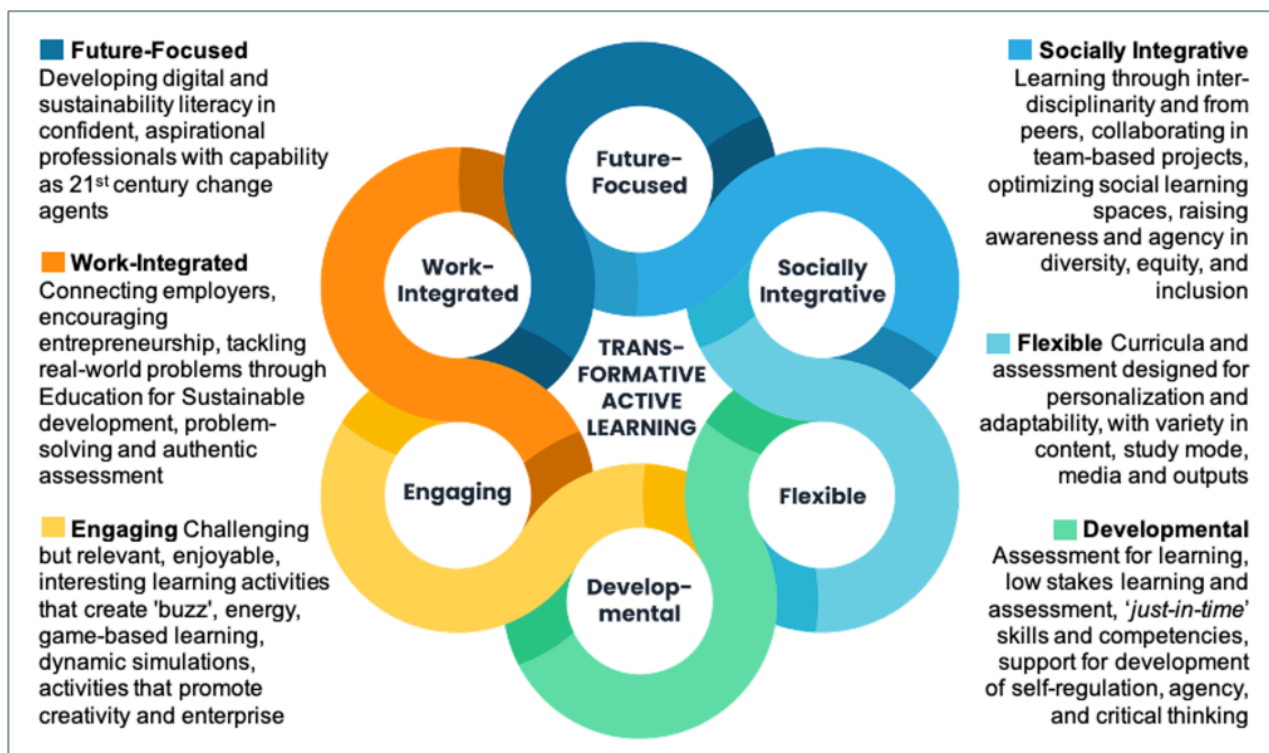


Figure 3: The Manchester Met Active Learning Framework. © Nicholson et al., 2025. CC BY 4.0

Case Studies

The plethora of educational priorities, strategic targets, enabling strategies and aspirational graduate attributes may imply a set of discrete or even competing educational goals. However, a key value of the Manchester Met Innovation Scholar Scheme is its holistic approach. Scholars' highly collaborative ethos reinforces thematic interconnectedness and the integral role of active learning across all themes, and this is reflected in the aforementioned framework (Figure 3). In this section, we present several case studies from across the Innovation Scholar themes and discipline areas and show how active learning is integral to all. The case studies include specific examples of innovative active learning practices that can be adapted and applied in different contexts. In each case study, alignment with dominant theme(s) from the Active Learning Framework is indicated.

Case Study 1: 'Crazy 8': Creativity and Divergent

Thinking in Active Learning

Key themes from Active Learning Framework: Engaging and Socially-Integrative

Background: Implicit throughout the Active Learning Framework are practises with the characteristics (e.g. engaging, social, flexible, developmental) to foster divergent and creative thinking, and these do need to be explicitly cultivated. Divergent thinking involves generating multiple new ideas through curiosity and exploration without restriction, by changing perspective, taking risks, and imagining diverse possibilities. Creativity is a good indicator of divergent thinking in research and education (Baer, 1993), because it transforms, re-interprets and makes or produces something with those imagined possibilities (Guilford, 1986; Palmiero et al., 2014). Convergent thinking is perceived as being devoid of creativity, but aims to find a single answer with speed, accuracy, and logic (NHS Wales, undated). However, both divergent and convergent thinking are needed to tailor novel and innovative solutions for given problems (Pathan et al., 2016; Cropley, 2006), and these are desirable skills in 21st-century graduates. The story goes that if you give a child a matchbox, they can think of hundreds of things to do with it. But give it to a teenager or adult, and the outcomes drastically reduce. Research shows that our tolerance of time and workload pressures significantly impede divergent thinking as we age (Fusi et al., 2021). But just as we lose the habit of divergent thinking, in a fast-paced world, finding a singular solution through convergent thinking is often encouraged.

Example: A creative active learning technique is 'Crazy 8', a rapid sketching activity used in the ideation stage of design thinking to generate ideas and stimulate divergent thinking. Design thinking is creative and collaborative, focusing on people and empathy (Newton et al., 2025). Crazy 8 encourages participants to view a problem from different perspectives, avoiding getting stuck on details. The goal is to sketch eight solutions in eight minutes. Crazy 8 encourages participants to think creatively, exploring wild, abstract, or even impossible concepts without overthinking or refining sketches (Verma, 2021). It begins with a problem, such as 'How can we influence employers to adopt practices that are more sustainable?' Eight prompts, one for each sketch, are then provided:

What would the solution be if...			
You had to do it by yourself	You were working with a large team of students	You had lots of money and/or resources	It was driven by employees
You could collaborate with any community group	You could time travel (forward or back!)	You aimed to raise employers' profiles	You had a magic wand!

As part of the Innovation Scholar scheme, we host an annual Innovation Symposium. At our 2025 event participants played Crazy 8 at one of our active learning 'sandpits' (Figure 4), in which participants can explore playfully and flexibly at their own pace. Initially, some participants appeared panicked, but were quickly reassured that it was okay if their minds froze and were encouraged to rejoin when ready. We emphasised that there was no expectation to create masterpieces or share their sketches. Using humour, we thus diffused tension and created a safe space for experimenting without fear of failure. The more we reassured, scaffolded the activity, and explained the potential applications of Crazy 8, the more the feedback became enthusiastic. By the end, participants loved the activity and enjoyed the adrenaline rush of being gently pushed outside their comfort zone.

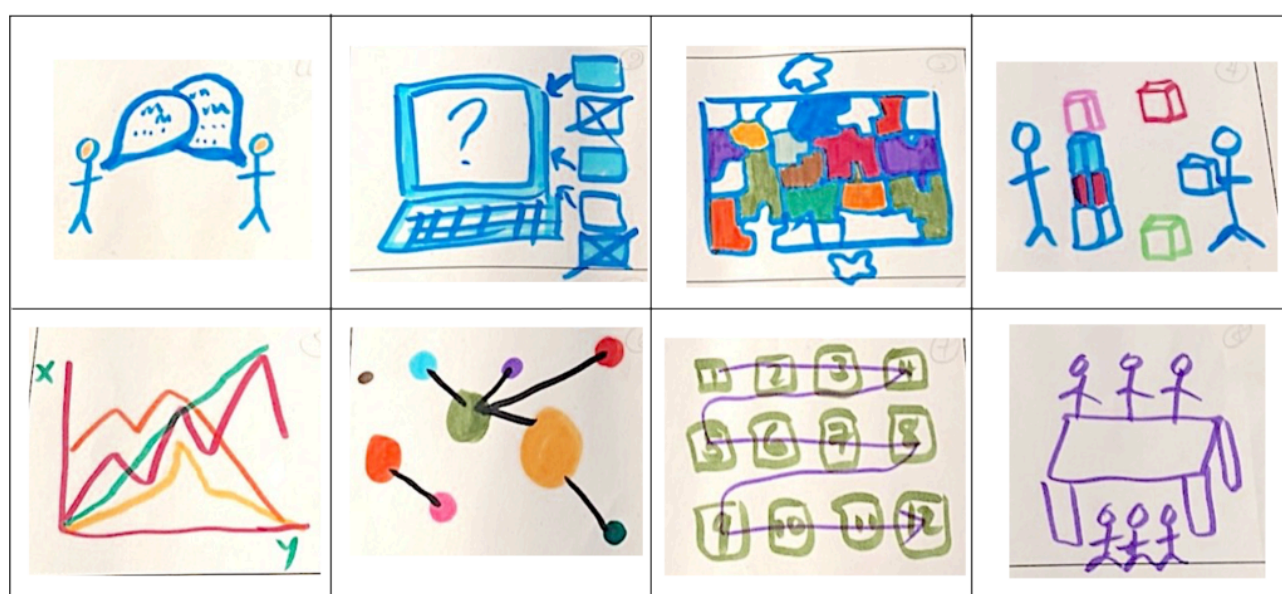


Figure 4: Participants' Crazy 8s from the Innovation Symposium 2025. © Nicholson et al., 2025. CC BY 4.0

The Symposium was also peppered with 'soapboxes'; live short but provocative speeches (like 'What if we stopped teaching?') from Innovation Scholars to stir divergent thinking on an aspect of their theme. Prominent themes arising from the symposium were summarised graphically by Nifty Fox (Figure 5).

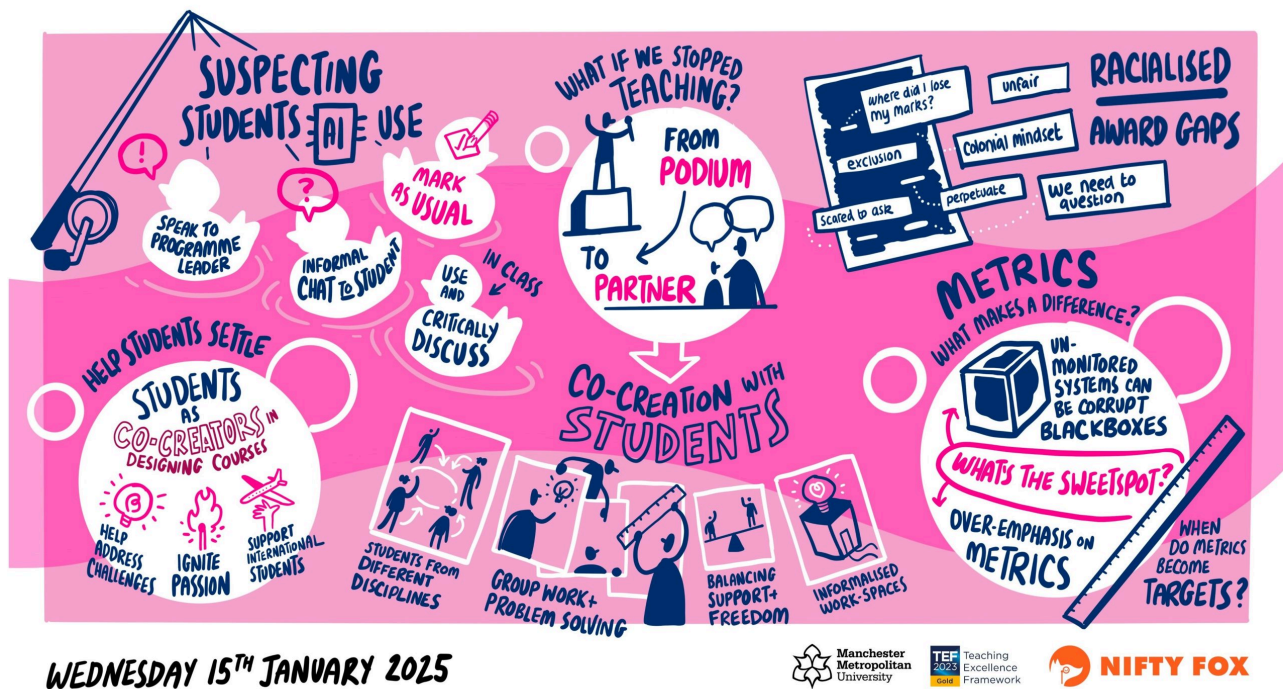


Figure 5: Live scribe (visual notetaking) by Nifty Fox from the Innovation Symposium 2025.

Outcomes: The true value of creative and active learning techniques like Crazy 8 often lies in the rich discussions and reflections that follow. These moments of sharing experiences, exploring diverse perspectives and building on initial concepts can uncover powerful insights and foster deeper understanding, all within the context of low stakes and developmental learning. These social and collaborative elements draw from several areas of the Active Learning Framework, highlighting the vibrant opportunities that creative and active learning offer together; divergent thinking in a convergent world, the social and reflective learning, energetic and playful aspects, and development of key employability skills such as creative problem solving, collaboration, and critical thinking. Enriching creative thinking is crucial for navigating the rapid changes and competitive pressures of today's world (Pathan et al., 2016) and thus also aligns well with the future-focused theme of the Active Learning Framework. We compel readers to consider braving Crazy 8 as an active learning technique that encourages divergent and creative thinking.

Case Study 2: Collaborative Innovation and Co-Creation in Active Learning

Key theme from Active Learning Framework: Developmental

Background: The concept of students as partners, co-producers, and co-creators has gained increasing scholarly attention due to its strong link with active learning (Bovill, 2020; Cook-Sather, 2014). Co-production emphasises an equal decision-making role for students in their learning, positioning students as partners in a dynamic process of working alongside staff to design curricula and develop pedagogical strategies. Co-creation emphasises collaborative shared curriculum design and/or participation in collaborative extracurricular activities. These approaches enhance learning outcomes and embed active learning at the core of educational practice. Co-production and co-creation also enrich the learning process, making it more enjoyable and fulfilling, and offering numerous benefits:

- empowering students with agency and voice, and fostering a more equitable, democratic, and developmental educational process;
- challenging traditional hierarchies within HE and redefining roles;
- encouraging ongoing and meaningful dialogue among students, academic and professional services staff, enhancing the overall learning experience;
- supporting a more personalised and adaptable approach to active learning, accommodating the diverse needs and preferences of students;
- promoting equity by encouraging balanced roles between students and staff, and among formal and informal student groups;
- capturing attention, sustaining engagement, and making the learning process more dynamic and stimulating by using innovative and unconventional methods;
- strengthening critical thinking by promoting creative and collaborative problem-solving, enabling students and staff to address challenges in novel ways; and
- enhancing motivation, building confidence, and cultivating a stronger sense of identity among learners by providing opportunities for personal expression.

Examples: Through the Innovation Scholar Scheme, the Active Learning CoP has established two Special Interest Groups (SIGs): 'Co-creation and Co-partnership with Students', and 'Collaborative Online International Learning (COIL) Projects'.

These are sub-communities for individuals interested in exploring the benefits of student-staff partnerships in curriculum co-creation and internationalisation. The SIGs have surfaced examples of transformative active learning that align with the institution's education strategy. These examples highlight the substantial social value of interdisciplinary learning and peer collaboration and support the development of future-focused skills. Mechanisms include team-based projects and optimisation of social learning spaces to facilitate flexible curricula and assessment.

a) *Co-creation with COIL*

Defining learning spaces through co-creation and active learning in HE has been significantly advanced by Associate Scholars working with staff and students. An example is the implementation of co-creation through COIL, which facilitates pedagogical collaborations between students at Manchester Met and partner institutions in countries including China, Egypt, and Mexico. These initiatives have demonstrated numerous benefits, including the development of digital intercultural learning skills, as well as fostering greater student engagement and agency (Herrero et al., 2020; Perry et al., 2025).

b) *Student co-creation of extended curriculum activity*

Another project involves student partners contributing to the development of content for a *Media and Misinformation* self-study course, part of our RISE extended curricular programme. In this, students conducted research, created video materials, and co-created online course content. The project was led by academic liaison librarians at Manchester Met as part of their Associate Scholar roles, and the inclusion of professional services colleagues in this way is a noteworthy feature of the scheme.

c) *Co-creation of renewable OER*

The Transmedia Practices Project: Open Educational Resources (OER) Students by Students has demonstrated the value of expanding active learning outputs through open education. This project was based on the premise that there are many benefits to renewable assignments, including opportunities to co-produce, to enable and empower learners, to develop innovative pedagogical models, and to emphasise the value of lifelong learning (Ehlers, 2011). The principal project outcome has been the creation of digital artefacts by undergraduate and postgraduate students, who have as a result, developed their media and trans-media skills and enhanced their digital and cultural competencies. Artefacts

include podcasts, video tutorials, and video essays, all shared under a Creative Commons CC-BY license to foster peer learning, including for future learners both within Manchester Met and beyond. Through formative evaluations from teachers and peers, students subsequently refined their work to meet OER quality standards (Herrero, 2022).

Case Study 3: Education for Sustainable Development and Active Learning

Key themes from Active Learning Framework: Future-Focused and Engaging

Background: Education for Sustainable Development (ESD) is a holistic approach to achieving the globally-agreed Sustainable Development Goals (SDGs) (United Nations, 2015) that emphasises learning *for* sustainability rather than *about* sustainability. ESD-infused curricula are characterised by three key ingredients:

- sustainability-related conceptual content that underpins the SDGs;
- skills development framed around the key competencies for sustainability (Advance HE/QAA 2021); and
- learning via transformative pedagogies that are central to future-focused curricula (Price et al., 2024).

ESD completely aligns with active learning pedagogies in calling for transformative, participatory methods that employ a head-heart-hands approach (Sipos et al., 2008), and where students learn by doing using authentic, real-world examples (Thomas, 2009; Sterling, 2012; Price et al., 2021). The UNESCO-endorsed CoDesignS ESD Framework (Ahmad et al., 2023) embodies these principles and has been adopted by the University to implement its strategy for embedding ESD through all programmes. The Active Learning CoP is an important conduit for providing and promoting staff development around ESD, collating resources, engaging participants in debate, sharing practice, initiating projects, and providing support and mentoring. Situating ESD within the Active Learning CoP helps to debunk a common myth that ESD is merely teaching *about* the SDGs, and reinforces the importance of active pedagogies. Underpinning our ESD activities within the CoP, we draw upon an exemplar from current teaching practice that

was co-created with students using the CoDesignS ESD Framework (Nicholson et al., 2004).

Example: Professional Geographer is a core first-year module for around 100 students from several undergraduate programmes in the Department of Natural Sciences. Ostensibly, the module aim is to support students' development of academic and professional skills. Recognising that in the absence of a discipline context, skills education has the potential to be dry and unengaging (Allan & Clarke, 2007), the module is built around a pedagogy of enquiry-based learning in project teams, and conceptually framed within the theme of global sustainability challenges. Teams choose their own project topics with an authentic, real-world basis, and this has proved to be a key motivator, enhancing engagement. Project topics chosen include inequality in fast fashion, food and/or water poverty, and the lifecycle carbon footprint of mobile phones. Team projects happen over one semester (12 weeks) and are supported by weekly workshops and small group tutorials. In these, skills are introduced and developed 'just-in-time' (i.e. as needed, as relevant) and there are multiple opportunities for formative feedback and peer learning. Assessed team projects are presented at an end-of-semester showcase event to maximise the social element. Individual assessed elements comprise:

- a written critical review on a project sub-theme; and
- an online professional development portfolio evidencing students' experiences, achievements, learning, and reflections.

Workshops and tutorials include mini 'chunks' of conceptual content and learning activities around sustainable development themes; guided practice linked to specific skills development; and a mixture of individual, team-based, directed and self-directed project activities. Collectively, these activities align with the three 'head, heart, hands' (3H) learning domains (Sipos et al., 2008), reinforce the interconnectedness of the SDGs, and promote interdisciplinarity (Table 3).

Table 3: Mapping learning domains against the module curriculum

Domain	3H	Icon	General target	Sustainability-specific aim
Cognitive	Head		Knowledge, understanding, critical thinking	To better understand sustainability issues, causes, influencing factors, and solutions, and SDGs interconnectedness
Socio-emotional	Heart		Values, attitudes, motivations	To develop affective understanding of sustainability impacts, identify and shape own values and motivations
Behavioural	Hands		Doing, action competencies	To have the capacity to act and effect change, influence society, be a change agent, shape graduate futures

Weekly workshops and tutorials are carefully designed to scaffold student activity and facilitators provide support. Within the broader enquiry-based learning pedagogy, students learn from a variety of active methods that promote engagement across the three learning domains (Table 4).

Table 4: Module activities and the associated learning domain(s) that promote transformative learning

Active learning method*	Brief description and example of activity as applied in <i>Professional Geographer</i>	Dominant domain(s)
Learning landscapes (Heywood)	<i>Moving around the 'landscape'.</i> In groups, devise 'stations' for an on-campus sustainability trail. Each station to include information, questions, a problem-solving task, and encouragement to reflect on personal sustainability behaviours.	
Storytelling (Beggs, Betts)	<i>Written, verbal or graphic narrative.</i> Write a short personal biography, in a storytelling style, of an aspect of life linked to a named SDG or sustainability issue.	
Digital jigsaw learning (Stockton-Brown)	<i>An online, multi-part exploration.</i> In pairs or small groups, use Google Earth to explore and identify global locations with sustainability challenges. Post these in the Padlet 'Map'. Comment on others' posts.	
Object-based learning (Dale et al.)	<i>Everyday objects to stimulate deeper thinking.</i> Explore the object given (e.g. coffee jar, battery). Discuss linked sustainability issues and identify connections.	
Jigsaw classroom (Donnelly and Sai)	<i>A real-time multi-part exploration.</i> In pairs, investigate an SDG. Share findings with other pairs. Sub-groups then feedback to the class to explore systems thinking.	
Role play debate (Pinnick, Jewitt)	<i>Scenarios and other perspectives.</i> Stage a mock debate to demonstrate the process of developing an academic argument around sustainability challenges.	
Concept map (Trela and Rutschmann)	<i>A visual summary of themes and interconnectedness.</i> Depict the team project structure using a concept map (e.g. key sources, case studies, theses and antitheses, recommendations).	
World café (Magkoufopoulou)	<i>A carousel enabling opportunities to engage with different elements and activities.</i> Use your concept map to convey the project to another team. Receive peer feedback. Give feedback to another team.	
Infographic (Kozar)	<i>A graphic summary of key data, concepts, and viewpoints.</i> Produce an infographic summary of the key factual basis for your team project.	

*NOTE: Citations refer to comparable examples from Active Learning Network (2022).

Outcomes: Professional Geographer has been used widely in the CoP as an

exemplar in ESD-aligned webinars and workshops. Participants identified several positive impacts on their practice: creating thinking space to explore an aspect of learning design in depth, learning from sharing practices and experiences across disciplines, and identifying actions to enhance their curricula. In workshop feedback many cited examples of curriculum changes being made as a result, including to:

- review didactic and transmissive elements in teaching and develop active approaches;
- invite students to co-create and transform more learner-centred activities;
- draw on the three learning domains to enhance engagement;
- re-design curricula to achieve a more balanced range of learning activities; and
- explicitly embed the key competencies for sustainability, highlighting links with the University's graduate attributes.

These outcomes indicate that the CoP plays an important role in implementing the University's education strategy for transformative active learning. It achieves this partly by developing and enhancing curricula, and partly by drawing in individuals who otherwise might not have a mechanism for contributing to discussions and sharing their expertise, experiences and insights. Future priorities include capturing a wider range of exemplars to support practice development and identifying mechanisms to grow ESD at scale.

Case Study 4: Belonging and Mattering in Active Learning

Key theme from Active Learning Framework: Socially-Integrative

Background: In the last decade, the concept of 'belonging' has emerged as a key paradigm in HE. It seeks to understand and enhance students' psychological, social, and physical experiences of inclusion and acceptance, and is a mechanism to support readiness for university study and student success (Allen et al., 2021; Crawford et al., 2023). However, as Blake et al. (2022) note, the foundations of student belonging require purposeful conditions that enable connection, inclusion, autonomy and support across the HE ecosystem. While the wider university infrastructure is undoubtedly critical to fostering inclusion and support, the

everyday university experience for most students is grounded in their ‘classroom’ experiences, through staff-student interaction, and communicated through the wider teaching and learning environment. In this way, what happens in the teaching and learning space really does matter for student belonging. The principles of active learning, specifically the thematic domains of socially-integrative, developmental, flexible and engaging learning (Figure 3), align with Blake et al., ‘Foundations of Belonging’ (2022). These imbue micro-opportunities that enable students to feel accepted and enthused, and to make peer-to-peer connections. Indeed, in a literature review of belonging research undertaken by Gilani and Thomas (2025), groupwork and experiential learning are highlighted as significant predictors of belonging, replicated across multiple studies.

The Belonging and Mattering CoP established as part of the Manchester Met Innovation Scholar Scheme hosts discussions of practice that frequently illustrate the interconnectedness of belonging with active learning. Some disciplines have a longstanding tradition of ‘hands-on’ experiential learning that enables students to connect and learn in situated contexts, ‘with’ and ‘alongside’ each other and their educators. This ranges from placement-mandated programmes with strongly embedded Work-Integrated Learning (WIL), through to practice lab or studio-based disciplines. However, situated and experiential learning do not implicitly support student belonging. The presence of value-led and behavioural attributes led and instilled by the educator is fundamental to support a culture of belongingness. A Manchester Met Framework of Belonging developed collaboratively by Belonging and Mattering CoP members identifies that respectful relationships, transparency, compassion and care are key ‘ingredients’ for supporting an active culture of belonging, ensuring learning and support are not driven by shame or discomfort but by psychological safety and inclusion.

Example: In an undergraduate Social Work programme, the primacy of placement (practice) learning is coupled with a curriculum tightly bound by regulatory education and training standards (Social Work England, 2021). This *could* lead to the delineation of didactic teaching for knowledge and active teaching for skills. However, applying knowledge ‘for, in, and through’ practice encourages active learning and professional and personal reflexivity. This pedagogical approach is explicitly demonstrated within an initial ‘induction’ first-year module through a range of mobile and active learning activities designed to support peer-to-peer connection, confidence building, place-based sense of belonging, and enthusiasm and connection to the subject discipline:

a) *Socialjustice walk*

Designed to help students explore Manchester's history and foster city pride, students received an itinerary of key places in the city to visit in groups or independently. Synopses of the community and social history of those locations were linked to fun, low-stakes observational questions adding a gamified element. To promote belonging, the activity was further developed and virtual and online adaptations made available to promote inclusivity with social media vlogs to enhance peer-to-peer connection.

b)Community profile activity

Students undertook a group activity along a bus route, exploring neighbourhood data, capturing observations, and speaking to community members for a group presentation. A virtual alternative helped address some accessibility limitations. A shorter three-hour adaptation was also created for part-time degree apprenticeship students who combine paid employment with study. They rapidly created community profiles using digital skills to share and refine their work in Padlet and Microsoft Sway.

Each approach fosters new connections and emphasises social and equitable learning. Clear expectations around respect, inclusion, and care are reiterated, aligning with professional identity and behaviours. Students with place-based knowledge or understanding of community languages are encouraged to share their skills, privileging those without traditional academic cultural capital. Students report a memorable, exciting, group-forming and bonding experience.

Outcomes: Sharing teaching and learning examples has been a key feature of the Belonging and Mattering CoP, with colleagues replicating the principles of collective and social learning by adapting and developing activities from and with each other. In recognition of the importance of group and social learning as a means to support belonging, further real-world examples of how to achieve this at scale, through differing modalities and with diverse student cohorts would undoubtedly enrich the conversation.

Case Study 5: Flexible and Authentic Assessment for Active Learning

Key themes from Active Learning Framework: Work-Integrated and Flexible

Background: Authentic assessment has been widely discussed within the acad-

emy and is a key part of Manchester Met’s newly revised [Curriculum and Assessment Framework](#) and our DELTA strategy. Interestingly, within the academy there have been calls to remove the phrase (Arnold & Croxford, 2024) or to return to its ‘true principles’ and disconnect the misappropriated connection to employability (McArthur, 2023). As a dual intensity institution (i.e. education and research), Manchester Met has a deep-rooted history with practice-based HE and has placed Authentic and Flexible Assessment (AFA) firmly within its institutional policies and practices to ensure student success, an excellent student experience and real-world readiness. AFA facilitates transformative active learning as ‘assessment for learning’, where the classroom pedagogy connects to the expected outcome of both summative and formative assessment tasks, connecting all elements of the Active Learning Framework (Figure 3). The strategic AFA CoP provides a mechanism to connect staff with the possibilities of AFA and the space to consider and develop new approaches. CoP discussions and activities have been informed by three key features of authentic assessment; realism, cognitive challenge, and evaluative judgment (Villarroel et al., 2018), together with institutional guidance to consider professional, societal, and educational authenticity (Table 5). The CoP has also debated flexible assessment, and optionality aligned to assessment type and task. This links naturally with the intent of active learning and influences the pedagogies applied in the classroom.

Table 5: Manchester Met approach to authentic assessment (themes not mutually exclusive)

Professional authenticity	Societal authenticity	Educational authenticity
• Focuses on workplace tasks • Develops professional skills • Mirrors industry practice	• Addresses social needs • Promotes positive change • Connects to real world issues	• Centres student engagement • Provides meaningful choice • Builds evaluative judgment

Source: Excerpt from Manchester Metropolitan University Authentic Assessment Toolkit (internal document)

Examples: The examples below have formed the basis of AFA CoP discussions to explore wider applications and stimulate innovation.

a) *Work integrated learning (WIL)*

The size, scale and profile of programmes at Manchester Met allows for formal

and informal connections to aspects of WIL (see Boud et al., 2023). The stimulus for world ready professional graduates is linked to the ethos of the institution and recognition through global accreditation (e.g. our triple-accredited Business School). Integrated and assessed WIL is also a significant expectation within broader university policy. As Boud et al. (2023) discuss, there are opportunities to integrate and assess WIL within curricula, and experiences that sit outside curricula. Authentic assessment in our Marketing and Tourism programme formalises the inclusion of WIL leading to learning that is future-focused, work-integrated, engaging, socially integrative, and flexible (Table 6). New opportunities for building on the natural synergies between assessment and real-world context have arisen from the continued investment in the institution's estate. This includes bespoke, professionally-aligned learning spaces such as a moot court, a Hyflex suite (delivering blended executive education), and an industry-standard Bloomberg trading suite (for hands-on learning about global financial markets).

Authentic assessment	Characteristics from the Manchester Met Active Learning Framework (Figure 3)					
	Work-integrated	Future-focused	Engaging	Socially integrative	Developmental	Flexible
Business simulation	★	★			★	
Crisis-focused timed assessment - tourism company	★	★	★	★		
Mock assessment centre	★	★	★	★	★	
Overseas fieldwork - destination marketing	★	★		★	★	
Live client brief – marketing and advertising consultancy projects	★	★	★	★		★

*Table 6:
Examples of authentic assessment as part of WIL in Marketing and Tourism which lead to transformative learning experiences*

b) Active learning and authentic assessment in Apprenticeships

Manchester Met's BSc (Hons) Chemical Science Degree Apprenticeship programme (employer-sponsored degree study) demonstrates strong alignment between active learning methods and authentic assessment, both essential for developing occupational competence and academic depth. Assignments are designed to mirror real-world challenges, and this not only enhances critical thinking but supports the transfer of theoretical knowledge to professional contexts (Prince, 2004). AFA equips our apprenticeship learners to develop, evidence, and critically reflect on the competencies required for complex, dynamic work-

places. Reflective tasks and feedback loops also reinforce metacognitive development and support inclusive, workplace-aligned evaluation (Boud et al., 2013; Gibbs & Simpson, 2005).

In an authentic assessment for a second year Business Improvement module, apprentices identify and resolve a workplace issue, improve a laboratory process, or introduce a new idea within their organisation. Activities are contextualised to each apprentice's workplace role, fostering engagement and ensuring relevance (Guile & Griffiths, 2001). Preparatory active learning tasks and analysis of industrial case studies build familiarity with a diverse range of projects, enabling learners to critically evaluate quality, feasibility, and impact, all essential skills for professional practice. Active learning and authentic assessment exist symbiotically here; while active learning cultivates the analytical, reflective, and problem-solving skills required for success, assignment authenticity offers a meaningful opportunity to apply and evidence those capabilities. Flexible assessment formats (e.g. portfolios, presentations, or diaries) with deadline optionality also address the practical challenge of varying workplace timescales and demands.

Outcomes: The AFA CoP provides space and opportunity for colleagues to learn from each other, to ask questions, exchange resources and experiences, and to discuss and seek solutions to thorny challenges. As the CoP has grown, joint sessions with other strategic CoPs have taken place, serving to reinforce the synergies between themes.

Discussion

Inclusion and Sustainability

Ours is a large institution covering a wide spectrum of disciplines and types of programme, including foundation, undergraduate, taught postgraduate, degree apprenticeship, and research degrees, and an extensive extended and co-curricular programme. A significant challenge for any strategic direction is to obtain consistency of approach, while at the same time fostering the diversity within our disciplines. The Education Strategy sets out general principles, but the Innovation Scholar Scheme creates considerable space for innovation and discipline-specific development, while also reinforcing the expectations implicit in our

strategic aims. The benefits of this scheme are rich and the demand for places is testament to its growing momentum and reach. Lead and Associate Scholars are being selected from across every department and in this sense the approach is highly inclusive, allowing for, even encouraging local variations in practice. Colleagues have reported that being part of the Innovation community has been pedagogically invigorating, supporting them significantly in their professional development, and providing evidence of impact for promotions and professional recognition (e.g. Advance HE Fellowship).

Initiation of a scheme such as this does depend upon strategic vision, amplified by significant top-down commitment and resource. In its early stages, the continuation of this commitment is necessary for long term sustainability. The Manchester Met Innovation Scholar Scheme has moved beyond its pilot phase and into business-as-usual. Momentum within CoPs continues to grow (for example, the Active Learning CoP has grown to more than 550 members in 18 months) as individuals discover the value and benefits of community membership for their work and professional development. The CoPs thrive on this 'grassroots' engagement in an environment where constraints often associated with more formalised systems (such as training or quality enhancement processes) are lacking (though these of course, do have their place). The distributed leadership model within CoPs will encourage them to continue to blossom and attract discourse, dissemination and support, so long as there are 'gardeners' to tend and occasionally nourish the practice. Long-lasting change, however, is most effective when top-down and bottom-up approaches are connected via actors operating in the middle ground. This is evident in our scheme through dissemination and showcasing of Associate's project outcomes at our annual University's internal teaching and learning conference. This has helped reinforce the central position of active learning at the heart of the institutional Education Strategy, raising awareness of different approaches, providing guidance and exemplars. Showcasing and inspiring innovation will be further amplified through our new multi-faceted, externally-facing [ManMetInnovate](#) website and blog.

Challenges and Barriers

Changes and pressures in the global external environment increase the danger of the relationship between HE institutions and their learners being reduced to an impersonal transaction driven by metrics, standards (like the Teaching Excel-

lence Framework in the UK), and value-for-money. In addition, there remain post-Covid shifts in ‘housekeeping’ matters such as attendance, remote working and the implications of AI. To warrant continued support for the scheme – a large-scale movement – ensuring clear visibility and ‘value for money’ for senior leaders is as crucial as it is complex. Educational activity is notoriously difficult to monitor and evaluate with tangible, measurable outputs (Prince, 2004). Manchester Met has developed an evaluation tool to quantify the impact of student-facing initiatives but there are limitations on its applicability. Capturing and analysing vibrant stories of progress and success is therefore fundamental and we acknowledge this as an area for ongoing development and learning.

A Call to Action

The shift from traditional passive learning models to student-centred active learning has shown promising results in improving student outcomes, motivation, and overall learning experience (Bonwell & Eison, 1991). We argue that active learning also has the potential to counter the impersonal, transactional aspects of education, ensuring a learner’s experience is engaging, challenging, aspirational, developmental, social, inclusive, personal, flexible, future-focused, and responsive. To achieve this, we as educators need to continue to identify and foster an innovative, active, educational ecosystem (interconnections between learners and the learning environment) for learners to develop and thrive. We characterise such an ecosystem with the following elements (expanded upon in Figure 6):

Inclusion and equity (values, social integration, community, belonging and mat-
tering)

Academic and personal development (support, agency, confidence-building)

Intellectual risk-taking (low stakes assessment, psychological safety)

Creativity and divergent thinking (‘out of the box’)

Partnership and collaboration (co-creation)

Enjoyment and enthusiasm (passion, fun and humour)

Challenge (aspiration, growth mindset, courage)

Relevance (authenticity, real-world examples/application)

Criticality and reflection (evolution, enhancement)

Diverse perspectives (variety and multidisciplinary)

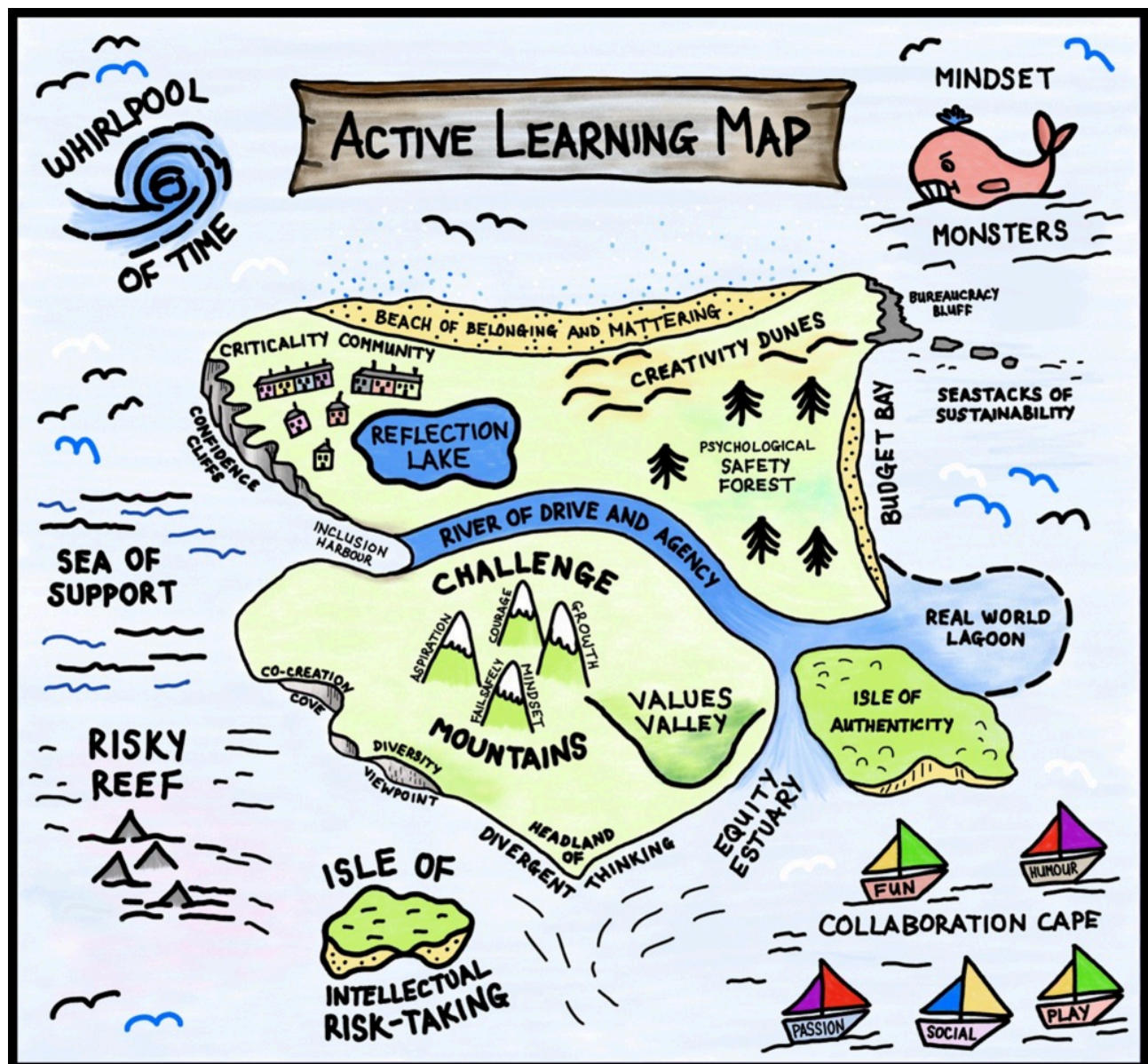


Figure 6: The Active Learning Map, a schematic for an aspirational and innovative educational ecosystem (inspired by the work of Gemma Correll <https://www.gemmacorrell.com/collections/illustration>). © Mäir Bull and Theresa Nicholson, 2025. CC BY 4.0

Key takeaways

We close with some key ‘takeaways’ for other institutions:

1. A key ingredient for the success of our Innovation Scholar Scheme has been the interconnected, **collaboration ethos** (a) between the macro (top-down), micro (bottom-up), and meso (middle-out) strategic activities, and (b) across disciplinary, department and faculty boundaries bringing together diverse co-creative practices, expertise and experiences from staff and students.
2. For learners to thrive in an innovative, active learning educational ecosystem, educators need to be prepared for **intellectual risk-taking**; being brave and curious; thinking ‘outside-the-box’; creating, co-creating, and innovating; advocating for inclusion and equity; supporting and developing; encouraging enthusiasm and passion; embedding reality and authenticity in curricula; reflecting and thinking critically; challenging and inspiring.
3. Our **Active Learning Framework** is applicable across all thematic areas within our institutional Innovation Scholar Scheme. However, it captures the essence of high quality, 21st century, future-facing, student-centred learning, and in that sense we believe it is transferable and widely applicable across the Higher Education sector. We challenge readers to test it, apply it, adapt it, and make it work for you.

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Glossary of Acronyms

3H	Head, Heart, Hands Learning Domains
AFA	Authentic and Flexible Assessment
COIL	Collaborative Online International Learning
CoP	Community of Practice
DELTA	Digitally Enhanced Teaching, Learning and Assessment
ESD	Education for Sustainable Development
HE	Higher Education
OER	Open Educational Resources
SDGs	Sustainable Development Goals
SIG	Special Interest Group
WIL	Work-Integrated Learning

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Case Study: Advancing Active Learning: An Institutional Approach

JOY PERKINS AND CLARE THOMSON

Summary

This case study explores how Heriot-Watt University is implementing a strategic shift to expand active learning methods and enhance the student learning experience. It examines how the institutional Global Changemaker Curriculum Framework (GCCF) provides a structure and shared focus for refreshed thinking and practical support in embedding active learning within the academic curriculum. The Framework enables the integration of a variety of active learning methods across our five global campuses. The use of key pedagogical touchpoints, such as the new programme approval process, along with annual quality assurance monitoring and review of degree programmes, supports this.

The Framework is used in tandem with other strategic approaches to raise staff awareness and engagement with active learning. The approaches include introductory active learning workshops at key points in the academic calendar, curriculum storyboarding sessions, and practical active learning resources authored by Heriot-Watt staff. All these are designed to help academic staff implement active learning methods in their own teaching practice and understand their numerous benefits. The case study highlights our early approaches to promote sustainable, active learning change through an embedded cross-institutional framework. It also showcases the challenges and outcomes encountered so far and offers practice-oriented insights for educators and institutions considering similar approaches.

About Heriot-Watt University

Heriot-Watt University is a global university with campuses based in Dubai, Edinburgh, Malaysia, Orkney and the Scottish Borders. It is a medium-sized university with approximately 16,000 students based at its five campuses and approximately 8,000 distance learners. A distinctive feature of the educational provision at Heriot-Watt is the globally connected learning experience for students. Practically, this means that irrespective of the geographical location or delivery mode, all campuses adhere to the same policies and procedures, enabling a shared curriculum for the same degree at different campuses. This unified curriculum across campuses supports, rather than deters, the adoption of active learning. Multiple modes of participation – such as anonymous polls, written reflections and the ability to tailor case studies for local contexts further enable our cross-institutional implementation.

The University's Learning & Teaching Strategy has three key strategic priority areas: curriculum, teaching, and assessment. To operationalise this Strategy, the University has implemented its institutional-wide Global Changemaker Curriculum Framework (GCCF) (Heriot-Watt, n.d.). Launched in 2023, the Framework ensures consistency across campuses, programmes, and modules through offering a shared educational vision.

Heriot-Watt's Curriculum Framework

The GCCF is a practical tool to support teaching teams to design programmes and modules. It has six interconnected dimensions, which collectively provide a vision for education at Heriot-Watt University (see Table 1). It also offers staff resources such as curriculum storyboards, dimension guides with practical design support, and examples of effective practice. The GCCF is designed to enable staff to reconceptualise what and how students are taught in relation to aims, learning outcomes, teaching activities, and assessment in the curriculum. This approach provides a structure to empower teaching teams to share, collaborate, and innovate. Furthermore, it also encourages staff to engage with active learning design at key pedagogical touchpoints, such as during the approval stages of new and amended modules and programmes, as well as during the annual review and monitoring stage.

Table 1: The Six Dimensions in the Global Changemaker Curriculum Framework
[\(https://lta.hw.ac.uk/resources/gccf/\)](https://lta.hw.ac.uk/resources/gccf/)

Global Changemaker Curriculum Dimensions



Learning for Sustainable Development

Dimension 1

Students embrace purposeful, challenge-based learning to connect their studies, their communities, and action for sustainable development.



Assessment for Learning

Dimension 2

Students engage in authentic assessment, enabling them to apply learning in new contexts and to impact on real-world challenges.



Discovery and Co-creation

Dimension 3

Students direct their own learning journeys, embrace the co-creation of academic discovery, and develop their own sense of purpose and impact.



Research, Industry and Community Collaboration

Dimension 4

Students build entrepreneurial capabilities and gain professionally relevant insight, experience and skills.



Inclusive Global Learning Community

Dimension 5

Students flourish within a supportive and inclusive global learning community, connecting across boundaries and shaping collaborative action for change.



Resilience, Wellbeing and Compassion

Dimension 6

Students are empowered to become resilient learners, thriving on change and challenge with the skills, commitment and compassion to impact on the world around them.

Inspiring Active Learning

At Heriot-Watt, our approach to securing academic buy-in for active learning within the GCCF emphasises the use of evidence-based approaches. Specifically, this includes active learning approaches that highlight both their effectiveness and practical benefits in the classroom (MacDonald et al., 2024; Zumbrunn et al., 2014). Our starting point was to curate a list of key active learning resources from the peer-reviewed and grey literature. This task involved a collaborative partnership with Learning & Teaching Academy staff and an appointed, paid, six-week student intern (Healey et al., 2014). During the internship, the student critically evaluated the active learning literature and prepared a bibliographic entry for each identified source, while staff guided the process and ensured academic rigour. The resulting annotated bibliography incorporates the intern's perspectives, making it a more meaningful and inclusive piece of academic work to use in this project. This partnership has been central in helping inspire Heriot-Watt staff to embed active learning in their practice.

Practical Strategies to Implement Active Learning

A three-stage process is underway to embed active learning across Heriot-Watt University. The implementation plan is as follows:

1: Raise Staff Awareness and Buy-in

Successfully embedding active learning requires all staff, regardless of their geographical location, to share a common understanding of its principles, purposes, and benefits (Freeman et al., 2014; Theobald et al., 2020). Without such a shared definition of active learning, staff misconceptions can develop, leading to confusion, a lack of buy-in, or ineffective implementation. Williams et al. (2022) report these issues and challenges with a plea for all educators to build a common understanding of active learning across institutions and disciplines.

At Heriot-Watt, we embraced from the outset Freeman's definition of active learning:

Active learning engages students in the process of learning through activities and/or discussion in class, as opposed to passively listening to an expert. It emphasizes higher-order thinking and often involves group work. (Freeman et al., 2014, pp. 8413-8414)

This consistent messaging approach is designed so our staff feel supported through all our various communication platforms and channels. These include introductory online active learning sessions during the Get Set Staff Induction Week, School discussions, and digital resources.

At the introductory active learning sessions, the aim is to increase interest in active learning benefits (e.g. outcomes, motivation, student engagement), acknowledge any challenges (e.g. time, class sizes, technology, learning spaces), and offer solutions. The sessions also provide examples of active learning methods from across Heriot-Watt campuses and beyond the institution (see Table 2). There is a diverse range of active learning methods, some of which use technology, while others require little time in class or are more appropriate for small class sizes (Wilkins & Horii, 2018).

These multiple modes of engagement help ensure a diverse range of students can access and participate in ways that align with their needs, helping to ensure an inclusive active learning approach (Freeman et al., 2014; Molloy & Thomson, 2023). Table 2 illustrates the active learning methods showcased in the online introductory active learning session. The affordances of the spinning wheel in the polling software Wooclap emulate effective active learning practice (Hack, 2022).

Table 2: Examples of Active Learning Methods at Heriot-Watt University

Active Learning Methods	Description
Diamond Nine	Students rank and prioritise nine ideas, viewpoints, or pieces of information from highest to lowest in importance, they then form the cards into a diamond arrangement, in which the top card in the diamond is the most important. The rationale for ranking is shared with the wider class (Perkins, 2022).
Expert Panel	Students ask a panel of experts (e.g., research staff, PhD students, employers) questions related to the selected panel topic.
Spin Wheels	Students take turns spinning the wheel and answering the question that is selected. Each coloured section of the wheel corresponds to a different topic or concept that has been covered in the module.
Superlatives	Students work in pairs to identify the most important, surprising, disturbing, or useful aspects of the session content. Student responses are used to clarify issues and stimulate meaningful discussion.
Biscuit Challenge	Students are challenged to build a structure, solve a problem or create with only the materials (i.e. with the biscuits) provided.
Case Studies	Students work collaboratively or individually to address scenarios or real-world problems and apply knowledge to find solutions.

2: Offer Structured Training to Encourage Experimentation and Reflection

Further opportunities for structured active learning support include:

LEGO® Serious Play: these Active Learning Series workshops, included within the institutional core CPD offering, introduce the concept of 3D building for teaching and learning. They show how hands-on creative methodologies can enhance critical thinking and collaboration in the classroom. These training sessions can stimulate staff curiosity and create a fun and dynamic learning environment (Nerantzi & James, 2019). Access to centrally available LEGO® has encouraged staff to experiment in different disciplines to deepen student learning through building, reflecting, and storytelling, helping to account for the diversity of stu-

dent needs. For example, staff in the Graduate Apprentices Design and Manufacturing modules have used LEGO® as a tool to enhance student oral presentation performance and increase their communication skills. In contrast, staff in Psychology use this modality to engage widening participation students in conversations around their selected topic of study. The influence of these sessions is evident through staff documenting their LEGO® experiences on LinkedIn and individual staff reflections on how these teaching changes positively impact their student learning.

The Heriot-Watt Postgraduate Certificate in Teaching & Learning programme (PGCertTL): the programme offers mandatory professional development in active learning theory and practice through its 15-credit module, Global Inclusive Teaching & Learning. In this module, participants design an active learning intervention which is also cognisant of a range of student needs, such as neurodiversity, language barriers etc. Through embedding active learning in this programme, PGCertTL participants are provided with an opportunity to develop their knowledge and skills. This enables them to incorporate active learning and refresh their own teaching practice.

As Williams et al. (2022) report, active learning has the potential to positively impact student learning, but not all educators know about active learning theory or practice or are aware of its benefits. Typically, 40-50 staff undertake this module, providing a large captive audience to inspire. The module offers PGCertTL facilitators first-hand insights into the range of active learning methods embedded across different disciplines and contexts. These include mystery quotation (Parkman, 2022), pair programming and debates. This dual learning process between facilitators and participants helps to strengthen active learning practices, enabling wider dissemination across campuses and Schools.

3: Provide Toolkits and Active Learning Resources

Providing practical curriculum design toolkits, digital resources and case studies is fundamental to help academic staff confidently embed active learning in their teaching practice. Examples of these at Heriot-Watt include:

1. Practical guidance and tips on incorporating a variety of active learning methods in teaching. These include low preparation activities such as Think-Pair-Share and the One-Minute Paper and collaborative activities such as

Jigsaw Groups and Case Studies. All are designed to build community and belonging within modules and programmes and are available in Heriot-Watt's Active Learning: 29 Starter Ideas to Engage Your Students (Heriot-Watt, 2024).

2. A curriculum design storyboard toolkit, which enables teaching teams to visually map out learning experiences and define the key components of a module e.g. learning outcomes, weekly core topics, teaching approaches and active learning activities.

All resources are available from the Learning & Teaching Academy for use across our five campuses. Figure 1 depicts the holistic approach to embedding active learning.



Figure 1: Holistic overview of the institutional active learning approach

Key Learning and Takeaways

The following key learning points have emerged from our initial implementation of active learning and are included for others seeking to embed an institutional approach to active learning in their own context.

1. Avoid the One-Size-Fits-All Approach

Heriot-Watt offers a diverse range of undergraduate and taught postgraduate degree programmes across the areas of business, design and textiles, engineering, science, and technology. Through delivering staff development sessions, it became apparent that the time available for staff to invest in active learning is variable across class sizes, learning environments, years of study, and disciplines. For smaller institutions or those with limited resources, it is advisable to start small by piloting active learning in a subject area or degree programme to gather feedback and demonstrate its value before scaling.

Key takeaway: Offer staff a range of active learning methods to choose from, allowing them to select approaches that best fit their teaching context. Academic staff often prefer in-house resources over externally prepared materials, as they can be more meaningful, as they reflect teaching in their own institution. Consider developing in-house staff-facing materials such as Heriot-Watt's Active Learning: 29 Starter Ideas to Engage Your Students (Heriot-Watt, 2024).

2. Invest in Staff Development

Engage academic staff with structured active learning training sessions at key milestones in the academic year for example the annual Heriot-Watt Learning & Teaching Conference.

Key takeaway: Offer staff ongoing professional development to help them effectively implement or expand active learning. The provision of a safe space to exchange active learning ideas with colleagues can often reduce initial staff scepticism or lack of confidence, as illustrated in the following staff remark:

Seeing practical examples of how colleagues have integrated active learning into their courses sparks ideas that can be adapted to your own teaching. Small changes can make a big difference, staff who experiment with their teaching also enthuse students who begin to anticipate, 'What will they try next?' This, in turn, enhances student engagement and outcomes.

Associate Professor, School of Engineering & Physical Sciences, Heriot-Watt University

3. Explain How Active Learning Supports Employability

Active learning requires strong, sustained institutional support, so ensuring a shared understanding of its purpose and value at all levels across campuses, including Directors of Learning & Teaching, Programme Directors, and the Careers Service is critical.

Key takeaway: Use active learning to strengthen its links to employability. Ensure students and staff are both apprised regarding how active learning fosters both real-world skills development and career-readiness, as captured in the following staff comment:

We know from our conversations with our industry partners that the most successful students in the graduate recruitment process, tend to be those who can clearly articulate to employers how their knowledge and skills have already been applied to solve work-based problems.

Head of Careers, Heriot-Watt University

To conclude, a strategic shift to expand active learning activities across the University's five international campuses takes time. The commitment to this ambition is reflected in Heriot-Watt's 2035 Strategic Plan timeline, and the planned further research required to fully evaluate the impact and effectiveness of active learning on student outcomes.

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Case Study: Making Active Learning Work at the University of Glasgow

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Summary

This case study describes the approach of the University of Glasgow in relation to capacity- and capability-building initiatives for active learning. We outline how our learning and teaching strategy steered our thinking, document investments and explain what we did to enhance academic practice. Our work involved collaborating with academic colleagues across the university, and with professional services colleagues in timetabling and in our student and academic services teams. Inclusivity and sustainability are at the heart of our values; we describe our approach to these too. We provide the reader with an overview of our strategic approach to make active learning work; elements may be transferable to other institutions.

What did you do?

Strategy

The University of Glasgow's learning and teaching strategy (2021-2025) positioned an 'Evolving approach to student-centred learning' as one of three core pillars alongside 'Transforming curricula and assessment' and 'Students' professional & skills development', underpinned by values and enabled by infrastructure and support (Figure 1).

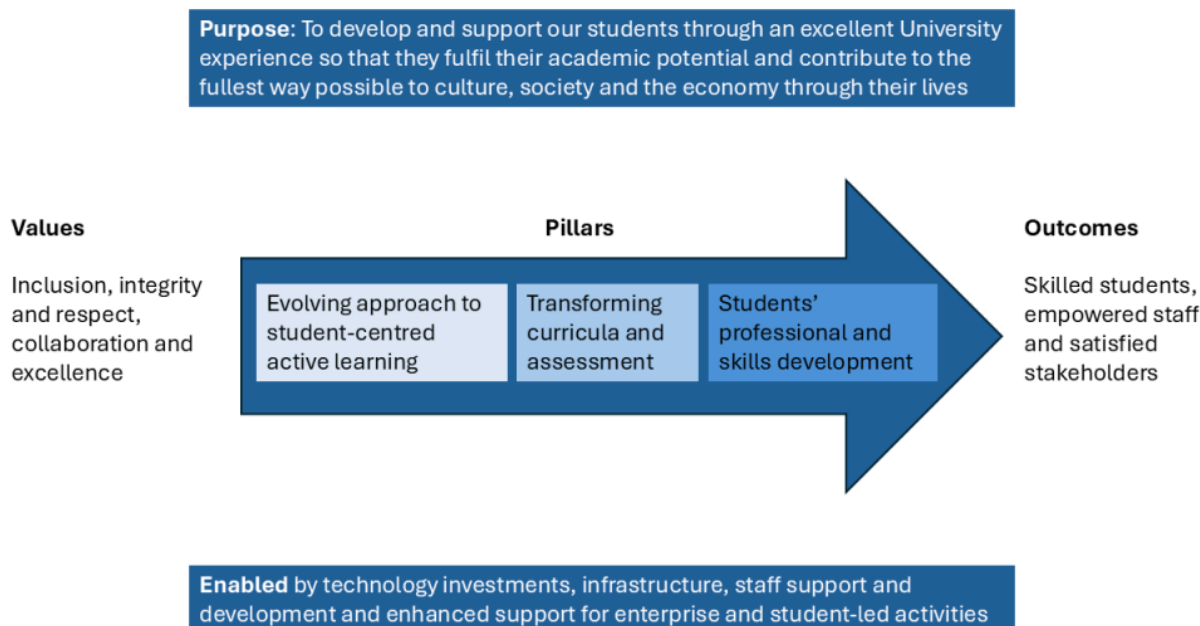


Figure 1: Simplified visual overview of the 2021-2025 learning and teaching strategy. © University of Glasgow, 2025. CC BY-NC-ND

Each pillar was associated with a strategic working group; for student-centred learning, an ‘Evolving teaching practice’ (ETP) workstream (later renamed ‘Enhancing learning and teaching practice’ (ELTP) strategic group) comprised three sub-groups: ‘Implementing and evaluating active learning’, to evaluate the use of active learning (and potential barriers to uptake) and identify and share good academic practice across the university; ‘Hybrid learning’, to assess the potential for more flexible and inclusive access; and ‘Horizon scanning’, to monitor upcoming trends, technologies and challenges. Throughout this case study, we explore the work of these subgroups, combining academic, services and student representation perspectives.

Investing in active learning

Implementing active learning requires various types of resource. The university has renovated teaching spaces and invested millions of pounds in new buildings within a wider campus transformation. However, transforming spaces, whilst important, is not sufficient or always necessary. A commitment to behaviour change has been sustained by a senior leadership commitment over 10+ years,

recognising staff who invest time in redesigning their teaching through adapting promotion criteria and giving priority access to new teaching spaces. Strategy-specific financial investments across connected strategy workstreams recognise that changing teaching practice should be done alongside curriculum change and assessment redesign, and within that, we have made new staffing appointments to support institution-wide change.

Smaller investments through our learning and teaching development fund enable academics to make discipline-level changes, evaluate interventions, and support student partnership working. The combination of micro-level investments within a strategic context of symbolic, structural and financial commitment has been important to create momentum and capacity for change.

A sustained effort, consistent messaging, and continuity of vision for individuals to believe that the benefits of adapting their practice will be realised has been crucial and required an appreciation from the highest levels of the university (including our governing body) that change of this nature takes time. Staff development has been crucial, and business processes and systems have been amended to capture new approaches to course design, and new models of workforce planning where staff embark on more radical redesign within blended models of teaching.

Campus infrastructure

The university has greatly benefited from the design and build of the new [James McCune Smith Learning Hub](#) (JMS), the first purpose-built facility for active learning classrooms and technology-enabled active learning (TEAL) spaces. The university also undertook a programme of refurbishment of learning spaces across campus, including pilots to inform the design of the JMS (Figure 1).

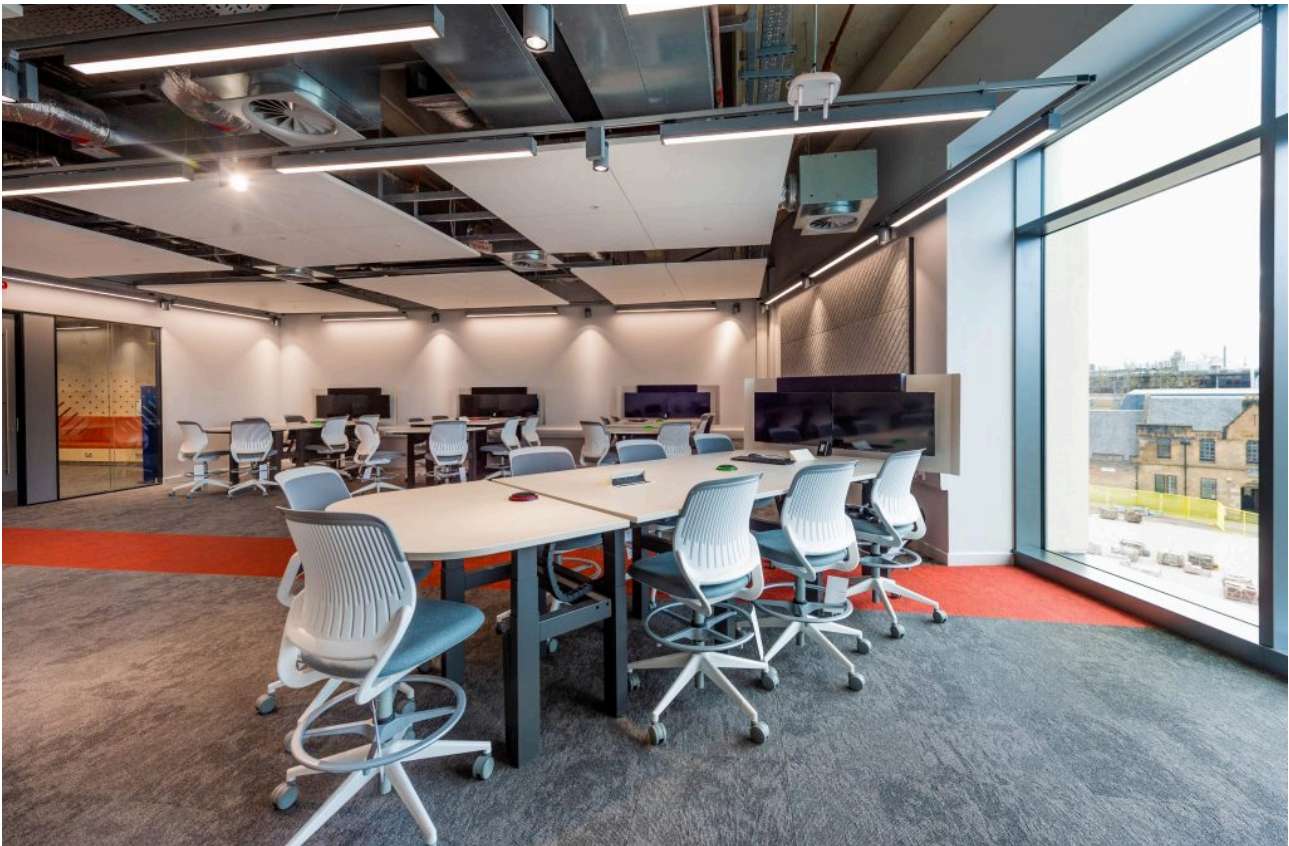


Figure 2: An active learning classroom in the James McCune Smith Learning Hub. © University of Glasgow, 2020. CC BY-NC-ND

Following the completion of the JMS, the Adam Smith Business School and PGT Hub was created as part of the university's campus redevelopment, informed by the JMS design and its evaluation, to house more capacity for active learning (Figure 3).



Figure 3: Active learning space in the Adam Smith Building and PGT Hub, showing different heights and types of seating and tables to provide flexibility. © University of Glasgow, 2024. CC BY-NC-ND

Insights from the new buildings and refurbished spaces are being applied to another new building, the Keystone building; this interdisciplinary teaching and research hub due to open in 2028 will include ‘superlabs’ – large, multidisciplinary, interactive laboratory spaces – some low and others moderately serviced. The scale of each will enable multiple disciplines or courses to take place concurrently in these shared spaces (Figure 4).



Figure 4: Architect's impression of a learning spaces in the Keystone building. © HOK Architects, 2024

A 'Pedagogy in superlabs' working group is engaging with staff and students at institutions that have successfully implemented superlabs. Through feedback on accessibility, AV/IT setup, lab configurations, and interdisciplinary opportunities, along with firsthand observations from site visits, we are gathering valuable insights to guide decisions on lab design, layout, and equipment while supporting inclusive, active learning.

Academic practice

We have supported academics over several years to enhance academic practice in active learning, through workshops and at point of need. To promote good practice and encourage wider adoption, a scoping exercise was undertaken inviting academic staff to share examples of their teaching practice. Strategic funding enabled the appointment of interns (Watson & Kurincova, 2025), working with academics to develop full case studies across the four colleges, in various disciplines. These feature in our [Active Learning Resources Hub](#), complementing a suite of evidence-based guides on individual active learning methods. Other professional development initiatives include our Postgraduate

Certificate in Academic Practice and Continuing Professional Development (CPD) activities.

Why did you do it?

The ETP strategic group sought ‘to create a shared understanding and approach to developing and supporting active learning across the university’, entailing ‘the articulation of long-term ambitions for active learning, consistent and coherent messaging around active learning and clear articulation of the requirements of the associated physical and digital infrastructure’.

We know that students benefit from an active learning approach, and that this helps them to build the skills required for effective study and a successful career. Students relay a positive experience of active learning, being more engaged (King, 1993), and it promotes deep learning (Andrews et al., 2020). The study/work skills students develop include critical thinking and problem solving (Snyder & Snyder, 2008). It enhances their academic performance (Freeman et al., 2014). Importantly, it also closes the performance gap between traditional and non-traditional learners (McNeil, 2019).

How did students/staff respond?

Internal evaluations of staff and student experiences of active learning spaces were conducted to capture the extent to which active learning was embedded in practice and associated challenges. This was internal work not subject to ethical approval and not reported here. However, feedback relating to staff and student experiences of the JMS helped inform our thinking about academic development support for pedagogical change, as well as infrastructure such as furniture, timetabling, and audio-visual/IT issues.

A minority of staff are hesitant about active learning; some are unsure whether they will be regularly assigned their preferred active learning spaces, and others are reluctant to make pedagogical changes, individually or because they encounter opposition from colleagues in their course teams. This is recognised in the sector (Pundak & Rozner, 2008). We will continue to work with staff to

ascertain their needs and support them ‘where they are at’. We also know that not all students are ready for active learning; international students may fear ‘losing face’ by speaking up in class (Hodkinson & Poropat, 2014), and neurodiverse learners may struggle with the social element of collaborative learning (Spaeth & Pearson, 2023).

We continue to evaluate active learning from staff and student perspectives, at the course, programme and institutional level. We are currently working with colleagues in the Adam Smith Business School to evaluate how staff and students are making effective use of the active learning spaces there, to also inform developments in the Keystone building.

How do you make sure your approach is inclusive?

Accessibility and inclusivity have previously been overlooked in planning learning spaces in the sector, and need to be considered at an institutional level, involving relevant stakeholders (Power et al., 2024). From the outset, the JMS was foregrounded by an inclusivity of active learning spaces literature review (McIntyre, 2018), which found a paucity of research on inclusivity for active learning. This prompted a scholarship of teaching and learning (SoTL) project that took a rich pictures approach (Bell et al., 2016), investigating the needs of students with a range of disabilities, through discussion and visualisation. This meant that in the JMS, for example, attention was given to access and mobility, with height adjustable table ends provided in the active learning classrooms, available at each table cluster to offer choice. Quiet booths were also designed so that students could take a break from a noisy collaborative environment. For the superlabs in the new Keystone building, inclusion is being considered as one of the foci from a planning perspective, with the working group investigating issues of navigating spaces with mobility aids, sound proofing/bubbles, neurodiversity requirements, and lines of sight – issues that have been raised in relation to existing learning spaces, but which are magnified in the superlab context.

The ‘Hybrid learning’ group investigated technologies that promote flexibility to support student preferences and inclusion, and how timetabling supports student choice and innovative teaching practices. Work to advise colleagues on the potential for hyflex learning was undertaken through visits of the workstream

members to Zoom headquarters, and presentations given by hyflex educators. Due to the challenges of engaging on-campus and remote learners simultaneously, the university decided that hyflex would not be adopted as standard, but some schools within the university who were keen to adopt hyflex would be supported. Scholarship work by a colleague (Finkel-Gates, 2025) revealed a clear preference for online engagement for students from more disadvantaged socio-economic areas. Survey work to capture staff understanding of terminology around hybrid learning was also conducted and revealed strong agreement about the definitions of 'blended' and 'hyflex'; however, 'hybrid' learning was variously interpreted in relation to modality and choice (Nordmann et al., 2024). This work has implications for how we support our staff and students to engage flexibly.

How do you ensure that it is sustainable?

The 'Horizon scanning' group follows sector updates in Generative AI, skills driven curriculum development, and digital assessment, with a view to preparing the university and stakeholders for upcoming opportunities and challenges. Work has also been conducted to investigate the expectations of school leavers with respect to coming into higher education and the systems that support that.

Alongside this work, ongoing efforts to best prepare students for active learning recognise that many need to be supported to appreciate the value of active learning and develop the requisite skills to engage effectively with independent, self-directed learning (Pringle-Barnes et al., 2023).

Active learning does not happen in isolation; this work has been implemented alongside other strategic projects focused on assessment and feedback, curriculum transformation, and student skills development. All of this work informs the forthcoming renewed learning and teaching strategy. Moreover, it has all received support from the university's leadership team continuously since 2012 and this sustained commitment to and investment in pedagogical innovation, and learning and teaching space design, has been essential to support sustained change in practice.

Regarding succession planning, we are working with early adopters to showcase their practice to other academic staff. This sharing of good practice is being extended through our Active Learning Network satellite group, with an accom-

panying Teams site. The renewed strategy, with accompanying resources, will seek to uncover further examples of good practice, and support early adopters to support other staff through peer observation and buddy schemes. Thus, we anticipate a momentum of change that is resilient to staff turnover or leadership changes.

Key takeaways

Although we have benefited from significant capital investment to enable change, pedagogical change can still happen in traditional spaces. An enhancement ethos is key to transformation. In order to adapt our approach to your context we would advise institutions to:

- Collaborate with stakeholders across the institution from all relevant services as well as seeking academic and student input; while we might all work differently, we are committed to the core goal of enhancing learning and teaching. Backing from senior management is key for this collaboration to work effectively, to align the vision and provide essential resources.
- Allow significant time for changes to be considered and implemented; from the design and build of learning spaces themselves, to evaluations, through to the development of resources for staff and students, and time for students and staff to adjust their approaches to learning and teaching.
- Remain open-minded as to the direction of travel, bearing in mind the wider context of higher education, speed of technological change, and potential barriers. Future-proof as much as possible and appreciate this is a continuous process of innovation and evaluation.

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3 SHIFTING STAFF MINDSETS

Implementing active learning for all may require staff to transition from their own experience as learners to adopting a new pedagogic approach. The challenges to implementing active learning can cover a wide spectrum from a deep-seated belief of what good teaching looks like (which may not align with active learning), to a lack of confidence or even a lack of awareness of or experience with active learning. In line with the analysis offered by a systems thinking lens in [Section 1](#) which emphasises that mindsets (attitudes, beliefs and values) play a key role in influencing patterns of behaviour, contributions in this section highlight that without attention to such attitudes and beliefs, and systematic attempts to build awareness and confidence, active learning will not happen for all. The contributions in this section examine approaches to communicate and influence attitudes and beliefs about what good teaching is and the role active learning plays in that process. They give examples of how staff can be made aware of the often tacit attitudes and beliefs they hold about teaching and supporting learning and then, where appropriate, constructively challenged as part of their journey to become confident enablers of active learning.

The importance of examining assumptions is explored in contributions by [Elliot et al.](#), [Oprandi](#), [Kushwah](#) and [Lin](#). By systematically addressing the common challenges of and misconceptions about active online learning and providing design choices that address these concerns, [Elliot et al.](#) confront the main challenges to active learning online, offering design choices that directly respond to these concerns. They develop the idea that effective online active learning can be achieved by using an integrated approach where the affordances of technology and the underpinning pedagogy are considered in tandem, without privileging one over the other. Their approach not only informs online delivery but can also be applied to 'blended' learning contexts or any learning situation that uses the affordances of technology.

In an opinion piece [Oprandi](#) asserts that rather than online platforms presenting challenges to active learning, the online environment is particularly suited to providing an inclusive and engaging environment for active learning.

Challenging the idea that active learning is only happening if there is lively chatter, [Kushwah](#) argues that we need to see silence as an important component of active engagement and as an opportunity for reflection and meaningful learn-

ing. This idea is developed by Lin with the idea that engagement in active learning can take many forms. Together, these contributions are examples of how we can examine and then challenge often deep-seated beliefs and assumptions around teaching and learning and the forms active learning can take.

A reflection on the personal shift in mindset is described by [Xi](#), who shares the experience of a new academic discovering and adopting active learning practice. They explain how using active learning methods helped them to find the joy and purpose in teaching.



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Chapter: Active Learning Online: Exploring Challenges and Misconceptions to Offer Strategies for Active, Interactive and Social Online Learning

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Summary

This chapter explores the opportunities and challenges of developing active, online learning. In recent years, the demand for online learning has increased; however, it often fails to live up to its full potential as an active, interactive and social experience. Teachers often struggle to apply their classroom practice effectively as online learning environments offer different affordances, opportunities and challenges than physical on-campus learning environments.

Moreover, many educators' experiences of online teaching have often lacked sufficient support. The pandemic-induced pivot to online saw educators adopt an emergency approach that was stressful, poorly planned, and undertaken with little or no training.

Given this landscape, this chapter sets out to address several misconceptions that persist about online education and its ability to foster active approaches to learning.

Firstly, the chapter explores how a 'pedagogy first' approach can be limiting. Instead of viewing pedagogy or technology as the primary determining factor, we instead draw on 'entangled pedagogy' as a conceptual framework and

approach to digital education where the reciprocal nature of technology, pedagogy and context is recognised.

The chapter also challenges the belief that asynchronous learning cannot be social. Drawing on the Community of Inquiry framework to highlight how educators might design and facilitate social, cognitive, and teacher presence in their courses, we provide a range of strategies to create meaningful interaction and sustained engagement among learners.

A further misconception concerns the difficulty educators find in teaching certain topics online. Often, these are more practical, competency-based subjects. The chapter presents practical online examples, such as lab work, and highlights that by focusing on the core underlying skills and the flexible and inclusive ways we can make those skills visible online, educators can effectively teach practical and performance-based subjects.

Finally, the chapter addresses a key practice of online teachers, who often struggle to gauge student engagement. Setting clear expectations, providing feedback, scaffolding the learning experience, and encouraging self-regulation are explored as a range of strategies that help develop students' autonomy, confidence, and sustained engagement.

In conclusion, this chapter argues that designing and teaching active and social online learning activities requires a shift in how we think about, and approach, both teaching practice and the online learning environment. This can be challenging for educators used to teaching in on-campus environments, but the strategies outlined in this chapter aim to help educators reimagine online interaction and design richer, more authentic learning experiences to make active learning happen for all in online environments.

Introduction

There is increasing demand for online learning opportunities, whether as fully online courses or online elements of campus-based courses (MacNeill & Beetham, 2022). Student experiences are also increasingly 'blended' across physical and online learning environments, both on- and off-campus. Yet feedback from staff and students suggests that the provision of online learning often fails to deliver on its promise. Many online courses rely heavily on 'hybrid' classes

or lecture recordings which do not offer the same opportunities for online students to interact with each other and the educator as on-campus students (Jisc, 2023a). Similarly, where flipped classroom approaches are used to blend online and on-campus learning, online elements often focus on students passively ‘acquiring’ information that they will then actively engage with in on-campus sessions (Kapur et al., 2022).

In Jisc’s 2022/23 Digital Insights survey, although most students experienced some online teaching and learning, only 49 percent found online learning materials engaging and motivating (Jisc, 2023a). Similarly, teaching staff responses suggest a perception of online learning as more didactic than active and interactive (Jisc, 2023b). Both staff and students have reported concerns about the reduction or loss of opportunities for social interaction in online learning (Jisc, 2023a; MacNeill & Beetham, 2022); distance learners have long reported higher rates of feeling isolated (Delahunty et al., 2014), which can impact their learning, satisfaction and course completion (Edwards & and Hardie, 2024). Despite these concerns, digital technologies were thought to allow greater interaction between students (Jisc, 2023b) suggesting that the issue may lie in the implementation and in staff capacity and confidence to utilise digital technologies to support active, interactive learning. Indeed, MacNeill and Beetham (2022) found that teacher confidence/skills was one of the key concerns about online teaching reported by UK higher education staff – the ability to teach practical skills, assessment issues, the use of digital media and a lack of support for teaching staff also featured in the list of concerns.

These concerns and the apparent shortcomings in current provision are perhaps unsurprising when we consider the change/s in approach, practice and even identity, required in any move to online learning. Teaching online, and designing for learning online, require different approaches to promoting and facilitating active engagement and discussion, and to understanding how students are engaging with the learning materials and each other (Stone & Springer, 2019). While some of teaching practices staff employ in an on-campus classroom might not work as well in an online environment, the online environment also creates opportunities for activities and interactions that cannot, or cannot as easily, occur on-campus (e.g. Bayne et al., 2020). Not only do these changes take time to understand, adjust to and incorporate into teaching practice, but as MacNeill and Beetham (2022) noted, changes in teaching and learning modes require changes in how teaching workloads are allocated, requiring time, investment and strategic consideration at institution-level, beyond individuals.

A key influence on teaching practice is prior experience, whether as a teacher or as a learner (Richardson, 1990, 1996). The rapid pivot to online teaching during the COVID-19 pandemic, better characterised as ‘emergency remote teaching’ (Hodges et al., 2020) meant that for many staff, their first experience of teaching online was stressful, poorly planned, undertaken with little or no training and bore little resemblance to what would usually be considered good practice in online learning (Guppy et al., 2022). Such an introduction to teaching online is hardly conducive to reflective and ongoing practice change, and an understanding of what online teaching and learning *might* be when undertaken in a planned, supported manner underpinned by appropriate pedagogies and knowledge of ‘what works’ online.

There is however evidence, from before the pandemic, that academic staff perceptions of online learning environments improve over time, alongside shifts in the perceived value or importance of particular uses or aspects of online learning environments. For example, Palmer and Holt (2009) found that in the first year following the implementation of a university-wide online/virtual learning environment, staff perceived the ability to access unit information and lecture notes as the most important purposes of the learning environments; in the following year, contributing to discussions and reading contributions to discussions were perceived to be of greater importance. Similarly, staff satisfaction with aspects of the online learning environment related to interaction with learning materials, other students and the teaching team improved over the year.

In this chapter, we set out to explore the genuine concerns and some misconceptions held, by educators in relation to active learning in an online environment. In doing so, we draw on critical digital pedagogies and offer practical strategies and design choices to address and overcome these challenges and concerns.

Our position and perspectives

We are academics, faculty leaders and learning designers who work in a specialist digital education team within a medical and dental faculty at a medium size, London-based, Russell Group University. Between us, we have previously worked in universities across the UK, Europe and Australia; in teaching, learning design and educational technologist roles; in both central and faculty-based teams. Throughout our combined careers, we have worked with academics in

a range of disciplines, teaching at both undergraduate and postgraduate levels, and with varying levels of experience of teaching and designing for online learning. Our work together is focused on co-creating online learning experiences underpinned by principles of active, social and authentic learning, and inclusive education, and on building capacity for digital and online learning, at scale, within the higher education context. We take an evidence-based approach to this work, drawing on educational and learning science research, broader scholarship work and student evaluation, feedback and cohort data.

Our approach to this chapter is empirical and practice-based, informed by the co-creation and capacity-building work we do, by the concerns and questions shared with us by the educators, other staff and students we work with, and by the strategies and approaches we have employed together to address those concerns.

Challenges of, and misconceptions about, active learning online

‘Pedagogy first’: Limiting our understanding of the online learning environment

When considering the relationship between pedagogy and technology, many people still subscribe to the ‘pedagogy first’ principle. This continues to be a dominant paradigm, especially among traditional, classroom-based educators who have done considerable amounts of in-person teaching. While this philosophy was appropriate for its time and maintains its importance in thinking about student-centred learning, in the age of advanced and rapid technological developments, educational practice can no longer depend on this principle. If we approach online learning, or blended learning, for that matter, with the aim of doing what we do in physical classrooms online, then we are destined to fail (Morris & Stommel, 2018). The complexity of the online environment, the diverse needs of online learners, and the high levels of skills needed to purposefully combine technology and pedagogy mean that active online learning calls for its own pedagogy. It is no longer relevant or adequate to think ‘pedagogy first’, or in isolation, then to apply technology, in that rigid sequence. For example, during the

educational design phase, educators need to understand the repertoire of technologies available to them upfront, so that they can adjust pedagogical strategies, and incorporate into their teaching, with its limitations and affordances. This is important because, often, active learning online is not simply about a ‘one-point-in-time’ type of engagement with students, but designed instead for a certain duration of learning that emerges in various places and modalities. Given this, Fawns (2022) challenges this deterministic dichotomy, and introduces a useful conceptual framework, ‘entangled pedagogy’. It is our view also that ‘recognising that technology and pedagogy are, inevitably, entangled, opens up possibilities for more meaningful analyses of educational activity’ (Fawns, 2022, p. 714). Importantly, Fawns’s work not only points to the artificiality of binary notions of pedagogy and technology, but highlights that educational activities, such as educational design, are also entangled with sociocultural constructs such as purposes, contexts and values. This is critical to recognise, especially for those educators designing and creating online environments and engagement; and works as a framing for what follows in this chapter to challenge this problematic space, that is the tension between active and online learning.

‘How can we interact if we’re not together?’: Asynchronous learning can’t be social or interactive

This is a really common question when it comes to the design of digital education. Especially for those coming to digital approaches for the first time, it can be a particularly tricky shift in perspective. While we would argue we are ‘together’ in many senses, it doesn’t look like the togetherness of the classroom. Moreover, socialising online doesn’t feel like what many educators are used to in their on-campus teaching. However, this doesn’t make these connections any less valuable than those formed in person. In fact, users of platforms like Reddit and BlueSky regularly voluntarily form the types of connections and communities we want to see in our online classes.

While online students (or students engaging in online learning activities) may not be physically present, it is worth highlighting that presence and connection can be experienced in multiple ways (Bayne et al., 2020). Being in the same room at the same time might not be the only or most important element of feeling present with others. As Bayne and colleagues (2020) highlight, the student at the back of the room not participating is, in many ways, a distance student. They

may be in the same place and time as their educators and peers, but are they embodying what is important about presence?

To understand presence and active learning in online environments, we can turn to the well-known framework, the Community of Inquiry (Biccard, 2022; Garrison et al., 1999). Community of Inquiry, originally developed by the philosopher C. S. Peirce, is a framework that stresses the educational process as one where students construct knowledge via active engagement in collaborative inquiry. Garrison, Anderson and Archer (1999) provide an adaptation of the framework specifically aimed at online (and text-based) learning. They propose three types of presence that are vital to developing a Community of Inquiry: social presence, cognitive presence, and teaching presence.

Cognitive presence is experienced in the construction of meaning ‘through sustained communication’ (Garrison et al., 1999, p. 89). There are many options when it comes to facilitating cognitive presence in digital education: the online forum is often the go-to approach for discussion activities, but platforms like Padlet, Miro, and even Minecraft have been used as spaces for sustained communication. Garrison et al. (1999) highlight that asynchronous activities have unique affordances that help facilitate critical thinking. For example, there is more time for reflection as we are not limited to classroom time. Subsequent studies have further reinforced the role of these online spaces in fostering critical thinking (Aloni & Harrington, 2018; Covelli, 2017; Moore, 2011).

Social presence is experienced when participants in a course can ‘project themselves socially and emotionally, as “real” people’ (Garrison et al., 1999, p. 94). Garrison et al. focus on text-based communication and admit that this may seem a ‘lean’ form of communication when compared to the myriad non-verbal cues involved in face-to-face communication. However, this is no longer necessarily true: as technology has advanced, online platforms are no longer limited to just plain text. Students and educators can add videos, audio or images to their communications, and this has been highlighted as increasing feelings of connection and community (Covelli, 2017).

Teaching presence works to balance the other two presences. Regardless of the mode of teaching, educators choose what is taught, how it is presented, the ordering of learning materials and, in the case of online learning, what platforms to use. Through these choices, educators create a sense of their presence for students. This idea of teaching presence often requires a shift in perspective regarding what is considered ‘teaching’. Goodyear’s (2015) ideas around teaching as

design are useful here, as he highlights all the planning and design activities that educators engage in that we should consider acts of teaching.

Design choices to address this concern

As educators and designers, there are many practical things that we can do to influence social and cognitive presence and subsequently encourage active learning within a Community of Inquiry:

- **Picking the right platform:** When designing online learning experience, it is important that educators consider how they want our students to engage and express themselves. Bayne et al. (2020) suggest that connection increases when technology becomes ‘invisible’ – in other words, when it doesn’t interfere with the ability to engage. Or, to reframe it in the language of Community of Inquiry, connection may increase when using technologies that intrude less on social, cognitive, or teaching presence. VoIP services like Teams and Zoom, in this sense, are actually quite intrusive technologies – many people will have experienced video calls with such poor connections that they have had to abandon them. Even ‘good’ calls often have audio drops or lags, impacting students’ ability to be present. Perhaps counterintuitively, simpler platforms such as forums and Padlets can be more ‘invisible’ and provide better feelings of connection for distance students.
- **Valuing contributions but encouraging interaction:** It’s very important in an online environment for educators to encourage the types of active learning that they want to see, ensuring that they don’t jump in too early. An educator’s response can sometimes be seen as the final word on the topic and discourage further engagement from other students (Aloni & Harrington, 2018). Instead, it is important to provide enough time for other students to chime in. When students are engaging, rather than providing answers, educators can respond with open questions or encourage students to speak to each other. Both these strategies continue the conversation and provide greater opportunities for social and cognitive presence.
- **Creating valuable activities:** Many common principles of active learning still apply online: learning activities should be constructively aligned (Biggs & Tang, 2011) to learning outcomes and make our students’ learning visible (Hattie, 2009). However, in online environments, there are additional consid-

erations. For example, consider whether an activity produces one or two 'correct' answers or encourages more open responses. Activities which seek a single correct answer, or a limited set of responses, are less well-suited to social spaces like forums and are more valuable in self-directed spaces like practice quizzes. This is because once one student has provided the correct answer in the forum, there is little for other students to contribute. This lowers engagement (Aloni & Harrington, 2018) and, thus, lowers the possibility for cognitive and social presence. Having self-directed spaces like practice quizzes is by no means a bad thing; it is still active learning, and cognitive presence includes communication with the virtual learning environment and other platforms, not just with educators and other students. Moreover, these solo activities can help give students the confidence to engage more fully in social activities. Laurillard's (2013) Conversational Framework, for example, highlights this, showing how students are engaged in conversation with their learning environment, and how knowledge constructed in this way is taken into collaborative conversations or conversations with educators.

'You can't teach my subject online': Meeting the needs of different disciplines

A common concern amongst many of the educators we work with relates to the practical components of their programmes – how can students develop and demonstrate lab skills, clinical communication skills or other performance-based skills? (e.g. Attarbashi et al., 2021; Burke, 2020). Related concerns include effectively supporting collaboration and teamwork online (Burke, 2020), and facilitating exploration and discussion of sensitive or contentious topics. The online environment may also complicate the teaching of emotionally sensitive or controversial content due to educators' inability to monitor students' emotional responses in real time. This disconnect can amplify student discomfort, reduce engagement, and obscure the need for timely support. Price et al. (2025) noted that in online nursing education, especially on topics such as children's palliative care, educators might find it difficult to provide the emotional responsiveness afforded by face-to-face interactions.

Such concerns invite a rethinking of how educational objectives can be met through alternative, innovative means. With flexibility, intentional learning

design, and the strategic use of technology, online environments can become dynamic, collaborative spaces that foster deep learning and meaningful engagement across disciplines.

Innovative technologies in online learning environments, when grounded in sound pedagogical frameworks, can significantly enhance engagement, interactivity, and the effectiveness of practical skills training. Virtual simulations and AR/VR, when well designed, enable students to actively perform experiments or skill drills in a virtual setting, which keeps them engaged and motivated similar to (or even more than) traditional labs. Studies such as Alvarez (2021) show that well-designed online labs can promote engagement, motivation, and deep learning comparable to traditional settings. It is important to remember the success of these simulations lies not only in the technology itself, but in how it is embedded within a structured learning experience. For example, Klingenberg et al. (2020) found that pairing virtual simulations with generative learning strategies, such as peer teaching, can enhance students' retention, self-efficacy, and ability to apply knowledge. These outcomes highlight the importance of scaffolding, reflection, and active learning methods in online education. When pedagogical considerations drive the selection of innovative technologies, online learning can be an effective and engaging tool for developing practical skills.

Adopting a learning design that prioritises collaboration, feedback, and shared meaning-making is crucial for fostering practical and interpersonal skills in online education. When the learning design encourages peer dialogue, cooperative tasks, and co-construction of knowledge, online learning can be an interactive environment that promote communication and teamwork. Burke (2020) show how arts educators employed 'virtual praxis' to foster reflective and relational learning by engaging students in live co-creation, dialogic critique, and the collective development of artistic identity. These strategies are readily adaptable across disciplines to support the development of collaboration and communication – for example, by fostering safe online spaces that encourage interaction, designing authentic and co-dependent tasks that require teamwork, and introducing open-ended discussion topics with scaffolding to stimulate reflective dialogue and peer exchange. Further, Junod Perron et al. (2020) demonstrated that structured synchronous seminars using role play, video analysis, and small-group discussions effectively supported students in practicing clinical communication and collaboration skills in realistic scenarios. When paired with findings from Townsend et al. (2025), who showed that student-led drop-in sessions provided flexible spaces for clarification, peer engagement, and mutual support, the evi-

dence strongly refutes the notion that online learning hinders the development of communication and collaboration skills among learners.

Design choices to address this concern

Practical strategies we can use to effectively teach practical, collaborative, and emotionally responsive skills across disciplines include:

- **Being flexible:** Begin by clearly identifying the specific skills or knowledge students need to acquire from the learning experience. This clarity allows educators to design flexible and effective teaching methods tailored to these objectives. For instance, during campus closures in the pandemic, Schultz et al.'s (2020) 'kitchen chemistry' initiative enabled students to conduct experiments at home using household items, effectively developing observation skills and emphasising accurate measurement. Schultz et al. (2020) concluded that 'relevant, engaging kitchen chemistry activities are useful for foundation level chemistry students.' By first determining the desired learning outcomes, educators can create adaptable and innovative experiences that effectively meet educational goals in diverse environments including online ones.
- **Making learning collaborative:** Implementing collaborative learning activities in online education enhances student engagement and fosters active learning. For example, Holly et al. (2025) show that collaborative activities in online labs not only improve students' understanding more effectively than independent work but also boost their confidence in expressing their ideas. To maximize these benefits, educators can grant students greater permissions to collaborate online, encourage structured teamwork, and incorporate communication features to support collaborative learning. Further, online synchronous role play in clinical communication training has proven both feasible and effective. Junod Perron et al. (2020) recommend the use of small, carefully-planned groups, setting clear protocols and ground rules for interaction, and requiring students to use their cameras to increase interactivity.
- **Being supportive and inclusive:** Providing emotional safety and space is critical when delivering sensitive topics in online education. The use of trigger/content warnings (Wyatt, 2016) is a useful starting point, and should be complemented by broader teaching strategies. Research suggests that

offering students options for engagement, creating a supportive and inclusive environment, setting or negotiating ground rules for discussion and carefully framing sensitive materials can enhance student comfort and participation in emotionally charged discussions (Cebula et al., 2022). These approaches are echoed in online settings, where measures such as support rooms or breakout spaces – even when not used – are valued by students as signs of educator care and responsiveness (Price et al., 2025).

‘A sea of black screens’: How do we know if our students are learning and engaged?

In addition to online students reporting feelings of isolation, online educators have reported feelings of disconnection, and anxiety and uncertainty about whether their students understand and are learning (Regan et al., 2012). Indeed, a key challenge in online and blended learning is moving beyond passive content delivery to actively facilitating engagement, collaboration, and independent learning. Without physical cues, it can be difficult to gauge participation so many educators struggle with knowing how their students are progressing or whether they are engaging with the material. This uncertainty is compounded by the common experience of online sessions becoming a ‘sea of black screens,’ where students appear disengaged or reluctant to interact.

While high-quality digital resources are essential, as the Community of Inquiry framework shows, meaningful learning emerges from structured interaction, social presence, and formative guidance (Garrison et al., 1999). Simply making resources available does not ensure that students will critically engage with them, apply their learning, or sustain motivation. Instead, educators can enhance learning experiences by facilitating structured, interactive, and student-driven activities that support autonomy and self-regulation (Beetham et al., 2024; Covelli, 2017).

A critical element of facilitating independent learning is maintaining an active and visible teaching presence. The Community of Inquiry framework underscores that teaching presence – through clear communication, structured guidance, and active facilitation – is associated with engaging students in meaningful learning (Garrison et al., 1999). Research indicates that interaction and personalised feedback can support student persistence and engagement, while

teacher presence, including regular announcements, appears to play a key role in maintaining student motivation (Stone & Springer, 2019).

Scaffolding plays an important role in guiding independent learners in online learning environments. Well-designed scaffolding strategies – such as educator guidance, structured prompts, and progressive task complexity – are associated with cognitive engagement and deeper learning (Cho & Cho, 2016). In online settings, adaptive scaffolding techniques, including formative feedback, discussion facilitation, and self-assessment opportunities, have been found to promote student independence and sustain motivation (Doo et al., 2020). This scaffolding should also include helping students develop their digital capacity, for example through providing instructions, guidance and opportunities to practice, critique and receive feedback on the use of digital tools and platforms. Although McGill, Beetham and Gray (2016) highlight that digital capability and proficiency alone are not sufficient to ensure success in online learning, they are necessary for this success.

Online learning can sometimes be perceived as isolating, yet well-facilitated environments have the potential to foster rich peer-to-peer engagement, collaboration, and a sense of belonging. Social presence – students' ability to feel connected to peers and instructors – is a key factor in motivation (Garrison et al., 1999). Intentional design and active facilitation are essential for promoting this engagement and interaction. Online discussions may benefit from structured prompts that encourage debate, application, and co-construction of ideas (Darabi et al., 2011). In blended environments, online interactions can be purposefully integrated with face-to-face sessions to create a cohesive learning experience that extends engagement beyond the classroom (Beetham et al., 2024). Technologies such as collaborative platforms and asynchronous discussions can help bridge live and independent study, fostering continuity in learning. For self-paced learners, asynchronous forums, peer feedback, and optional study groups may provide structured opportunities for interaction and knowledge-building.

Timely, constructive feedback is fundamental to online facilitation, shaping student engagement and learning outcomes (Panadero & Lipnevich, 2022; Price et al., 2011). Without immediate classroom cues, online learners may benefit from structured feedback mechanisms that provide clarity, encourage self-regulation, and sustain motivation. Research highlights that feedback can be more effective when it extends beyond corrective comments, fostering a dialogic exchange that supports critical thinking and active engagement (Price et al., 2011). Online learning environments may offer advantages here. Unlike face-to-face environments,

where feedback may be limited to class hours, online learning platforms provide multiple asynchronous and synchronous feedback channels, with students reporting greater interaction with educators (Pentucci & Laici, 2023). Embedding feedback within learning activities – such as asking students to revise their work based on peer reviews or reflect on automated quiz outcomes – has been found to strengthen understanding and application of knowledge (Panadero & Lipnevich, 2022). By designing feedback processes that align with learning objectives and student agency, educators may facilitate a responsive and supportive online learning experience.

Beyond assessment, ongoing encouragement and progress tracking can support student motivation and allow educators to gain insights into student learning and engagement. Unlike traditional face-to-face settings, where gauging student understanding may depend on verbal cues, digital learning platforms provide detailed analytics on student interactions with learning activities and materials, and engagement with both formative and summative assessments. These insights allow educators to monitor student progress, provide individualised feedback and identify students who might be in need of intervention and support (Herodotou et al., 2020; Kew & Tasir, 2022). They can also be used to inform teaching and facilitation practices (Siemens, 2013). Once again, an intentional and considered approach to the use of learning analytics is important, including the identification of appropriate and relevant indicators, timing and actions.

Design choices to address this concern

Some of the strategies we can employ as educators and designers to facilitate and promote independent, self-regulated learning include:

- **Setting clear expectations:** Online courses tend to benefit from well-structured design and organisation, including explicit guidance on participation, learning objectives, and support options. Research highlights that structured teacher engagement, clear course navigation, and technological support are linked to cognitive and behavioural engagement in online learning environments (Wang, 2022). In practice, online courses often benefit from beginning with a structured orientation module that introduces independent learning strategies, fosters peer interaction, and provides essential support resources. Such orientation modules can play a critical role in ensuring

students understand course expectations, technology requirements, and engagement strategies, thereby improving learner confidence and retention (Wengier, 2022).

- **Scaffolding learning:** Strategies for scaffolding may include breaking assignments into progressive tasks with formative feedback, providing worked examples, and offering structured templates. In blended learning, scaffolding can involve using face-to-face sessions for guided practice while reserving online time for exploration and problem-solving. In self-paced courses, adaptive release mechanisms may help ensure students master foundational concepts before advancing (Diep et al., 2017).
- **Encouraging self-regulation:** Educators may support students through goal-setting exercises, self-assessment tools, and reflective journals. Research suggests that students who engage in self-directed learning practices, such as planning their study approaches and evaluating their progress, are more likely to succeed in various educational contexts, including online and blended courses (Murad et al., 2010). Embedding structured self-regulation activities may enhance students' ability to manage independent study.
- **Being an active participant in discussions:** Educators may facilitate discussions by guiding conversations, posing thought-provoking questions, and encouraging students to engage in critical thinking and reflection (Covelli, 2017). Research suggests that effective faculty facilitators use questioning techniques to model and promote critical thinking while allowing students to lead discussions and construct knowledge collaboratively (Schindler & Burkholder, 2014). A sense of community – whether through collaborative tasks, peer mentoring, or instructor-guided dialogue – may significantly contribute to independent learning effectiveness by fostering deeper engagement and critical discourse.

Conclusion

Designing and teaching active and social online learning activities requires a shift in how we think about, and approach, both teaching and the online learning environment. This can be challenging for educators used to teaching in on-campus environments and these educators frequently raise concerns about engaging students in active, social learning activities online. In this chapter, we have outlined and challenged some of these common concerns and misconceptions

about teaching, and learning, online, drawing on critical digital pedagogies. Addressing these misconceptions and challenges surrounding online learning is not solely about increasing content availability but about reimagining how educators facilitate meaningful engagement in digital spaces. With this in mind, we have also proposed practical strategies educators and learning designers might use to incorporate active and social learning strategies in online learning, whether in fully online courses or within blended courses.

In Figure 1, we provide a practical summary of recommended strategies across each phase of creating an active distance learning experience, supporting inclusive, engaging, and iterative design considering the digital capability of learners and educators.

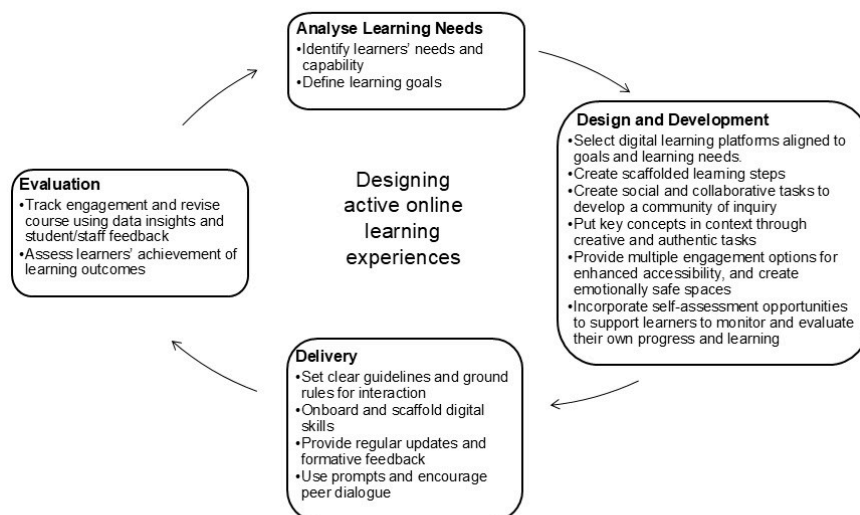


Figure 1: Practical suggestions for designing and teaching active online learning experiences

We also recommend that when designing online learning activities, educators and learning designers consider their own digital capacity and confidence, and those of their colleagues. It is likely to be more effective to 'start small' by incorporating digital platforms and online activities with which educators are familiar and comfortable, and to build up over time, than to make large-scale changes without adequate training and support. We encourage educators to make use of existing expertise and resources in their institutions, whether from academic col-

leagues, academic developers, learning designers or learning technologists. Professional organisations and networks, such as ALT and SEDA (UK) and HERDSA and ASCILITE (Australia), provide opportunities to connect with, and learn from, others outside one's own institution. Jisc's Building Digital Capability resources include a discovery tool to help educators reflect on and self-assess their digital capability, as well as practical advice and guidance. Other useful resources for educators exploring what may be possible online, include ABC Learning Design (UCL, n.d.-a) and UCL's *Learning Designer* (n.d.-b), which provide a scaffolded approach to design, and examples and customisable activities developed by other educators.

The increased availability of online and blended courses offers many potential benefits for students, including in terms of inclusion and accessibility. However, delivering on the promise of online learning requires both individual educators and learning designers, and universities, to rethink how we approach the design and facilitation of online learning. We hope that this chapter provides a critical and practical contribution to this discussion.

Key takeaways

Online learning environments offer different affordances, opportunities and challenges than physical on-campus learning environments, requiring different approaches to the design and teaching of active and social learning activities. However, this does not mean these learning interactions are inferior.

Fostering teaching presence, social presence and cognitive presence is key to the creation of effective online learning experiences.

Pedagogies and technologies are inextricably linked and considering these 'entanglements' and the interplay between pedagogy and technology creates new opportunities for supporting students' active learning and engagement.

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Opinion Piece: ‘Learning is More Active When Online, Period’

PAOLO OPRANDI

The provocation

It can be easier to make learning active, inclusive, and engaging when we employ online methods than when we stick solely to traditional classroom teaching methods. A growing body of research demonstrates that online learning can be highly active, interactive, and effective when designed with pedagogical intention (Barbetta, 2023; Beimel et al., 2024; Butcher, 2020; Wittayakom et al., 2024).

Active learning online

Active learning can involve students in their learning in many ways, such as in discussions, groupwork, and field trips. Some active learning can be done during in-person teaching, but in this piece I argue much is actually easier and more inclusive to facilitate online.

Take, for example, seminar discussions. Discussions are as possible online as in the classroom. Online discussion usually allows:

- More time for the students to make their points;
- More resources readily available than in most classrooms to back up points with evidence.

Consider group work. Online group work eliminates coordination problems that plague in-person collaboration, such as:

- Unequal participation, because every contribution is documented through revision histories and timestamps through the use of online tools;
- Varying student schedules, because asynchronous participation allows students to focus their intellectual energy on the task rather than on logistical tensions.

Even field trips can be improved through online tools. Activities like museum visits, where students visit local museums or galleries to conduct investigations, are improved when students go independently, or in small groups, and have the opportunity to share their findings and insights online. Students can explore specific research questions during their visits, gather evidence through photos, notes, and close observation, then present their discoveries through collaborative platforms. Independent field trips of this nature are an even richer experience than whole class field trips as they can develop:

- Diverse perspectives, and expose the group to broader evidence and interpretations than a single visit could provide;
- Comparative interpretation skills, as students contrast their own experiences and learning with that of their peers;
- Active student agency and research literacy while maintaining the collaborative benefits of shared scholarly inquiry.

Conclusion

In this piece I have used three active learning examples to address the common misconception that online learning is fundamentally less active than classroom learning. I have argued that if designed intentionally, online learning can be more active than in-person teaching with less of the limitations.

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Opinion Piece: Silence – A Powerful Tool of Active Learning: An Oxymoron or a Missing Piece of the Puzzle?

LOVLEEN KUSHWAH AND GEETHANJALI SELVARETNAM

Many educators seem to associate active learning with lively chatter and conclude that quiet students are disengaged (Huynh & Adams, 2022), which is also evident in the toolkits for active learning. UCL (2019) defines active learning as ‘any activity that encourages students to take an active, engaged part in the learning process within the classroom’.

Active learning requires students to consciously assimilate and internalise their experiences. A quiet environment supports deeper learning and creative solutions by allowing the mind to actively listen, observe, reflect, assess and process information. There are recent studies which discuss the benefits of silence as a pedagogical tool for active learning (Bufalino, 2025; Zimmermann & Morgan, 2016). Fidyk (2013) explores the concept of silence as a vital element in pedagogy, framing it not as absence or passivity but as a powerful mode of presence and attentiveness. Pedagogy should embrace stillness and inner listening as integral to meaningful learning and human development.

A rested mind is more capable of meaningful action than one constantly overwhelmed by sensory input. This is especially critical for neurodivergent and disabled individuals, which is important for inclusivity.

Some tips to embed silence in teaching practice:

- Normalise silence by regularly stating it as a skill that enhances focus, clarity, understanding, creativity and discovery attitudes.
- Allow quiet time or give breaks after teaching something or after discussions which require reflection for clarity and absorption.
- Use visual cues, which students realise as ‘quiet time’, such as a slide with an emblem.

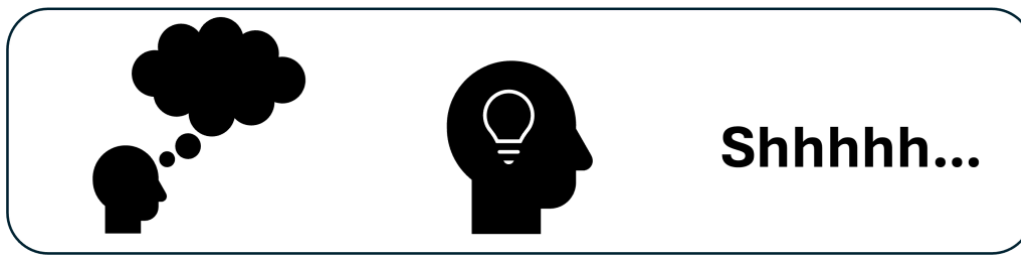


Figure 1: Visual cues

- An activity could be to show a short video, painting, or quotation, and allow a few minutes of silence for students to think about this. Then ask some pertinent questions.
- In structured activities such as 'think-pair-share' or 'do individually – do in group', ensure the individual 'thinking' or 'doing' time are given importance and used effectively.
- If possible, give freedom to students as to how to use the silent time – walk, stare out of the window, draw, just think, write, and so on.
- Establish ground rules at the beginning not to disturb others while the teacher is speaking or during quiet time. Do not ignore if students don't follow this requirement but remind them to wait for the break.
- Have a 'break from listening' to the teacher every 15 minutes or so with questions or activities, to allow interaction as well as times of silence.

Silence is a sustainable practice as it requires no additional resources, technology, or physical materials, making it an accessible, affordable and high value pedagogical tool.

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Opinion Piece: Sprinkling the Class with Willingness to Communicate

VIENCE LIN

Do ‘sprinkles’ ring a bell? At first glance, sprinkles may seem decorative or trivial additions to your cupcakes. However, sprinkles can be essential, as they potentially make your cupcakes taste better. More importantly, sprinkles come in different forms to accommodate taste preferences, whether chocolate, coconut flakes, or confetti toppings. This is why I chose to name my fictional character Sprinkle (see Figure 1) to represent diverse and multiple ways to show willingness to communicate (WTC). While an individual’s predisposition to communicate varies (MacIntyre et al., 1998; McCroskey & Baer, 1985), WTC is not a mere addition but a critical learning goal in educational settings (Lin & Forey, 2025). This opinion piece uses Sprinkle to think about this aspect of active learning in a different way.



Figure 1: Sprinkle. CC BY-NC-ND

Active learning ‘involves students in doing things and thinking about the things they are doing’ (Bonwell & Eison, 1991, p. 2). This student-centred approach

engages learners through various pedagogical practices (Prince, 2004). While active learning is underpinned by social constructivism which highlights that learning is social at its core (Vygotsky, 1978), not all students are equally ready to communicate (Lin & Forey, 2025). Some may appear less participative or struggle to express themselves. Instead of problematising these learners as non-active participants (Shao & Gao, 2016), we should recognise that students' quietude or perhaps unwillingness to communicate is complex and highly contingent on teaching and learning contexts. Factors such as topics, teachers' pedagogy, and technology contribute to this variation (Eddy-U, 2015; Huang & Zhang, 2025; Peng, 2025). In this respect, it is important to note that students' WTC can manifest in multifarious forms of class participation. In the illustration of Sprinkle, his large red head shaped like a mouth emphasises that oral communication is the primary medium. However, facial expressions, eye contact, active listening, gestures, and other potential alternatives can also be considered forms of participation.

Equally important is the idea that students' WTC is inherently relative, rather than absolute (Lin, 2025). When students perceive themselves as talkative, there is someone who may be more talkative than they are. To evaluate whether a student is active, it is best to consider individual cases. A relatively quiet student who makes an effort to communicate can demonstrate their commitment to engagement. Therefore, every communicative endeavour students undertake, whether verbal or non-verbal, loud or subtle, should be recognised.

Sprinkle serves as a valuable reminder that students participate in their own way, in their own right. Sometimes, such readiness to communicate aligns with our expectations, but at other times, it can fall outside our imagination.

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Opinion Piece: From Surviving to Thriving: An Early Career Reflection on Active Learning

XI XI

While active learning – teaching methods that actively engage students in the learning process (Prince, 2004) – has been shown to benefit students (Hood Cattaneo, 2017), less attention has been paid to the lived experiences of academics who use it. In this piece, I reflect on how active learning supported me, an early career academic, in finding my footing as a teacher.

I began my first academic role straight after a PhD. Despite prior experience as a teaching assistant, stepping into lecture theatres as a full-time lecturer was daunting. Lecturing for an hour while watching students lose focus was disheartening. I began to question what I was doing and whether I belonged in this role. Some days, the experience was so stressful it gave me nightmares.

To make sessions more engaging, I added pair discussions and group work, but the room often felt lifeless again once I resumed lecturing. Then, I came across active learning approaches such as gamification and discovery-based learning through teaching seminars. Others seemed genuinely passionate about active learning, and for them, teaching appeared enjoyable rather than burdensome. I was intrigued but unsure, worried the sessions might become chaotic, and I did not feel confident managing open-ended discussions.

When I came across a board game designed to teach Porter's Five Forces (Yoder, 2023), I decided to give it a try. During the process, I saw students genuinely engaged, working together to explore how each force applied within the game and actively expressing their ideas in the debriefing. For me, it broke the monotony of lecturing and gave clearer insight into students' understanding through their game results. More importantly, I got to know the students better: how they interacted, what energised them, and how they approached problems. For the

first time, the classroom felt like a learning community, where both students and I were active contributors and co-created the learning experience.

This experience gave me the confidence to keep experimenting. Not every attempt was perfect. Some sessions ran over time, some discussions drifted off topic, and not everyone stayed fully engaged. Even so, each moment offered valuable learning for me. Active learning is the turning point. If I could speak to myself at the start of this job – nervous, exhausted and full of doubt – I would say: active learning helped me find joy in teaching and begin to grow into the teacher I wanted to be.

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4 PROMOTING STAFF SELF-REGULATION AND ADAPTATION

Staff engagement is an essential component to the design and implementation of active learning, and [Section 3](#) highlights approaches to communicating and influencing staff attitudes and beliefs about what good teaching is and the role active learning plays in that process, whether in-person or online (or a blend of both). This section explores approaches to engaging staff with developing their (active learning) practice and in turn influencing mindsets. Many of the contributions in this section focus on staff experiencing active learning as a learner themselves to facilitate a full appreciation of what a well-designed active learning experience offers, and the opportunity for peer collaboration to normalise active learning.

[Grist et al.](#) argue staff experience as a learner is essential, highlighting that active learning can challenge deeply held beliefs about education and that we cannot expect staff to appreciate the affordances of active learning and implement it effectively without first experiencing well-designed active learning experiences for themselves. They outline the design choices they have made to embody active learning principles in the academic development programmes they offer staff as well as learning from the evaluation of this practice including the impact on the facilitators' own as well as participants' active learning practice.

The experience of being an active learner was also deployed by [Gordon et al.](#) in the remodelling of a professional development module where module delivery has been reformed to embed active and participatory learning. This experience empowered participants to use active learning in their own teaching. Observing the influence and impact of task-based rather than content-based learning outcomes on the ability of the educator to design active learning and meaningful assessment, [Jacob](#) sets about making sure all the modules and teaching sessions they taught on a Postgraduate Certificate in Teaching in HE (PGCTHE) used task-based learning outcomes. The programme participants were then in turn invited to reframe their own learning outcomes as task-based learning outcomes and then think about potential learning activities and assessments. Jacob

reports that staff notice the improvement in student motivation and engagement when they make the shift to designing learning around tasks rather than content which influences their future practice.

Meanwhile, [Gormley et al.](#) offer challenge-based learning in the form of a hackathon on activating active learning as a way for staff to simultaneously experience active learning and develop its implementation. In their challenge-based learning approach staff participants worked in small groups to investigate and co-develop potential solutions to issues of passive, predictable teaching. Solutions generated by the hackathon as well as pointers for others to implement a similar approach in different settings are highlighted to support staff capacity building. [Childs and Baker](#) use mentoring circles as a way of providing structured opportunities for staff to be active learners and reflect on their own practice to support their professional development. Of course, an evidence base is important to guide and support that self-reflection and adaptation of practice, and [Jacob](#) highlights how staff can gain targeted evidence of the impact on desired student outcomes and learning, that extends beyond satisfaction to the engagement and other indicators that align with active learning (see [Section 1](#), especially [table 4](#)).

Finally in this section, a case study by [Prosser and Johnston](#) illustrates partnering a continuous professional development framework with a pedagogical model for active learning. Their university has constructed a new building designed specifically to support flexible, collaborative, and technology-enhanced learning. By employing the same active learning strategies, learning spaces and educational technologies that staff now have available to use with their students, they encouraged staff to rethink their assumptions about teaching and engage with the technological and pedagogical possibilities offered by the new space. Their case study highlights how simply providing the elements and resources such as rooms (learning spaces) and enabling technologies is not sufficient to make active learning happen for all. In line with the analysis offered in section one they recognised this and sought to act on paradigmatic matters to support a shift in staff mindset and provide the learning environment to catalyse reflection, self-regulation and adaptation of practice.



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Chapter: Beyond the Traditional Lecture: A Collaborative Autoethnography on Embedding Active Learning in Academic Development

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Summary

This chapter explores how a team of Lecturers in Academic Development at a UK Russell Group university embedded active learning strategies in their academic development programmes. Using collaborative autoethnography, the authors reflect on their experiences and analyse participant feedback to assess the impact of their approaches. The chapter argues that modelling active learning in academic development programmes is essential for encouraging staff to adopt these methods in their own teaching. Drawing on social constructivist learning theory, threshold concepts, and reflective practice, the authors examine both the benefits and challenges of active learning. These include institutional barriers such as faculty resistance and workload pressures, as well as personal barriers rooted in prior educational experiences and perceptions of authority in the classroom. The chapter also highlights the emotional and affective dimensions of active learning, emphasising the importance of fostering safe, inclusive learning environments. The chapter concludes by encouraging Higher Education (HE) institutions to invest in academic development and integrate active learning more systematically to create sustainable, inclusive, and transformative educational experiences.

Introduction and theoretical underpinning

This chapter explores the experiences and lessons learned by a team of Lecturers in Academic Development at a UK Russell Group University in developing active learning strategies for our academic development programmes. The programmes aim to support staff to develop their teaching/support for learning practice and are delivered to a diverse group of learners: busy academic and professional services colleagues with a range of competing demands on their time, from a range of backgrounds and disciplines. As Keengwe (2022) argues, the sector's shift toward 'active learning pedagogies is a change in emphasis that will cause teachers to rethink how they teach and assess their teaching toward the goal of realistic appraisal of student learning' (p. xvi), a shift that is not always comfortable for many of our colleagues. To transform how our colleagues value active learning, this chapter explores how we sought to lead by example and embody active learning principles in the design and delivery of our accredited Postgraduate Certificate in Academic Practice (PGCAP) and experiential route to Advance HE Fellowship, and our Introduction to Higher Education Teaching short course. It draws upon our own experiences through the method of collaborative autoethnography and centres our learners' voices and experiences of engaging with active learning through exploring their feedback.

In this chapter, we argue that modelling active learning approaches on academic development programmes for staff engaged in teaching and supporting learning enables them to see how they might develop within their own students the attributes, behaviours and skills we need for our ever-changing world. The chapter therefore examines the challenges and benefits of active learning approaches for us as Lecturers in Academic Development and for our colleagues/participants who seek to provide inclusive and engaging teaching and learning opportunities for their students. The chapter concludes with three main take-aways for the reader to consider for their own practice.

Theoretical framework

Before exploring our theoretical framework, it is important to set out our definition of academic development – that is, as the broad spectrum of activities that staff who teach and/or support learning in higher education engage in, to develop their professional practice. Our work is predominantly concerned with the delivery of accredited and credit-bearing provision which results in Advance HE recognition for successful completers and is linked to institutional targets around teaching qualifications. As such, the development activities we explore in this chapter are viewed as ‘an explicit part of professional practice, linked to the requirements of membership of a professional body, whereby practitioners are required to demonstrate that they have engaged in CPD in order to ‘remain in good standing’ (King, 2015, p. 28).

Our theoretical framework is underpinned by several interconnected theories which provide a foundation for understanding how staff participate in academic development through experiential and social processes. Social constructivist learning theory (Piaget, 1950; Vygotsky, 1978) offers a fundamental perspective as it emphasises that knowledge is actively constructed through experience and interaction. This aligns well with the principles of active learning as an ongoing process of engagement and interaction (Prince, 2004). As part of our theoretical framework, we draw on threshold concepts (Meyer & Land, 2003) to understand active learning as a transformative shift (Mezirow, 1997) in participants’ building of knowledge, fundamentally altering their approach to learning and teaching. Additionally, the concept of troublesome knowledge (Perkins, 1999) is important to this research as it recognises that active learning can challenge deeply held beliefs about education. Finally, reflective practice (Schön, 1983) further underpins our theoretical approach as it centres the value of self-reflection in academic development. In this chapter, we conduct a rich process of reflective practice through the method of collaborative autoethnography (Grist and Jennings, 2021; Chang et al., 2013). As we will argue, this approach is not only valuable for exploring our own understandings of active learning within the staff development context, but also a powerful tool that others could adopt for their own scholarly and professional development.

Methods: Collaborative autoethnography

The chapter uses a qualitative approach, combining collaborative autoethnography (Grist and Jennings, 2021; Chang et al., 2013) with qualitative feedback obtained via an online survey of current and former participants on our programmes. Together, the data obtained through these two methods were subjected to thematic analysis (Braun & Clarke 2021) to tease out recommendations and key takeaways. Our research was conducted in line with our institutional ethical guidelines and participant quotes are used in this chapter with permission.

The seven authors of this chapter come from a variety of backgrounds, both geographic and academic. Broadly sharing humanities/social sciences disciplinary backgrounds, six of the authors identify as female, one as male, and are all from the UK, Ireland, France or South Africa. We are all white, working in a majority-white institution, and come from a range of age brackets. The authors of this chapter have all worked as academics in various roles in Further Education and Higher Education before moving into Academic Development. Our journeys into this space echo what Mori et al., (2024) articulate as a ‘migration’, suggesting that individuals move into this type of work ‘largely through serendipity, guided by external pulls and internal nudges from different disciplines, bringing along their home disciplinary values, culture, and knowledge’ (p.2).

The recognition that our individual values, culture, and knowledge (Bourdieu, 1977) play an important role in our understandings and applications of active learning approaches in our shared practice influenced our decision to adopt a collaborative autoethnographic approach for this chapter. This methodology enabled us to better understand our individual relationships with active learning and how we have embedded it into our programmes. Collaborative autoethnography has been well-established as an important qualitative approach (Ellis & Bochner, 2000; Boylorn & Orbe, 2014; Adams et al., 2015) in which ‘researchers work in community to collect their autobiographical materials and to analyse and interpret their data collectively to gain a meaningful understanding of socio-cultural phenomena,’ (Chang et al., 2013, pp. 23-4). Our process was as follows:

1. Each author independently wrote an autoethnographic response to eight key questions on active learning (e.g. What does active learning mean to you? When and how did you discover active learning? How did that inform your approach to academic development?)
2. In recorded meetings, we conducted a live thematic analysis, identifying key

themes, discussing connections to literature, and exploring social and identity-based influences. We also thematically analysed participant feedback from the Active Learning Survey (see below), linking its insights to our autoethnographies and selecting representative quotes.

3. Reflecting on the identified themes, we divided the writing process and collaborated on the writing of this chapter to develop a cohesive narrative.

Methods: Active Learning Survey

We conducted an Active Learning Survey for participants on our accredited programmes to gather feedback on their experiences and how they apply active learning strategies encountered on our programmes in their own teaching (see Table 1). The survey was administered via Jisc Online Surveys and completed by 78 participants (59 former participants, 19 current participants) from a range of disciplinary backgrounds, employed in both academic and professional services roles. 70.5% (n=55) of respondents were academic staff employed on teaching and research, or teaching-only contracts (the target demographic for our programmes), 12.8% (n=10) of respondents were postgraduate research students with teaching responsibilities, 12.8% (n=10) of respondents were academics employed on research-only contracts, and 3.8% (n=3) of respondents were professional services members of staff who teach and/or support learning.

Most respondents were lecturers or senior lecturers. Most participants came from a Science, Technology, Engineering, and Mathematics (STEM) faculty (71.8%) and 25.6% of respondents were based in an Arts, Humanities, or Social Sciences faculty. 53.8% of respondents had been teaching or supporting learning in higher education for more than five years. 96.2% of the respondents had either engaged with our accredited Experiential Route to Advance HE Fellowship or our Postgraduate Certificate in Higher Education, and 3.8% of respondents had participated in our non-accredited Introduction to Teaching in Higher Education short course (see Table 1) A small number of participants completed more than one programme.

Table 1: Active Learning Survey response data

Survey Responses	#	%
<i>Total Respondents</i>	78	100
Former Participants	59	75.6
Current Participants	19	24.4
Staff Contracts		
Academic Staff (Teaching & Research / Teaching-Only Contracts)	55	70.5
Postgraduate Research Students with Teaching Responsibilities	10	12.8
Academic Staff on Research-Only Contracts	10	12.8
Professional Services Staff Engaged in Teaching/Supporting Learning	3	3.8
Respondent Disciplinary Background		
Participants from STEM Faculties	56	71.8
Participants from Arts, Humanities, or Social Sciences	20	25.6
Other	2	2.6
Length of Time Teaching/Supporting Learning in HE		
5 years +	42	53.8
3-5 years	17	21.8
1-3 years	16	20.5
Less than 1 year	3	3.8
Academic Development Programme Engaged With		
Accredited Experiential Route	51	65.4
Accredited Postgraduate Certificate in Academic Practice	24	30.8
Non-Accredited Programme (Intro to Teaching Short Course)	3	3.8

The following sections explore the main findings from our analysis of our collaborative autoethnographic reflections on designing and embedding active learning approaches on our programmes and our analysis of participant feedback. Together, we hope to demonstrate that, whilst challenges and barriers to active learning exist and persist, our approaches to modelling active learning methods through our programmes has had a positive impact on the ways in which staff understand and have embedded these approaches in their own practice. In the following sections we first explore the definitions of active learning that emerged through our collaborative autoethnographic reflections and through the survey responses from participants. We then focus on three main themes: the institu-

tional contexts that enable and/or inhibit active learning; personal barriers and enablers for active learning; and finally, the affective or emotional dimensions of active learning.

Our definitions of active learning

The authors of this chapter and participants from our programmes agree that active learning is fundamentally about engagement and participation, going beyond passive listening in lectures or ‘sitting back and being fed information’ (survey participant, January 2025) to ‘learning by doing’ through discussion, problem solving, role-play, creating something new or failing at something (Kolb, 2015; Gibbs, 1988). Furthermore, rooted in cognitive and social constructivist ideas from scholars such as Piaget (1950) and Vygotsky (1978), active learning emphasises the idea that to learn, individuals need to actively construct or build their understanding.

We agree that successful active learning, which motivates and connects learners with ‘deep learning’ (learning that involves understanding, analysis, synthesis and creation) has the following key characteristics:

- **Engages learners in tasks requiring them to consider subject material** (or ‘what will the students be doing to stay awake during my lectures?’ (survey participant, January 2025)). Tasks can be hugely wide ranging from quizzes, think-pair-share activities, to case studies and debates.
- **Motivates learners to engage and provides feedback.** Encouraging learners to participate through frequent low-stakes assessment such as quizzes, polls and group work can be both motivating and enrich learning with feedback (Darby & Lang, 2019).
- **Involves collaboration and cooperation** where diverse student groups can share ideas and views, challenge each other, and learn from different perspectives, important for recognising and empathising with a range of ‘difficult differences’ such as race, ethnicity and gender (Kuh, 2008, p. 19). This also signals the valuing of individuals’ own experiences and viewpoints, fostering an inclusive learning environment which allows learners to build relationships with each other, crucial to their motivation to learn (Quinlan, 2016).
- **Connects learners to real-world contexts and contemporary issues** to practice authentic tasks and take the theoretical from abstract to concrete applied situations. Not only is connecting learning to tangible problems

motivating (Wijnia et al., 2024) but can produce ‘aha’ moments in understanding difficult concepts (Land et al., 2006). Authentic tasks can range from tackling problems and responding to case studies, to developing code, laboratory experiments and practising clinical skills on simulated patients.

- **Engages learners in critical reflection** allowing them to internalise their experiences, gain deeper insights and develop their own new perspectives, akin to the idea of learning being transformative (Mezirow, 2008).

From classroom to curriculum

Another key perspective – shared by our survey participants and reflected in our programme design – is that active learning is not just a set of activities within or across sessions, but a guiding approach to curriculum design that requires careful scaffolding. Key active learning curriculum design approaches include:

- **Flipped learning.** Implicit to the idea of designing an active learning focused curriculum, is that by engaging students more deeply in learning and tasks, there is less room for content. This may lead to reducing the amount of content overall, and/or a flipped learning approach which introduces learners to material ahead of class, thus focusing class time on discussion, application and exploration of material. Ensuring pre-class engagement with content, often through videos and podcasts, can be tricky, but can enable in-class participation in deeper learning (Baig & Yadegaridehkordi, 2023).
- **Case-based and problem-based learning** are usually collaborative approaches to learning which connect learners to real-world scenarios, challenges and problems (Pinto, 2023). Case-based learning involves detailed and specific cases which contextualise theory for learners to explore and discuss. Problem-based learning involves broader problems which may require more open-ended exploration by learners to find solutions themselves and is often designed as a longer-term project structured over a series of sessions or an entire course.
- **Applied projects** including dissertation and research projects, projects with community and employer partners, and investigative projects as part of a field trip, can be highly motivating and encourage integration of ideas and

skills to solve specific real-world problems (Kuh, 2008). Again, these approaches are often collaborative, and their design should be considered over a series of sessions, modules or an entire course.

In summary our understanding of active learning, and one shared by participants on our programmes, is that it is a student-centred approach that involves diverse groups of learners in a variety of activities within the classroom and across the curriculum. It can lead to deeper, more engaged learning and understanding, and can connect learners to each other, their subject in relation to the world, and their own perspectives and identities. Despite these many benefits, however, our autoethnographies and the reflections shared by participants highlight that the widespread adoption of active learning is often challenged by various systemic constraints.

Institutional barriers to engaging in active learning

The authors of this chapter hold academic positions, including Associate Professor in Learning and Teaching, and Lecturer or Senior Lecturer in Academic Development, and all identify as academic developers. Many institutional barriers experienced by academic developers are identified in the literature, including the contradictory perception of academic developers as both marginalised and an enforcement arm of leadership priorities (Fremstad & Ewins, 2023). Sugrue et al. (2017) see this tension in the ways academic developers ‘are cast in the role of pedagogical experts in a context where disciplinary knowledge reigns supreme’ (p. 2341) wherein they can face challenges to the value placed on pedagogy and priorities such as active learning.

Across many of our autoethnographies this tension became most evident through the contexts in which our participants undertake our programmes. Author B noted ‘some participants will not want to engage in the workshops or active learning as they may have different motivations for attending the sessions, such as contractual obligations’. Where staff are engaging in these terms, they may lack the intrinsic motivation that would lead to a more open and deep approach to learning. Author A reflected on the challenge of having to ‘convince particularly stubborn academic colleagues enrolled on our CPD Schemes’ to participate in active learning strategies, perhaps because of the institutional directive that has led them to our programmes.

What emerged in the autoethnographies was the importance of both effective design and clear guidance. But as Author F noted, we need to have confidence in our participants as well as our teaching methods: ‘you need to have faith participants will be willing to engage with the activities you have planned for them. If it is designed well, participants should see the relevance of the activity’. This confidence can be built by encouraging an open dialogue about activities – what we are doing and why we are doing it. For Author B it is vital that our participants (and their own students) understand the purpose of active learning tasks if we are expecting them to engage positively with them, noting that otherwise ‘it will be an uphill battle’.

To support the efficacy of our learning design, we co-create our workshops within the teaching team and seek feedback from participants. For Authors C and F, having someone to ‘bounce ideas off’ helps bring variety and richness to our teaching, and while Author E notes the rewarding nature of this collaborative approach, she also cautions of the care that needs to be taken to ensure ‘our sessions and design cohere overall’.

A further barrier coalesced around workload and time pressures: from our own time as academic developers to embed active learning in our academic development programmes, to our participants’ time to engage actively with the programmes, and in turn embed more active learning approaches in their own practice. For example, constraints on staff time to undertake training is a common experience. Ndebele and Maphosa (2014, p. 176) refer to this structural constraint as ‘staff overload’ caused by competing demands. In theory, all staff should expect their workload model to be adjusted to allow time to undertake staff training. In practice, however, there is variability in the level of workload allocation: ‘Some colleagues are given time to complete the programme while others have to fit it in somehow’ (Author F). As highlighted by Ramsden (2004), participants often want quick answers and succinct didactic experiences, rather than engaged active experiences that are more time consuming but potentially transformative. This was an experience Author A reflected on:

Active learning is arguably more time intensive (for both teacher and student) and emotionally intensive than a traditional didactic approach [...] they just want to be given the content as quickly as possible.

This highlights how time constraints shape programme development and delivery, potentially intensified by the co-creation approach. Furthermore, several authors reflected on the compromises that we make due to the limited time we

have with our participants and the impact this has on the relationships we can build. For example, Author F reflected: 'I feel I would need more time to design and more contact time with participants to build strong relationships and be more adventurous in the activities offered'.

As already observed, building strong relationships with our participants builds confidence in our capacity for dialogue and sharing in a collaborative, mutually beneficial learning experience. To accommodate the workload pressures of our participants we have adopted flexible approaches across our programmes where all workshops are delivered in-person, online and asynchronously which Author E notes 'has been extremely popular with participants,' but adds to our workload. However, the value of this approach is clear from participant feedback, where many of our participants highlighted changes in their practices towards more active learning approaches because of engaging with our programmes. For example:

- 'I began using more online tools (such as Padlet and Menti) in my teaching as a result of the programme'.
- 'My lecturing approach is strongly informed by the programme. In particular, the use of short problem-solving exercises in small groups is essentially an adaptation of "Think-pair-share"'.
- 'I am using flipped classrooms, case-based pedagogy, and student-peer interaction, which helps me create a live-learning environment that ensures critical engagement'.
- – (Survey participants, January 2025).

Our autoethnographies explored the notion of transformation (Mezirow, 1997) as we moved towards active learning approaches in our individual careers and as we developed our programmes together. They also reflected widely on both the personal challenges and the key factors that supported us in adopting and sustaining active learning practices, which we explore in the next section.

Personal barriers and enablers to engaging in active learning

Without exception, all our autoethnographies reflected on our prior educational experiences, particularly on the ways in which didactic, teacher-centred

approaches resulted in a sense of alienation and disengagement (Case, 2008). In her autoethnography, Author E noted that on her own undergraduate Economics degree she had had 'little connection with the staff, some of whom fixed their gaze at the back of the lecture theatre rather than the students within it and insisted on silence in class when we copied down maths proof after maths proof.' Similarly, Author A reflected on her undergraduate History degree, a time

characterised by long lectures in huge lecture theatres, where well-practiced professors would – with closed eyes, in hushed tones too far away from the mic – recount dates, facts and figures of historical note, which reached our ears like a lullaby.

Author F recalled an episode from her Modern Languages degree: 'a professor reading his book to a whole lecture theatre of us for one hour each week for a whole term'. In a reflection that captured the sentiment of the whole team, Author E suggested that her experiences as an undergraduate left her with a 'desire to engage students in learning in ways I hadn't, and some unformed ideas about what this might look like'.

Our research confirms that teaching approaches are often shaped by how we were taught ourselves, a phenomenon known as the 'apprenticeship of observation' (Borg, 2004). Sometimes we copy familiar methods which strengthens disciplinary traditions (Neumann, 2001) and replicates what we experienced ourselves, if it worked well for us. However, negative past experiences as students may also lead us to consciously reject certain approaches, prompting us to adopt alternative teaching strategies (Henderson & Dancy, 2007). At times, this shift is shaped more by personal experiences than by evidence-based practices (as Author E noted in her reflection, she had some 'unformed ideas' about what active learning might look like when she started her career as an educator). Encouraging critical reflection and professional development is therefore essential to ensure that teaching evolves in keeping with contemporary research on effective learning (Freeman et al., 2014). In support of this argument, in reflecting on how their approach to learning and teaching had been shaped by their exposure to the active learning strategies employed on our programmes, a previous participant reflected that:

I was previously quite 'old-school' in my approach and basically just mimicked what I'd seen in my own undergrad program [...] However, the program exposed me to a lot of ideas and techniques I'd not seen before and also

encouraged us to explore the research literature (survey participant, January 2025).

Perceptions of authority in the classroom play a crucial role in shaping student engagement. Traditional, lecture-based models often position teachers as the primary source of knowledge, the ‘sage on the stage,’ reinforcing hierarchical relationships that can discourage active participation (Freire, 1996). In contrast, active learning approaches can challenge these traditional power structures by fostering a more collaborative and student-centred environment (Weimer, 2013). Both students and teachers may struggle with this shift, however, as deeply ingrained expectations about the roles of teacher and learner may create resistance to more participatory methods (Brookfield, 2017). In her autoethnography, Author C reflected on the pedagogic shift she experienced in her early career:

I don’t think I truly embraced active learning until I had the confidence to allow students to take more control in the classroom. It took a lot of time to see students as partners in learning rather than enforcing the traditional student-teacher dynamic which I had experienced in my education. If I was in control, I knew that they had the right information which would enable them to pass their exams (very strategic I know), not fun or engaging, but safe.

Reflecting on her current practice and thinking about perceptions of authority and formality in her autoethnography, Author G noted:

In my classroom, I don’t care about things like formality, fidgeting, noise or mess. I want to create a liberated space unbounded by convention or spectral intellectual barriers. I also want to foster a sense of freedom to be one-self, accepted and at ease to make mistakes. The most successful learning space, to me, is one filled with joy, where the air is electric with potential!

Questions of confidence, freedom to be one’s authentic self, and risk-taking highlighted in the reflections above link to the final theme that emerged from analysis of our collaborative autoethnography, and the experiences shared by our participants – the emotional or affective dimensions associated with active learning.

The affective dimensions of active learning

As discussed above, past feelings of alienation and disengagement prompted

us to champion social constructivist principles and foster community building within our teaching practice which was lacking in our own learning as students. Active learning, for us, is therefore a way of creating a space where diverse voices can contribute, learn from one another and feel a sense of belonging. We value making the learning environment a positive and dynamic space, where learning is viewed as a shared responsibility between teachers and students (hooks, 1994). As Author A suggested:

To me, active learning is about offering the learner shared responsibility and accountability in the learning process, it's about opening up spaces where learners can interact with each other, with the subject matter, and engage with us as teachers who are there to scaffold and support their learning.

As already noted, a shift in power dynamics is required to achieve this type of environment which challenges the traditional hierarchies and gives learners more autonomy. The teacher in an active learning space facilitates peer-to-peer learning, a key aspect of active learning, as Author G reflected: 'Active learning challenges traditional hierarchical norms. That appeals to me greatly as I see it as a liberating mechanism.'

This transition to more student-centred approaches, however, has not come about without discomfort and anxiety. Having the confidence to move from safe and structured teaching formats (that are usually teacher-centred) comes with risk and uncertainty. Being vulnerable in front of students and sharing power with them can lead to unexpected outcomes and deviate from learning outcomes and expectations. Yet, this very same vulnerability can build trust and show authenticity to learners developing strong relationships between teacher and student (Quinlan, 2016). By taking risks and making mistakes in our teaching, we model the kinds of activities and behaviours that can emerge in a challenging yet safe active learning environment (Palmer, 2017) encouraging participants to do the same in their own practice. But it takes courage to challenge norms and take risks, and the notion of bravery came through strongly in our autoethnographies, as Author D reflects:

It requires almost an act of bravery to welcome silences and welcome opportunities for students and teachers to reflect and discuss in more open terms what they have learnt, encountered or experienced in a lesson and to just see where it goes.

Our autoethnographies revealed that we aim to be the teachers that we would

have loved to have in our own learning as students. To do this, in our design and delivery of our programmes we have a real focus on inclusive practice – another vital pillar for active learning. To build a community, the diverse backgrounds of students must be recognised to contribute to their learning experiences (Booker & Campbell-Whatley, 2018). On our programmes, participants are therefore not only learning from each other and hearing different perspectives, but as the teachers we are also hearing those different experiences and learning from our participants – again modelling practice that participants later take on and implement in their own teaching. As Author B reflected in her autoethnography:

Having taught in a variety of contexts to people from many different backgrounds, I am very much aware that everyone brings something unique to the learning experience, and they all have something to contribute in their own ways, they are not empty vessels by any means.

An inclusive, safe environment encourages risk-taking and mistake-making when supported and scaffolded. Peer-to-peer relationships should be encouraged for all voices to be heard and valued, and within this process educators building their confidence iteratively will be key to success. In an active learning classroom students are supported and encouraged to develop all four key relationships in teaching and learning: 'students with subject matter; students with teachers; students with other students; and students with their developing selves,' (Quinlan, 2016, p.101). To make the most of active learning, it is therefore key to build an emotionally safe space through setting clear expectations and requiring structured interaction, but also one which requires bravery and a willingness to take risks. As our autoethnographic reflections and feedback from participants has revealed, then, the process of engaging in active learning is not just an effective process but also a deeply affective one.

Application to other contexts: Making active learning happen for all

Our autoethnographic reflections and thematic analysis of participant feedback has deepened our understanding of ourselves as Lecturers in Academic Development and how our programmes support staff who teach and/or support learn-

ing in adopting active learning strategies. We hope the following suggestions are valuable to those teaching and supporting learning in higher education in many different roles and might be applied in a range of contexts to make active learning happen for all.

Engaging in collaborative autoethnography is a powerful method for critically reflecting on academic practice, offering a structured yet flexible approach to examining what is working and what works less well in particular teaching or learning contexts. By systematically documenting and analysing our own experiences with active learning, we were able to identify key challenges, successes, and areas for growth in ways that individual reflection alone might not have revealed. Incorporating participant feedback alongside personal reflections further enriched this process, providing multiple perspectives that validated, challenged, and expanded our insights. This approach not only deepens our own understanding but also creates a model for continuous improvement in teaching practice. We encourage others in HE to adopt collaborative autoethnography as a research and professional development tool, using it to refine pedagogical strategies, foster innovation, and ensure that teaching methods are truly effective and responsive to student needs.

Our research project has confirmed that active learning is a student-centred approach that emphasises interaction, participation, and learning by doing, fostering deeper understanding through discussion, problem-solving, and real-world application. This approach is, and can be, further applied in a wide variety of HE contexts in higher or lower stakes ways, by incorporating active strategies such as flipped classrooms, peer-led discussions, and collaborative projects to enhance student engagement across disciplines. In doing so, active learning supports sustainability in education by fostering critical thinking, adaptability, and lifelong learning skills, ensuring that our students are prepared for a rapidly changing world.

We argue that active learning extends beyond individual activities to curriculum design, incorporating flipped learning, problem-based learning, and applied projects to create a more engaging educational experience. We contend that all of these active learning approaches involve implicitly rethinking the amount and focus of content taught. We suggest that others might meaningfully integrate these strategies in their own practice by designing learning opportunities that emphasise hands-on problem-solving, interdisciplinary collaboration, and industry-relevant case studies to better prepare students for real-world challenges.

Our research suggests that systemic barriers, including faculty resistance, workload pressures, and institutional constraints, often hinder the adoption of active learning, highlighting the need for well-designed, flexible, and clearly communicated approaches. Universities can address these barriers by providing colleagues with training, workload adjustments, and institutional support for embedding active learning into teaching practice. We argue that through our modelling of active learning approaches on our programmes, participants are exposed to a range of best practices and are supported to take risks, learn from experiences through critical reflection, and adopt active learning for their students in their own practice. By embedding active learning more deeply across disciplines, universities can help develop teaching excellence, ensuring that pedagogical innovations take root and continue to evolve over time.

Through our autoethnographic reflections and from our participant feedback, our research has found that teachers' own past experiences influence their teaching approaches, their engagement with professional development, and their approach to critical reflection. We argue that exposure to new teaching and learning methods is essential for shifting toward active learning, to making active learning work for all. HE institutions can support this shift through investing in and supporting their academic developers and valuing their academic development programmes, and by encouraging communities of practice around learning and teaching. Our research provides evidence that this approach works in supporting teachers in their transition to active learning methods. By embedding and championing active learning approaches within academic development programmes and ensuring support for all, institutions can create a sustainable culture of pedagogical innovation which improves student outcomes.

Our research has demonstrated that active learning involves a shift in power dynamics, requiring teachers to embrace vulnerability, foster inclusivity, and create emotionally safe spaces where all learners feel empowered to take risks, make mistakes, and actively participate. It has demonstrated that this is affective work, that it requires effort, courage, and careful consideration of student diversity. We argue that this can be modelled through academic development programmes where those leading demonstrate the value of embracing challenge and trying something different. Designing learning that prioritises student agency, using co-creation models, and incorporating diverse perspectives to build more inclusive and transformative learning environments will support the goal of making active learning happen for all. Moreover, these approaches con-

tribute to the sustainability of inclusive education by fostering resilient learning communities where diverse voices are valued and empowered.

Key takeaways

In summary, three key takeaways from this chapter are:

- **Engage with collaborative autoethnography as a reflective tool:** Engaging in collaborative autoethnography offers a powerful way to critically reflect on academic practice, providing structured insights into what works and what works less well in teaching and learning. Bringing in feedback from diverse groups of learners further enriches this process, ensuring a holistic understanding of active learning. Additionally, this approach fosters team building and boosts morale by encouraging shared reflection, mutual support, and collective problem-solving. This method can be applied in various HE contexts to refine teaching practices, foster innovation, enhance professional development, and strengthen communities of practice.
- **See active learning as a sustainable, student-centred approach:** Active learning enhances engagement, participation, and real-world application, supporting critical thinking and lifelong learning skills. By embedding active strategies such as flipped classrooms, peer-led discussions, and problem-based learning, teachers can prepare diverse groups of students for complex, evolving challenges. This approach contributes to the sustainability of education by fostering adaptable, independent learners equipped for the future. Modelling this on academic development programmes focussed on learning and teaching is essential to helping teachers experience and implement active learning effectively in their own practice.
- **Seek institutional support for active learning:** Systemic challenges, including faculty resistance and workload pressures, can hinder the adoption of active learning. Universities can address these barriers through targeted academic development programmes, workload adjustments, and institutional support. By embedding active learning into teaching cultures and championing inclusive, student-centred approaches, institutions contribute to the long-term sustainability of pedagogical innovation and teaching excellence.

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Case Study: Influencing Teachers' Expectations, Attitudes and Beliefs by Embedding Active Learning in Educator Professional Development

SANDRA ABEGGLEN; TOM BURNS; JOHN DESIRE; JANET GORDON; AND SANDRA SINFIELD

Summary

This case study explores the redevelopment of the Curriculum Evaluation and Development (CED) module within a postgraduate certificate programme (PGCert) in Learning and Teaching in Higher Education (LTHE) at a UK post-1992 university. CED was reimaged by a new staff team to emphasise active, dialogic, and creative learning, enabling educators-as-students to consolidate and apply their learning through module redesign and evaluation. The changes aimed to enhance participants' ownership of learning and support the transfer of active teaching practices to their own classrooms. The redesigned module demonstrated the transformative potential of active learning. Thus, this case study advocates for embedding active learning praxes in professional development to inspire pedagogical creativity and inclusive growth in all Higher Education (HE) programmes.

Introduction: What we did

The CED module is part of the PGCert in Learning and Teaching in Higher Edu-

cation (LTHE) for lecturers at a UK post-1992 university. It is a long thin module running over the course of the academic year and the last in a sequence of three core modules (see Figure 1). The module is synoptic, allowing participants to harness everything learned across the PGCert as a whole when re-designing their own modules for their students. Traditionally the more formal and teacher-led of the three core modules, a new leadership team with expertise in active learning decided to transform CED by embedding more interactive, dialogic, and creative teaching strategies into its design. This shift aimed to immerse educators-as-students in active, experiential pedagogy across the whole PGCert, fostering ownership of learning and thus enhancing the transferability of these approaches to their own classrooms. This case study outlines the changes that we made to CED and the responses of our staff-as-students to those changes.

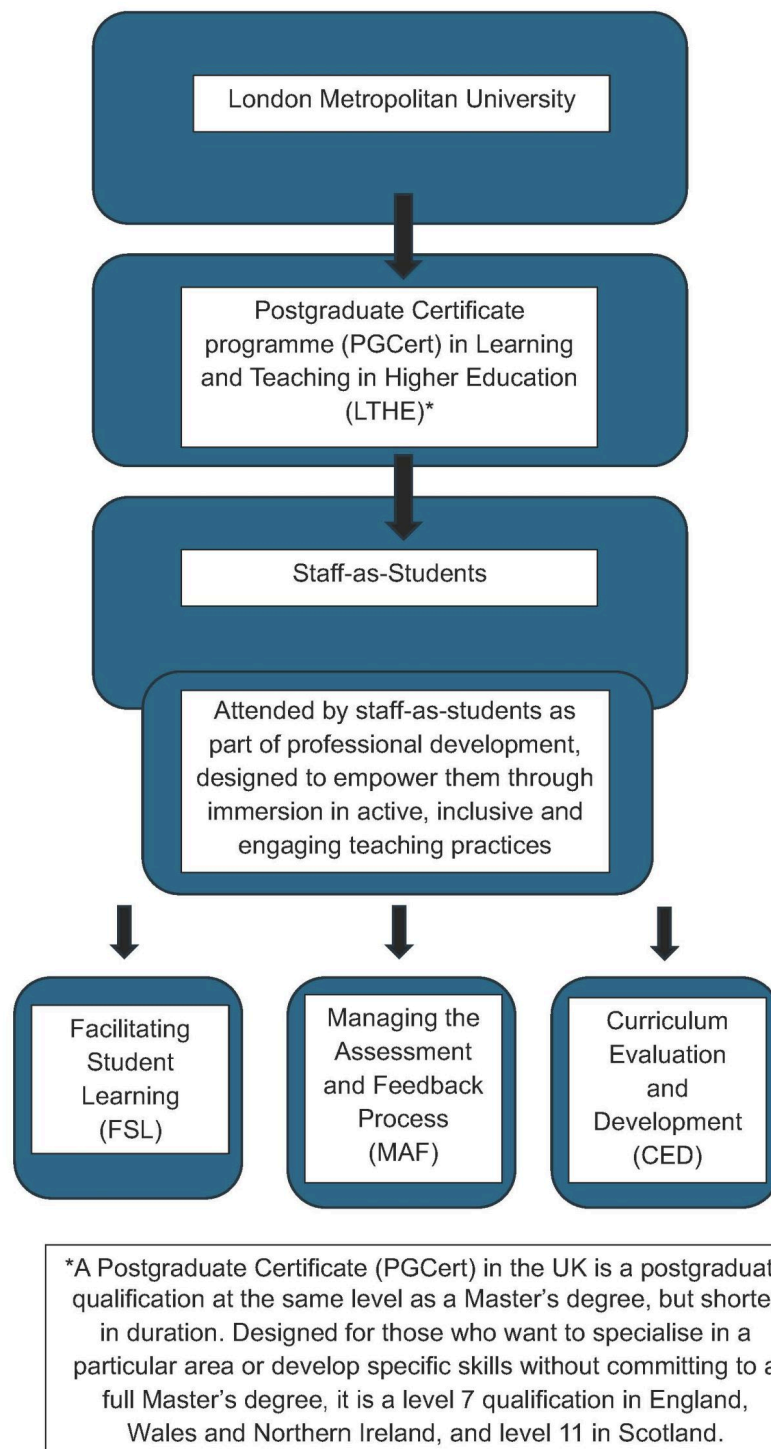


Figure 1: Postgraduate Certificate programme. © Sandra Abegglen, 2025. CC BY 4.0

Rationale: Why this was a valuable and worthwhile project

Following on from the Facilitating Student Learning (FSL) and Managing the Assessment and Feedback Process (MAF) modules, CED creates the space for participants to explore curriculum theory as they develop and evaluate their own existing modules – or devise new ones. FSL and MAF are intensely active and whilst they do tackle theory, it is through the lens of creative and embodied practice (see Figure 2).

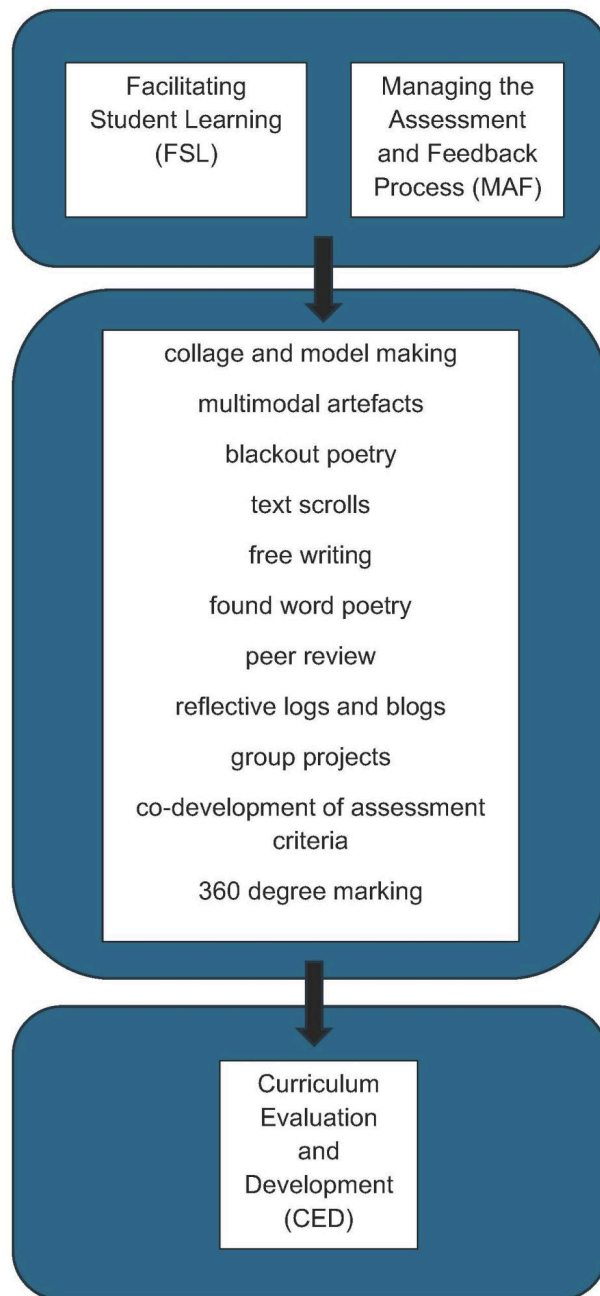


Figure 2: Active learning in the FSL and MAF modules prepares participants for CED. © Sandra Abegglen, 2025. CC BY 4.0

CED was the more teacherly module, seemingly at odds with its assignment of re-developing a real module in action. When CED got a new lead and co-tutor, opportunity was created to evaluate it in-action (Schön, 1983; Oprandi et al., 2022) to explore how to transform it to make it more active and interactive – and to create a more nuanced, dialogic, and creative PGCert overall. The goal was that participants would have seen, theorised, and experienced in embodied ways all that a more active learning approach can do to make their own modules more inclusive.

Context

The PGCert is situated within a widening participation, inner-London university, reflecting its diverse and dynamic context. It serves educators-as-learners who are navigating a complex academic landscape and who are supporting a wide range of student needs. The programme is offered to all new lecturers at the university – and is compulsory for those with less than three years teaching experience – as part of their professional development, designed to empower them through immersion in active, inclusive, and engaging teaching practices. Led by a committed staff team, the programme aligns with the university's mission to enhance teaching excellence through innovative and inclusive methodologies (Education for Social Justice Framework, London Metropolitan University, 2024).

The PGCert operates as a supportive Community of Practice (CoP) among educators (Lave & Wenger, 1991). It is active learning and reflection in action and on action (Schön, 1983). Through immersion, participants build, alongside a 'toolkit' of active learning strategies and processes (see also Oprandi & Betts, 2022), a robust theoretical foundation, enabling them to confidently design, teach and evaluate curricula that foster liberation and transformative education for their own students.

Method and methodology

As with our PGCert participants, reflection in and on action (Schön, 1983) is part of our ongoing action teaching. This creates a cycle of active learning, both within the modules and on the modules: an embedded Action Research (Reason et al., 2001).

True to the motto, 'Active Learning Happens for All' (Active Learning Network, 2025), we made immediate adjustments to CED to sustain the active and inclusive learning approaches harnessed in the previous modules, such that staff become more confident to implement such approaches themselves. As a first step, we changed the module delivery to a predominantly workshop mode with participants engaged in researching and presenting on key topics in groups, rather than experiencing a more lecture-based programme. Next, a proposal-writing workshop was introduced, incorporating peer review early in the process to encourage collaborative reflection and active engagement. Additionally, the assessment components were reduced, with no mark now awarded for the proposal, and rather than grading peer feedback, participants were asked to reflect on the impact of the peer review process, emphasising growth and learning. These initial changes were implemented as part of a continuous improvement approach, with plans to evaluate and refine the module further, ensuring it aligned more closely with active learning principles. As per evidence (Prince, 2004), active learning is not just worthwhile; it does work, and it is demonstrably effective in enhancing learning outcomes.

How staff-as-students responded

Evaluation

Evaluation can have many purposes – appraisal and accountability are often at the forefront of people's thinking – but with CED, the purpose is developmental, with a focus on deep learning. We wanted *this* evaluation process to seed a more active, engaging and dialogic CED module, and thus a more liberatory

and coherent PGCert programme with a clearer impact on the participants' own active learning pedagogy and practice.

Student feedback is routinely collected via an online survey as part of the end-of-year PGCert course evaluation and is shared anonymously in this case study with PGCert participants' consent. All feedback data were handled with care to ensure confidentiality and in accordance with institutional procedures, with contributions represented in ways that honour participants' voices and intentions.

Participant feedback

By prioritising active learning in the redesign of CED and its teaching approach, educators-as-students participating in the newly designed module appeared more empowered to explore and further refine the creative and inclusive practices they experienced and adapt them with confidence in their own classrooms. As one participant at the end of the academic year said: 'Doing the action research gave me the opportunity to critically review and improve my own practice.'

And another, stressing the longevity of CED impact:

[the lecturer] helped me immensely on my CED module, giving me confidence when I felt a bit out of my depth, and then feeding me a light-bulb moment when guiding me towards a more student-centred solution to a particular assessment problem I had. I've just today set up assessment guidance activities on [the institution's virtual learning environment] for a new level 4 cohort based on that light-bulb moment.

Their students, in turn, gained access to more dynamic, inclusive, and engaging educational experiences, fostering greater self-efficacy, agency, and creativity, as illustrated by one CED participant who said: 'The tutors have made this module exceptionally interactive and enjoyable. I loved every moment of it... Thank you for teaching me how to be a great teacher.'

This illustrates the ripple effect active teaching and learning can have, effectively extending beyond the immediate classroom. This is also illustrated by less tangible developments, such as PGCert participants inviting their students to 'take over' parts of their modules, and co-presenting with their students at the university's annual learning and teaching conference.

The CED/PGCert course team benefited from seeing their creativity and expertise channelled into transformative outcomes for the participants and their students. Through collaborative reflection and writing, the CED team contributed not only to the Scholarship of Teaching and Learning (SoTL) but also to the broader dissemination of best practices. These efforts aim to inspire the development of more active, dialogic, and creative professional development programmes in the future.

Conclusion

The PGCert as a whole is designed to de-school (Illich, 1971) and un-school (Holt, 1990) educators – to shake up normative notions of what education is, could, and should be. Teaching team changes created the space to reimagine CED in a way that sustained active and engaging practice across the PGCert. We wanted the participants in turn to develop more active, inclusive and liberatory practice of their own – and with a much greater degree of confidence. Reflection on the module, and the small changes made at the start of that year, indicated that participants were more engaged and attended more when the teaching was actively developed and delivered by the participants themselves. Interestingly, in those moments, they are again more involved, actively being simultaneously both students and educators, as they are in the two preceding modules on the PGCert.

The initial development to harness the workshop mode and peer teaching in CED was so successful that an immediate further development will be to make the majority of the module cooperatively developed and actively delivered peer-to-peer. Not only will participants take ownership of the material in embodied ways, they will be modelling the active teaching, learning and assessment practices that they have learned holistically across the PGCert to harness in their own praxes. As underscored in the rephrased CED assessment brief:

Choose a module that you actually teach – or one that you would like to teach – and design it. You must harness all that you have learned across the PGCert as a whole to make it (more) active, accessible, sustainable, and successful with respect to increasing student engagement, self-efficacy and

deep learning. Justify your choice and approach – including with reference to the appropriate literature – and to practice.

Key takeaways

If we want active education, we need radical, creative and liberatory practice infused in those that are in the classroom: the educators themselves. Empowering staff development has to be done *through* active, embodied, experiential, and reflective learning. It has to be experienced, not just theorised.

For those developing, evaluating and redesigning courses similar to our PGCert for colleagues teaching and supporting learning in HE, we would urge you to:

1. embed a variety of active, playful and dialogic opportunities throughout the course
2. welcome, value and foreground contributions from every participant
3. encourage individual and collective reflection on the experience by all involved.

Not only will the learning and teaching experience be richer for all, but the participants will also be inspired and empowered to adopt and adapt active practice, collaborate with like-minded colleagues and create inclusive, accessible and active classrooms of their own.

Acknowledgement

In memory of Tom Burns (1959-2024), Associate Teaching Professor, London Metropolitan University, UK – CED module leader and much-loved colleague.

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Case Study: Using Task-Based Learning Outcomes to Engage All Students in Active Learning

MARY JACOB

Summary

Making room for active learning can be challenging for lecturers, especially if they are starting from a content-delivery approach to learning and teaching. Moving from content-based learning outcomes to task-based ones can open the door to active learning. Depending on their prior assumptions, a lecturer may need to go through an iterative process to make this mental shift, but it's worth it.

Task-based learning outcomes focus attention on the things students need to be able to do after completing a lesson, module, or study scheme, rather than facts they should know. Once the task is identified, it becomes easy to design in-class activities that give students a chance to interact with each other, practice skills and knowledge retrieval, and apply what they are learning to meaningful scenarios and real-world challenges. Authentic assessment has a natural alignment with task-based learning outcomes and active learning, providing an integrated learning experience.

As leader of the Postgraduate Certificate in Teaching in HE (PGCTHE) and the Generative AI Working Group at Aberystwyth University, I've developed training sessions in which teaching staff design task-based learning outcomes for real teaching scenarios and then build active learning experiences around them. I've used this approach in workshops on general learning design and sessions about designing learning in the AI age.

This case study examines contexts where I have used task-based learning out-

comes myself and taught others to use this method. I draw on pedagogical literature and the wider community of practice to explain how this approach works and why task-based learning outcomes help us foster a rich learning experience for our students.

What I did and why

In my dual role as a lecturer and educational developer, I train staff in applying sound pedagogic principles for the modules they teach. I also teach credit-bearing modules in the PGCTHE scheme. I thus support staff and apply the principles myself. Task-based learning outcomes are now a standard element in my practice.

This concept came into focus for me in my Aligned Teaching workshops where participants design learning outcomes for their real teaching contexts. I noticed that some types of learning outcomes make it easy to design active learning and meaningful assessment, while others do not. Kay Sambell and Sally Brown (2020) emphasise the importance of using active verbs in learning outcomes. Jay McTighe and Grant Wiggins' Understanding by Design framework also requires going beyond just comprehension to develop 'the ability to effectively use content knowledge and skill' (2011). Inspired by these scholars and my own observations, I have come to categorise learning outcomes as either 'task-based' or 'content-based'.

Content-based outcomes align with a content-delivery approach in which the lecturer's main role is to transmit knowledge. Such outcomes foreground topics, often framed in abstract language such as 'Students will be able to demonstrate a knowledge of' or 'demonstrate a familiarity with' or even simply 'discuss' a topic. While it is easy to design a transmission-style lecture around such outcomes, this approach can foster passive learning with little opportunity for students to engage. It lends itself to a scenario where students listen to lectures but do not interact with the material or classmates. Assessments built around such outcomes often require students to regurgitate content delivered through lectures or set readings, not going beyond lower-order thinking such as Remember and Understand (Shabatura, 2022).

In contrast, task-based learning outcomes focus on higher-order thinking and active engagement. Students are required to do more than just understand the content; they must use the new knowledge to do something meaningful (Jacob, 2023). In contrast to content-based outcomes, which can be abstract and general to the point of vagueness, task-based outcomes are framed concretely. Lecturers then design activities where students practice relevant tasks and develop target skills. Assessments measure attainment of those skills.

To carry out the tasks, students need to use higher-order thinking (Apply, Analyse, Evaluate, Create or Synthesise) in addition to Remember and Understand. Basing the activity and assessment on real-life tasks that students might encounter in the workplace fosters authenticity. As Villarroel et al. (2018) note:

Authentic assessment aims to replicate the tasks and performance standards typically found in the world of work, and has been found to have a positive impact on student learning, autonomy, motivation, self-regulation and metacognition; abilities highly related to employability.

Reynolds and Kearns (2017) elaborate, saying that when carrying out authentic assessments, 'students demonstrate their knowledge and skills through real-world tasks such as debates, exhibitions, experiments and presentations'. This provides observable evidence of learning. Making clear how students will use their new knowledge in future helps motivate them to engage, such as contributing to class discussion or doing preparation tasks before class.

My first step was to design task-based learning outcomes for the modules I teach. I considered what tasks my students should be able to carry out, for example, 'Critically evaluate pedagogic literature and CPD to develop your personal teaching philosophy and practice'. The first half of that outcome gives a broad outline and is somewhat abstract. Without the second half, it's open to interpretation what 'critically evaluate' looks like in practice and why students should do it. The second part, however, provides concrete detail and a purpose behind the task. Once I had this outcome, it was easy to design activities where students engage with pedagogic literature. For their assessment, they submit a personal teaching philosophy, providing observable evidence of learning. Moreover, I explain how they can use their teaching philosophy in their careers, thus making the assessment authentic.

Then, I wanted to teach my students how to do something similar in their own modules. I facilitated activities where they design or reframe a learning outcome

for their own context and then build activities and assessments that align with it. Being transparent about my rationale not only helps motivate them to do the tasks but also models methods they can use themselves. This cascade of practice empowers them to apply and adapt the principle meaningfully.

Once task-based learning outcomes were embedded in the PGCTHE, I then incorporated them in workshops for general staff, including the Active Learning and Student Engagement session and the Aligned Teaching series. In responding to artificial intelligence (AI) in the higher educational landscape, I devised workshops for designing learning in the AI age.

In these sessions, I first present the principle of content-based versus task-based learning outcomes. I summarise the two types of outcomes very simply (see Figure 1) and then give participants an activity in which they evaluate and revise a learning outcome from one of their modules, applying the principle to their own practice (see Figure 2).

Two kinds of learning outcomes

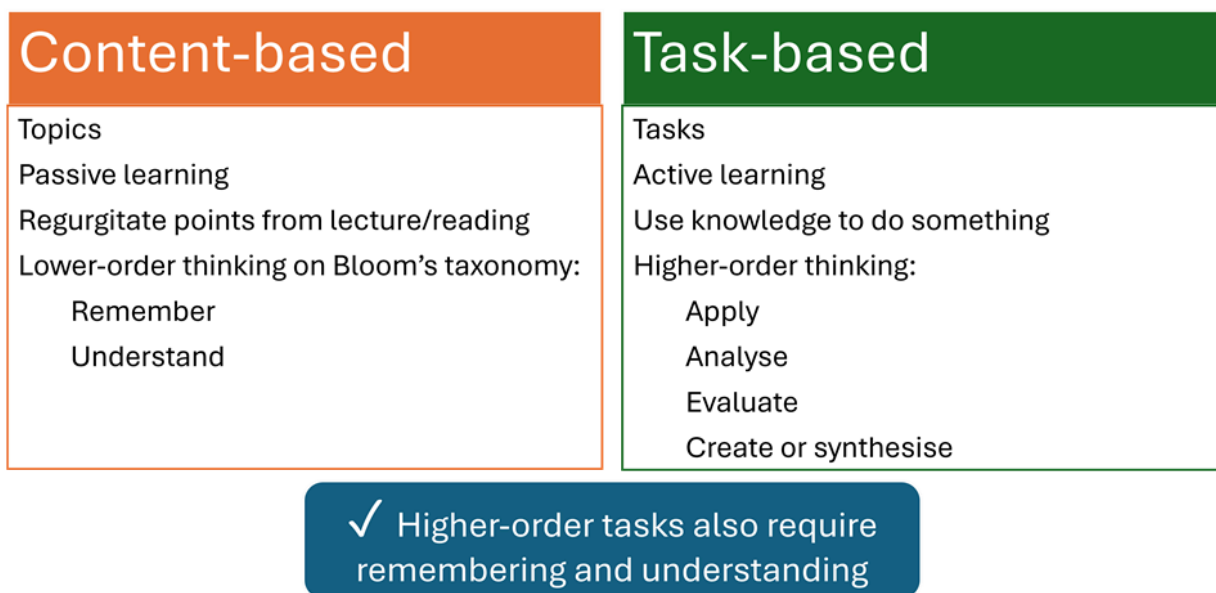


Figure 1: Workshop slide introducing learning outcome types. © Mary Jacob, 2025. CC BY-NC-SA 4.0

Task 1

Design a task-based learning outcome

- Think about a learning session you teach
- What do you want students to be able to **do** after that lesson?
- Design one task-based learning outcome



Figure 2: Workshop activity for reframing a learning outcome. © Mary Jacob, 2025. CC BY-NC-SA 4.0

Questions on their worksheet prompt critical thinking and include the pedagogic rationale:

Use the article by Sambell & Brown to evaluate and rephrase your learning objectives. You may find the questions below helpful:

- Do the learning objectives use active verbs?
- How high do they reach on Bloom's taxonomy?
- How can the outcomes be related to real tasks that students should be able to carry out in concrete terms? E.g. if you see any such as 'demonstrate a knowledge of' or 'critically reflection on', what would the actual task look like?
- What would this task look like in the workplace or other future authentic situation?

Once they have reframed their outcomes, they work in groups to co-design a learning activity or assessment that aligns with them. This gives them practice in applying the principles to a real-world context. The collaborative element promotes emotional engagement with the learning process. Offering options for engagement (they can use the printed worksheet, flipchart paper with coloured

markers, or their own devices) gives them agency and makes the activity more inclusive for neurodivergent students and others.

The form of an activity or assessment can be a barrier for some students. Task-based learning outcomes focus on the thinking and learning functions of the task, rather than the format of the submitted assignment. Separating form and function lowers barriers to engagement.

For example, a content-based learning outcome such as ‘Demonstrate an understanding of shallow water environments’ (adapted from our workshop) lends itself to writing a report. Students with specific learning differences may struggle with the writing element even if they have mastery over the knowledge.

Translating this into a task-based outcome, we might have something like ‘Evaluate specific shallow water environments to promote aquatic conservation’. This type of outcome makes clear how students should be able to use that new knowledge. The task, then, requires gathering and interpreting data from rivers. The form of the output can vary – some students might write a report, while others make a podcast or poster. These formats are all used by professionals, so this is authentic assessment. Separating form and function in this way makes the task more inclusive by providing ‘multiple means of representation’ (CAST, 2024).

Responses from participants have been positive. For example, at the end of one session, a participant said this mode of working would help her team coordinate their teaching. Other participants noted that, when they applied these principles, their students came to class prepared and contributed to class discussion, rather than resisting group activity as is often the case (Deslauriers et al., 2019). A common thread is that lecturers set expectations right from the start of the module, explaining the reasons behind the task-based teaching.

How others can adapt this approach

Shifting to task-based outcomes may require more thinking time at first but makes the activities and assessments easier to design. Once staff have made the mental shift, designing learning becomes smoother and faster. This approach is easy to sustain over time.

It isn't necessary to carry out a full curriculum redesign. A good strategy is to start with one key part of an existing module, reframing the outcome as a task by translating it into concrete language.

For another example adapted from our workshop, if a given learning outcome is 'Demonstrate knowledge and understanding of Postwar American Fiction', that defines the topic but doesn't explain how students should be able to use that knowledge. The lecturer might reframe the outcome as 'Analyse key works of Postwar American fiction, showing how the authors responded to the socio-political context in their fiction' or 'Apply critical theory to place works of Postwar American fiction in the history of modernism and post-modernism'. 'Analyse' and 'apply' reflect higher orders of thinking. Students can practice the tasks during class and choose from a range of formats for their assessment, such as a traditional essay or a video.

Once a lecturer is familiar with this approach, designing new modules becomes faster because the structure supports them in asking the right questions straightaway. It is especially effective when the leader of a course team supports colleagues in using task-based learning across modules, giving students a consistent learning experience. Similarly, where different lecturers lead sessions for the same module, task-based learning outcomes help them understand what colleagues are teaching and how their own sessions fit in the module as a whole.

Active learning requires time in the classroom for students to engage with the task, ideally receiving some form of feedback from the teacher and/or peers. This is where the real learning takes place. Lecturers who previously used a lecture-only style of teaching can have students engage with content before class to prepare for active learning in the classroom. This can be as simple as having students read an article or watch a video and think of real-world examples where the principle is applied.

Whichever specific implementation lecturers choose, shifting from content-based to task-based learning outcomes can support students in learning effectively.

Key takeaways

- Tell students from the start what you expect them to do and why.
- Designing learning around tasks rather than content shifts the focus from the teacher to students, increasing student motivation and engagement.
- Once you make the mental shift from content-based to task-based thinking, learning design gets faster and easier.

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Chapter: Modelling Active Learning Through a Challenge-Based Hackathon

CLARE GORMLEY; LILY GIRME; MARTINA CREHAN; AND SEAMUS CAMPAU

Summary

This chapter describes the use of Challenge-Based Learning (CBL) to promote the adoption of active learning in a sustainable and inclusive way. Through the CBL format of a hackathon – an intense, time-bound event where people collaborate in teams to solve challenges – approximately 40 participants worked in small groups to investigate and co-develop potential solutions to issues of passive, predictable teaching. Throughout this almost day-long activity, staff, students, and mentors came together to tackle the challenge of ‘Activating Active Learning’ within an Irish university.

All participants were invited to share their feedback through a post-event survey. Staff described how they were introduced to or were reminded of the value of a range of active approaches, including CBL, through the hackathon approach. Mentors described group dynamics, the importance of clearly defining the mentoring role, and the potential value of further time for reflection and action. The student perspective indicated that staff attending seemed to be receptive to student suggestions about making their courses more inspiring. In at least one case, the hackathon opened discussions about the usefulness of GenAI tools for students, countering impressions of such tools as ‘academic demons’. This chapter describes the perceptions of participants based on their experiences at this relatively unusual higher education event. It also outlines the solutions that were generated, further highlighting sustainability and transferability potential. Finally, the chapter concludes with recommendations and resources from the hackathon organisers that may be of practical use for those considering and/or planning similar events within their own institutional context.

Case Study: A Hackathon About Active Learning

Hackathons typically involve multidisciplinary teams, with members playing distinct roles throughout the process. To set the scene, the theoretical underpinnings and common purposes of a hackathon will be introduced.

Theoretical Underpinning

The stakes have never been higher for higher education institutions to prepare students to respond to societal needs. Future citizens will need to develop the know-how to create advanced and sustainable technologies but also acquire the transversal skills and social competencies to anticipate the future needs of humanity (Sukacké et al., 2022). Employers want workers who can demonstrate a wide range of critical competencies such as critical thinking, problem-solving, teamwork and decision-making skills (Covic & Manojlovic, 2019). While disciplinary knowledge remains crucial, there is increasing recognition of the importance of transversal skills including current expertise such as sustainability literacy, intercultural competence, and data literacy (OVPAA, 2023a).

CBL is being perceived as a practical educational approach that can potentially equip students with the competencies and skills needed for a rapidly changing world (Perna et al., 2023). There is no one agreed definition of what exactly CBL is, but much existing literature refers to the version that originally came from the Apple Classrooms of Tomorrow Project, as described by Nichols & Cator below (see Leijon et al., 2021; Nichols & Cator, 2008; Perna et al., 2023).

CBL is an engaging multidisciplinary approach to teaching and learning that encourages students to leverage the technology they use in their daily lives to solve real-world problems. CBL is collaborative and hands-on, asking students to work with peers, teachers, and experts in their communities and around the world to ask good questions, develop deeper subject area knowledge, accept and solve challenges, take action, and share their experience. (Nichols & Cator, 2008, p. 1)

CBL has become increasingly important as a distinctive active pedagogy within the student learning experience at Dublin City University (DCU), and it is prominently featured in the current DCU Teaching and Learning Strategy 2023-2028

(OVPA, 2023b). CBL is also being heavily promoted and enacted through [DCU Futures](#) (DCU Futures, 2024) and the [European Consortium of Innovative Universities](#) (ECIU) as a potentially transformative approach for students to work with peers, businesses, and communities to co-develop solutions to real-life problems (ECIU, 2024). CBL offers an effective educational framework for learning to solve real-life challenges, enabling the acquisition of disciplinary knowledge while developing transferable skills (Stahlberg et al., 2022). While there may appear to be certain similarities with pedagogies such as Problem-Based and Project-Based Learning, CBL is distinctive in that participants identify an open challenge and work together in a co-creative process of learning (Sukacké et al., 2022). More detail on the differences between these pedagogical approaches is described in the literature (Membrillo-Hernández et al., 2019).

The remainder of this chapter will focus on one specific form of CBL – a nano challenge, which is the shortest form of CBL and one that typically focuses on a particular content area or skill, has tight boundaries, and is more teacher-directed and introductory in nature (Nichols et al., 2016). A hackathon, typically run over one to three days, is one of the most common manifestations of this nano challenge format and will be described further next.

What is a Hackathon and Why Are They Used?

Readers of this chapter may already be very aware of the benefits of active learning and its focus on ‘involving students in doing things and thinking about what they are doing’ (Bonwell & Eison, 1991, p. 5). Active learning is said to help develop higher-order thinking and forge a deeper connection with the subject matter by engaging students, often in groups, in the process of learning through activities and/or discussion (Freeman et al., 2014).

It is perhaps not surprising then that a hackathon is seen as a promising vehicle for active learning. In active learning, curriculum knowledge is constructed, applied and evaluated through activity, which might include physical, mental and emotional acts of learning (Taylor et al., 2019). On paper at least, a hackathon – a time-bound, high-energy event where groups of people collaborate in teams to devise solutions for challenges (Briscoe & Mulligan, 2014) – seems to embrace many of its fundamental characteristics. Key to the idea of a hackathon is that it revolves around a challenge that actively engages participants in a situation that is real, relevant and related to their environment (DCU Teaching Enhancement

Unit, 2024). Challenge solutions can vary in scope and can be technical (such as a working prototype) or take the form of a set of recommendations (such as a presentation or a report).

For those seeking to implement in various formats and timeframes, a hackathon represents one way in which to put CBL into practice. While hackathons might be more readily associated with coding-related events, they are not only suitable for technological innovations and can be used to explore significant 'real world' socially relevant matters in a range of disciplines (Feder, 2021). The number of hackathon events worldwide has grown significantly in recent years (Chau & Gerber, 2023). A recent multidisciplinary literature review found that hackathons are being used for three key purposes: to promote innovative ways of doing things, foster student learning in STEM subjects in particular, and to provide a platform for collaboration with diverse stakeholders (Chau & Gerber, 2023). Indeed hackathons have been used in a range of contexts at DCU, ranging from large numbers of students in Business and Chemistry disciplines to smaller but still highly-intensive events for those in teaching and teaching support roles (DCU Teaching Enhancement Unit, 2024).

In 2022, DCU's first-ever staff-oriented hackathon took place with a specific focus on 'How can we design an authentic and sustainable assessment experience for all?'. That event was funded through the DCU Futures project and a detailed case study is available (O'Riordan & Gormley, 2023). The 'Activating Active Learning' hackathon described in this chapter was similarly aimed at staff from all disciplines. However this time, participants were asked to collaboratively engage with the 'Big Idea' – the overarching theme – of Active Learning. As well as being a core principle of recommended teaching practice, the furthering of active learning approaches is a strategic objective of DCU (OVPAA, 2023b). The project received funding from Ireland's HEA Strategic Alignment of Teaching and Learning Enhancement ([SATLE](#)) fund which is designed to drive teaching and learning innovation across the higher education sector, with a focus on Education for Sustainable Development, Digital Transformation and Academic Integrity.

How the 'Activating Active Learning' Hackathon Panned Out

A hackathon requires a team-based multidisciplinary approach so that multiple perspectives can be shared and leveraged. At the 'Activating Active Learning'

hackathon, the teams were comprised of Teaching Enhancement Unit (TEU) staff members (third-space professionals, as per Whitchurch, 2008) who acted as internal mentors, teaching and learning leaders from other institutions (pedagogy and professional learning experts) who acted as external mentors), members of DCU academic staff (who formed the majority of the hackathon teams) and students (who acted as sources of insight and feedback on the student perspective).

The event itself took place in May 2024, running from 9 am to 3.30 pm. It began with a welcome, an introduction to what the event was about, as outlined in Figure 1. This was followed by a musically-themed and light-hearted introduction to each of the mentors that highlighted their particular areas of expertise and set the tone for the event. For example, one of the mentors from a surgical institution was introduced as taking 'a scalpel to boring pedagogy' while the song 'Like a Surgeon' played. Another mentor, with expertise in academic integrity, was introduced as an unbeatable alternative to ChatGPT against the backdrop of Aretha Franklin's 'Integrity'. Students were also introduced and their role and value in acting as a source of feedback and student perspective for the academic teams was highlighted. Four students were recruited as student ambassadors while one recent student (also a co-author of this piece) participated as a recent undergraduate currently in a research assistant role. The students were from diverse cultural backgrounds which reflected the diverse profile of students attending DCU. Various materials such as flip charts, pens, and printouts were provided to support discussion, note-taking, and the capturing of ideas. The intention behind these was to help participants quickly capture and share thinking and processes without potentially becoming bogged down in technology. Catering options were available throughout the day.

What This Event Is About

- Accelerated version of a hackathon
- Opportunity to get a taste of Challenge-Based Learning (CBL) as a participant in a team
- Chance to learn about active learning while tackling a relevant, real-world educational challenge

This is not a seminar. **You** will be doing all the work.
Expect uncertainty.



Figure 1: Sample from introductory slides at the event. © Clare Gormley and Lily Gorme, 2025. CC BY 4.0

Participants were given the choice of which mentors to join on the day, enabling self-selection into topics and mentors of particular interest. This supported inclusivity by allowing participants to join specific topics of interest and work with mentors who had a profile of expertise in that space. With the teams in place, creative team names were invited and an icebreaker/team-building activity involving the creation of [the longest paper chain](#) with constrained resources got underway. This was intended to act as an accessible icebreaker for getting to know one another better, and set the scene for the collaborative and fast-paced activities to come.



Figure 2: The CBL Cycle. © ECIU University. All rights reserved

As Figure 2 indicates, CBL – and therefore the hackathon in our case – moves through a three-phase cycle comprising:

1. Engage Phase, where learners move from an abstract ‘Big Idea’ to a concrete and actionable challenge;
2. Investigate Phase, where learners carry out research into and initial analysis of various potential solutions;
3. Act Phase, where learners develop solution(s), share them with a wider audience and ideally implement with the stakeholder.

These phases were explained transparently to the participants, as part of scaffolding them through the cycle to develop their final outputs. Throughout the process, the students were available to provide student perspectives and the

mentors were on hand to guide and provide feedback and critical friend advice at each stage. In the Engage phase, the teams explore the 'Big Idea' and develop potential essential questions to be investigated. The Essential Questions are the questions that make the challenge relevant and interesting to all the members of the team. The hackathon facilitators asked the teams to consider what are the questions which are going to lead to answers that are going to mean most to you when it comes to embedding active learning approaches in your specific context? By the end of this, each team identified a specific actionable challenge with a challenge statement of relevance. A collaborative (Google Slides) slide deck template was shared to capture outputs such as the challenge statements and make them visible to other teams.

In the Investigate phase, the teams use the challenge statement to drive what they are investigating. In this phase, teams use guiding questions to identify what information they need to tackle the challenge and where they might find it. Various strategies such as [the fishbone technique](#) and [videos on systems thinking](#) were introduced to emphasise the importance of asking the correct questions of your challenge – to look beyond the obvious, to really analyse the root cause of the problem. Systems thinking focuses on the need to 'zoom out' and consider the influence of other interventions, policies, structures, patterns, and norms in the broader system that could contribute to a possible outcome. Techniques such as the fishbone technique or diagram provide a visual approach to looking at cause and effect and may aid the brainstorming process.

During the Act phase, the teams use findings from the Investigate phase to design, develop and present the suggested solution(s)/recommendation(s). At this event, the teams were asked to give a five-minute presentation to the room, making specific recommendations for change in relation to active learning in the short, medium and long term.

The facilitators emphasised that they were not interested in sophisticated slides or graphics, and were much more interested in the actual recommendations which needed to be concrete and actionable.

Table 1 below documents the challenge statements and the recommendations that emerged:

Table 1: Hackathon teams

Team Name and Challenge Statement	Short Term Recommendation(s):	Medium Term Recommendation(s):	Long Term Recommendation(s):
Supernova Handlers Challenge Statement: Normalising Active Learning strategies to increase engagement within diverse student groups across modules within programmes	Normalise Active Learning; Training for lecturers; Communities of Practice; Communicate objectives of Active Learning elements in courses; Ensure list of active learning tools and strategies made available; Empower student voice in designing active learning (through research).	Programmatic approach to modules and active learning activities; Incentivise students to engage with Active Learning; Programmatic Assessment.	Motivation for lecturers: Links to promotion; Senior positions for teaching practice (e.g. Professor of Teaching Practice); Managed process with clear progression; Ongoing Personal Development Planning (PDP); Mentoring roles.
The ABCs of CBL with DCU's TEU Challenge Statement: How do we design CBL approaches to assessment at scale?	Develop Challenge-Based Learning (CBL) descriptor – e.g. translate the Teaching Enhancement Unit (TEU) guidance for large classes, and make it discipline specific; Survey this year's students; Staff collaboration should encompass collaboration with (a) those with experience of CBL (b) programme chairs (c) colleagues who might be interested in trialling CBL; Identify industry partnerships.	Develop case studies/ scenarios / other CBL resources; Design the logistics of big CBL event; Pilot at least 2 CBL approaches; Develop sustainable industry partnerships for mentoring.	Develop linked, iterative, rolling assessment with students further ahead on the programme; Wider programmatic approach Specific time set aside for Design Based Learning (DBL) – CBL week; System or process for having large scale events for students.

Guardian AI-ngels Challenge Statement: How do we increase competence, confidence and creative thinking among DCU staff to implement AI in teaching, learning and assessment?	Find out what other institutions are doing (ECIU networks); Normalise the use/ Not demonise it; Increase confidence through competence.	Showcase A.I. use (e.g. <i>August is A.I. month</i>); Develop local networks to share/network A.I. expertise.	Bite-sized modules; Focus on new staff; Have staff days (school level) with GenAI focus; Provide opportunities to do mentoring/sharing knowledge on who is doing what i.e. cross collaboration
Sustainers Challenge Statement: How can we authentically embed ESD in the culture of T&L @ DCU?	Gain endorsement from all key stakeholders; Staff & Students for launch happening/event.	Creation of hub/ Living Lab for generation & exchange of ideas on sustainability.	ESD embedded in culture of DCU.
The Hackadinos Challenge Statement: How to motivate students to autonomously engage with a Transversal Skills (TS) platform	Develop and implement an impactful awareness campaign at orientation for incoming Futures students. This should include key messages and messengers, incentives to engage with platform, user resources, drop-in clinics, online workshops, QR codes, games with prizes, support from lecturers and senior management.	Maximise the affordances of the VLE (Loop) to motivate students to use the platform in collaboration with academic staff (e.g. comprehensive Transversal Skills Loop page for all students, Transversal Skills podcast, include a block on each programme page directing students to the TS platform, reminders, gamification).	Leverage the alumni community to demonstrate the value of the TS platform to current students (e.g. reports from graduates, mentorship programme focused on TS development; TS showcase and awards); have an A.I. guide to help students develop and evidence their TS.

The Bermuda Triangle Challenge Statement: What methods can we use to stimulate and support commitment to engaged learning in Semester 1 of Year 1?	Onboarding / Induction workshops e.g. walkthrough of Loop, Google calendar and basic technologies intro; Set expectations – establish clear objectives of the module and address the need to take responsibility for own learning, teamwork & challenges; Start the ‘unlearning’ process!	Establish a community of learning; Bridge gaps in knowledge e.g. Short Quizzes, Flipped Classroom, Capstone projects to stimulate real-world application; Invite Practitioner-led lectures.	Attend to providing tangible examples of how students can project themselves into their own evolving futures through professional contexts, collaboration examples, and situational scenarios.

As the presentations took place, interesting responses were made by the audience. For example, the idea of introducing a dedicated CBL Week at the university seemed popular. The power of the student presence and input was noted alongside the many thoughtful ideas and suggestions generated from the discussions. Using data from post-event surveys and student reflections, the following section will describe how the hackathon was perceived overall and the impact it appeared to have had.

An overview of the process, logistics, and experience is provided in Figure 3.

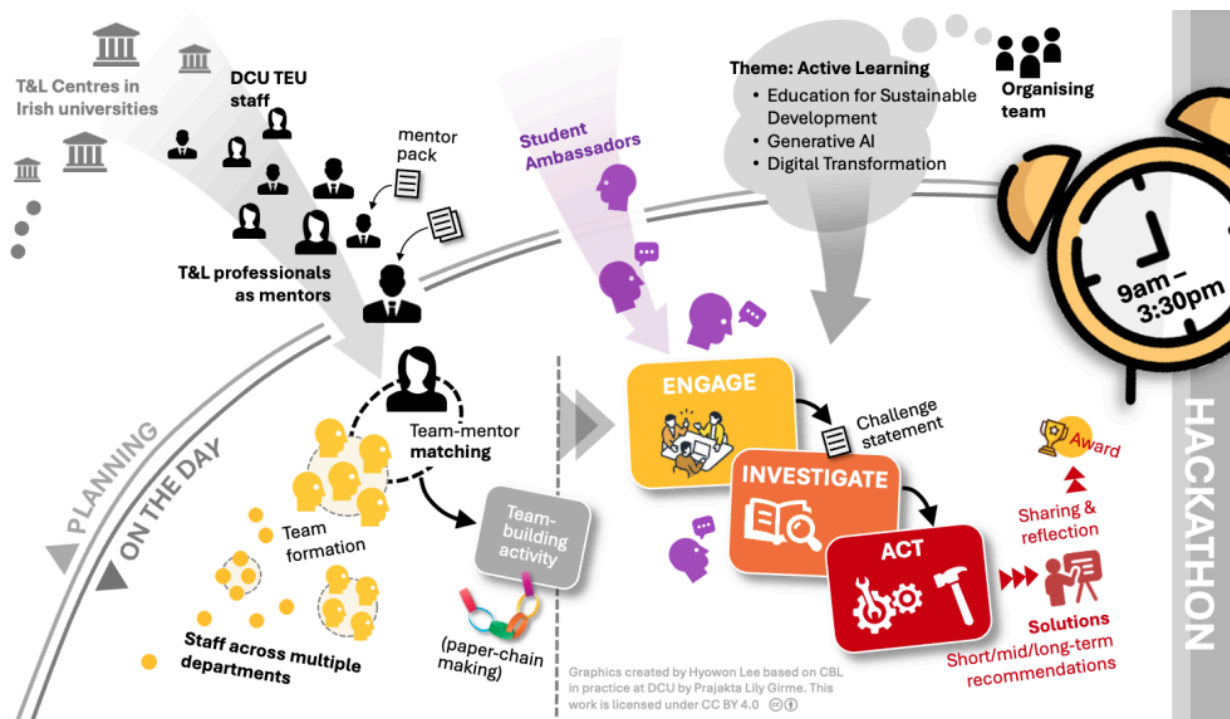


Figure 3: Overview of the Hackathon Experience, created by Dr Hyowon Lee (2025) based on Active Learning Staff Hackathon at DCU facilitated by Lily Gorme and Clare Gormley. CC BY 4.0. Source: <https://www.dcu.ie/teu/challenge-based-learning-visuals>

A sense of the team activity on the day is provided in Figure 4.



Figure 4: The Teams in action. Photo by Kyran O'Brien (2024), DCU Digital Communications Team. All rights reserved

Key Themes and Impact

Ethical approval for this project was granted through the DCU Research Ethics Committee (see Reference DCUREC/2024/020). A thematic analysis approach was adopted to analyse the survey feedback. As per Braun and Clarke (2006; 2021), thematic analysis was used to organise, analyse, interpret and report patterns within the data collected. Working through Braun and Clarke's (2021) six-phase process, this involved an iterative process of data familiarisation, coding, theming, review of themes, and theme refinement. The following are the five main themes that were developed based on the codes generated. The order of themes is based on the frequency of specific concepts and how strongly they came through in the survey responses.

Whilst this chapter does not include a comprehensive account of personal reflexivity (Walsh, 2003), it is important to note the role of the authors in both the hackathon activity and the subsequent research, and our awareness of how our prior experiences and motivations might influence the decisions made throughout the project (Finlay, 2002). Two of the researchers (CG and LG) designed and led the hackathon in their role as academic developers within DCU responsible for guiding and supporting CBL implementation. MC acted as a mentor during the hackathon and has experience in professional development for active learning. SC is a recent graduate and a research assistant at DCU. Adopting the view of student voice as a concept that partners students with educators as both 'critics and creators of educational practice' (Cook-Sather, 2020, p. 182), SC acted as a source of student-oriented feedback to the groups but also as an observer from the perspective of a learner. His responses are included below.

1. 'Creative, Collaborative and Fun': The Case for CBL as a Pedagogy

Overall, staff perceptions of the hackathon and their active participation in the event was motivated by curiosity about CBL as a pedagogy. The elements of CBL that allow for innovation and creativity like teamwork and collaboration between diverse team members were central to the narrative and perceptions of both staff and mentors.

The staff survey responses emphasised the hackathon as an approach that fos-

tered creativity and inspiration. In fact, a renewed appreciation and acknowledgement of creativity, innovation and a shift towards a more collaborative mindset came through in most staff responses, as did openness to new perspectives. As a staff participant said, ‘Personally, I find CBL leads to me being more creative than I might otherwise be.’

The intangible yet apparently critical elements like the atmosphere and energy on the day of the event along with the opportunity to engage with differing perspectives were all reported to play an important role. The hackathon provided the staff with an opportunity to explore novel approaches to teaching and learning all the while engaging them in a fun, collaborative environment. They gained valuable insight into the intricacies of teamwork and collaboration which will potentially be used in the classrooms but more importantly, also served to reinforce collaboration on a personal front:

I have a better awareness of the different ways individuals contribute to a hackathon, and to active learning environments. Also, I was reminded of the importance of fun to the learning environment and to team cohesion. – Staff participant

The concept of a hackathon itself was new to me, lecturers coming together to improve their teaching. Participating in the hackathon made me appreciate the lecturers who clearly put in the effort even more. The wholesome atmosphere was definitely a large positive. Simply attending an optional event such as this, shows that these lecturers have the desire and passion to improve their teaching and help students, which I do feel is a limitation of the hackathon because these lecturers are most likely not the lecturers who aren’t effectively connecting with students when it comes to teaching. – Student participant

2. ‘Fast and Furious’: The Tensions of Timeframes and the Space to Reflect

By their very nature, hackathons are fast-paced, timed events with multiple moving pieces – balancing the dynamics of experience with potential stability of outcomes. The academics were eager to experience CBL as well as to understand how a single-day hackathon might be structured. They participated in the hackathon to explore the potential of implementing CBL within their classrooms.

With that in mind, the hackathon offered a host of ideas: the availability of expert mentors, access to student perspective via student ambassadors, and the range of activities during the day all provided the staff with varied avenues of engagement.

However, when talking about limitations of a hackathon, one fundamental aspect echoed in the responses: time. The length of the hackathon proved to be a double-edged sword, reported to be both a pro and a con. The hackathon was a fast-paced event limiting the depth to which the ideas could be explored and the scope for implementation of solutions. Possible stress and fatigue due to the pace of the hackathon was also offered as a potential limitation. There was acknowledgement however that limiting the event to a single day made it possible for the staff to experience the full CBL cycle and provided an understanding of structure and organisation. As one staff participant commented, 'working through the process in a single day, which was fast and busy, gave a complete picture of engagement.'

A few recommendations were made around the time allocated for the hackathon: suggestions included a longer, possibly two-day event with some aspect of preparatory work before the actual hackathon. Feedback also included allowing scope for implementation and exploration of complex outcomes via a follow-up session.

Limited time available for deep exploration of complex problems, which may lead to superficial solutions... Emphasis on quick results might overshadow the development of long-term, sustainable solutions. – Staff participant

There was a sense that in order to respond adequately to complex challenges and to consider real-world applications, there needs to be space for deeper exploration of ideas, inclusion of reflective practices and allowance for implementation of potential solutions.

Mentors also noted the inherent challenges for reflection time and space and made some useful suggestions about how time might be best spent.

Going back to that idea about being able to think, I'd imagine such events would work best over a period of days where time can be incorporated for individual reflection and thinking time before coming back together as a group. – Hackathon mentor

Perhaps an opportunity for teams to reflect during their presentations on how they found the process of a hackathon. The teams all presented good solutions but I'd love to hear their experience (and difficulties) of getting to that solution. – Hackathon mentor.

3. 'A Tool in Teaching and Learning': Engaging Students Through and Beyond CBL

Staff eagerness to improve student engagement was evident in most survey responses. Academics were looking to explore CBL as a potential approach to enhance student experience and in turn foster engagement. The staff hoped to learn from their own experience as a CBL participant and to apply the insights within their own classrooms. The CBL experience via a hackathon proved to be helpful in terms of a possible innovative, real-world approach that they could implement within classrooms/across the faculty:

I am also interested in Hackathons as a tool in teaching and learning. I am involved in running them as part of our programmes in Biotechnology, and experiencing a hackathon as a participant is really useful. – Staff participant

The hackathon format encouraged staff to reflect on strategies to support group work, for example, introducing a variety of team-building activities and providing timely guidance. The staff were also exposed to a number of resources, techniques and guidance materials during the hackathon that reportedly will aid them in improving or implementing CBL. 'I would hope to incorporate some of the techniques we used into some of my classes', said one staff participant. Stakeholder involvement, especially the student ambassadors' feedback on student perspectives around engagement, appeared to be crucial to staff understanding and reevaluating their own teaching and learning practices.

The staff at the event were very receptive and took on my suggestions well, such as thinking about incentives for student participants in trials for new teaching methods. One group of lecturers was quite receptive to my suggestion that their subjects can be made so much more inspirational. The example I remember was maths – it can be quite monotonous and lead to an unexciting career but lecturers should strive to inspire the students with the potential of their subjects and the example I gave was the movie The

Imitation Game, which used maths in an important world-changing way. – Student participant

4. Reactivating Active Learning: Active Learning Approaches as a Way of Enhancing Student Engagement

The main theme for the hackathon was ‘Activating Active Learning’. Most of the challenge statements from the teams focused around the Big Idea of Active Learning. Student insights allowed staff to reflect on approaches they used in the classroom and how they might adapt to student needs with more interactive tools/approaches. Staff found the hackathon informative especially when it came to the discussions and availability of the variety of activities and tools that could be used in the learning environment:

Some active learning is already incorporated into my teaching practice. I will look for further places where active learning could be included. Following some insightful comments from the student ambassadors, I now intend to include more polling/anonymous quizzes during lectures. – Staff participant

Staff took the hackathon as an opportunity to actively research and consider implementing various active learning strategies in their teaching:

I’ll use student response systems like Vevox (gamification), and interactive tools like digital whiteboards (Loop Board activity), more group-based projects and peer-to-peer teaching activities to promote collaboration and deeper understanding among students. – Staff participant

The significance of active learning was reinforced as a result of group work, student feedback and research-informed conclusions shared by the teams at the end of the day. Most staff were somewhat familiar with some active learning approaches and are already using them, however they reported that they have identified a variety of additional active learning approaches that have potential to be used in their classrooms. Staff reported being inspired to explore a range of approaches and be more innovative in their teaching practices.

Lastly, there were also some additional benefits in terms of learnings from the topics discussed in the respective teams, most notably Education for Sustainable Development (ESD). Staff noted that the hackathon has piqued their interest

and opened avenues for further collaboration and motivation for ESD engagement:

I also gained a lot of information around sustainability and its role in teaching generally, particularly as a motivator for teachers and students. – Staff participant

It was fascinating to see the different thought processes between lecturers and students. The things they think are big issues we understand differently and don't see as big issues. For instance, new AI tools, they see them as these academic demons which would replace all hard work, but for me and many students it is not that. For us, it is basically an enhanced Google, because, despite the worrying by lecturers, Chat GPT cannot write you an assignment. It is, in my view, just a useful tool for inspiration and information searching. – Student participant

5. 'A Collaborative Environment': Impact of Mentor Readiness to Engage

Mentors played an important role in the hackathon, guiding the teams and facilitating group work while keeping them on track. According to the survey responses, mentors felt prepared to take on the role. Their ease within the role came primarily from their prior expertise in leading multidisciplinary collaborations, supporting faculties, and managing diverse teams along with the pre-event guidance provided by the hackathon leads. The pre-hackathon support material provided to the mentors in the form of 'mentor packs' was cited as useful in setting the scene and clarifying expectations. The relevant nature of the challenges provided opportunities for engagement and learning while the structured process was said to be useful in terms of guidance.

Mentors reported feeling generally well-prepared for their role. However most acknowledged that there is a need for a clearer role definition for the mentors in terms of boundaries around providing guidance/feedback and pacing the teams. Additional guidance on approaching and leading CBL framework discussions would also be helpful in the next iteration.

The mentors reported that the hackathon leads were effective in maintaining focus, facilitating progress, creating a conducive environment and offering guid-

ance towards a solution on the day. Overall, the mentors reported feeling engaged and immersed in an atmosphere of collaboration and learning.

Overall I saw a theme of better communication, engagement and partnership with students to promote active learning, academic engagement, foster academic integrity, embed education for sustainable development, and more. This was really heartening to see. The hackathon served to remind me that really the greatest formula for success in education is a good relationship between student and educator. I left the hackathon event feeling buoyed. – Hackathon mentor

It was a collaborative environment, plenty of support from stakeholders, and overall a fun experience. – Hackathon mentor

Application to Other Contexts

Because this was our second iteration of a staff-oriented hackathon at DCU, the sustainability of the event would appear promising. When the event was run in 2022, a number of suggestions were made about reducing the emphasis on prizes, addressing a problem with room acoustics, incorporating more time alone and more reflection time, and providing more guidance for participants on how to make best use of mentors (QQI, 2022).

As a result of this, some changes were made in 2024. Prizes were not abandoned completely but there was no ‘winning’ presentation and instead prizes were used to encourage creativity in team names and the sharing of reflections after the event itself. Post-event reflection was encouraged instead of attempting to rush in some reflective time on the day. A different, brighter room was used and there were no reports of difficulty hearing other participants.

However, reflecting on the survey data, we may still not be adequately preparing the mentors or indeed preparing the participants on how best to work with them. While the mentor pack and mentor team ‘huddle’ on the day shortly before kick off helped, it seemed that further support in clarifying roles and provision of sample questions might be helpful.

Other points to consider in terms of ongoing sustainability and inclusivity are:

- The extensive planning/coordination time needed to organise a hackathon, which took up considerable time for the two organisers in particular. Obviously, the size and funding of the event is a significant factor in how long it will take to organise. However, a suggested timeline with a lead-in time of three months as described by Lyons et al. (2021) resonates with our experience.
- The funding required for catering (a ready stream of food throughout the day is vital, with sustainable options); additional funds may be required for honorariums and prizes. Depending on the time of year and the numbers attending, there may be room costs to consider.
- Given the involvement of student ambassadors in this event – which we would highly recommend to encourage an inclusive learning experience for all – funds will also need to be sourced to pay for their time. Furthermore, we also made efforts to ensure that the democratic principles of student partnership (Hassan et al., 2022) were enacted. In particular, we wanted to recognise the need to be cognisant of power dynamics to promote collaboration, reciprocity and shared responsibility between staff and students. Instead of having students sit within groups where they may potentially not have the opportunity or confidence to contribute, the students sat separately at first and were sought out by the hackathon participants when questions arose. This allowed the teams the opportunity to clearly phrase their questions and deliberately seek out the expertise on learning that students uniquely had to offer. Sometimes the students responded to the teams individually, sometimes in pairs. Based on what we witnessed on the day, this simple rearrangement of the collaboration setup led to mutually respectful and informed exchanges of knowledge and experience on all sides.
- The timing of the event itself. In retrospect, we would use the full day but are also mindful of the difficulty in attracting participants and mentors to a full-day commitment. However, there is a trade-off that occurs in terms of limited reflection opportunities within a shorter timeframe that should be considered.

We would certainly see a hackathon as a transferable activity to a range of other contexts. Within a university setting, we believe it met our objectives of providing not only an experience of a hackathon for those educators who might be interested in doing something similar themselves, but it also provided a useful vehicle for promoting active learning as a concept and in practical ways. At least two further requests for advice on active learning were made after the event itself

by staff who wanted to learn more about how they could apply it while others have told us of changes they made to enhance formative feedback and interaction during lectures. At least one staff member was inspired to implement CBL for the first time the following semester and has since engaged extensively with our unit to develop award-winning practice. The opportunity to experience active learning may be seen as a way to assist educators in making sense of the role of active learning in their own context..

Three Key Takeaways

- The Hackathon format is effective as a sustainable and transferable approach, and reinforces the importance of staff experiencing active learning as learners themselves to fully appreciate applications in their own practice. Students as participants, providing feedback and insights, provide a core supporting element of this learning experience. Read more at <https://www.dcu.ie/teu/hackathon>
- Sufficient time and space for reflection should be provided for the participants. This necessitates explicit consideration of the length of the day; the location of the event (away from offices or usual working location of the participants); and also planned time for team and individual reflection at the conclusion of the event.
- Mentor readiness and a sense of comfort with the expectations of the role are key to effective facilitation of groups.

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Case Study: Developing Staff Confidence to be Active Learners Through Mentoring Circles

ROSE CHILDS AND GEOFF BAKER

Summary

This case study explores the implementation and outcomes of mentoring circles as an active learning strategy within a post-1992 higher education institution. The mentoring circles were utilised in the Advance HE professional recognition experiential scheme with thirty-five colleagues working on different categories of fellowship. Participants came from various academic and professional services departments across multiple campuses. The mentoring circles were designed to support professional development by fostering peer mentoring learning, collaboration, and reflective practice. The intervention created structured opportunities for staff to reflect on their own practice and be active learners to support their own professional development.

What Did We Do?

The mentoring circles were structured as online peer mentoring sessions designed to foster collaborative knowledge construction, reflective practice, and the sharing of strategies for professional development. These circles were open to staff across all academic schools and professional services departments and were conducted as twilight sessions to accommodate work schedules. Flipped learning was used to deliver instruction before class, allowing class time to focus on applying and extending learning (Bintz & Hajovsky, 2024). Participants prepared by completing a pre-session reflective template to inform the discussion.

A trained internal Mentor Reviewer facilitated each circle, guiding focused discussion to support participants in sharing practice, exploring common challenges, and developing professional strategies together. The focus of these circles was both individual growth and the creation of a community of practice, where participants could draw on the knowledge and experiences of their peers. The online format and mentoring model encouraged active participation, with all members given equal opportunity to contribute. One specific example involved participants reflecting on the Dimensions of the Professional Standards Framework 2023 (AdvanceHE, 2023), a tool commonly used in the UK to benchmark HE practice. Participants used this framework to consider what evidence they already held, how they might source additional evidence, and what further development they may require. Ethical approval from the University of Greater Manchester was granted in January 2025 for the use of the feedback data cited.

Why Did We Do It?

The decision to implement mentoring circles as a professional development strategy is grounded in several key theories of learning and educational research. Active learning, as defined by Bonwell and Eison (1991), involves engaging learners in activities that promote participation and knowledge application. Mentoring circles create space for participants to explore real-world challenges and share insights that enhance individual and group learning.

Mentoring circles align with Vygotsky's (1978) constructivist theory, which emphasises the co-creation of knowledge through social interaction. By encouraging peer mentoring discussions, the circles create an environment where participants can learn from each other's experiences and collaboratively develop solutions to professional challenges. This also reflects Lave and Wenger's (1991) concept of situated learning, where learning occurs through participation in communities of practice.

Mentoring circles provide a space for reflection, where participants can critically assess their experiences and identify areas for improvement. Schön (1983) highlights the importance of reflection in developing professional competence. Brookfield (2017) further emphasises the value of peer discussion in enhancing reflective practice, as it allows participants to challenge assumptions and expand their perspectives.

The experiential learning cycle, as proposed by Kolb (1984), is also evident in the structure of the mentoring circles. Participants engage in concrete experiences (sharing challenges and successes), followed by reflective observation (discussing and evaluating those experiences), abstract conceptualisation (developing strategies), and active experimentation (applying new approaches). This process supports deeper learning and helps participants apply knowledge, while also developing their identity as active learners who can model these approaches in their own practice to support their students.

Participant Responses

Participants noted that the circles allowed them to learn from diverse viewpoints. As one Mentor Reviewer explained: 'Engaging in these mentoring circles has strengthened my collaborative skills, as I have learned from the perspectives and challenges shared by mentees, further enriching my own approach to educational leadership and mentoring'.

The flipped learning approach was well-received. One Mentor Reviewer shared: 'I really appreciate the strategic organisation of mentoring circles. In my circle, the colleagues know each other much better than I know them, so time was given to their discussion and sharing ideas on specific dimensions and criteria. The mentees in fact supported each other much more effectively than I could have done'. This insight reflects the power of peer mentoring discussions, where participants took responsibility for their learning and supported one another's development.

The sessions also created opportunities for staff to reflect on their own practice. One participant mentioned how it encouraged them to revisit their work: 'It has made me go back and look over some of my lesson plans to see if I could implement different teaching ideas that were discussed at the mentoring circles'. Another participant stated that 'discussing ideas with individuals outside of your immediate team offers fresh perspectives and deeper reflection, supporting a richer understanding of what active learning can look like'. This demonstrates the direct impact the mentoring circles had on refining participants' teaching practice and encouraging continued professional growth.

The flexible, informal structure of the mentoring circles contributed to an open and approachable environment. Participants noted that the small group format

and use of technology, such as screen-sharing, facilitated productive discussions. 'The informal nature of the session worked well, as did the small number of people in each breakout room. Mentees were able to share their screens allowing other people in the room to see examples and benefit from feedback'. This approach not only promoted engagement but also ensured that feedback was relevant and tailored to each participant's context.

The circles provided a space for professional reflection and support. One participant commented on the value of the circles in addressing the isolation often felt in teaching:

I also think that teachers are often, ironically, quite isolated in their practice. We often do many things, but we have a very limited time to share or reflect on what we do or achieve, so these circles provide precious time to reflect on our professional work, achievements, and also celebrate which could be a strategy to enhance teachers' sense of pride, job satisfaction, and wellbeing.

This resonates with the broader goal of the mentoring circles to provide a space for reflection, celebration, and professional connection, promoting a positive sense of professional identity.

The response of the mentors was also positive, with comments indicating that they felt more connected to their colleagues across the institution and appreciated the opportunity to share experiences and insights in a supportive, collaborative environment. One participant shared the impact of their experience: 'Serving as a mentor in the Senior Fellowship application process has had an impact on my own practice, particularly in refining my ability to provide constructive feedback, facilitate meaningful discussions, and adapt my support to the individual needs of mentees'. This highlights how the process not only benefits mentees but also enhances the mentor's reflective practice and ability to engage with different perspectives.

In summary, the mentoring circles were highly regarded for their ability to foster collaborative learning, reflect on practice, and offer opportunities for meaningful feedback. Participants felt empowered and better equipped to reflect on their professional growth and take ownership of their development.

How Is This a Form of Active Learning?

Mentoring circles are a form of active learning because they promote direct engagement with the material and ideas shared within the group. Active participation is central to the structure of the circles, where participants are not passive recipients of information but active contributors to the learning process. As Bonwell and Eison (1991) suggest, learning is most effective when students are involved in doing things and applying knowledge, which is exactly what happens in these circles.

Through discussions, peer feedback, and collaborative problem-solving, participants apply knowledge to real-world scenarios, reflecting on their practice and sharing solutions to challenges they face. This process mirrors Kolb's (1984) experiential learning cycle, where participants move through stages of concrete experience, reflection, conceptualisation, and experimentation. The peer mentoring nature of the circles ensures that all participants are engaged and responsible for their learning, fostering a deeper understanding of the concepts discussed.

Furthermore, the focus on reflective practice and metacognition encourages participants to think critically about their own learning processes. This aligns with Brookfield's (2017) argument that peer discussion enhances reflection by allowing participants to challenge assumptions and broaden their perspectives.

Our Inclusive Approach

Inclusivity was a central consideration in the design of the mentoring circles. Several strategies were implemented to ensure that the scheme was accessible to all staff, regardless of their work schedules or caregiving responsibilities. The decision to hold online, twilight sessions was made to ensure that participants could engage without being constrained by traditional office hours. This approach was particularly beneficial for staff with caregiving responsibilities or those working across different campuses or locations.

The flipped learning model further supported inclusivity by allowing participants to prepare for the sessions at their own pace, ensuring that everyone had the opportunity to engage meaningfully in the discussions. As Boud *et al.* (2013) note,

flipped learning promotes equity by giving all participants the chance to engage with the material in a way that fits their individual circumstances.

Additionally, the peer mentoring structure of the circles ensured that all participants had an equal opportunity to contribute. This model encourages a sense of shared ownership and responsibility, which fosters an inclusive and supportive environment where all voices are valued.

Sustainability

Sustainability was ensured through a combination of factors. First, the use of an online platform and twilight sessions made the scheme scalable and accessible, allowing for participation across multiple locations without the need for significant logistical resources. As Fletcher and Mullen (2012) suggest, flexible scheduling is key to ensuring that professional development opportunities are accessible to a diverse range of staff.

The flipped learning model also contributed to the sustainability of the scheme by enabling participants to prepare for sessions in their own time. This approach reduced the time demands on participants, making it more feasible for them to engage in the scheme over the long term. Boud et al. (2013) argue that the flexibility of flipped learning helps maintain engagement without placing undue pressure on time.

Previously, a 1:1 mentoring model relied on individual mentor capacity, which was not sustainable; the mentoring circle centralised support and reduced reliance on individual facilitators. Internal mentoring creates a self-sustaining cycle of learning, where those who benefit from the scheme can step into mentoring roles themselves, contributing to the ongoing development of the community (Irby et al., 2022).

Finally, the sense of community built within the mentoring circles was crucial for sustaining engagement. As participants formed networks and built relationships, they were more likely to remain committed to the scheme and encourage others to participate in future sessions. This community-based approach helps ensure that the mentoring circles continue to thrive and evolve, fostering long-term professional development.

How Can Others Adapt Our Approach?

The mentoring circle model can be adapted to other contexts by focusing on key elements such as flexibility and collaborative learning. For institutions looking to address student-facing challenges, the model can be adapted to include discussions on effective teaching strategies, student engagement, and supporting diverse learning needs. For example, teaching staff could use mentoring circles to share strategies for using active learning to improve engagement in large classes or developing more inclusive teaching practices. By adopting a flipped learning approach, staff could reflect on student feedback or case studies before coming together to discuss strategies for improving student retention or supporting at-risk students.

Key Takeaways

- **Peer mentoring enhances colleagues' own engagement with active learning as a means for their own professional development:** Mentoring circles provide an inclusive space for reflection, knowledge sharing, and collaborative problem solving, deepening learning and professional growth.
- **Flexibility supports inclusivity and sustainability:** Online twilight sessions and a flipped learning model make the circles accessible and maintain engagement across campuses and professional roles.
- **Communities of practice can foster long-term development' :** Mentoring circles build lasting professional networks where participants evolve into future mentors, creating a self sustaining cycle of learning.

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Opinion Piece: Active Learning: Show the Impact!

MARY JACOB

In universities, teaching is often evaluated based on student satisfaction. Yes, we teachers want students to like our classes! But satisfaction doesn't tell the full story. To teach effectively, we need to understand the impact our active learning implementation has on what students do and learn, not just whether they like it.

I help educators run teaching projects through the Postgraduate Certificate in Teaching in HE (PGCTHE) at Aberystwyth University and would like to share how we suggest colleagues evaluate the impact of active learning.

First, I ask them to think in concrete terms about the changes they wish to bring about in their students. What specific behaviour (what students do), emotion (motivation, confidence, etc.), collaboration (how they interact with and learn from peers), cognition (actual learning), and so on?

Here's what I mean. Imagine a teacher who wants more students to come to class prepared to discuss assigned readings. Students need to do the reading (behaviour), internalise the new knowledge (cognition), speak up during class (confidence and behaviour) and recognise the value of doing so (motivation).

Once teachers have identified their desired changes, they can evaluate the impact of the active learning intervention on those changes, but how? First, they find out 'What difference did A make to B?', where A is some aspect of the teaching intervention and B is one of the desired changes. This type of question addresses the **What factor**. Then they address the **Why factor**: why would this kind of thing help students learn? Of course, the teacher will frame the questions in their own words.

Imagine the intervention is for students to share a creative response to readings (visual, tactile, or auditory) during the seminar. Evaluation questions might include something like this:

- 'What difference did sharing the creative response make to your preparation for the seminar?' Options can include specific things such as looking

forward to sharing their creative responses, doing the reading every week, or more time on task. A follow-on question could simply ask students to explain why.

- ‘What impact did sharing the creative response have on your ability to apply the new ideas later in the term?’ A question like this addresses actual learning, essential to any active learning project.

This is the heart of what we do. Please feel free to adapt it to evaluate the impact of your own active learning interventions. I hope you find it useful.

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Case Study: A Case Study of Boola Katitjin: Empowering Staff to Teach in a New Technology-Enhanced Active Learning Building Through a Novel Pedagogical Model and Professional Learning Framework

ASHLEIGH PROSSER AND SHANNON JOHNSTON

Summary

This case study presents an approach to professional learning for educators preparing to teach in a new building dedicated to flexible, collaborative, technology-enhanced learning and teaching. The approach was designed to expose teaching staff to spaces and pedagogies in active learning that they could then bring to their students' learning. The CHAT acronym for our pedagogical model – Collaborative, Hands-on and high-tech, Authentic and active, and Team-based – framed the active learning focuses, and a continuous professional learning framework developed a sustainable model for accommodating staff needs and capabilities from a variety of starting points.

The context

Murdoch is a medium-sized public university in Perth, Western Australia. A new four-story general purpose learning and teaching building opened in February 2023. The learning spaces were designed for the flexibility of contemporary higher education, allowing for experimentation and exploration of new pedagogies, technologies and learner experiences. The building name encapsulates this: Boola Katitjin means ‘lots of learning’ in Noongar, the local Aboriginal language.

Increasing student enrolments, significantly larger classes, and more contemporary pedagogies of active learning were suffering the challenges inherent in our more conventional university classrooms (Donkin & Kynn, 2021; Casanove et al., 2020; Clinton et al., 2019). [Boola Katitjin](#) was explicitly designed for active learning in large, flat-floor, collaborative, technology-enhanced classrooms of 60, 90, or 120 seats. While there are computer labs and a virtual- and mixed-reality digital immersive laboratory, this case study focuses on professional learning for the generalist technology-enhanced and collaborative learning classrooms.

These classrooms are technologically integrated for flexible teaching. They all include audio-visual technologies such as roving microphones and speakers, facilitator- and room-tracking cameras, video-streaming for in-room document cameras, interactive whiteboards, and Microsoft Teams integration for hybrid learning. Collaborative Learning rooms feature moveable tables and chairs for flexible room configuration; Tech-Enabled rooms feature fixed, high technology-enabled learning (TEL) student group tables. From these ‘TEL Desks’ students collaborate, present, and share via their own devices or built-in PCs with dual monitors, connect through 180° cameras, microphones and speakers, and control their own learning via interactive AV touchscreen desk panels to view other AV sources around the room.

Professional learning and the active learning framework

These new learning spaces required new practices in active learning, but new practices, especially those integrating contemporary technologies, do not magically occur without professional development (Copridge et al., 2021; Metzger &

Langley, 2020; Thomas et al., 2019). Further, such professional development is best framed as learning and authentic (Webster-Wright, 2009). We therefore developed a pedagogical model for active learning using the acronym CHAT (Prosser & Johnston, 2023; Johnston & Prosser, 2023) and combined it with our professional learning framework. While the content focus is on embedding technology-enhanced active learning in teachers' practices for use in Boola Katitjin, the overarching goal of our model and framework is to bring relevant, authentic professional learning experiences to university educators concomitantly developing their capacity for active learning pedagogies.

Our CHAT Pedagogical Model

The model is informed by research on the importance of familiarisation with new learning and teaching environments (Thomas et al., 2019), the complexities of face-to-face, online, and hybrid needs (Nikolopoulou, 2022; Verdonck et al., 2019), and Laurillard's (2012) conversational framework for learning design. As Boola Katitjin learning spaces are intended as active learning ecosystems of interactions between people, learning spaces and educational technologies, we focused staff development accordingly on all three realms. They would learn through active learning experiences where room facilities and pedagogical possibilities are brought to life through 'real-life application, learning by doing and collaborations' (Hao et al., 2021, p. 110).

Simply, the letters in CHAT bring together a pedagogical model of active learning to teachers that they can experience and then apply with their students:

- C – Collaborative
- H – Hands-on, high-tech
- A – Authentic, active
- T – Team-based

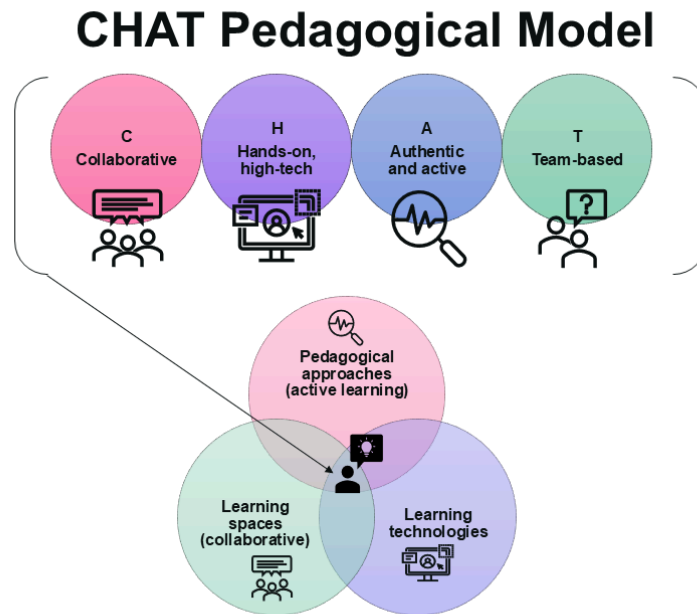


Figure 1: CHAT Pedagogical Model

As Copridge, et al. (2021) have shown, well-designed learning and teaching environments can enable collaborative, active learning consistently more effectively than traditional classrooms but only when they are taught by educators who are experienced or trained in such strategies. By experiencing it themselves first as learners we believe teachers are better equipped to engage students in collaborative and authentic active learning experiences.

Accordingly, professional learning brought CHAT to staff through:

1. modelling active learning (facilitators)
2. experiencing active learning (staff)
3. applying active learning (staff with students).

Pilot Phase

Nine pilot teacher ‘champions’ representing 12 units (subjects) in Veterinary Medicine, Humanities, Statistics, Psychology, Exercise Science, and Forensic Science taught for one semester in a 60-seat replica TEL classroom. Professional learning

focused on technological and pedagogical applications to support the pilot teachers in designing and teaching in the space (as per TPACK: Petra, Mishra & Koehler, 2025), and for us to identify professional learning needs for all staff for the launch of the building itself. Led by Corneli, et al.'s (2016) principles of peera-gogy, the program combined

- collaborative peer learning
- experiential focus
- reflective practice (Schön, 1983).

Professional learning for pilot teachers involved learning technologies, learning and designing new approaches, trialling with feedback and reflective practice.

1. Practice online technologies:

The Learning Technologist demonstrated the features for familiarity, and then the teachers used them, with one-on-one at-elbow support.

2. Participate in five group active learning workshops:

Structured around the CHAT model, the Professional Learning Lecturer exposed pilot teachers to active learning approaches, facilitated activity design and lesson plan by participants, and collaboratively explored new, even innovative, pedagogical approaches as student collaborative work and staff team teaching.

3. Engage in peer teaching observation and feedback:

Peer observations enabled feedback directly related to the new approaches they were trialling. The teachers also asked us to facilitate informal student feedback focus groups.

4. Engage in weekly reflective community of practice scholarly conversations:

Participants shared successes and challenges, and develop case-studies based on their learning.

Our study (approved by the Murdoch University Human Research Ethics Committee, Approval 2022/189) with four pilot teachers surprisingly revealed different mindsets. The one who engaged least had already made a pedagogical change in the past, so 'I didn't want to try anything new'. Another gradually added technologies and new activities: 'week by week, I tried to do something different [...] we talked about [...] Pyramid of Engagement level [...]. Those things help me to plan my workshop.' A third said they were always learning and developing, and the pilot space enabled application of more contemporary technologies: 'I was interested in how to use the technology [...] and a lot of new options'. The fourth

was highly collaborative: ‘We worked with [PL Lecturer] and [Learning Technologist] on learning the new technologies, a bit about pedagogies and that helped. [We] discussed a lot, which would be the best [...] IT collaboration to bring to life the pedagogical need.’

Professional learning for all

The pilot phase approach informed development of the large scale and sustainable professional learning for all staff in a rapid transition phase. We combined Murdoch’s Continuing Professional Learning Framework (CPLF) with the rich learnings from the pilot phase and the CHAT pedagogical model. The CPLF integrates self-learning (flexible to time and place), group learning (workshops), and transformative learning (curriculum design sessions), to allow staff to engage and reengage at different points as their needs grow, develop, or change.

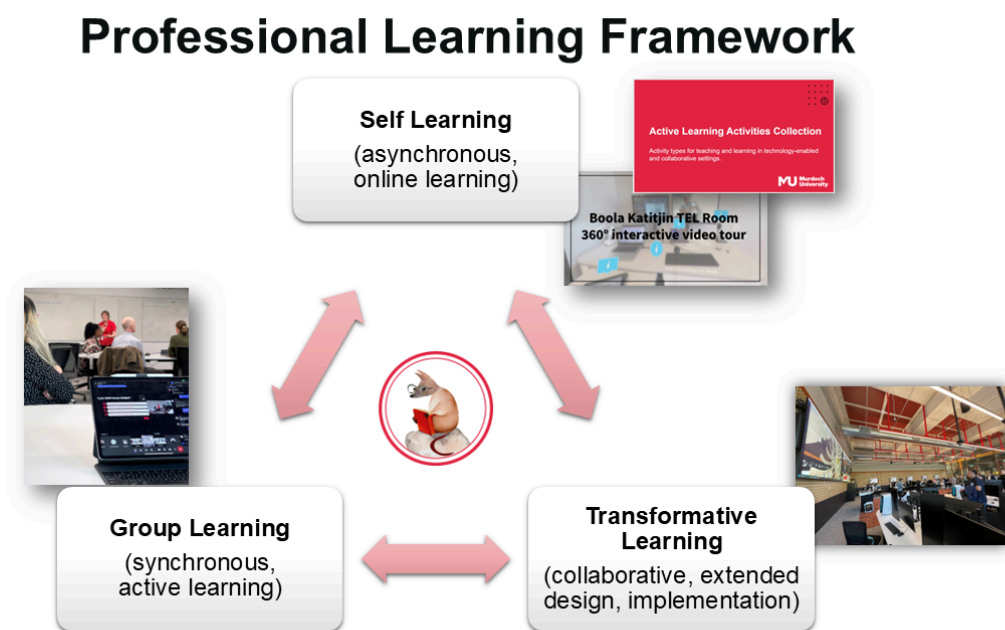


Figure 2: Professional Learning Framework diagram

Self-Learning

We learned from pilot teachers’ varying capabilities and levels of confidence

that we needed to develop self-learning resources with an educative overview of technological and pedagogical elements of teaching in the spaces. The transition into Boola Katitjin was complicated by a very short time frame (three weeks) between launch and teaching commencing, so we created highly visual guides. The technological resources included staff Intranet pages with quick learning guides on using the technologies, 360° interactive video-walkthroughs, and a searchable FAQ knowledge base. For active learning, two key resources were developed. These sustainable resources all remain in high use and are updated as required.

Active Learning Activities Resource Collection

This is a downloadable editable resource with templates for ten different active learning activities, including suitability for in-class and technology-enabled delivery for both distributed and synchronous collaboration. Applying Eyal and Gil's (2020) design pattern diagrammatic approach, we created infographics with step-by-step designs for delivering four of these active learning methods in Collaborative Learning rooms (see Figure 3).

Convergent Groups

Scenario

A teacher conducts an activity in which every student has an opportunity to participate in the discussion, present a position or opinion and be exposed to other students' positions and opinions, while constructing knowledge about the topic. The class is split into several inquiry groups that work simultaneously on a task using their personal computers. When finished, each group wirelessly presents its findings to the large screens from their location.

1

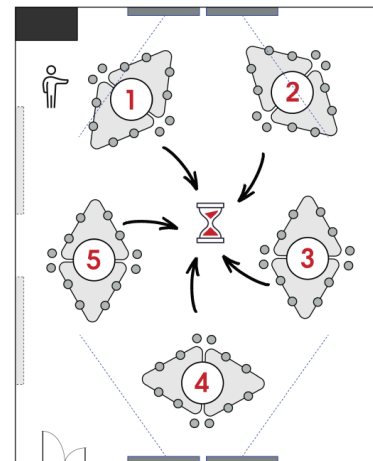
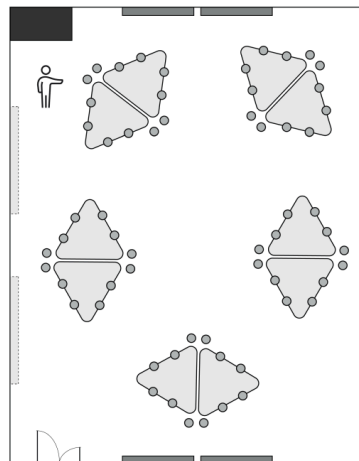
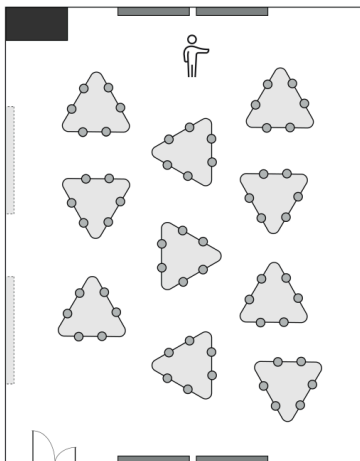
- a. Opening remarks and activity overview provided.
- b. Instruct students to form groups.

2

- a. Collaborative group inquiry.
- b. Documentation using personal devices.

3

- a. Convergence of groups.
- b. Presentations of each group.
- c. Discussion about findings using screen sharing.



Implementation

- The teacher should provide students with:
 - a topic or case study for discussion that allows observation on a variety of aspects and perspectives relevant to their learning.
 - scaffolding for the purpose of organising the accumulated knowledge in the discourse between groups.
- The ideal number of students in each group is 3 - 5.
- In larger classes (more than 5 groups) it may be difficult to allow each group to present. Consider:
 - having another teacher coordinate some of the presentations in another learning space e.g. campus grounds, library, café.
 - allowing some presentations to take place over subsequent weeks.

Adapted from
Eyal, Liat and Einat Gil. 2020. "Design Patterns for Teaching in Academic Settings in Future Learning Spaces." *British Journal of Educational Technology* 51 (4): 1061-1077.
Retrieved 11 July 2022 from <https://go.exlibris.link/hWpNC6CF>



Figure 3: Convergent groups activity design infographic resource. Adapted from Eyal, Liat and Einat Gil. 2020. "Design Patterns for Teaching in Academic Settings in Future

Online Module

The 'Discovering Teaching in Boola Katitjin' orientation module in our Learning Management System leads staff to engage actively through three sections: 'The Pedagogical Approaches', 'The Learning Spaces' and 'The Learning Technologies'. Each section includes:

- a short video introduction;
- a video interview with Pilot Teachers sharing their experiences, how they adapted their teaching, and their learners' responses;
- 'Watch', 'Read', 'Do', and 'Further Learning' activities;
- embedded interactive H5P activities: e.g. choose appropriate TEL-tools or apply Laurillard's six learning types (2012);
- downloadable and editable templates for active learning activities and lesson plans;
- 360° video-walkthroughs of actual classrooms and their technologies with interactive navigation 'hot-spots' and exploratory 'pop-ups'.

Anonymous module feedback responses included praise for the thoughtful design and sequencing of learning in the modules, the level of detail in the resources, and the usability of the templates such as the lesson plans. The orientation module remains an active offering, updated annually, and with continuous enrolments. It has even been embedded into our Certificate in Learning and Teaching course for new academic staff and staff starting their teaching journey.

Group Learning

We offered a suite of active learning workshops to build familiarisation and confidence teaching in the learning spaces and using their technologies.

Come and Play

The first intimidating thing for staff about to teach in a building with new technologies and approaches is how it works, then how it works for students, before active learning pedagogies can be fully considered. The ‘Come and Play’ sessions were created to reduce this fear through dual focuses on technological familiarity with practical pedagogical experience via active learning. During this hour-long workshop staff were introduced to the technological and pedagogical elements in round-robin-style guided play-based experiences. Each station had a facilitator (learning designer, learning technologist, pedagogy specialist), and focused on a particular element through an experiential activity (see Figure 4). Educators played with a technological feature as a student, observed and experienced how it was facilitated as a teacher, and were exposed to examples of active learning pedagogy. The buzz in the room, the ‘what ifs’ curiosities and the challenges staff experienced for themselves as students showed the experiential approach was fit to meet our purpose.

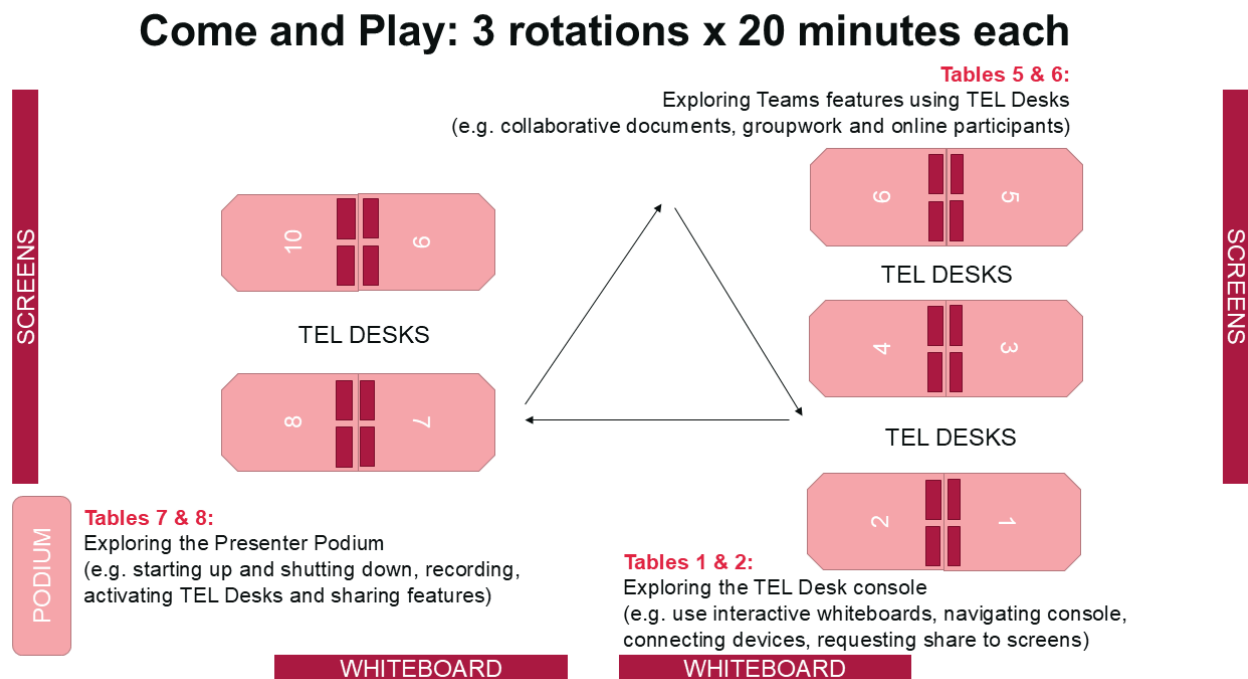


Figure 4: Come and Play workshop diagram

Hands-on (high tech, active learning)

Given our learning from pilot teachers and following Thomas et al. (2019), new

technologies were the most significant aspect worrying staff. 30-minute mini-sessions for small groups were facilitated in Boola Katitjin rooms, with a short demonstration, time to try it out, and additional time for extended practice or exploring bespoke pedagogical needs. The session three types are:

- Using Podium Facilities
- Using TEL-Desks with Students
- Using TEL-Desks for Groupwork (including hybrid).

These sessions have been sustained for the start of each teaching period since opening and continue to have consistent attendance by new staff and those seeking 'refreshers'. Staff feedback has captured that they value the flexible professional learning combination of planned group learning opportunities with responsive online self-learning.

Transforming Learning: Active Learning for Pedagogical Design

Plan and Practice sessions

Real pedagogical change comes from dedicated design of curricula with a team of teachers, such as a course or degree. Transforming professional learning starts with a redesign and succeeds through on-going implementation support.

One example is the School of Veterinary Medicine. The School wanted all students to engage in active learning workshops in the 120-seat tech-enhanced rooms. A day-long 'Plan and Practice' retreat in Semester 2 of 2022 scaffolded the lecturers through a redesign approach, using active and collaborative learning design activities (Laurillard, 2012) such as storyboarding and peer micro-teaching. Ongoing support was then planned and implemented with learning designers and technologists.

Another case example is the Business School shift to large-class team-teaching. A 90-minute workshop on teaching as a team in TEL classrooms was facilitated. After a short introduction to evidence-based team-teaching approaches (McKenzie et al., 2022; Minett-Smith & Davis, 2020), staff worked in pairs within small

groups of six at each TEL Desk to design a 10-minute team-taught micro-lesson to deliver to their desk group, with 15 minutes for preparation and planning using provided active learning resources, and five minutes for peer feedback after each 'lesson'.

Concluding comments

This case study presents a scalable and sustainable framework and approaches to professional learning where new technologies afford pedagogies for active learning. The approach brings hands-on experiences with active design for teaching and learning as authentic professional learning. The framework enables educators to access continuously the right kind of learning for their needs, wherever their current experience or expertise lies.

Our three key takeaways are:

1. Staff first need to develop familiarity with new technologies to overcome fixed mindsets and fears, regardless of our own excitement for innovative pedagogical opportunities.
2. Pilot 'champions' provide rich peer learning as co-learners and co-designers, and the insights inform scaled-up and sustainable professional learning across an institution.
3. A continuous professional learning framework (self, group, and transformative learning) partnered with a pedagogical model relevant to the context is a sustainable, flexible, and scalable approach to authentic staff development.

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5 SHIFTING STUDENT MINDSETS

An essential component of active learning is the active engagement of students. Students, however, may enter their programme or course of study with certain expectations about what that experience will be and what ‘good’ teaching is, based on previous learning experiences and other influences. These ideas may not align to the experience of active learning. We can however contest unhelpful preconceived ideas as part of our systems thinking lens ([Section 1](#)) where we address attitudes and beliefs about learning as we seek to win student hearts and minds.

[Garnham](#) in her call to arms promotes the idea that active learning is crucial to the transition to university because active learning supports students to develop skills and attributes such as critical thinking and creativity. Active learning is able to develop a sense of engagement and belonging. This is echoed by [Robertson](#), who gives us a student view of how active learning can build community.

To support students to become active learners requires that we first acknowledge that active learning may take our students into an uncomfortable place. [Robertson](#) talks about an initial fear of having ideas dismissed: students may fear failure and be worried about making mistakes (or ‘getting it wrong’), they may be uncomfortable collaborating in groups or find articulating their ideas in public challenging. The chapter by [Zevgoli](#) addresses the question of student hesitancy and resistance to active learning and argues that students are more open to active learning if the environment is supportive, safe and inclusive. Within the chapter activities are suggested to develop an environment where students feel able to make mistakes, share ideas and look at issues from multiple viewpoints. These activities are designed so that students feel more confident as active learners and, as [Garnham](#) explains, valued members of the community.



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Opinion Piece: Unlocking Potential: Active Learning and the Transition to University

WENDY A. GARNHAM

Imagine the situation. A student arrives at their first seminar. They know no one else in the room. They are not sure what to expect, and the atmosphere is one of anxious anticipation. How do we effectively unlock the gate that allows students to move away from this quiet trepidation to a world where they feel a sense of belonging and can engage in shared discovery? I argue that active learning is the key.

Traditional methods of disseminating information reinforce a distance between students and the 'expert' tutor. Knowledge is seen as something to be delivered rather than discovered. Such approaches have been shown to actually decrease students' sense of belonging (Li, Bernardi & Burkholder, 2024).

Active learning, in contrast, places students at the centre of the learning experience. They learn from and with each other through discussion, debate, and participation in shared tasks. When students engage actively, they begin to build relationships, find their voice and begin to feel like a valued member of a learning community. Narla et al. (2025) reported that students felt more valued and accepted when active learning was used frequently. This can be the make or break of successful transition.

There is an added bonus, too, in that active learning supports students to value the *process* of learning more than just focusing on their grades (Scager et al., 2016). I am sure we have all heard the question 'What do we need to know to pass the exam?'. Active learning enables us to move beyond that to support students in developing skills of critical thinking, creativity and reflection, all of which are invaluable in a rapidly changing world.

Let's not assume that it is simply students that benefit. As educators we have to be prepared to take risks and model the learning process ourselves. Le Fevre (2014) argues that the fear of losing control is often an inhibiting barrier. However,

embracing active methods can lead to a greater sense of efficacy in the role, better dialogue with students and better feedback (Copridge, Uttamchandani & Birdwell, 2021).

So, what is my call to arms? It is this: In unlocking participation and engagement, we unlock potential. With active learning, transition is not merely a question of stepping into a new institution – it is about immersing ourselves into a new world of possibilities. Curiosity is supported and extended, creativity is showcased, and our role, whether student or staff, becomes that of an innovative architect of the learning journey.

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Opinion Piece: A Student's Journey with Active Learning

OLIVIA ROBERTSON

I joined Abertay University in 2020, during the pandemic. My learning experience at this time was very structured and delivered through a hybrid model. Each week, we would work through and discuss a set of predetermined questions linked to our required reading. I found this created limited spaces for free thinking and self-guided conclusions; it was more about the ideas the learning gave to you, rather than the ideas you gained from learning.

After two years of this form of learning, I took up the role of student president, a sabbatical role which put my studies on hold for two years. This role opened my eyes to the work that goes into designing a curriculum and brought my attention towards active learning. I returned to my third year of studies in 2024, but had switched my course to Business Management with Events. Class activities felt refreshing, engaging and encouraging. Each week, trust was built by changing our working groups, which created a bond amongst the whole class. I initially expected to feel dismissed as my examples were often vastly different to others. What I found was quite the opposite; each person's contributions were valued and encouraged from day one, with the lecturer encouraging alternative perspectives which widened our areas of learning. The utilisation of tools such as Mentimeter had allowed less confident students to contribute anonymously, but week by week, more of us were confident in sharing our views and research verbally.

This way of studying felt free, with creative and active approaches to learning and a focus on self-guided conclusions. We were encouraged to use real examples and create our own conclusions through research. The mix of event types and aims was so vast amongst the class, fostering a rich and unique environment for conversations. Learning was about guiding each other toward fruitful discussions, actively encouraging us to learn from one another's perspectives, information, and research.

Overall, what I value most about active learning is the sense of learning together: it wasn't just a lecturer handing us knowledge; it was everyone piling into the

learning, adding their own passions and experiences confidently and creating a continuous expansion of knowledge for everyone, including the lecturers. I gained knowledge that I otherwise might have missed without those valuable, class-guided discussions. To me, active learning feels like a tree: we each put down unique roots with our own ideas and research, which come together to spread branches of knowledge, creating something far stronger and vibrant than any of us could grow alone.

About the author

Olivia Robertson is a fourth-year Business Management student at Abertay University who served as President of the Abertay Students' Association from 2022 to 2024. This role and commitment to student engagement inform her interest in active learning and innovation in higher education.

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Chapter: Active Learning and Culture in Sync: Making It Work for an Inclusive Classroom

SOPHIA ZEVGOLI

Summary

Despite the existing compelling evidence of the effectiveness of active learning, this method is still met with resistance, especially from students. Student resistance to active learning may manifest in various forms, such as lack of engagement, reluctance to participate or minimal effort to complete tasks.

Furthermore, it may stem from diverse factors, including preference for or comfort with more traditional methods of instruction, fear of failure or making mistakes, discomfort with collaboration, and cultural (and other) barriers.

Student resistance to active learning can be addressed by creating a safe and inclusive learning environment, which:

- a) encourages and embraces mistakes viewing them as integral to the development of knowledge, skills, and attitudes; and
- b) fosters cross-cultural understanding by taking a deep look at cultural diversity and supporting students in seeing the world from diverse perspectives to not only discover and appreciate 'others' but also gain insights into their own identity.

To this end, this chapter provides examples of active learning activities that focus on (i) 'normalising' mistakes and (ii) removing cultural barriers which may impede students from communicating openly and collaborating effectively in a culturally diverse classroom. Such activities have a noticeable impact on learners in that they significantly enhance student engagement, willingness to par-

ticipate, and openness to tackling challenging material. They additionally foster substantial shifts in students' perceptions of 'the other' and create a more inclusive, dynamic, and enjoyable learning environment. Furthermore, these activities contribute to better student performance, as reflected in higher scores on assignments, exams and other assessments. These notable changes in student skills and attitudes are essential in today's interconnected world. Students who are supported in identifying and understanding the impact of such learning practices on their ability to not only navigate multicultural classroom environments but also live and work in globalised workplaces and diverse communities may become more open to adopting active learning strategies.

Suggestions about how such practices may be applied in a variety of educational settings are also provided.

Introduction and theoretical underpinnings

Educational research has concentrated on active learning over the past twenty years. Prince (2004) citing Bonwell and Eison (1991) has defined active learning as 'any instructional method [used in the classroom] that engages students in the learning process' (p. 223). According to Gowers, Oprandi, and Betts (2022):

Good practice active learning strategies aim to engage students in a series of activities which require them to produce observable evidence of their learning. Where possible, these individual, pair and group tasks aim to develop higher order thinking skills, emotional connection with content and tactile or physical engagement with the environment. Importantly, active learning is not a singular event. At its very least it requires the provision of a framework for understanding something, a problem task in which they could use that framework and an opportunity for reflection on the process. In this way the tasks become memorable and meaningful experiences through which students can relate the knowledge to and have a personal connection with them. (p. 3).

(For a more detailed discussion of the construct of active learning, see Cooper et al., 2024, and Lombardi et al., 2021)

Extensive research has demonstrated that active learning can significantly improve students' understanding, retention, and application of knowledge by

fostering critical thinking, collaboration, and engagement (Ballen et al., 2017; Freeman et al., 2014; Theobald et al., 2020). Despite the existing evidence, one of the challenges in implementing active learning is student resistance (Borrego et al., 2010; Froyd et al., 2013; Henderson & Dancy, 2009). As noted by Finelli et al. (2018):

Students may demonstrate resistance in various ways, such as not participating when asked to engage in an in-class activity, distracting other students, performing the required tasks with minimal effort, complaining, or giving lower course evaluations (Kearney, Plax, & Burroughs, 1991; Seidel & Tanner, 2013; Weimer, 2013). (p. 81).

This resistance often arises because active learning methods require students to take a more active role in their education, which can be uncomfortable or unfamiliar, especially for those accustomed to passive, lecture-based learning. Students may consider active learning activities less efficient than traditional lectures, particularly if they feel they have not been given enough guidance. Others may resist due to discomfort with public speaking, group work, or the higher level of personal accountability involved in these settings (for plausible reasons causing student resistance, see Åkerlind & Trevitt, 1999; Alpert, 1991; Keeley et. al., 1995; Weimer, 2013).

This chapter addresses the question of dealing with student resistance to active learning. Specifically, it argues that students may become more open to active learning strategies if such activities are implemented in an inclusive and safe learning environment.

The above is founded on a positive correlation between students' 'sense of inclusion' and academic achievement, which has been demonstrated in the literature (e.g. Yao, 2015). It also draws from Shore et al. (2011), who have deconstructed inclusion into two major components: a 'sense of belonging' and a 'feeling that one can be one's unique self', both of which have been found to benefit students and facilitate student learning (e.g. Freeman et al., 2007; Hausmann et al., 2009). Students' sense of inclusion and authenticity have been, in turn, positively associated with students' intrinsic motivation (e.g. Freeman et al., 2007; for a concise account of these studies, see De Leersnyder et al., 2022).

Building on this rationale and supporting evidence, in the following sections, activities aiming at the development of a safe, supportive and inclusive learning

environment and their impact on student openness to active learning are discussed.

Creating a safe learning environment for mistakes

Student resistance to active learning may be influenced by a fear of failure or a lack of confidence. Since active learning often involves immediate problem-solving or peer work, students may feel exposed if they do not immediately know the ‘correct’ answer. Given that in a classroom where active learning strategies are implemented, students take a greater responsibility for their learning, learners might experience more pressure to provide a plausible answer/solution to a question/problem, which may cause them to feel more exposed or vulnerable, and ultimately less open to active learning. Although in an active learning environment, students are urged to move outside their comfort zone and think in new ways, they might also feel more accountable for the final outcome, which instead of spurring them to become active learners might cause concerns, withdrawal or inhibitions for fear of falling short of the class expectations.

Creating an environment where students are encouraged to move outside their comfort zone, to reflect and act in innovative ways, to take risks in order to make new discoveries or have new experiences can be a real game-changer. More importantly, developing a learning environment where students know and feel that regardless of the outcome, their willingness to try new ways to learn, their effort and their engagement will be valued and appreciated may mitigate resistance to active learning.

Below an activity that helps educators build a safe learning environment is presented.

Rationale

One of the keys to building a secure and supportive learning space is continuously developing a particular attitude to ‘mistakes’ (for a theoretical model that

takes account of the role of student mistakes, see the Learning Errors and Formative Feedback model (LEAFF) in Leighton et al., 2013).

Aims

This activity:

- helps learners understand that mistakes are a natural and valuable part of the learning process;
- encourages willingness to take risks; and
- supports emotional safety.

Timing: It is crucial that the foundation for this attitude to mistakes be laid from the first week (if not day) of classes. To this end, this activity takes place during the first week of classes.

Duration: 1 hour

Description

The activity is called 'Things that make a course successful'. I begin by explaining that I know from my own experience as a student that not all courses work for students for a variety of reasons: the relevance of the course content to real life may not be obvious, the learning methods may not be effective, the group dynamics may not be conducive to learning, and so on. I emphasise that I wish for the course to be successful for everyone, and for this purpose, the whole team needs to agree on certain practices and steps that can lead to this outcome. I then ask them to recommend ways in which this course can be successful for everyone. The issue of 'psychological safety' and 'attitude to mistakes' always emerges, and I take this opportunity to engage the class in a discussion about how mistakes are to be treated in order for the particular course to be successful.

The class comes to the conclusion that mistakes are an essential part of the learning process, especially for learners navigating new challenges and concepts. The team agrees that instead of viewing errors as failures, students and educators alike should treat them as opportunities for growth and deeper

understanding. Mistakes should be treated as valuable sources of input for both learners and instructors: on the one hand, instructors receive important information about which areas of the course content they need to revisit and possibly approach in new, creative ways, while on the other hand, learners identify areas where strengths are still in the making. It is emphasised to students that this course is *not* about *tolerating mistakes*; it is about *encouraging* mistakes as mistakes are made when one explores and experiments, and when one grows and makes progress. The discussion about mistakes ends with the motto 'Make mistakes with pride!', which is displayed on a class poster throughout the term to remind students of the agreed upon approach to mistakes. In such a learning environment, students are empowered to explore, experiment, and innovate without fear of failure. By normalising mistakes and reframing them as stepping stones to success, students are helped to build confidence and willingness to adopt active learning strategies.

Observed impact on students

This activity has an immediate impact on students as demonstrated by the fact that they are very willing to engage in role-play activities performed to the whole class even from the beginning of the term. Student participation further increases after the first role-plays have been performed as students realize that they may learn from each other's experiences and that mistakes made by peers are treated as 'learning opportunities'. As a result, student engagement in class and willingness to speak up rises significantly.

One additional notable change is that students tend to encourage their peers to participate in class activities reminding them that this is a judgement-free learning space. Furthermore, a safe learning environment improves attitudes toward challenging parts of the material, such as Greek grammar. At the beginning, learners are overwhelmed by the different endings of nouns and verbs and are hesitant to use them for fear of 'messing up'. As a judgement free zone is developed, learners become more open to learning and utilising new grammar patterns and start viewing them as areas where they can experiment without worrying about performance.

Finally, students realise they are not the only ones who face difficulties understanding something. As a mistake embracing atmosphere is further established, learners feel more comfortable sharing challenges in front of the class. It

is worth noting that the development of a mistake-friendly space is often mentioned in student reflections and feedback.

Removing cultural barriers to build an inclusive classroom

The issue of building a safe and supportive classroom environment becomes even more critical in the context of global immigration and globalisation as diversity is constantly increasing in schools, colleges, and universities (Banks, 2014, p. ix). There is extensive research demonstrating that learning in a diverse community offers numerous benefits which enhance both personal and academic growth (e.g. Gurin; 1999; Hurtado, 1999). Exposure to different perspectives, cultures, and experiences broadens students' understanding of the world and fosters critical thinking and open-mindedness. It additionally encourages empathy and the ability to see issues from multiple viewpoints, which is essential for effective communication and problem-solving. Furthermore, collaborative learning in a diverse environment prepares students for globalised workplaces by building cultural competence and teamwork skills (see also Tatum, 2000).

Integrating active learning in a culturally diverse classroom poses challenges as well as opportunities for educators and students alike. Active learning brings students from diverse ethnic, racial, linguistic and cultural backgrounds together to engage in collaborative activities. Such activities incorporate varied perspectives, foster cross-cultural understanding, and encourage students to learn from one another. However, students may face difficulties in adjusting to group dynamics, especially if there are cultural or linguistic barriers. Misunderstandings or differing expectations can arise owing to cultural differences. Additionally, some students may feel marginalised or hesitant to contribute if their ideas or experiences differ from the majority. This may cause students to resist active learning as they may be concerned about how their 'unique self' in Shore et al.'s (2011) terms may be perceived or received.

It is here argued that students in culturally diverse classrooms who engage in active learning are given the opportunity to experience changes in skills, emotions and attitudes, which, when realised, further motivate them to become active learners. In other words, an educator who takes advantage of the diverse worldviews and perspectives in a multicultural classroom to design and imple-

ment active learning activities creates opportunities for transformative experiences. When learners recognise this transformation, such as gaining confidence in their abilities, developing skills immediately applicable in real-world contexts, or feeling more connected to the learning process as well as to the diverse world around them, this serves as a powerful motivator to continue adopting active learning strategies. The realisation of their growth reinforces the value of active learning, inspiring learners to seek out opportunities for collaboration, experimentation, and self-reflection, which further accelerates their development and success.

In what follows, I present active learning activities, which embrace and utilise the diverse cultural repertoire within a student group, and which may generate notable shifts in abilities, attitudes and perspectives. The major building blocks of these activities include:

- cultural immersion experiences and reflection on their impact; and
- exploration of cultural mishaps, stereotypes and misconceptions.

Cultural immersion experiences and reflection

In this section, an activity that employs experiential learning and reflection is presented.

Rationale

Cultural immersion activities involve exploration of a different culture through lived experience. Given that there is no agreed definition of experiential learning, two definitions are mentioned below, which are most relevant for our purposes:

experiential learning means that learning that occurs when changes in judgement, feelings or skills result for a particular person from living through an event or events. (Chickering, 1977)

experiential learning [...] is synonymous with 'meaningful-discovery' learning [...] which involves the learner in sorting things out for himself by restructuring his perceptions of what is happening. (Boydell, 1976)

Reflection has an important role in experiential learning (see, for example, Andersen et al., 2000; Fink, 2003; Moon, 2004). Moon (2004) suggests that

[...] the following outcomes can result from reflective processes:

- learning, knowledge and understanding;
- some form of action;
- a process of critical review;
- personal and continuing professional development;
- reflection on the process of learning or personal functioning (meta-cognition);
- the building of theory from observations in practice situations;
- the making of decisions/resolutions of uncertainty, the solving of problems;
- empowerment and emancipation;
- unexpected outcomes (e.g., images, ideas that could be solutions to dilemmas or seen as creative activity);
- emotion [...];
- clarification and the recognition that there is a need for further reflection. (p. 84)

Aims

This activity helps learners:

- gain firsthand experience of diverse worldviews and social norms;
- reflect on their own cultural identity, values, and assumptions; and
- develop cultural adaptability and confidence in navigating diverse environments.

Duration: 3 hours

Description

The activity is conducted in an undergraduate course on Modern Greek as a second language. This course includes a number of classes on shopping for food.

During these classes, apart from relevant vocabulary and expressions, students are provided with information about where Greeks usually buy food. One such place is *λαϊκή* (laiki), a street market or farmer's market.

One of the classes on shopping food takes place at a street market close to campus. Often, I invite Greek students from other classes to attend this field trip to facilitate my students' interactions in authentic communicative situations.

During the experiential class, students spend some time buying goods and are supported in these interactions by the Greek students. Students also observe the communication between the sellers and themselves and the interactions between sellers and other customers outside of the class group.

The immersion experience is followed by a reflective class discussion, which is also attended by the Greek students/facilitators at the street market. Students are asked to share thoughts about what has surprised or puzzled them. An observation that regularly emerges is the use of singular form to them. Before the experiential class, it is explained to students that at grocery stores or supermarkets when buying food, the interactions are normally formal, for which reason the plural of politeness is used. However, students notice that during the experiential class at the street market, many sellers have used singular to them, and also that many interactions between Greek customers and sellers have been informal.

I invite students to think about why these particular interactions have been informal or whether the sellers have come across as 'too direct'. I encourage them to express their views with straightforwardness and honesty, creating a safe space where stereotypes can be explicitly stated. One such stereotype that often emerges is that 'Greeks might be less polite than other ethnic groups'. I urge my students to explore the plausibility of this assumption. The group points out the contradiction between this assumption and the fact that Greeks take extra care to use the politeness plural when this is appropriate. They also realise that this line of reasoning supports the implausible assumption that when the plural of politeness form is not used in a certain language, the speakers of that particular language should in general be considered less polite. This leads them to think critically about different ways of expressing politeness in different societies and cultures including their own.

Students come to understand that the fact that they are younger than the sellers has led the sellers to use singular forms to them. As for the informal forms

used to other older customers, students realise that street markets develop into small hubs or communities, where especially those sellers who have returning customers often spend some time talking with them on various matters, which allows them to develop a type of friendly or social relationship with them that goes beyond the strictly transactional one. Because then familiarity comes into play, the initial plural of politeness gives way to singular.

Observed impact on students

Activities of this type lead to significant shifts in student views of 'the other' and a reduction in ethnocentric thinking. Learners become more active listeners, they ask more thoughtful questions about different worldviews and values inside and outside of class and they tend to question assumptions and generalisations.

Furthermore, students find what they learn through cultural immersion and reflection very applicable to real life, on which they comment in reflections and feedback. Realising how politeness is expressed in the host culture and understanding which expressions are used appropriately in different settings help them feel more connected to the target culture. As a result, they become more eager to learn the language authentically and more motivated to use what they learn in class in real-life situations. They enthusiastically share the outcomes of these exchanges in class and explain what has gone well or what they should do differently next time, thus inspiring their peers to do the same. Such practices lead to improved academic outcomes, as seen in enhanced performance across assignments, quizzes, and examinations.

Finally, students have fun learning during similar activities, which leads to a rise in student attendance and engagement. It is worth mentioning that students keep asking for more activities of this sort.

Adaptability to various courses

Similar cultural immersion and reflective activities can be implemented in a variety of educational settings, such as cultural anthropology, sociology, politics, international relations, (cultural) psychology, cultural history, and cultural philos-

ophy courses. In a cultural anthropology course, for instance, students may explore the dynamics of cultural practices and rituals in everyday settings. Students may be asked to observe a cultural activity they can access safely (a local community event or a common social gathering, for example, a family dinner, a religious service, a sports event, or even a restaurant routine). Students attend and observe their chosen activity. They may be also asked to participate to the extent they can in the event in order to understand the context (for example, they may have a meal at a restaurant while observing social interactions). Students write field notes detailing their observations and reflections on the experience. They identify patterns and norms and consider how these reflect broader cultural values. Following the event, students reflect on and share their experiences and findings in small groups in class. This is followed by a class-wide discussion on the diversity of cultural practices observed and the challenges of participant observation, including issues of bias and interpretation, an issue to be discussed in the next section.

Exploring cultural misunderstandings or stereotypes

This section presents an activity that engages students in exploring cultural misunderstandings or stereotypes.

Rationale

Stereotypes have been defined ‘as typical perceptions (both positive and negative) of a particular social group (Operio & Fiske, 2003); they may reflect certain characteristics of group members, but they are often incomplete and problematic (Jussim et al., 2015)’ as cited in Xie et al. (2021, p. 654).

Stereotypes or preconceived notions about what is appropriate or inappropriate may cause cultural mishaps or misunderstandings, which might, in turn, impede intercultural communication and hence productive collaboration and, ultimately, active learning in a multicultural classroom (see also Operio & Fiske, 2003).

Training students to identify and resolve cultural misunderstandings empowers them to become more active and engaged learners in a multicultural class-

room. By developing an understanding of diverse perspectives, students become more open to collaboration and exchange of ideas. Moreover, addressing cultural misunderstandings builds stronger peer connections, creating a supportive and inclusive classroom where students are motivated to participate actively and contribute fully.

Aims

This activity aims to support learners in:

- recognising inaccurate or oversimplified views of other cultures;
- examining their own cultural lens and biases; and
- becoming more culturally aware and inclusive in their actions and attitudes.

Duration: 1 hour

Table 1: Prompt for activity to explore cultural misconceptions (translated into English)

May I use your pencil?

John is from Greece and Peter is a study abroad student from USA. They are close friends attending the same class. Class has started. Peter is looking for a pencil and notices some pencils on John's desk.

Peter: I forgot my things in my room! May I borrow one of your pencils, please?

John looks puzzled and annoyed.

John: Ah ... yes...

Once the class is over, John says goodbye in an unfriendly way and leaves. Peter is surprised and perplexed.

Groupwork

You will work in groups of 4-5 people. Read the text above. With your team members try to explain what has happened. Why is John annoyed and why is Peter puzzled? What would you explain to each of them to help them see things from his friend's perspective?

Description

The activity is again conducted in an undergraduate Modern Greek as a second language course. Learners are presented with a short dialogue, which includes a cultural mishap. This is a dialogue between two close friends, a Greek student and an American study abroad student, who attend the same class. During class, the American student notices a few pencils on his friend's desk and politely asks whether he can borrow one. The Greek friend becomes very annoyed and the American student is very perplexed (see Table 1: Prompt for activity to explore cultural misconceptions (translated into English)). The students read the dialogue, and in groups try to explain what has happened. During a class conversation that follows, the class explores the emphasis Greek culture places on involvement and in-group relations, an in-group being one's family, relatives, and friends (Sifianou, 1992; Triandis & Vassiliou, 1972). Members of the same in-group are expected to share things, especially little things such

as pencils, and thus do not need to ask for each other's permission to do so as is the case with members of an out-group (Sifianou, 1992). Being formal to a member of an in-group by, for example, asking for permission to borrow their pencil functions as a distancing device. It follows that, in the scenario under discussion, the message the Greek student has received is 'I cannot take the pencil without asking for your permission because we are not that close', hence his disappointment. The American student, on the other hand, has been operating on the cultural norm that no matter how close one may feel to someone, one should be discreet and not overstep the boundaries, hence his asking whether he could borrow the pencil. What is interesting here is that both friends are being polite, that is, they are either acting or responding to an action following politeness rules and norms; however, these norms are different in the two respective cultures, of which they are not aware. The misunderstanding, therefore, has resulted from the fact that they are viewing things through the lenses of their own respective culture and, without realising it, are operating on the misperception that their own way of expressing politeness is the same across different cultures.

Observed impact on students

Based on my observations of similar activities, participants tend to become more aware of cultural misunderstandings that may arise from differences in background and worldviews. When miscommunication occurs in class, they tend to investigate whether it has been caused by a cultural clash of which they might not be aware. Given that students gain more confidence in addressing these issues, participation in pair or group activities with peers from different ethnic backgrounds increases considerably. Moreover, communication among them becomes more honest, respectful, and effective.

As a result of the above, I observe a higher quality in classroom discussions. Students feel more comfortable recognising their own unconscious biases as well as discussing sensitive issues. Through further simulation practice, they show a greater tendency to put themselves in their peers' shoes, which helps them challenge implicit assumptions they had previously accepted as self-evident.

Through further reflection on these changes – whether through journals or classroom discussions – learners recognise significant shifts in their communication and attitudes toward those perceived as 'other', both within and beyond

the classroom. As a result, students become more intentional in sustaining these changes, demonstrating increased inclusivity in their interactions with peers by actively involving them in group activities and encouraging their participation.

Adaptability to various courses

Similar scenarios can be created and explored in a number of diverse courses, such as anthropology, sociology, communication, international tourism, or international business. To provide an example, in an international relations course, students may be asked to practice resolving conflicts arising from cultural misunderstandings using negotiation and intercultural communication skills. Students may first discuss examples of how cultural misunderstandings have impacted international diplomacy (e.g. body language misinterpretations, different negotiation styles, or language nuances). They may then be presented with a scenario involving a multinational climate summit where one delegation's informal communication style is perceived as disrespectful by another delegation accustomed to rigid protocol. Each student or group is assigned a role as a country's diplomat or an international organization representative. Each student or group is also provided with a briefing document outlining (a) their cultural norms and values (e.g. communication style and decision-making process), and (b) their position on the issue (e.g. priorities at the climate summit). Students are then presented with a triggering event: An informal gesture during a meeting offends a delegate from a culture valuing formalities (or a negotiator's indirect approach causes frustration for a culture preferring direct communication). Students identify the misunderstanding and work towards a resolution. This is followed by an in-class discussion about what cultural factors contributed to the conflict. Students also reflect on how they resolved the misunderstanding and what could have been done differently.

To provide an additional example, students in a business course could be presented with a scenario involving a cultural mishap or misunderstanding taking place during a professional meeting among people of various cultural or ethnic backgrounds. For instance, during this meeting a Greek person could use a direct request, which actually sounds natural and quite polite to the Greek native ear, and which might, however, be perceived as rude by others. A whole

discussion about similarities and differences in the professional meeting etiquette between various cultures may follow (see also Morris et al., 2014).

Inclusive classroom and active learning

Creating a mistake-embracing and culturally inclusive learning environment considerably supports students in overcoming hesitations to adopt active learning strategies.

First of all, such activities significantly increase student engagement as they attract students' attention and interest. Activities of this sort are a welcome and much needed break from the theory taught in all types of courses. Moreover, they help students understand how theories operate in real-world settings, while such practical application supports them in comprehending the relevance as well as limitations of theoretical models.

In addition to the above, real-world applications often involve unpredictability, and thus train students to navigate challenges, adapt and innovate. Through activities which focus on the interpretation of cultural differences, learners further develop their ability to operate with cultural efficiency in a variety of sometimes unfamiliar situations. In Nechifor & Borca's (2020) terms, students develop the ability 'to catalogue an unfamiliar situation as provoking and not as terrifying, any frustrating social interaction as challenging rather than inhibiting' (p. 299). Students who view new learning strategies or practices as challenging, provoking and fascinating instead of terrifying or inhibiting are more open to experiment with them to find out what they can gain from them. Fostering a culture of enthusiastic risk-taking and exploration empowers students on their journey of discovery, often leading to the uncovering of new cultural beliefs and values and unveiling fresh perspectives on the world.

Activities in which students experience other cultures and reflect on these experiences without fear of saying the 'wrong' thing support students in viewing the behavior of people of different cultural or ethnic backgrounds from the perspective of these people's cultural norms and values rather than interpreting it through the framework of their own cultural background (Morris et al., 2014, p. 202). This leads to a better understanding of their own culture as well, because defining the other often helps define one's own self. Students cultivate greater empathy and tolerance for uncertainty, along with the skills necessary to suc-

ceed in a globally diverse society, extending beyond their local surroundings (Banks, 2014, p. 41).

In activities similar to the ones presented above, cultures are contrasted and cultural differences are interpreted and negotiated through discussions during which students feel free to reveal their ‘unique self’ even if this means a self with preconstructed notions and biases. This helps students communicate honestly, openly and effectively in a multicultural setting and greatly improves their negotiation skills. In such learning environments, students do not just learn codes or theories which may be used in certain restricted environments. They develop skills essential for communication and work in global settings. They additionally develop a new identity, that of a global citizen (see also Byram and Wagner, 2018, p. 147). Through the reflection stages of these active learning activities, students come to realise the changes in their skills and attitudes that have been generated, and the impact these changes have on the quality of their communication and collaboration with members of their immediate community and beyond. They also come to appreciate the quality of the learning that has taken place, which has greatly impacted the way they perceive themselves and others. The realisation of these changes further motivates them to continue to engage in similar activities that will help them discover even more worldviews and perspectives without fear of making a mistake on the way.

Additionally, allowing students to gradually adapt to active learning through cultural immersion and reflection provides opportunities for bonding experiences with an impact on class dynamics. Such type of learning has a quality of personal involvement as the whole person in terms of emotions and cognitive aspects participates in the learning event. Students who holistically participate in similar learning experiences share a meaningful connection with members of the learning community. This in turn significantly impacts various aspects of the learning journey including communication, acceptance, and collaboration.

When students and instructors have strong relationships, communication becomes more open and effective. Students are more likely to ask questions, express ideas, and participate in discussions and activities without fear of judgment. Instructors can also communicate more clearly and empathetically, ensuring students feel heard and understood. Furthermore, strong bonds foster a sense of community and belonging, where students feel accepted for who they are. This acceptance reduces anxiety, builds confidence and allows students to be more open to diverse ideas and perspectives. Moreover, when students feel connected to one another as well as to the instructor, they are more

likely to engage in collaborative activities. Strong relationships promote teamwork as students trust each other and value each other's contributions.

Ultimately, strong bonds create a classroom environment where all members understand, accept and support each other, feel encouraged to take risks in their learning, and actively participate in activities. Positive relationships and positive intergroup contact encourage a mindset of continuous learning and self-improvement, and hence students are more engaged in their academic journey and further motivated to learn in new, more active ways.

Key takeaways

This chapter has addressed the issue of student resistance to active learning. Establishing a safe, supportive, and inclusive classroom environment has been identified as a key factor in enhancing students' willingness to engage with active learning strategies. In such a learning space:

- Mistakes are encouraged and embraced as a sign of active engagement in the learning process and are viewed as shared learning experiences and valuable opportunities for growth rather than individual shortcomings.
- The class utilises its multicultural composition to engage in active learning activities designed to bridge cultural gaps, navigate cultural differences, and promote cross-cultural understanding and collaboration. Learners reflect on the impact of these culturally enriched active learning practices to gain a deeper understanding of how these experiences have shaped their skills, attitudes, and perspectives. They recognize the transformative changes in their worldviews and develop an awareness of their enhanced capacity to navigate diverse, global communities.
- Students who undergo such transformative changes and recognise that these outcomes have been made possible through their participation in active learning activities are more inclined to embrace and implement these strategies in the future. The realisation of their personal and intellectual growth not only reinforces their confidence in the effectiveness of active learning but also inspires a commitment to integrating similar strategies in their future educational pursuits.

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6 PROMOTING STUDENT SELF-REGULATION AND ADAPTATION

Clearly, an essential component of active learning is the active engagement of students. However, to actively engage students must also have the knowledge, capabilities and attributes to productively navigate the active learning ‘terrain’ and sustain their engagement, especially when previous learning experiences may not have sufficiently prepared them. This section explores approaches to building student confidence, capacity and skills to engage with active learning. As [Sidorovitch](#) highlights, developing self-monitoring and self-evaluation, fundamental attributes for active learning, requires deliberate scaffolding. [Kostoulas](#) and [Hughes et al.](#) offer two approaches to such scaffolding and supporting the associated confidence, capacity and skill development. [Kostoulas](#) offers Critical Team Coaching (CTcM) to develop the capabilities needed to engage effectively with active learning and sustain that engagement. These capabilities include critical reflection, collaboration, and self-directed problem-solving. They explore the benefits and impact of CTcM for both students and staff. Meanwhile, [Hughes et al.](#) offer academic coaches as their approach to support and nudge students to develop the capacity for active learning and derive the associated benefits of engagement. These benefits include self-confidence and self-reliance in how to study, as well as relevant skills and knowledge to thrive in higher education. Underpinned by a theoretical framework that draws on coaching and nudge theory, they highlight how others may adopt or adapt the approach for their students. Early indications suggest improved progression rates in students who engage with this support.

When exploring tools and technologies that can support active learning and self-reflection, [Saman and Shoukry](#) argue that when appropriately implemented with due attention to equitable implementation, expert oversight, and environmental sustainability, generative artificial intelligence (GenAI) has the potential to expand access to formative feedback, supporting active learning and self-reflection beyond class time or instructor availability. As [Horrocks](#) highlights, by

fostering environments rich in active learning, we help students build their skills and capacities to be competent and confident active learners who can then resist the allure of using tools like GenAI in an inappropriate way. [Smith](#)'s case study provides an interesting example of a GenAI-facilitated approach to active learning to foster critical thinking, legal reasoning, and digital skill development. Smith shows due consideration to several of the issues [Saman and Shoukry](#) and [Horrocks](#) raise, showing an example in practice for others to learn from.

Finally, [Fisher](#) offers another illustration of how thoughtfully designed learning experiences using digital tools and spaces, in this case the affordances offered by a Virtual Learning Environment (VLE), can foster reflection and active engagement. Fisher demonstrates this through the consistent use of low-stakes microlearning prompts ('Stop and Think') embedded within the Virtual Learning Environment. These short reflective activities significantly improved student engagement and have since become standard practice across the university's online provision. Fisher's example highlights how practices designed with adaptability and transferability in mind are more easily sustained and embedded to support student engagement, critical thinking, and independent learning.



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Opinion Piece: The Role of Active Learning in the Development and Enhancement of Students' Self-Regulatory Strategies

ANNA SIDOROVITCH

Active learning is far more than a pedagogical trend. It is a transformative approach that nurtures students' capacity to regulate their own learning. It equips learners with the cognitive and motivational tools essential for lifelong learning. Through the intentional scaffolding of active learning activities and guided self-regulatory processes, learners develop into autonomous, self-directed individuals (Pintrich, 2000). This transformation, in my view, is what makes their learning journey undoubtedly sustainable. Unlike passive modes of instruction, active learning demands engagement at cognitive, metacognitive, and social levels, stimulating the development of strategies that help learners manage their motivation, set meaningful goals, and reflect on progress (Prince, 2004; Freeman et al., 2014).

From my perspective, the power of active learning lies in how it operationalises the principles of self-regulated learning (SRL), where students learn to plan, monitor, and evaluate their learning processes (Zimmerman, 2000). Approaches such as inquiry-based learning, peer teaching, problem-based learning, and reflective journaling provide purposeful opportunities for students to practice these skills (Bonwell & Eison, 1991; Michael, 2006). I contend that teachers, in this context, are not mere facilitators but critical catalysts who model self-regulatory behaviour, offer meaningful feedback, and gradually release responsibility to learners. This deliberate scaffolding enables students to internalise self-monitoring and self-evaluation strategies which are the fundamentals of independent learning (Chi & Wylie, 2014).

Equally important is the social dimension of active learning. I am convinced that

collaboration strengthens self-regulatory development, aligning with research that shows how learners engage in socially shared regulation of learning (Hadin et al., 2011). In these settings, students co-construct goals, track progress, and manage collective understanding which are the skills that mirror real-world teamwork and leadership. Such environments foster empathy, communication, and shared responsibility, qualities essential for lifelong learning. Active learning strategies like cooperative problem-solving and group inquiry not only enhance cognitive understanding but also cultivate the interpersonal and regulatory competencies that sustain effective learning communities (Prince, 2004; Freeman et al., 2014).

Finally, I maintain that the sustainability of learning depends on motivation and self-efficacy. Active learning inherently supports these affective domains by empowering students with a sense of agency and competence (Pintrich, 2000). When learners experience ownership over their learning, they are more likely to persevere through challenges and transfer self-regulatory strategies to new contexts (Deci & Ryan, 2000).

In conclusion, I view active learning as a developmental framework rather than a single instructional method. If education is to prepare individuals for an unpredictable future, then embracing active learning is not optional. It is essential for ensuring sustainable, lifelong learning.

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Chapter: Fostering a Dialogic, Collaborative, and Critical Active Learning Environment through Undergraduate Team Coaching

GEORGIA (GINA) KOSTOULIAS

Summary

This chapter introduces the Critical Team Coaching Model (CTcM) as a transformative approach to active learning that fosters higher order thinking, collaboration, and accountability in undergraduate students. Through structured coaching sessions, students learn to challenge assumptions, reflect critically, and co-create knowledge. Drawing from action research, the chapter provides practical strategies for educators to implement CTcM across disciplines, ensuring sustainable learning and inclusive engagement. Concrete examples in questioning illustrate how coaching enhances teamwork, problem-solving, and real-world application, equipping students with essential skills for navigating complex challenges. The subsequent applied sections demonstrate how CTcM equips students with the capacity for active learning and the skills needed to sustain it: critical reflection, collaboration, and self-directed problem-solving.

Introduction

Evidence-based research across disciplines demonstrates that active learning outperforms traditional lecturing in higher education, particularly in enhancing student performance and retention (Freeman et al., 2014). According to the Cornell College Center for Teaching Innovation (Active Learning, 2024), active learn-

ing refers to approaches that encourage students to actively participate in their learning through activities like ‘thinking, discussing, investigating, and creating’ (para. 1). The *Active Learning Network* webpage clearly emphasizes the teacher’s role:

rather than the teacher ‘transmitting’ knowledge through lectures or reading, learners engage in a series of activities which require them to produce *observable evidence* of their learning. Where possible, these individual, pair and group tasks should aim to develop higher order thinking skills, emotional connection with content and tactile or physical engagement with the environment. (How do we define Active Learning, para. 2, n.d.)

Despite the adoption of active learning (Thang, 2025), empirical studies that directly investigate the integration of active learning strategies with real-world problem-solving objectives remain relatively scarce. Much of the current literature offers descriptive accounts of isolated pedagogical interventions within specific institutional contexts (e.g., Chang et al., 2024; Nemakhavhani, 2024; Sakulthai, 2024). Notably, Figueiró and Raufflet’s (2015) systematic review of management education identifies a persistent disconnect between ‘teaching, program design, and learning’ (p. 22). These findings suggest that although active learning approaches are increasingly embedded in university teaching, their real-world impact depends on intentional curriculum design, authentic community engagement, and contextual relevance.

This limitation highlights the need for strategies that link critical engagement to global issues, as outlined in the United Nations’ 17 Sustainable Development Goals (SDGs) (2015). Despite their urgency, only 3.83% of universities have integrated the Principles of Responsible Management Education (PRME) (Kostoulas, 2024, p. 4283), highlighting the gap between need and implementation.

The purpose of higher education extends beyond preparing students for assessments; it also plays a pivotal role in shaping tomorrow’s citizens and active contributors to solving the SDGs and creating a hopeful, sustainable future. An active citizen is not merely one who votes or fulfills civic duties, as Glastris (2021) notes in the *Washington Monthly*. Instead, active citizenship involves addressing social issues, problem-solving, ensuring equity and tolerance, and engaging in civic discourse to uphold, scrutinise, and reconstruct democratic flagships gone astray. John Dewey (2001/1916) viewed democracy and education as inseparable. One can deduce that within this context, active learning in the undergraduate classroom should involve coursework intentionally designed to connect acade-

mic material with the complex global or local challenges we face. Freire (2014) in *The Pedagogy of the Oppressed* highlights:

the dialogical character of education as the practice of freedom does not begin when the teacher-student meets with the students-teachers in a pedagogical situation, but rather when the former first asks herself *what* she or he will dialogue with the latter *about*. And preoccupation with the content of dialogue is really preoccupation with the program content of education (p. 93).

Creating a conducive environment for this approach requires a pedagogy that is dialogic and collaborative. Team coaching for students is one such method. An action research doctoral study spanning two semesters demonstrated its effectiveness as a pedagogical tool that transforms active learning into active problem-solving. Critical coaching enables students to engage deeply with course material, develop higher-order thinking skills, and apply their knowledge to real-world problems.

The chapter begins with a presentation of the theoretical foundations of team coaching, followed by a description of its objectives, structure, and techniques. It examines how team coaching fosters an environment where students actively engage, critically reflect, and develop communication, leadership, and teamwork skills. Practical examples illustrate how team coaching can be implemented successfully, supported by findings from the two-semester study. Finally, the chapter explores feedback mechanisms within the team coaching process, demonstrating how formative feedback supports student growth and coach development. It addresses challenges encountered during implementation and offers solutions and recommendations for future research. The chapter concludes with the implications of dialogic learning, collaborative pedagogy, and team coaching as transformative tools for higher education. As Kostoulis et al. (2011) have argued, ‘transformative learning is not a *fait accompli*; it is an organic theory and stance of pedagogical learning within which transformative approaches to learning can foster and grow’ (p. 668).

Section I: Theoretical Foundations of Critical Team Coaching

A. Dialogic Learning

The significance of dialogic learning cannot be overstated. Freire's (2014) concept of dialogue highlights education as a space for freedom and collaboration, where students learn through open, critical engagement. Wegerif (2008) notes that dialogue is a dynamic, evolving process, where meaning is shaped through its ties to past discourse and its potential to inform future interactions. Dialogue, he contends, is not static but a negotiation of meaning that enhances cognitive flexibility. Meanwhile, Bohm and Nichol (2013) specify what dialogue is not: it is not a debate where participants seek to 'win the game' (p. 7). Rather, genuine dialogue demands openness to questioning one's own core beliefs (p. 7), promoting a discovery process that leads to 'something creative' (p. 6). Ultimately, dialogue facilitates the creation of 'shared meaning,' acting as the cohesive force – the 'glue' or 'cement' – that unites individuals and societies (p. 6). For Barros (2025), dialogue 'advocates for problem-posing education, positioning students as co-creators of knowledge involved in the learning process' (p. 117). Such dialogue exposes oppression, challenges it, and fosters creative problem-solving. Dialogic learning thus encourages students to actively shape understanding through discussion and reflection.

Freire (2014) provides insight into the principles of effective dialogue. In Chapter 3 of *The Pedagogy of the Oppressed*, he emphasizes that dialogue is not just a teaching method, but a fundamental element of learning and human interaction. He presents five key ideas that are critical to meaningful dialogue and that are relevant not only in the context of teacher-student relationships but also in the context of team coaching.

Freire calls the first idea love, which represents a commitment to others and a deep respect for their humanity. Love drives the desire to engage in authentic interactions and to understand the value of others' perspectives. As he underscores: 'Love is at the same time the foundation of dialogue and dialogue itself' (2014, p. 89). Such is the coach's responsibility: to create an environment of care, respect, and 'unconditional positive regard' (Kemp, 2008, p. 42), an environment that requires equality between coach and student-teams (Kostoulas, 2019).

Freire's (2014) second idea includes humility for all involved. This includes recognizing that no one has all the answers and that everyone can learn from each other. Humility encourages openness to new ideas and places the coach in a 'position of ignorance,' adopting a mindset of curiosity and genuine interest (Kemp, 2008, p. 42).

Humility, also requires faith: '[f]aith in people is an *a priori* requirement for dialogue' (Freire, 2014, p. 90). Freire emphasises the importance of believing in the ability of others to learn, grow, and change. This faith motivates participants to fully engage in dialogue and education. Coaching, too, reflects faith in others' potential (Thompson, 2024). Faith enables belief in growth, self-direction, and problem-solving potential. As Thompson (2024) clarifies, 'Coaching [too] is an act of faith in others' (para. 3).

With such faith, hope also becomes a drive for change. Hope, according to Freire (2014), is the belief that change and improvement are possible. It is a forward-looking attitude that sustains the energy and motivation necessary for meaningful dialogue and learning, even under difficult circumstances. Hope sustains motivation to achieve meaningful change and supports goal-directed pathways, fundamental to coaching discussions (Rand & Cheavens, 2012; Campbell, 2022).

The foundation for such dialogue, which includes equality, respect, growth, and change, is what Freire identifies as 'critical thinking.' Freire views critical thinking as an understanding of reality that is transformative and inseparable from action (2014). Conventional critical thinking often emphasises detached reasoning, ignoring social, and transformative dimensions necessary for real-world engagement. This may explain why critical thinking in undergraduates is elusive (Aston, 2023; Elen et al., 2019). Main culprits include:

- Psychological or sociological factors impeding students' ability to 'have critical thinking' (Aston, 2023)
- The rise of international students who have not been exposed to the Westernised notion of critical thinking and academic writing (Calma & Catronei-Baird, 2021)
- Shortcomings at the institutional, faculty, and course level (Elen et al., 2019).
- The lack of business education research between 1990 and 2019 offering guidance on 'how to teach it' (Calma & Davies, 2020, p. 8).

In contrast, criticality – which incorporates self-reflection, action, and engagement with the world – offers a more dynamic and holistic approach. Criticality,

especially when combined with dialectical thinking (which embraces contradiction, dialogue, and synthesis), is energised by a dynamic interplay between inconsistencies and dialoguing (Anchin, 2008). Dialectical thinking is heralded by scholars (Laske, 2009; Kramer, 1983; Kallio 2011) as better equipping students to navigate social, political, and environmental crises. Even more so, Wu and Chiou (2008) found a strong connection between dialectical thinking and creativity. Ultimately, a relational, dialogic, and socially engaged form of criticality is required, rather than the isolated, logic-driven critical thinking currently prioritized in universities. Kostoulas (2019) defines criticality as encompassing

a collective dialogic process of thinking that seeks to find creative sustainable solutions. Its focus is on exploring interrelationships and contradictions and critically reflecting on power structures. As such, criticality goes beyond formal thinking and utilises the thought processes of dialectical thinking to problem-solve collectively. (p. 161)

Critical team coaching, incorporates these elements: dynamic interplay, dialogue, synthesis, and creativity to guide students through inconsistencies in their thinking, fostering ethical and responsible solutions.

B. Questioning

Questioning is an essential extension of dialogic learning and the most essential driver of active learning. Dialogue thrives on inquiry that probes assumptions, explores alternatives, and encourages reflections. Abrami et al. (2015) note that instructors facilitate students' active engagement rather than passive reception of knowledge. Kemp (2008) explains that a coach approaches questioning with curiosity, intentionally setting aside assumptions to foster open-ended inquiry. This aligns with the model of inquiry introduced by Plato in his dialogue, *The Sophist* (Leigh (2007), where students engage as partners, reflect critically, and creatively test claims. This is in contradistinction to Socratic questioning, where 'Socrates...does much more talking and telling that would be expected in coaching' (Cox, 2012, p. 117).

In coaching, questions focus on purpose, adaptability, and context. Their aim is to clarify goals, assess progress, and support team functioning. While these provide a framework, effective coaches adapt their questioning to the specific needs of the situation, and, thus, context (Cox, 2012). Adaptability therefore engen-

ders additional questions to clarify thinking, identify inconsistencies, and explore key ideas. Such adaptive questioning prompts reflection, multiple perspectives, and awareness of social contexts, extending learning beyond personal development to broader concerns. Higher-order questions act as scaffolds for dialectical inquiry, enabling students to probe, elaborate, link ideas, and synthesise solutions. In this way, the tutor-coach (TC) guides teams from surface understanding to deeper critical and social awareness, making questioning a pivotal driver of criticality.

C. Collaborative Learning/Teamwork

Despite the benefits of collaborative learning and teamwork in business education, Flores and Bauman (2024), in *Group and Team Work: Teaching Methods in Business Series*, underscore how teamwork in undergraduate classrooms fails to ‘achieve their team work-linked learning goals and outcomes’ (p. 23). Even more concerning, ‘these courses end up leaving an indelible negative emotional experience in many of their participants and educators’ (p. 23).

The authors identify several causes and effects. For educators, these include shirking responsibility to teach teamwork skills, choosing teamwork to ‘reduce their workload,’ or choosing it for ‘convenience’ to save time and avoid departmental hassle. Others do teamwork while believing from the outset in the dysfunctionality of their student teams (pp. 23-24). Misalignment between ‘multiple internal and institutional forces’ can also undermine teamwork (p. 24).

For students, the division of teamwork responsibilities often results in lost learning opportunities. Free-riding, lack of transparency, and poor communication are major concerns. Research concludes that students need guidance on what it means to work in a team and how to work well (Bakir et al., 2020; Opdecam & Everaert, 2018).

Coaching student teams has proven to provide the space for students to work well, be accountable, responsible, transparent, and equal, to seek answers to questions to problem-solve local and global issues (Kostoulas, 2019). Such student teams can become high-performing teams. And as Clutterbuck et al. (2019) show, there is ‘increased awareness that high performing teams are much better placed to solve the wicked problems of the twenty-first century than any one individual, however talented’ (Introduction, para.1).

With a strong foundation in dialogic learning and critical team coaching, the next section transitions from theory to practice. It details the structured coaching model, demonstrating how guided questioning, accountability structures, and reflective dialogue transform teamwork into a dynamic process of collaborative inquiry. This section shows how educators foster deeper engagement and criticality in student teams.

Section II: Implementing Critical Team Coaching (CTcM) in Higher Education

These principles form the foundation of dialogic pedagogy in Critical Team Coaching. By fostering equality, respect, personal growth, and critical engagement, team coaching empowers students to collaborate, embrace responsibility and accountability, challenge oppressive structures, and engage in critical questioning to develop thoughtful solutions. Problem-based learning, which flourishes through dialogue, deepens comprehension and promotes meaningful inquiry. In essence, it exemplifies active learning in its fullest form. This pedagogical approach aligns closely with Freire's (2014) vision of education as a practice of freedom, empowering students not only to transform their understanding but also to reshape the world around them. It equips them with the insight essential for a thriving democracy, enabling them to identify and dismantle blind spots that hinder progress, ultimately preparing them to address crises and meet the needs of future society.

With the theoretical foundation for Critical Team Coaching (CTcM) established, this section demonstrates the application of these principles in practice. The subsequent practical examples, tools, and findings from the action research study show how dialogic pedagogy, critical questioning, and inclusive facilitation are integrated into problem-based team projects, allowing students to participate in collaborative critical inquiry and reflective learning.

The implementation of CTcM was guided not only by pedagogical vision but ethical responsibility. Accordingly, all procedures in the action research study (Kostoulas, 2019) were conducted in compliance with institutional ethical standards and received formal approval from the University Research Ethics Committee (UREC) at Oxford Brookes University (Approval Code: 171163). Ethical consider-

ations were addressed across all levels of participation involving tutor-coaches (TCs), students, and faculty.

Before the coaching intervention, the School of Business circulated an invitation to faculty with experience assessing teamwork. Participation was voluntary and anonymous. These semi-structured interviews explored how teamwork was conceptualized, facilitated, and assessed, and identified potential barriers to dialogic development in team settings. While these interviews helped shape the intervention's theoretical and pedagogical grounding, they are not included in the analysis presented in this chapter.

For the prospective tutor coaches (TCs), participation was entirely voluntary and preceded by informed consent. The pedagogical training provided to the TCs was designed and delivered by the researcher as part of her doctoral study. Engagement in the research was explicitly distinguished from pedagogical training, and TCs could withdraw at any time without consequence. To address faculty hesitancy, the study positioned tutors as co-researchers. This approach fostered trust and reframed coaching as a complement to, rather than a replacement for, traditional roles. TCs submitted reflective diaries, engaged in semi-structured interviews, and participated in informal discussions throughout the process.

Student feedback followed equivalent ethical safeguards. Participation was voluntary and anonymous, with no academic incentives. To ensure impartiality, a psychology faculty member unaffiliated with the project independently conducted the focus groups.

Credibility was enhanced through data triangulation, member checking, and researcher reflexivity, aligning with qualitative inquiry principles and Braun and Clarke's (2006) approach to thematic analysis.

Grounded in critical pragmatism, the CTcM process was not only enacted but refined through each cycle of inquiry. It was shaped by dialogic encounters, practitioner reflection, and students' lived experiences. The key elements of the Critical Team Coaching Model that emerged from this iterative process are as follows:

Orienting the Prospective Faculty into Team Coaches: Volunteer faculty from the L5 Professional Communication module were oriented into the specificities of critical team coaching as well as the differences between the role of faculty in the classroom and that of a coach. These were the stages:

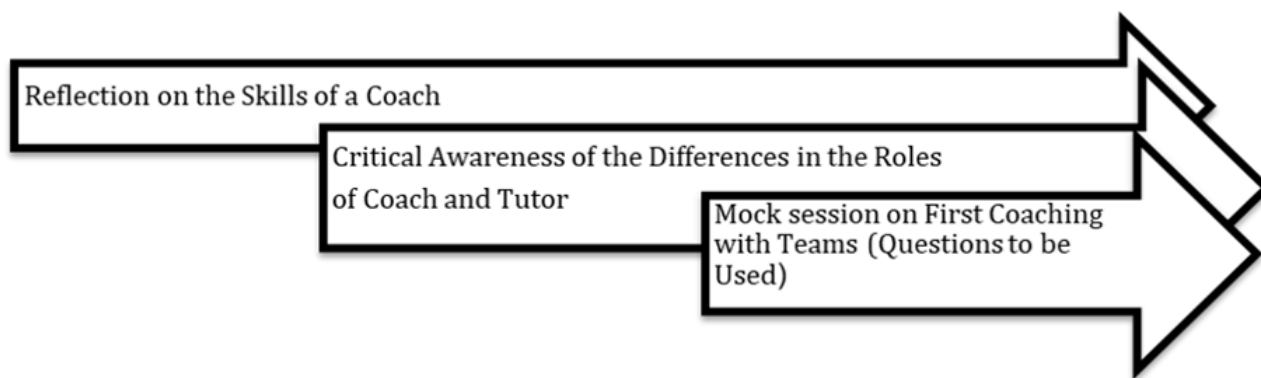


Figure 1: Initiation into the Preliminary Coaching Model. © Kostoulas, 2019. CC BY 4.0

Their reflections on the skills of a coach initiated an insightful discussion on the differences between a coach and an educator.

Table 1: List of coaching skills. Adapted from Kostoulas (2019, p. 81)

1	Authentic listening & active listening strategies	(Cox, 2012)
2	Asking questions (non-judgmental)	(Cox, 2012)
3	Challenging constructively	(Clutterbuck & Megginson, 2005)
4	Providing feedback	(Hackman & Wageman, 2005)
5	Creating accountability	(Hackman & Wageman, 2005)
6	Providing encouragement & support	(van Nieuwerburgh & Barr, 2017)
7	Building rapport and trust—psychological safety and respect	(Cox, 2012)
8	Critical reflection & reflexive learning	(Cox, 2012; Kristal, 2009)
9	Equality between coach & coachee	(Shoukry, 2016)
10	Facilitative and collaborative relationship between coach & coachee	(Grant, 2003)
11	Learning space	(Kolb & Kolb, 2005)
12	Space where creativity can emerge	(Western, 2012)
13	Critical consciousness	(Askew & Carnell, 2011)
14	Coach's 'knowledge demands be sublimated'	(Cox, 2012)

The TCs were assisted to focus on their role: to mediate the student team's thinking. What this means is 'not to do the thinking for the student teams, but to mediate inconsistencies, contradictions, and guide them through these contradictions so that student teams identify legitimate, transparent, and accountable solutions' (Kostoulas, 2019, p. 83). Coaches were also introduced to their key duties, with a strong focus on the shared commitment required for a successful coaching dynamic. This relationship is not one-sided; rather, both TCs and student teams engage in a reciprocal learning process. While students develop their higher-order thinking and problem-solving skills, TCs refine their approach through ongoing reflection and adaptation. Drawing from Schön's (1987) framework, this reflective practice unfolds in three stages: Knowing in Action, Reflection in Action, and Reflection of Action. This cycle of continuous learning and self-improvement is essential for fostering effective coaching relationships and maximizing student development.

The training played a crucial role in establishing clear expectations, anticipating challenges, and ensuring an equitable power dynamic between TCs and student teams. A key component of this approach was engagement in the three-stage coaching process (see Section IV), which shaped the structure of the three recorded coaching sessions conducted by each TC with their assigned teams.

Additionally, TCs were given the task to complete three structured reflective diary entries – one before, one during, and one after the coaching process – as well as participate in a recorded semi-structured interview.

Faculty Reflections: Faculty acting as coaches reported their pedagogical transformation, with greater comfort adopting a position of ignorance, modeling critical questioning, and facilitating collaborative knowledge construction.

Table 2: Excerpts from Faculty Reflections, from Kostoulas (2019)

Theme	Faculty Reflections
Coaching	'... I felt different. It was more relaxing, more equal, and I did not feel that they are dependent on me [...]' (p. 144). 'I was relieved at not being the instructor—being the coach, the non-assessment scope of the relationship was liberating' (p. 108).
Dialogue	'Dialogue spurred by questioning created an environment of further discovery but also accountability and ownership of work' (p. 110).
Student Accountability	'The students were led to retrieve answers from their own concepts and perceptions...this gave the students accountability for their synthesis, strategy, and action.' (p. 110)
Student Thinking	'...students' logical associations, reflective thinking, and problem-solving skills seemed to increase. They gradually became more open-minded and well organized in their thought' (p. 143). 'They seemed to be self-monitoring, questioning established beliefs, and focusing on certain subject matters' (p. 143).

Team Formation and Orientation: Teams assigned to project-based work first participated in an orientation session designed to establish clear expectations and introduce the team coaching framework. This session was essential for defining the coach's role—not as an authority figure or expert, but as a facilitator who guides inquiry through questioning. Equally important, it helped create a sense of psychological safety, ensuring that all team members felt supported in expressing their ideas, challenging assumptions, and engaging in meaningful dialogue.

Structured Coaching Sessions: Each team participated in three structured coaching sessions across the term, designed to:

- Encourage dialogue over debate.
- Foster collective critical reflection on the project goals, processes, and emerging challenges.
- Apply higher-order dialectical questioning techniques (e.g., surfacing contradictions, exploring historical contexts, generating creative solutions through synthesis).

Team Dialogue and Accountability: Sessions emphasized shared responsibility for both the process and outcomes, reinforcing the link between personal accountability and what Dewey (2001/1916, p. 126) coins 'socialization of mind.'

In effect:

- Teams were encouraged to keep reflective diaries, tracking how their thinking evolved through dialogue, peer questioning, and collaborative problem-solving.
- Coaches (faculty members) and students co-generated feedback, focusing on both task performance and the quality of dialogue and critical reflection within the team.
- Two focus group meetings provided the space for student teams to respond to semi-structured questions on the experience of being coached.

From the two action research cycles, evidence was gathered on the impact of team coaching on student learning, criticality, and team functioning. Key findings include:

Improved critical reflection: Students demonstrated a shift from surface reflection (what worked or didn't) to critical reflection (why certain dynamics emerged, how power or privilege shaped interactions, and what assumptions guided their decision-making).

Enhanced team functioning: Teams reported greater trust, transparency, and equitable participation, directly linked to the dialogic space facilitated by coaching.

Critical engagement with content: Students increasingly questioned the underlying assumptions of their projects, demonstrating higher-order thinking, identifying tensions and contradictions, and exploring multi-perspective solutions.

Creative problem-solving: Dialectical questioning triggered creative leaps, particularly when teams were asked to synthesize opposing ideas into innovative solutions.

Accountability and responsibility: Teams were prompted to discuss their timelines, individual roles, and scheduled meetings, with the TC facilitating the discussion and summarizing key decisions at the end of each session to reinforce commitments. This approach fostered both individual responsibility and collective team accountability.

Student Reflections: The following table presents key themes that emerged from student reflections on the Critical Team Coaching process. These excerpts highlight the impact of guided questioning, teamwork, and collaborative thinking in fostering deeper engagement, criticality, and higher-order problem-solving:

Table 3: Excerpts from Student Reflections, from Kostoulas (2019)

Theme	Student Reflections
Impact of Questioning	'Due to some of the questions...we came into conflict with some of our ideas and assumptions [...] we were [then] able to disregard weaker facets while strengthening the merits of those that held firm' (p. 138).
Teamwork	'The team has become more integrated and efficient when facing problems [...]' (p. 140). '...[E]ach team member has come to know and understand each other's strong and weak points and working habits" (p. 140) 'Team members have found out how to complement and support each other' (p. 140).
Thinking Collectively	'The process of thinking collectively as a team was new for me. Listening to other teammates, refining their ideas, proposing my own, letting others develop my ideas and finally combining them together, was a process that I experienced for the first time to such a degree' (p. 140).
Coaching	'The coaching... channeled all this creative energy...[it] allowed us to channel all this energy...into one common purpose, let's say' (p. 111). '... It is amazing ...it is a perfect segue to academic studies' (p. 119)
Higher-order Thinking	'... higher-level and critical thinking skills have developed to where they can be focused towards the efforts and necessities of this particular project' (p. 141). 'While I have studied and practiced such thinking strategies in many courses, these sessions have allowed me to channel my skills in a more efficient way [...]' (141).
Recommendations	'... All teams should be persuaded to do the coaching...' (p. 118). '...[Coaching]...should get inside the program for other level 5 or level 6 courses' (p. 119).

D. CTcM: A Comprehensive Approach to Active Learning Models

Critical Team Coaching is a comprehensive educator's approach that builds on the strengths of team coaching theory, Project Based Learning (PBL), and Team Based Learning (TBL) to design a safe and active learning environment. Kostoulas (2019) identifies its prerequisites:

A definition of critical team coaching would require a safe (brave), equal environment, where the coach uses questioning and active listening to usher self-awareness in the team, ownership of responsibility, and social intelligence, creating a dynamic interplay of critical dialogue and reflection among coachees so as to develop criticality, in their quest for answers to creatively problem solve (p. 13).

The concept of safe (brave) spaces refers to environments that promote respect and emotional safety for diverse perspectives. Arao and Clemens (2013), however, advance the idea of brave spaces as an evolution of this framework. They argue that meaningful dialogue on diversity and social justice requires participants to face discomfort and engage in honest, sometimes difficult conversations. Brave spaces foster deeper understanding by emphasizing courage and accountability over conflict avoidance.

Unlike traditional team-based learning, where task delegation often results in surface-level engagement, CTcM fosters deeper inquiry by structuring dialogic reflection, accountability mechanisms, and higher-order questioning into the collaborative process. This approach prevents the common pitfalls of free-riding and unequal participation. In effect, it balances power dynamics and mutual learning between coach and student teams, and using critical questioning engages student teams in inquiry to problem-solve real-world issues, taking ownership of accountability and responsibility through transparency empowered by critical reflection. In other words, it uses PBL, TBL, Questioning, and, in addition, Dialogue from the perspective of a mediator who facilitates co-learners' critical dialogue and self-directed learning to collaborate and address real-world problems. Through critical inquiry into the historicity, inclusivity, and sustainability of the issue, student teams propose viable solutions.

Section IV: Sustainability and Inclusivity: Coaching Protocol

The Critical Team Coaching approach does not operate in a vacuum. It is grounded in the reality that sustainability and inclusivity are essential dimensions of responsible, future-oriented learning.

Although inclusivity is often treated as an ancillary concern in higher education,

the CTcM places it at the heart of pedagogical practice. By decentering the authority of the instructor and cultivating dialogic spaces where students' lived experiences are validated as legitimate knowledge, CTcM enables equitable participation. CTcM, through its emphasis on mutual learning, active learning, and adaptive questioning, creates an environment in which diverse worldviews are not merely welcomed but essential to the learning process. Furthermore, the use of 'brave spaces' (Arao & Clemens, 2013) encourages respectful engagement with difference, empowering students to challenge dominant narratives while remaining accountable to one another. This flattening of power structures not only democratizes knowledge production but also ensures that collaborative problem-solving reflects a plurality of perspectives.

This section explores how the coaching process explicitly integrates these concerns into both team dialogue and project content, equipping students to develop socially responsible, inclusive, and sustainable solutions.

The following critical questions can be embedded into team coaching sessions to stimulate dialogue on sustainability and inclusivity. Each coaching session leads to a scaffolding of team goal, team reality, review of team performance and goal, and evaluation of team performance and goal.

First Team Coaching Session: Goal

The first coaching session sets the foundation for critical inquiry and accountability. Through guided questioning, teams clarify their focus, examine historical and power dynamics, and integrate interdisciplinary insights. They assess long-term impacts, ethical considerations, and potential risks, refining their problem statement. The coach then synthesizes their reflections, identifying knowledge gaps, challenges, and strategies. A final self-assessment on motivation, obstacles, and team dynamics ensures alignment and commitment, establishing a structured path for deeper inquiry and solution development.

To support this structured inquiry, the Tutor Coach (TC) poses a sequence of open-ended questions that guide student teams in critically examining their issue from historical, ethical, social, and interdisciplinary perspectives, prompting reflective dialogue, clarifying core concepts, and deepening collective understanding:

Defining the Issue: How did you choose this issue? What need have you identi-

fied? What are the major keywords in your focus that you need to define, understand, and research? What environmental, social, or economic issues intersect with your project? Who is affected most, and how?

Historical Context: How did this issue evolve? What policies, ideologies, or practices contributed to it?

Power and Justice: Whose voices are amplified or ignored in defining the problem? How does power shape your proposed solutions? What contributions do you believe you will be making with this focus?

Interdisciplinary Synthesis: How are the disciplines discussing these keywords and issues? How can perspectives from science and technology, social sciences, and humanities inform your solution?

Long-Term Impact: How will your proposed solution impact future generations? What risks or unintended consequences should you consider?

Summarizing Student Team's Goal: As students engage in these coaching sessions, they begin to unpack complex issues, refine their focus, and identify key areas for further inquiry. The TC plays a crucial role in synthesizing these discussions—clarifying the team's evolving perspectives, surfacing contradictions, and guiding them toward more transparent, responsible, and interdisciplinary problem-solving. By the end of these sessions, student teams not only gain deeper insight into their chosen issues but also cultivate the skills necessary for lifelong critical engagement.

Exploring Team Reality: A series of questions posed by the TC creates an environment of student team reflection on what motivates the team, what limitations/challenges they may have identified that could challenge them to reach their goal, ways that they may have thought of to overcome these challenges, and what rules and guidelines have they assigned to be able to work together towards their goal. The TC summarizes the team's decisions.

Second Team Coaching Session: Reviewing Performance & Goal

This coaching session fosters an open and reflective dialogue among team members, guided by a series of thought-provoking questions from the TC. The

goal is to encourage critical reflection on past decisions, assess progress, and set meaningful milestones for future work. By engaging in this structured discussion, team members can evaluate their teamwork, identify challenges, and refine their research direction.

Progress: How would you define your progress since our first coaching session? What key factors have influenced your journey so far? How have you collaborated as a team? If you've encountered challenges, how do you plan to overcome them? What are your expectations moving forward? Have you discovered any limitations in your research? How did you approach them? Is there a possibility that you are overlooking something? Were any aspects intentionally left out?

Future Forward: What decisions can you make now? What milestones can you set?

Summarizing Student-Team's Critical Reflection: The TC synthesizes the team's reflections, reiterates key insights, and restates their decisions and milestones. A series of questions from the TC enables participatory dialogue from the team members as well as critical reflection on the choices they have made and what milestones they can set.

Third Team Coaching Session: Evaluating Team Performance & Goal

The evaluation framework is built upon a series of guided questions designed to prompt critical self-reflection, collective analysis, and forward-thinking strategies. These questions utilize different inquiry methods, including descriptive reflection, analytical questioning, and future-oriented evaluation to foster deeper learning and team development.

The team performance evaluation begins with an open-ended descriptive question of how the team would review their performance in terms of working together, which encourages students to assess their collaboration without restriction. The follow-up questions introduce analytical inquiry, particularly in identifying challenges, such as, 'What challenges did you discover as a team?' or, if no challenges are reported, prompting a deeper look into the factors contributing to their teamwork effectiveness. The breakdown into individual and collective contributions ensures a well-rounded discussion, helping students recognize

personal strengths while appreciating shared growth. Additionally, questions related to learning from the team members reinforce metacognitive awareness – encouraging students to articulate the skills, knowledge, and insights gained through collaborative efforts. Further, the framework introduces a self-assessment of cognitive development by prompting students to compare their thinking skills before and after the coaching sessions.

The goal evaluation segment encourages students to engage in retrospective assessment, beginning with an examination of their initial goal compared to their current position. The question structure invites a narrative-based reflection, prompting students to describe their journey in a way that encapsulates their experiences, challenges, and successes. This not only facilitates self-awareness but also helps faculty assess how well students internalize their learning trajectory. The student team is then prompted to identify what final milestones they have set to complete their goal.

Summarizing Student-Team's Evaluation: The TC synthesizes team members' reflections and milestones to be completed.

Final Session

One important conclusion reached from the study is that an additional session should be added to reach 'closure'. As Cox (2010) emphasizes: 'If the ending is not discussed, planned and celebrated and the relationship is left to fade or to end abruptly without closure, then the potential for marking achievement and fully integrating changes may be lost' (p. 179).

Following is a summary of the Critical Team Coaching Phases (three coaching sessions and the final session) and key focus areas with sample questions:

Table 4: Critical Team Coaching Phases, Key Focus Areas, & Questions, adapted from Kostoulas (2019)

Coaching Phase	Key Focus Areas	Sample Questions
Session 1: Defining Goals	Issue selection, historical context, power & justice, interdisciplinary synthesis	What need does this issue address? Who is most affected? What is the historical context? How are disciplines discussing this issue?
Session 2: Reviewing Process	Team performance, challenges, refining research direction	How have you collaborated? What obstacles emerged? What assumptions need re-evaluating? How will you proceed?
Session 3: Evaluating Outcomes	Team performance review, final milestones, knowledge application	What have you learned? How will this impact your future decision-making?
Final Session: Closure	Team discussion on the process and outcome	In what ways has this project challenged or reshaped your thinking? What did you learn from each other? What were the biggest successes your team achieved? How will you apply what you've learned in future coursework, research, or professional settings?

Section V: Implementing CTcM in Other Academic Fields

While initially developed in business education, CTcM's adaptability extends far beyond a single discipline. Its emphasis on structured questioning, interdisciplinary thinking, and collaborative problem-solving makes it highly applicable to

STEM, social sciences, and the humanities. This section demonstrates how CTcM can be tailored to different academic contexts, equipping students across disciplines with the skills to navigate uncertainty, analyze complexity, and co-create ethical solutions.

Application to STEM Fields

Originally developed for undergraduate business education, the Critical Team Coaching Model (CTcM) seamlessly extends to STEM fields, where collaborative problem-solving and inquiry-driven learning are essential.

In any STEM field, student teams are encouraged to move beyond technical feasibility and engage in deeper critical reflection. Guided by a TC, they examine the historical context of their chosen issue, questioning how past policies and practices have shaped current challenges. They assess whether their solutions challenge or reinforce systemic inequalities and consider how technological advancements can promote both social and ecological justice, ensuring that innovation is not only efficient but also ethically and sustainably sound.

Transferability: This approach can be readily adapted to environmental science, computer science (AI ethics), public health, and biomedical innovation courses, demonstrating how technological development can be critically examined through collaborative, inclusive, and ethical lenses. Any problem-based/project-based/team-based learning environment would benefit from implementing critical team coaching.

Application to Social Sciences and Humanities

In the social sciences and humanities, Critical Team Coaching (CTcM) fosters deeper inquiry, critical analysis, and social impact awareness. Through structured dialogue, students examine historical power structures, synthesize competing perspectives, and assess the broader ethical and societal implications of their work. Rather than focusing solely on surface-level trends, they critically explore how systemic inequalities have shaped present challenges, interrogate dominant narratives, and consider ways to co-create solutions with affected commu-

nities. This approach fosters solutions-oriented thinking, making it invaluable in cultural studies, anthropology, and public policy.

Section VI: Conclusion and Next Steps

This chapter has outlined how Critical Team Coaching (CTcM) serves as a transformative approach to active learning, fostering criticality, collaboration, and student empowerment in undergraduate education. By integrating dialogic pedagogy, critical questioning, and a structured coaching process, this model enables students to move beyond passive learning and actively engage in problem-solving, self-reflection, and collaborative knowledge construction.

Key Contributions of Critical Team Coaching

Active Learning

Unlike traditional task-based teamwork, CTcM repositions students as co-learners and co-creators of knowledge, rather than passive recipients of instruction. This approach prioritizes dialogue over debate, cultivating an environment where contradictions are surfaced, assumptions are challenged, and new perspectives emerge.

Empowering Students with Criticality and Agency

Through structured questioning and dialectical thinking, students develop the cognitive flexibility and social responsibility needed to navigate complex global challenges. The findings from the action research study confirm that student teams engaged in CTcM demonstrated deeper critical reflection, stronger team accountability, and heightened creative problem-solving skills.

Building Sustainable and Inclusive Learning Environments

By embedding sustainability and inclusivity into the coaching process, CTcM

ensures that students consider the ethical, environmental, and social implications of their work. Encouraging students to explore power dynamics, historical contexts, and justice-oriented solutions aligns higher education with the broader goals of responsible global citizenship.

Future Directions and Challenges

While this study highlights the effectiveness of team coaching as a comprehensive and dynamic active learning strategy, several challenges hinder its widespread adoption. Faculty resistance, time limitations, and the integration of team-based inquiry into curricula remain significant barriers.

Addressing these barriers requires educators to embrace the dual role implied by CTcM: when teaching, they function as faculty, but when engaging in Critical Team Coaching, they step fully into the role of coach. CTcM consists of four structured sessions (three plus a closure), yet the reflexive mindset it develops can influence how faculty later design and facilitate curriculum. In this sense, while coaching is not a day-to-day practice, its principles – inquiry, co-creation, and accountability – may extend into daily teaching choices, embedding sustainability.

To implement this approach effectively, educators must be willing, during the coaching process, to shift away from their faculty identity as expert or authority and adopt the stance of coach: one who guides rather than directs, fosters inquiry, and creates an assessment framework that values both process and reflection, alongside outcomes.

Future research should explore the disciplinary adaptability of this model, assessing its short- and long-term impact on students through both quantitative and qualitative measures. Investigating how CTcM influences higher-order thinking, collaboration, and problem-solving skills across diverse fields will be crucial for refining and expanding its application.

By addressing these challenges, CTcM has the potential to transform higher education, bridging the gap between academic learning and real-world problem-solving. More than just fostering critical thinkers, this model prepares students to become responsible, engaged citizens capable of shaping an equitable and sustainable future.

Final Key Takeaways

1. Critical Team Coaching transforms teamwork from task-based collaboration into a dialogic process where students co-construct knowledge, develop criticality, and learn to navigate complexity and change. A TC needs to:

Step 1: Establish a safe and open team environment;

Step 2: Use structured questioning to surface assumptions;

Step 3: Facilitate teams toward collective reflection and action.

2. Embedding sustainability and inclusivity into coaching sessions ensures that students consider the broader ethical, social, and environmental impacts of their work, developing the skills needed for responsible global citizenship.

3. Faculty who adopt a coaching role that of humility and ‘ignorance’ – focusing on facilitating reflection and inquiry rather than providing answers – enable deeper learning, supporting students to navigate uncertainty, challenge assumptions, and co-create knowledge, to be self-reflective, and sustain their own learning.

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Case Study: How Academic Coaches Nudge Students into Active Learning Through Individual and Group Coaching

JULIE HUGHES; HARVEER VIRDI; MATTHEW PEARCE; DEBRA CURETON; AND JENNI JONES

Summary

At the University of Wolverhampton, students are supported by an Academic Coach (AC), a full time and permanent role, who acts as personal tutor. ACs' practices are underpinned by an Institute of Leadership and Management (ILM) coaching and mentoring model that positions the student as an active agent in their learning and development. ACs meet with students on a one-to-one and group basis, listening, questioning, supporting, challenging and nudging students' thinking and motivation towards activities. These coachable moments have a direct impact on their learning and personal potential in the classroom and beyond. Through this case study, we discuss how academic coaching operates, providing a worked example of student coach interactions. A theoretical framework that draws on coaching and nudge theory is used, and recommendations shared to support others with implementation.

Introducing Academic Coaching

The AC role, created in 2018, is a unique form of student support that is not found elsewhere in the sector. ACs support students to navigate the transition into and through the university, encouraging them towards independent learning, help-

ing in forging academic learning relationships, and understanding the nuances of learning in HE. The AC role is carried out by individuals who reflect the diversity of the student body. Recruitment of ACs is often from University alumni, with 66% of those currently in role being recent graduates, and the rest being recruited externally. Growing from a pilot of nine ACs, there are now (July 2025) 34 Academic Coaches acting as personal tutors for all new students at levels 3 and 4, and for taught postgraduate international students. Due to this growth a Senior Academic Coach (SAC) role was developed in 2021. SACs ensure consistency in the support offered to students across the University and provide more detailed data analysis to highlight the role's impact.

The Academic Coach Role

ACs provide tailored support for identified groups. Their work is written into and underpins university strategic initiatives e.g. the Access and Participation Plan. Through empowering students this way, a sense of belonging is triggered, which is known to impact retention and success (Thomas, 2012; Thomas et al., 2017).

ACs contact their allocated students before they join the University, to introduce themselves and familiarise students with support offered. This builds rapport and the relationship at the outset. During their first week of study, students are encouraged to complete a specifically designed Independent Learner Profile (ILP) that encourages them to focus on their strengths and areas of development. This helps ACs better understand students' personal needs and circumstances.

ACs engage in a minimum of three planned focused meetings with students, which are strategically placed in the academic year. The first meeting centres on the ILP where ACs and students negotiate a personalised plan of group-based development or targeted one to one support. Uptake of the ILP is high with 90% of students completing and submitting. ACs and students work collaboratively to set personal short- and long-term goals to achieve over the year.

The second is a progress meeting which takes place in early semester two. This meeting encourages students to reflect on their experience of semester one, and the feedback they have received from their first assessments to identify further areas of development going forward.

The third meeting is an end of year academic review, where students reflect on the year and plan for the next year. Additional meetings are conducted if needed, for example if a student experiences challenges with settling in, faces difficult circumstances, or requires resit support. The worked examples of the students below, Sandra and Faith, show how students with different needs are supported.

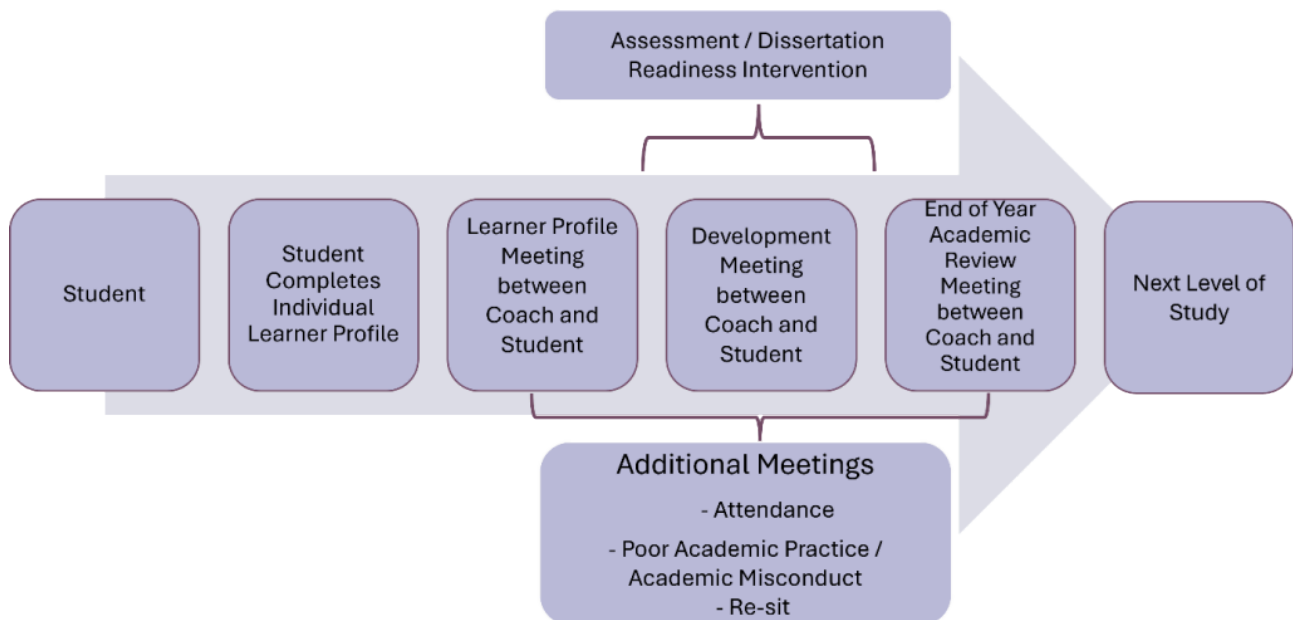


Figure 1: Steps taken by Academic Coaches to support students through the curriculum over the academic year

Connecting into theory

This one-to-one and group coaching AC approach draws on active learning theory, coaching models and the application of nudge theory to an educational setting. Active learning encourages engagement by focusing on how students learn (HEA, 2018). It positively impacts student's self-confidence and self-reliance in how to study. Engaging with the Academic Coaches meetings facilitates students' understanding of how to study and thus provides them with the skills and knowledge to thrive in Higher Education.

The ILP, for example, gives ACs the opportunity to use the coaching model GROW (Whitmore, 2024); with the **G**oal of encouraging the students to share their **R**ealities and potential barriers they may have in being successful at university. Considering **O**pportunities to navigate these barriers is the first step in work-

ing collaboratively with students to ensure motivation and **Will** levels remain high, towards agreeing short and long-term goals (Watsjold & Zhong, 2020) to mitigate and overcome them. As ACs engage in coaching students, active learning is central, as they work in partnership to encourage students to reflect on their own practice, and to set goals together to best navigate their journey within Higher Education. Over time, the directive/non-directive coaching spectrum (Downey, 2024) comes into play whereby ACs hand the responsibility for goal setting and action taking to the students, with the ACs spending more time on nudging them from dependence to independence in readiness to move to the next level without them.

Moreover, interactions between ACs and students deliver informational or reminder nudges that reduce the cognitive burden related to students' understanding of what is required to participate and succeed. Through the discussion of relevant information and setting of tasks that encourage students to act immediately, they are more likely to commit and undertake the task (Plak et al., 2023). In the Fogg Behaviour Model (FBM: Fogg, 2009), Fogg explains why nudging students is so successful. The FBM argues that students need to believe that they have the ability to academically perform as well as possessing the motivations to act in order to respond to reminders. If one of these elements is missing, they are unlikely to respond. AC meetings provide both motivation and information which leads to a greater chance of students acting and achieving deadlines.

Below are some 'composite student' examples of how active learning and nudge theory are utilised in academic coaching.

Meet the student: Sandra is a mature female learner who had a poor experience at school and college due to undiagnosed dyslexia and experiences of bullying; she left school without any qualifications and was out of education for 22 years. Sandra faced a range of barriers, including low levels of academic confidence, childcare issues as she has three young children, and financial issues due to reducing her working hours to meet the full-time course demands and incurring additional childcare costs. Sandra had worked in the care sector for seven years and was keen to develop her career as a Nurse but was daunted by the thought of the four-year journey to that end goal. Like most students at the University of Wolverhampton, Sandra is from a low socio-economic background and is a first-generation student, so she had little awareness of what to expect and of the process of applying for Student Finance.

How academic coaches supported Sandra: Sandra's AC contact her before she was fully enrolled to introduce themselves, identify how they would support her and] nudge her to complete the ILP, where Sandra reflected on her student journey to date, the skills she felt she was bringing and the areas she wished to be supported in. The ILP response identified that Sandra

was the first in her family to attend university and she declared that she had specific learning needs that she would like support with. This triggered the next intervention, a Teams meeting, to explore her ILP responses in more depth. This meeting also identified that Sandra had not applied for her Student Funding and this was prioritised as urgent and enabled the AC to link Sandra with the funding team.

Once these early barriers had been addressed Sandra's AC met with her several times throughout her first year of study including a nudge to ask her how she felt about her first round of assessments. She was invited to attend a social event at the faculty community hub where she could meet other like-minded students. Her AC stayed with her at this initial event to build her confidence and sense of belonging which could be transferred into classroom-based activity.

Meet the Student: Faith is an international student from Nigeria, aged 25, studying an MSc in International Business Management. Throughout semesters one and two, Faith was successful in her studies, passing all her modules, so was entering semester three with only two modules left to complete. Faith had a positive working relationship with her AC throughout the academic year, and prior to beginning semester three, disclosed that she was pregnant and experiencing poor mental health due to stress. This meant that Faith was experiencing multiple barriers at a key point in her studies. In addition to navigating the healthcare system in a foreign country, she also had to manage pregnancy symptoms and stress of this while trying to successfully complete her studies.

How academic coaches supported Faith: The University offers drop-in sessions for expectant mothers to discuss support available to them, however, Faith did not want to disclose this information to central support services. Considering this, Faith's AC set up a support session for expectant and new mothers within her faculty, bringing the central support services to her. As a result of this nudge and bridging support between faculty and central services, provided by the AC, Faith felt more comfortable in seeking support was able to register with our Accessibility, Disability, and Inclusion team, and gain an extension to complete her remaining modules. This support, initiated by the AC, alleviated a great deal of stress from Faith, and she was able to successfully submit and pass her modules and complete her MSc.

How the organisation responded

Initially, there was a mixed reception from staff when the AC role was introduced. Whilst some welcomed the innovative new approach to supporting their students, others were reluctant without any evidence it would have impact. This perception quickly changed when student engagement increased through per-

sonalised support and ACs' proactive and preventative approaches, which led to earlier identification of student issues, both on an individual and cohort level. The ACs' willingness to adapt their approach based on the needs of the course and department led to staff seeing this as offering students enhanced support whilst also giving time back to academics who no longer had personal tutoring responsibilities for these levels of study. Recent metrics indicate that the progression rate of students who have one or more engagement with or nudge from their coach is 80% (compared to 73% who have not engaged), rising to 82% where one of the engagements is to complete an ILP.

Advice and lessons learned

Our recommendation is to review your personal tutoring offer and consider whether your levels 3, 4 and level 7 international students need more tailored support.

- If you implement academic coaching, we suggest that:
- you initially consider recruiting recent alumni as ACs to ensure they represent the backgrounds and lived experiences of your students.
- all level 3 and 4 and level 7 international students are offered an AC, who offer three planned meetings over an academic year.
- ACs are trained and supervised regularly to ensure their support is high quality and consistent.
- ACs receive training in coaching and mentoring. Our ACs complete the ILM Level 5 Certificate in Effective Coaching and Mentoring.
- there are clear role distinctions between ACs and academics.
- an early dialogue between academics and ACs is encouraged to discuss their roles and responsibilities.
- ACs target specific students who need more support and offer additional tailored support as needed.
- you should consider the offer at level 5 and 6 too, and ensure a robust hand-over from AC to Personal Tutor.

And remember, one size does not fit all. Always tailor academic coaching to the needs of the learner. This ensures that the AC focus is on providing an equitable experience for all students.

Key takeaways

- Align the AC offer with the university strategic activities e.g. retention, APP
- Train your ACs to ensure a high quality, consistent approach for all students
- Ensure ACs are nudging rather than doing for the student – be mindful of the coaching spectrum and the need to develop independence.

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Opinion Piece: How do we Build the Capacity of our Students to Shun the Seductive Shortcut of AI?

JANET HORROCKS

Our students will have access to generative artificial intelligence (AI) tools of increasing sophistication. How do we develop our student's confidence in their own voice when AI large language models such as ChatGTP, Copilot and Claude can produce, on the surface, such seductive and persuasive answers?

What we need to do is to build within our students the confidence to own their ideas and to articulate ideas using language that they have made their own.

When we learn a new language, we start with formulaic sentences and rely heavily on imitating others. We patchwork together the words of others. As our technical knowledge grows, fluency develops and confidence builds. The formulaic sentences are left behind as we make the new language our own (Vaccino-Salvadore & Hall Buck, 2021).

In learning a new discipline, the language and communication norms of the discipline as well as the ideas are unfamiliar. We ask students to express ideas in 'their own words' but having confidence to use their own words in a discipline context takes time and practice. Students need to develop fluency in their discipline to own disciplinary language (Airey & Linder, 2009). This requires the opportunity to practice using disciplinary language with feedback and affirmation in the same way that learning a new language takes time, practice, feedback and affirmation.

In the active learning classroom, our students carry out tasks which have an observable output that can be discussed with peers and educators (Betts, 2024). When we use active learning, we are designing experiences and opportunities for students to not only think about disciplinary concepts but to work with disciplinary language and communication norms to articulate their ideas in their own

words (written or spoken) to peers and educators. This can be a messy process, with wrong turns, that takes time and effort. But the effort is worth it to build disciplinary fluency where students become comfortable in disciplinary ways of knowing, the specific ways in which language is used in their discipline, and disciplinary tools and methodologies.

By fostering environments rich in active learning, we help students move beyond imitation to ownership. The goal is not just to resist the uncritical allure of AI, but to build thinkers who speak with clarity, conviction, and the confidence that their ideas matter.

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Opinion Piece: AI for Real-Time Feedback: A Sustainable and Equitable Resource for Learners

GULE SAMAN AND HEBATALLAH SHOUKRY

Generative AI (GenAI) offers transformative potential for real-time feedback in education. By instantly analysing text, code, or responses, GenAI expands access to formative feedback, supporting active learning and self-reflection beyond class time or instructor availability. However, equitable implementation is essential: institutions must ensure access for all learners, provide training in digital literacy, and encourage critical engagement so that students evaluate rather than simply accept AI-generated feedback.

Expert oversight remains vital. While GenAI can identify structural or reasoning issues, it lacks the contextual understanding that human educators provide. It can also produce misleading or inaccurate outputs, so results must be critically reviewed. Secure, institutionally-managed systems are needed to safeguard confidentiality and data integrity, promoting ethical and sustainable use. Environmental sustainability should also guide adoption through efficient technologies and purposeful application.

In a course on optimisation, students compared analytical problem-solving using GenAI with independent numerical work. The exercise revealed insights into trust and feedback in learning. Some students trusted their skills and preferred independent work, while others discovered that effective GenAI use required careful prompting; vague inputs yielded generic results, but targeted ones encouraged critical thinking. Comparing GenAI's analytical explanations with their own solutions became a key learning moment, reinforcing that GenAI outputs are hypotheses requiring verification rather than final answers. Though GenAI's reasoning was often sound, occasional inaccuracies in its visualisations reminded students of the need for critical evaluation.

In another programming course, students were asked about using GenAI to

assess progress on their projects while receiving timely feedback. Opinions were split: some valued GenAI's structured, detailed approach that systematically addressed each point, while others appreciated the conversational and empathetic nature of peer feedback, which provided social connection, mutual support, and insight into classmates' progress. Both forms of feedback were viewed as equally useful but for different reasons, as GenAI offered clarity, precision, and depth, while peers contributed context, collaboration, and a sense of shared learning.

The impact of AI feedback varied by subject. In mathematical contexts, precision and logical validation and accuracy were important; in programming project progress, clarity of explanation, creativity and collaboration amongst students mattered more.

Ultimately, when used thoughtfully, transparently, and under expert oversight, GenAI can democratise access to timely, personalised feedback for diverse learners. It serves as a sustainable and adaptive partner in learning: enhancing reflection, equity, and understanding while complementing, not replacing, meaningful human engagement.

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Case Study: Arguing with AI: Structuring Legal Debates with Generative AI for Active Learning

CRAIG SMITH

Summary

This case study explores how Generative Artificial Intelligence (GenAI) can be embedded into legal education through structured classroom debates that position the AI as a live debating opponent. The rationale for this approach is grounded in the need to develop law students' digital capability, critical reasoning, and professional adaptability in response to rapid technological change. Drawing on pedagogical principles of constructive alignment and experiential learning, the design requires students to prepare arguments independently, engage in real-time debate against a GenAI opponent, and reflect critically on the process. Student feedback indicates that this format increases engagement and confidence, while also sharpening awareness of both the strengths and limitations of GenAI in legal reasoning. The model demonstrates clear potential for scalability across disciplines, alignment with institutional digital capability agendas, and sustainable integration into curricula. By linking individual classroom practice with broader strategic goals, the contribution highlights the value of GenAI not only as a teaching tool but as a means of preparing students for a technology-driven future in professional practice.

Introduction

ChatGPT, a Generative AI chatbot developed by OpenAI, is introduced into law seminars to foster active learning through structured debates. In small groups,

students are tasked with developing arguments around a legal topic. This first stage allows for collaboration in preparing arguments without the use of GenAI. Once the preparation phase concludes, the entire seminar discusses and prioritises arguments. Oros (2007) identifies seminar debates as a learning method, using the term ‘structured classroom debates’ (SCDs), and explores how this is a valuable method for developing critical thinking. SCDs promote an inclusive classroom by encouraging contributions from a wider range of students, rather than relying on students who typically lead discussions. This case study builds on SCDs by introducing GenAI. Once prepared, the next stage involves the lecturer launching ChatGPT, visible on screen, and providing an introductory briefing of the technology to the seminar. While many university students use GenAI – as many as 88% have used it in some form, according to Freeman (2025) – it is important to ensure that those encountering the technology for the first time have some understanding of GenAI. The lecturer starts the debate by presenting ChatGPT with a prepared prompt that positions the GenAI as an opponent to the students’ prepared arguments.

The intervention

To provide authenticity and deepened engagement, ChatGPT is enabled with voice activation (samples of these voices are available on the OpenAI (2023) product page). After a formal opening statement by ChatGPT, the lecturer assumes the role of facilitator, feeding student arguments to ChatGPT. This real time dialogue creates a dynamic environment that mimics the unpredictable nature of legal advocacy. Zhou (2023) supports the idea that AI is increasingly acknowledged for its ability to stimulate creativity, with growing pressure to incorporate technology into teaching methods to better prepare students for success in an interconnected and globalised world (Khalid, 2018). The responses provided by ChatGPT play a crucial role in reinforcing the principles of active learning. Students are challenged to defend their positions against a GenAI opponent, adapt their reasoning, and assess the strengths and weaknesses.

After the debate concludes, the class participates in structured reflective sessions, first in small groups and then individually. These sessions are designed to encourage deeper analytical thinking and critical self-assessment along with evaluation of the GenAI technology.

The rationale behind integrating GenAI into legal debates is supported by Coles (2009) who argues that the use of digital tools in legal education enhances interactive learning experiences and deepens student engagement. Similarly, Zhou (2023) emphasises that GenAI can stimulate creativity in legal environments. By introducing ChatGPT as an active debate opponent, this approach aims to provide students the opportunity to refine their arguments, adapt their reasoning in real time, and evaluate GenAI outputs.

The real time nature of the debate, with its need for spontaneous rebuttals and critical analysis, reflects the dynamic environment in which legal practitioners operate. It demands not only a deep understanding of legal principles but also the ability to adapt quickly to evolving arguments. O'Leary (2020) advocates for the integration of technology into traditional legal assessments, arguing that such innovations prepare students for the realities of a technology-driven legal landscape. The approach is informed by pedagogical theories such as Biggs' (2003) constructive alignment and Kolb's experiential learning theory (Kemp, 2016). These theories assert that learning is most effective when educational activities are directly aligned with the desired learning outcomes and when students are actively involved in the learning process. A debate format, enhanced by the integration of GenAI, applies both these principles by requiring students to construct, defend, and refine their arguments in a manner that simulates (to some extent) the skills of legal practitioners.

Guo (2023) introduced a debate approach using GenAI to support students in generating arguments. Guo's method had three stages: students first used the chatbot Argumate to generate ideas, then discussed them with peers, and finally debated against other groups. While students effectively generated ideas in the initial phase, they did not consistently incorporate the chatbot's suggestions later. Despite this, they responded positively, appreciating its ability to spark ideas, create engagement, and offer a low-pressure learning environment. This case study takes a different approach by positioning GenAI as an active debate participant rather than a preparatory tool. While both methods enhance critical thinking, they differ in execution and student interaction with GenAI-generated content. In Guo's (2023) model, debates remain student-led, with GenAI playing no direct role beyond preparation. The study found that students often failed to integrate GenAI-generated ideas into live debates, suggesting a disconnect between preparation and performance. By contrast, this case study uses a structured debate model which introduces ChatGPT only during the live debate,

ensuring students independently develop arguments before encountering GenAI-generated counterarguments.

Student feedback

Ethical approval for the use of student evaluation data, granted by the University Ethics Panel (Application No. 7583), allows for the inclusion of feedback from students. Students expressed positive feedback, demonstrating the value of integrating GenAI into the seminar. They noted that the presence of a GenAI opponent removed some of the social pressures associated with traditional debates. One student remarked, 'It was really cool, definitely something different from the usual seminars.' Another reflected on the GenAI's performance, stating, 'I was actually impressed by how well it debated, it made some good points.' Others commented on the realism of the experience, with one noting, 'The voice was really clear; it actually sounded like a person.'

However, students recognised the limitations of the GenAI, with one observing, 'At times, it clearly didn't get what we were arguing, but it was fun to challenge it.' Despite these moments, students found the exercise beneficial for developing confidence in their debating. As one said, 'Initially, I wasn't a fan of debating an AI, but it really pushed us to articulate our points better.' Another student reflected, 'The AI's responses were well organised, yet it struggled to apply legal principles with any real depth.' The exercise allows for critical comparisons between human and GenAI reasoning. One student noted, 'While ChatGPT could generate responses quickly, it failed to apply the point in the way a human would.' Another student stated, 'ChatGPT was good at coming back with counterarguments quickly, which made me think on my feet more.'

Students were critical, saying, 'At times, the AI's responses felt generic, requiring me to reframe my argument so it understood the point.' This recognition of GenAI's limitations contributes to the student's digital skill development. Another student reflected, 'Debating against ChatGPT made me more aware of how I construct arguments and helped me be more concise.' Beyond individual skill development, the debate experience encouraged broader reflection on GenAI's role in legal practice. One student observed, 'This made me consider how it could be used in a law firm, to help speed up work, but it still lacks the ability to apply legal judgment in the way a human would.'

Inclusivity, sustainability and transferability considerations

This case study is an example of active learning in practice. Unlike traditional teaching, which can isolate students to the role of passive listeners, the debate format places students at the centre of the learning process. While no different to typical debates, the added element of GenAI develops digital skill, awareness of GenAI technologies, and helps to mitigate social pressures, creating a more equitable platform for participation. Unlike traditional debates, where more dominant speakers may overshadow others, the GenAI does not exhibit this style. One student observed, 'The AI doesn't judge; it simply responds. This made it easier for everyone to speak up.' This demonstrates an opportunity to start a discussion on the use of GenAI and to what extent this technology is biased.

Zare (2013) argues that debate methods accommodate students with differing learning preferences. This case study builds on this, catering to diverse learning preferences by combining visual elements (projected GenAI responses) with auditory inputs (voice activation) with the initial stage of debate preparation in groups and the final stage of structured reflection. This multi-staged approach ensures that students with different learning preferences can engage with the learning effectively. By fostering an environment where students feel capable of contributing, the approach enhances overall classroom inclusivity.

The United Nations (2025) Sustainable Development Goals, a set of 17 global targets established in 2015 aimed at addressing environmental, social, and economic challenges, link to this teaching method which is achieved pragmatically through its low resource requirements and inherent adaptability. Once the necessary GenAI infrastructure is established, tools like ChatGPT can be integrated with minimal additional costs, indeed many universities have explored alternatives such as Microsoft CoPilot or Google Gemini (Nikolic, 2024). From an environmental perspective, the energy impact of GenAI is consciously minimised in this design, as only the educator interacts with the tool during preparation and facilitation, rather than multiple students querying the model individually. Institutional sustainability is further reinforced by the continuous feedback loop established between students and staff. Evaluations and reflective sessions provide valuable insights that can be used to refine the approach over time. Beyond individual seminar practice, this approach aligns with wider institutional digital capability agendas by embedding structured, reflective use of GenAI into teach-

ing. The debate format itself is highly adaptable; it can be incorporated into multiple modules within a legal curriculum and tailored to different educational contexts, where debates are utilised. This develops students' digital skills in line with institutional strategies for employability and digital literacy. Educators in fields that rely on SCDs, critical discussion, or real-time problem solving can modify the approach to suit their own seminar learning objectives (Brown, 2016). For example, in business, the model could simulate negotiation scenarios; in philosophy or ethics, it could present opposing viewpoints on moral dilemmas; and in political science, it could be used to debate public policy proposals (Omelicheva, 2007).

Concluding remarks

This case study demonstrates that integrating GenAI into SCD is a viable and effective approach to active learning. By combining traditional legal argumentation with innovative digital engagement, this method transforms the classroom into an interactive, inclusive, and sustainable learning environment. The approach contributes to a student's analytical capabilities and helps prepare them for a technology-driven future in legal practice. Feedback from students indicates that the method offers advantages over established SCD techniques. The use of GenAI helps to mitigate social pressures and creates a more equitable space for participation. The sustainable nature of the approach, stemming from its low resource requirements and inherent adaptability, further reinforces its potential for long term institutional integration. As digital technologies continue to evolve, so too must our approaches to teaching and learning (Haleem, 2022). Integrating tools like ChatGPT into the educational process represents a promising step towards a more dynamic, inclusive, and sustainable academic future.

Key takeaways

- Engaging with AI in debates fosters critical thinking, legal reasoning, and digital skill development.
- This method is scalable and adaptable across disciplines.
- Ensuring inclusivity and sustainability requires clear facilitation and integration.

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Case Study: Stop and Think! Developing Digital Architecture to Support Asynchronous Active Learning within a Virtual Learning Environment

GARY F. FISHER

Summary

This case study explores the development and institutional adoption of ‘Stop and Think’ tasks designed to promote asynchronous active learning within Virtual Learning Environments (VLEs). Recognising that online study is often perceived as passive, the approach embeds short reflective prompts throughout course materials, encouraging learners to pause, evaluate, and apply knowledge as they progress. Guided by Kotter’s model of change and Rogers’ diffusion of innovation, the approach was scaled across programmes through consistent design, staff guidance, and accessibility standards. Evaluation indicates strong academic endorsement, with benefits including improved pacing, comprehension, and engagement. The initiative shows how intentional digital design can transform VLEs from static repositories into interactive, inclusive, and sustainable learning spaces, offering a transferable model for fostering reflection and active engagement online.

Introduction

Much research has explored how digital technologies can enhance physical

learning spaces such as lecture theatres and laboratories (Belcher, 2003; Papaioannou et al., 2023; Bingen et al., 2024). However, strategies for fostering active reflection within higher education's digital spaces remains comparatively under-developed. Educators often assume that asynchronous study through a Virtual Learning Environment (VLE) is inherently more passive than in-person learning (Wilford, 2018; Choi & Hur, 2023; Petare et al., 2023, p. 5914). Learning materials hosted within VLEs regularly take the form of pages of written materials, downloadable files, and de-contextualised multimedia resources which, in the words of one researcher, 'is seen as passive, evoking images of learners staring blankly at screens or receiving online content while multitasking with more engaging media' (Collier, 2014, p. 117).

This need not be the case. Various examples and case studies have shown how VLEs have the potential to be interactive, collaborative, and engaging active learning spaces (Barnett-Itzhaki et al., 2023; Caprara & Caprara, 2022). This case study presents a simple, impactful innovation within an institution's digital architecture that facilitates the extension of active learning approaches at scale across an institution: the 'Stop and Think'.

Context and Development

In addition to its campus-based provision, the University of Derby offers a range of programmes that are studied in an exclusively online and distance format. Supporting upwards of 5,000 students between levels 3 and 8, these programmes are studied asynchronously through the institution's VLE. Professionally developed online content is produced collaboratively by academic staff and a central online content team, which includes media producers, web developers, and learning designers.

In the absence of a physical learning space within the university campus, the digital real estate of the VLE servers is the principal environment in which teaching is conducted for these online programmes. It is thus imperative that, just as physical environments are designed with their suitability as active learning spaces as a consideration (Rands & Gansemer-Topf, 2017), this digital environment likewise be designed in such a way as to encourage active learning.

The 'Stop and Think' emerged as institutional practice in response to this need. The university's online content already follows an activity-led philosophy. Units of

learning typically conclude by asking students to complete formative tasks, such as a quiz, discussion board post, or journal entry, that require concerted effort and the generation of some form of output demonstrating their learning. However, students learning in online environments have exhibited limited capacity for extended concentration (Rahul et al., 2020). As such, a strategy of embedding regular, low stakes microlearning prompts and opportunities throughout the online content has been pursued.

These microlearning tasks are termed ‘Stop and Think’ opportunities. They are embedded at targeted points within the written online content and induce students to pause their reading and consider a question or prompt that invites them to actively reflect on, evaluate, or apply elements of what they have just studied. In short, students are first asked to stop, and then asked to think. In doing so, these tasks align with Vygotsky’s concept of the Zone of Proximal Development by encouraging students to independently extend their learning beyond the material they have just engaged with, while still benefiting from the asynchronous support structures provided within the digital learning environment (Vygotsky, 1978). By being embedded throughout the online content they aim to maintain a state of active engagement amongst students in between their completion of capstone activities that require a more concerted effort.

Implementation

Implementation was guided by Kotter’s (1996) *Eight-Step Process for Leading Change* and Rogers’ (2003) *Diffusion of Innovations*, which emphasise phased adoption and the role of change agents. The content team first designed a visually engaging banner that adhered to accessibility guidelines and was centrally stored for consistent and easy integration into any module within the university’s portfolio. This banner is shown in Figure 1:



Figure 1: Stop and think banner

Following Kotter's principle of creating a guiding coalition, Learning Designers served as key change agents by promoting the development and implementation of 'Stop and Think' tasks. These centrally positioned professionals worked with colleagues to identify and exploit suitable opportunities for embedding the tasks. This aligns with Rogers' (2003) emphasis on leveraging early adopters to facilitate the diffusion of innovations across an institution.

To support faculty in effectively utilizing 'Stop and Think' tasks, comprehensive guidance materials were developed and made accessible through the university's SharePoint page. These resources provided an overview of the task's purpose, step-by-step instructions on how to formulate them, and practical examples of their application in different subject areas. Additionally, these materials were embedded within faculty induction programs and staff training courses to familiarize new and existing educators with the approach. This strategic embedding ensured alignment with Kotter's (1996) step of institutionalizing change by integrating new practices into the organizational culture.

This structured and multi-layered implementation strategy ensured that the impact of 'Stop and Think' tasks was not confined to a single module or program. Instead, their integration has led to a broader transformation across the institution, lowering barriers for faculty adoption and normalizing these tasks as a standard practice for fostering active learning in digital environments. By following structured change models, the initiative has achieved scalability and sustainability, positioning the 'Stop and Think' as a fundamental component of the online learning experience at the university.

'Stop and Think' tasks were designed as both reflective prompts and interactive features within the Virtual Learning Environment. Alongside text-based reflections, simple click-to-reveal elements enable students to self-check responses and receive immediate formative feedback, sustaining curiosity and active engagement (Barnett-Itzhaki et al., 2023).

Accessibility was integral: each component was tested for compatibility with the VLE's built-in tools, including screen readers and mobile interfaces, ensuring all students could engage equitably. This aligns with institutional and national standards, promoting parity of experience and active participation.

Impact and evaluation

'Stop and Think' tasks are now standard across the university's online content. A random sample of modules (n = 12) showed a mean of 14.5 tasks per module (Pulkkinen & Xu, 2023), indicating feasibility at scale and ease of integration into routine content development.

Some examples of 'Stop and Think' tasks that have been created and are delivered to students include:

Before we begin studying the bony anatomy of the hand, take a moment to consider your own hand. How many different bones can you identify? Are you able to confidently name them? Make a mental note of any current gaps in your knowledge and consider these as we progress through this unit.

– Taken from a medical anatomy module at the beginning of a section looking at the anatomy of the hand

Do you think the current education system equips children and young people to live in the world? What are the global challenges facing the current generation?'

– Taken from an education module mid-way through a section looking at world-centred education

'Take a moment to reflect on the importance of cultural competence in providing patient-centered care. Consider a cultural difference that you may encounter in your own professional practice and how that difference could influence patient care decisions and outcomes.

– Taken from a healthcare module at the end of a section looking at cultural competency

These prompts operationalise several active learning mechanisms already evidenced in the literature and referenced in this case study: they adopt a coaching stance that elicits self-explanation (Whitmore, 2009), use direct address to personalise and focus attention (Schoenmakers et al., 2024), connect study to prior/professional experience to support experiential learning (Kolb, 1984), and surface threshold concepts at the point of difficulty (Meyer & Land, 2003). Taken together, the design encourages metacognitive pausing, sense-making, and application, all of which are core benefits associated with active learning.

In termly surveys of academic colleagues involved in online content development, staff consistently identify the development of 'Stop and Think' tasks among the most frequently praised areas of practice. A thematic reading of staff

comments (no direct student data has been used) suggests four recurring benefits:

1. Pacing and attention: prompts help students ‘pause and think’ rather than skim
2. Sense-making: staff describe complex material becoming ‘more understandable’
3. Application/transfer: tasks prompt learners to connect concepts to practice
4. Design support: colleagues value practical help crafting effective prompts

These comments were drawn from routine, anonymised institutional staff surveys evaluating online content development. The data has been used in accordance with the university’s ethical oversight and approval processes.

In sum, institutional uptake, per-module density, and convergent staff testimonies provide practice-based indicators of the approach’s successful implementation and perceived pedagogical value. This suggests that ‘Stop and Think’ tasks have been effectively integrated into online course design and are recognised by staff as a useful mechanism for prompting engagement, reflection, and application within asynchronous learning environments. These findings align with the active learning principles outlined above and the broader aims of making active learning happen at scale.

Conclusion

This success demonstrates the potency of digital real estate as a tool for fostering active learning. By embedding structured yet flexible reflective prompts within online course content, this approach effectively transforms Virtual Learning Environments from passive repositories of information into dynamic, interactive learning spaces. The initiative counters the perception that asynchronous digital learning is inherently passive and instead highlights the potential of VLEs to support student engagement, critical thinking, and independent learning.

A key strength of ‘Stop and Think’ is its inclusivity and sustainability. By incorporating elements of coaching, personalization, and experiential learning, ‘Stop and Think’ tasks empower students to connect their studies with their own experiences and professional contexts. This democratizes access to active learn-

ing strategies, making higher education more accessible and engaging for a diverse student body. Designed with scalability in mind, 'Stop and Think' tasks have been successfully embedded across multiple disciplines and academic programs. Their structured yet adaptable format allows them to be easily implemented by educators in various contexts, ensuring longevity beyond individual course iterations.

The adaptability of the 'Stop and Think' model underpins its transferability across institutional and technological contexts. Because the prompts are built using standard VLE text and media tools rather than bespoke code, they remain functional across platform upgrades and can be recreated in alternative learning management systems with minimal modification. The model's principles of frequent reflection, low-stakes engagement, and accessible design can therefore be adopted by institutions regardless of their digital infrastructure. This ensures both sustainability amid evolving technological standards and relevance across disciplines, enabling educators in diverse contexts to replicate the approach within their own digital learning environments.

The 'Stop and Think' initiative shows how thoughtful digital design bridges the gap between passive content and active learning. Embedding short reflective interactions enhances engagement, understanding, and critical thinking in asynchronous contexts. More broadly, it demonstrates how institutions can reimagine the VLE as a dynamic, inclusive, and sustainable learning environment.

Key Takeaways

- Digital learning spaces can be active learning spaces. Thoughtful design and structured prompts can transform VLEs from passive content repositories into interactive learning environments.
- Institutional change models support effective adoption. Embedding structured approaches to change ensures that innovations like 'Stop and Think' are effectively implemented and sustained across the institution.
- Sustainability is key. Embedding change within institutional structures ensures long-term impact and scalability, making innovative teaching practices enduring and adaptable across contexts.

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7 DESIGNING AND IMPLEMENTING SUSTAINABLE AND INCLUSIVE ACTIVE LEARNING EXPERIENCES

Active learning for all students is only possible when learning experiences are thoughtfully and purposefully designed so that the ‘elements and resources’ (see [Section 1](#)) needed to support and enable active learning are present. Effective design not only enables students to engage meaningfully with the material but also contributes to their broader development as autonomous learners. In this section we have contributions that showcase diverse active learning practices. Although each contribution is rooted in a specific disciplinary context, together they highlight general principles that are essential when developing active learning sessions. The contributions are organised into five thematic areas, each exploring key considerations for creating successful active learning experiences. These thematic areas are overlapping and interconnected, but all highlight different aspects of the successful implementation of active learning: session design; incorporating gameplay; enabling co-creation; supporting interdisciplinary working; and incorporating the principles of Universal Design for Learning (UDL).

Session design

Designing an effective active learning session requires careful consideration of multiple elements. Contributions by [Docherty et al.](#), [Cook and Cawley](#), [Becker](#) and [Moolenaar](#) highlight how attention to detailed aspects of session design and organisation can significantly enhance the effectiveness of active learning.

Focusing on the format of a session, [Docherty et al.](#) describe how the configuration of an active learning session evolved over time in response to feedback from students and reflection by staff. The revised design incorporated student preferences by involving student partners in the redesign process. A key feature of the

new format was the clear link to purpose of the session so that active learning was seen as an opportunity to work with core discipline skills and knowledge.

A scaffolded approach was central to the thinking of [Cook and Cawley](#), who developed active learning sessions for a widening participation summer school. Choice of topic combined with a scaffolded approach to introducing active learning helps build student confidence and a sense of learner identity with the aim of preparing students to participate in active learning sessions that are a core part of the institution's learning and teaching strategy.

The significance of organisation within the session is also underlined by [Becker](#), who developed Active Learning Sheets to act as prompts for consolidation and reflection. These resources supported students in making sense of their learning by guiding them through structured opportunities to review, connect, and reflect on key concepts.

A very different approach was taken by [Moolenaar](#), who explains how to take active learning beyond the classroom by immersing students in the natural environment. Students were asked to carry out mindfulness activities in a woodland setting and disconnect from digital devices prior to thinking about creative marketing concepts inspired by nature.

Incorporating gameplay

Using game-playing strategies is well established as an approach to drive engagement. Successful gamification strategies have well-thought-out aims that develop skills and attributes within the participants. These successful strategies are able to navigate the tension between seeing games as fun activities and games as effective learning tools. It is however important that students are well prepared to participate in the games. [Thoroddsen et al.](#) and [Chan et al.](#) both highlight the importance of preparatory activities and guidance.

[Thoroddsen et al.](#) employed gamified peer review to develop feedback literacy by involving students as partners in the feedback process. Students provided peer feedback on draft work and this feedback, whilst informing the development of the draft, was also rated by the receiver for helpfulness.

The case study by [Chan et al.](#) explores the impact of a game to teach sustainable tourism development. The game development process used students as part-

ners to conceptualise the rules and test prototypes. Evaluation of the game playing experience highlighted the tensions between engaging and competitive gameplay versus the educational value of the game.

A very different approach to using games to enhance science teachers' education is described by [Ali et al.](#). Rather than using a game as a vehicle of learning, the students (trainee teachers) designed non-digital games to use in resource-constrained classrooms. In designing these games, students engaged deeply with how core scientific concepts could be meaningfully embedded within game mechanics. This required them to interrogate both their own subject understanding and the pedagogical potential of games. The process supported a shift from viewing games merely as fun activities to recognising their value as effective learning tools.

Co-creation

Active learning by its very nature has an element of co-creation as the educator works with the students in a session. Many of the examples in this section already have elements of co-creation with students as partners as part of the development process. Two case studies, however, place co-creation at the centre of active learning, demonstrating its transformative potential.

An active learning strategy that involved the co-creation is described by [Stickels and Tranter](#). Students were invited to anonymously submit questions (plus suggested answers) based on module knowledge input activity (such as reading an article or a lecture), and these were used to create a quiz that was available to the cohort. Students reported that developing questions helped to recall and revise material while the quizzes were a useful tool for revision and reflection. The incorporation of their questions into the class quiz made the student feel valued and shifted the classroom dynamic to encourage participation.

A different approach to co-creation was taken by [Kioupi et al.](#), who shared the student experience of a Social Justice Jam involving staff, student and community members. The students had direct experience of working with staff to facilitate discussions between stakeholders and act as panel members. Their reflections highlighted significant personal development, demonstrating how co-creation can position learners not only as contributors but as active agents in shaping learning experiences.

Interdisciplinary collaboration

Interdisciplinary working broadens perspectives and prepares students to solve complex and real-world problems. Many active learning activities therefore require students to collaborate across disciplinary boundaries. This raises an important question: how do we scaffold students' confidence in engaging effectively in interdisciplinary settings?

[Tait](#) explains how a series of scaffolded activities can support students to work in interdisciplinary teams. The activities were designed to give the student the opportunity to think about a problem from their own disciplinary perspective and then, after considering other points of view, work collectively towards a solution. This approach was designed to develop the confidence to articulate a disciplinary perspective to a broader audience.

While [Tait](#) was working with undergraduate students, [Greyson](#) developed an interdisciplinary group project for master's students to scaffold the development of professional competencies. Students defined the shape of their interdisciplinary team and then worked on a client brief to make actionable recommendations. Staff support was intentionally structured, shifting from tutor-led workshops to a 'critical friend' role as the group's confidence grew. Reflection against the competency framework reinforced the development of professional competencies during the project.

Working with postgraduate research students, [Arm et al.](#) developed a playful active learning experience using Play-Doh as a tool. The experience can serve to help learners critically reflect on and communicate their research in a way that they could not in words alone.

Embedding the principles of Universal Design for Learning

The opportunity for students to engage with active learning in multiple modes is a feature of many examples in this book; however, the application of Universal Design for Learning principles is showcased in the work of [Abrams and Whyte](#) and [Kushwah and Selvaretnam](#).

Using a blended approach to learning, [Abrams and Whyte](#) developed a law mod-

ule around the principles of Universal Design for Learning. Course materials were provided online in multiple formats to support diverse learning preferences and needs. Class time was spent exploring content via an authentic central case study. Students collaborated on the case study both in person and through online tools, enhancing accessibility and enabling more flexible engagement.

The capacity to express ideas using alternative means of expression is developed by [Kushwah and Selvaretnam](#). In this case study students were asked to visualise economic concepts by taking photographs within the immediate surroundings. These photographs formed the basis of a group presentation, providing an alternative mode for demonstrating understanding.



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7.1 SESSION DESIGN

Case Study: Interactivity Reimagined: How a New Format for Interactive Teaching Units Has Evolved Through Student–Staff Collaboration

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Summary

The School of Chemistry (SoC) at the University of Glasgow (UofG) has run Interactive Teaching Units (ITUs) in the second year undergraduate chemistry curriculum for 28 years.

The aims of the ITUs are to develop transferrable skills such as oral communication & presentation, teamwork, literature searching and scientific writing, and to let students apply chemistry knowledge from lectures to real-world problems.

Feedback from students and staff in 2019/20 showed that ITUs were unpopular and ineffective, mainly due to dated material, student anxiety around peer interaction and unfamiliarity with active learning (AL) (Docherty, 2021).

This case study presents a successful new ITU format and its development over five years. Initial changes received mixed feedback, and academic staff partnered with students to bring about the final changes.

We believe that the new framework for an active-learning session is transferrable to a wide range of subjects simply by substituting discipline-specific content.

Role of student partners in co-creation of the ITU

Major new implementations in 2023/24 were developed by the co-authors: two third year students (employed and salaried as 'student partners'), a final year undergraduate research project student, and academic teaching staff ('staff'). The students had first-hand experience of the ITUs (in 2022/23 and 2020/21, respectively) and brought fresh, alternative insights into what they and other students found enjoyable or uninteresting, helping steer development. The staff recognise the students' input as invaluable in developing the current ITU format and content described below.

Learning spaces and group logistics

In the traditional ITU format (Lennon et al., 2002; Grant et al., 2004; Grant et al., 2005), the cohort of ~150 students was divided across multiple weekdays and rooms. Most of the 3-hour unit was spent in small seminar rooms with a tutor (facilitator) in pre-allocated groups of 9-12, divided further into three sub-groups for most tasks (Figure 1). Students rarely knew the peers in their sub-groups, making them feel isolated and anxious; the small sub-group size (3-4 students) pressured them into contributing and presenting when they may not have wanted to; and the high staff:student ratio meant students often felt under scrutiny. Staff, many with little or no experience of leading AL, felt uncomfortable and found it difficult to engage students in such a strained environment.

Traditional Interactive Teaching Unit Format

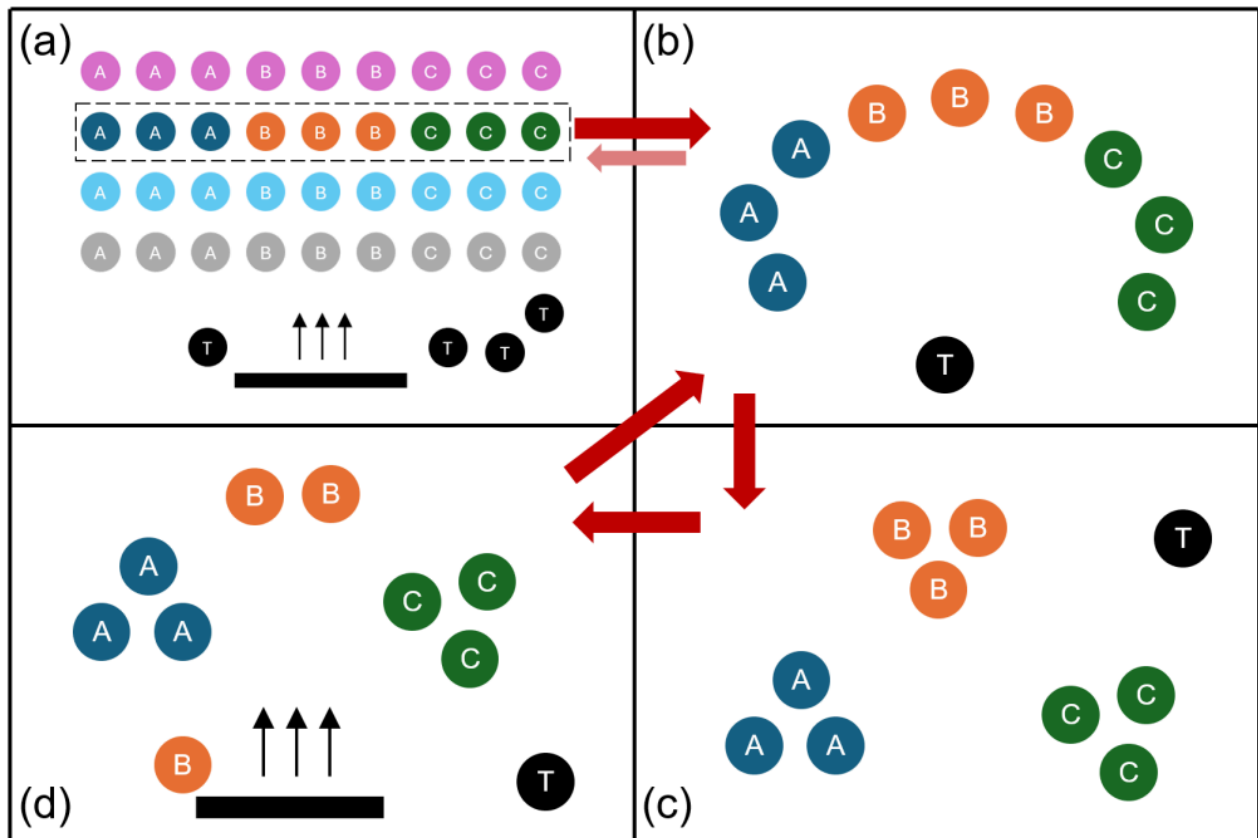
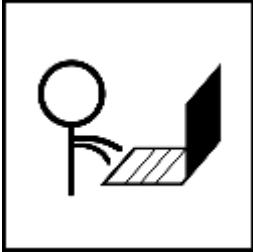
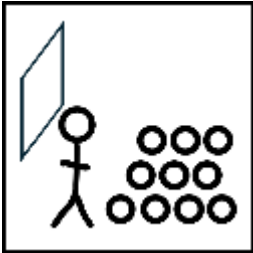
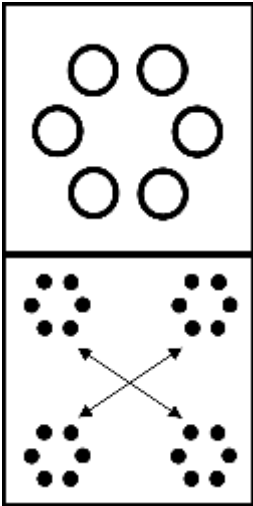
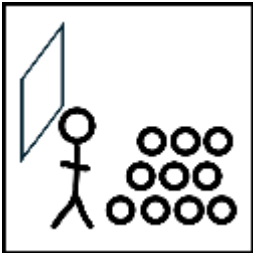
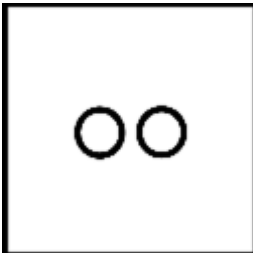


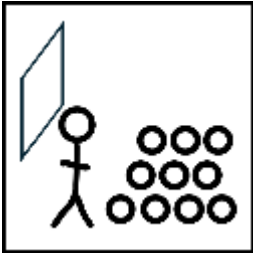
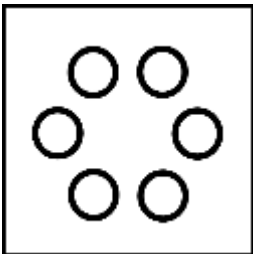
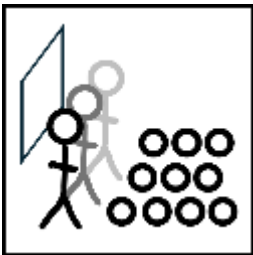
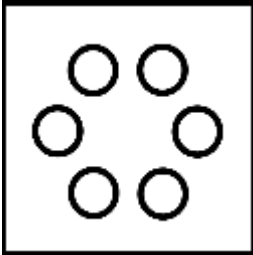
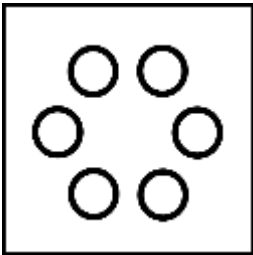
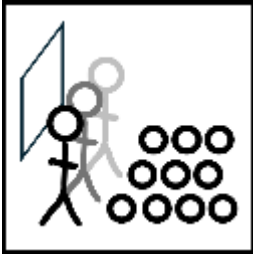
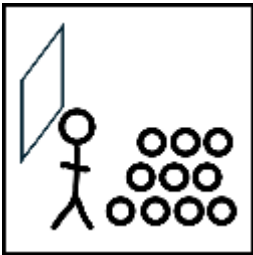
Figure 1. Traditional (pre-2020) ITU format. (a) All students (about 36-48, represented by letters A, B, C) and tutors (represented by 'T') gather in one lecture theatre for the initial introduction session. (b) Each group of 9-12 students and their tutor move to a breakout room. (c) The students are divided into three sub-groups and work through different aspects or viewpoints of the same problem with the help of guiding questions. (d) An individual from each sub-group presents key findings to the others. Thereafter, the tutor summarises and the (b)-(c)-(d) cycle is repeated several times with different materials until all students have had a chance to present. The final closing session is back in the lecture theatre (a).

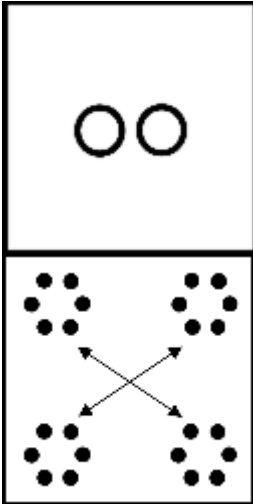
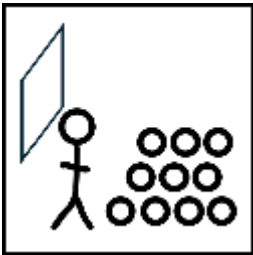
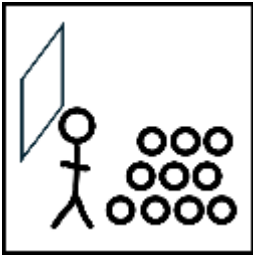
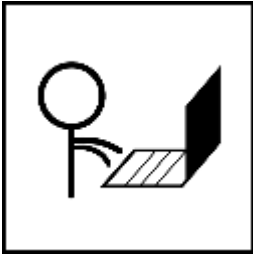
The new format takes place in a technology-enhanced active learning (TEAL) room, with ~80 students seated at tables in groups of 6-9, rather than separate seminar rooms. Each table in the TEAL room has a built-in computer and microphones for easy screen-sharing and communication during whole-classroom discussion. If not available, minimum requirements are a room with tables and chairs, a projector and students' own IT devices for literature searching; a roving microphone is highly desirable to practice public speaking and for accessibility. With the new format, each student now receives six hours of contact time (two consecutive three-hour afternoons). Staffing is reduced as we found that a session can be adequately delivered by 2-3 tutors. Students have more space to

interact without staff listening to everything they say, and larger numbers create a more energetic and relaxed environment. A timeline of activities in the new format is shown in Table 1 and the corresponding classroom configurations in Figure 2.

Table 1. Timeline of the new ITU format. The order of the various elements can be adapted as required.

Timeline of activities and descriptions	Activity type (see Figure 2)	Time in min
Pre-ITU task. Before the ITU, students individually (online) rank a dozen transferrable skills by importance.		10
Introduction. Tutor gives feedback on pre-ITU task and brief overview of the overall topic.		10
Icebreaker quiz. In groups, students answer simple questions that relate lecture content to the ITU topic. Interspersed with tutor-led whole-class discussion of answers. <i>(possible break point)</i>		45 (15)
Introduction to academic literature. Discussion of primary vs. secondary literature and strategies for reading papers. Each group of 6 given a different paper.		5
Finding information in papers. Groups break into pairs. Each pair works through separate questions about the paper. <i>(possible break point)</i>		30 (15)

Overcoming presentation anxiety. Mini-lecture by senior student.		20
Preparing group presentations. Students share the questions and answers from the pair-work and prepare a group presentation. <i>(End of first ITU day.)</i>		40
Group presentations. Each group presents to the rest of the class: 4 min per group plus 1 min for each group to write one question on a Post-it note.	 	30
Q&A session. Groups prepare answers to at least two of the Post-it note questions (4 min). In turn, groups present their answers to the class (1 min per group). <i>(possible break point)</i>	 	10 (15)
Literature searching and referencing. Presentation by tutor, including live demonstration of appropriate search engines.		20

Introduction to marking rubrics. Students read 3 essays and mark according to a marking rubric. Whole-class discussion of marks given. <i>(possible break point)</i>		40 (15)
Generative AI awareness & ethics. Presentation of the University's genAI policy and how it applies to the assignment.		30
PhD student talk. Presentation by current PhD student about their research (relevant to topic). Q&A on PhD life.		20
Essay assessment. Individually, after the session, students use skills gained to write an essay on a related topic.		n/a

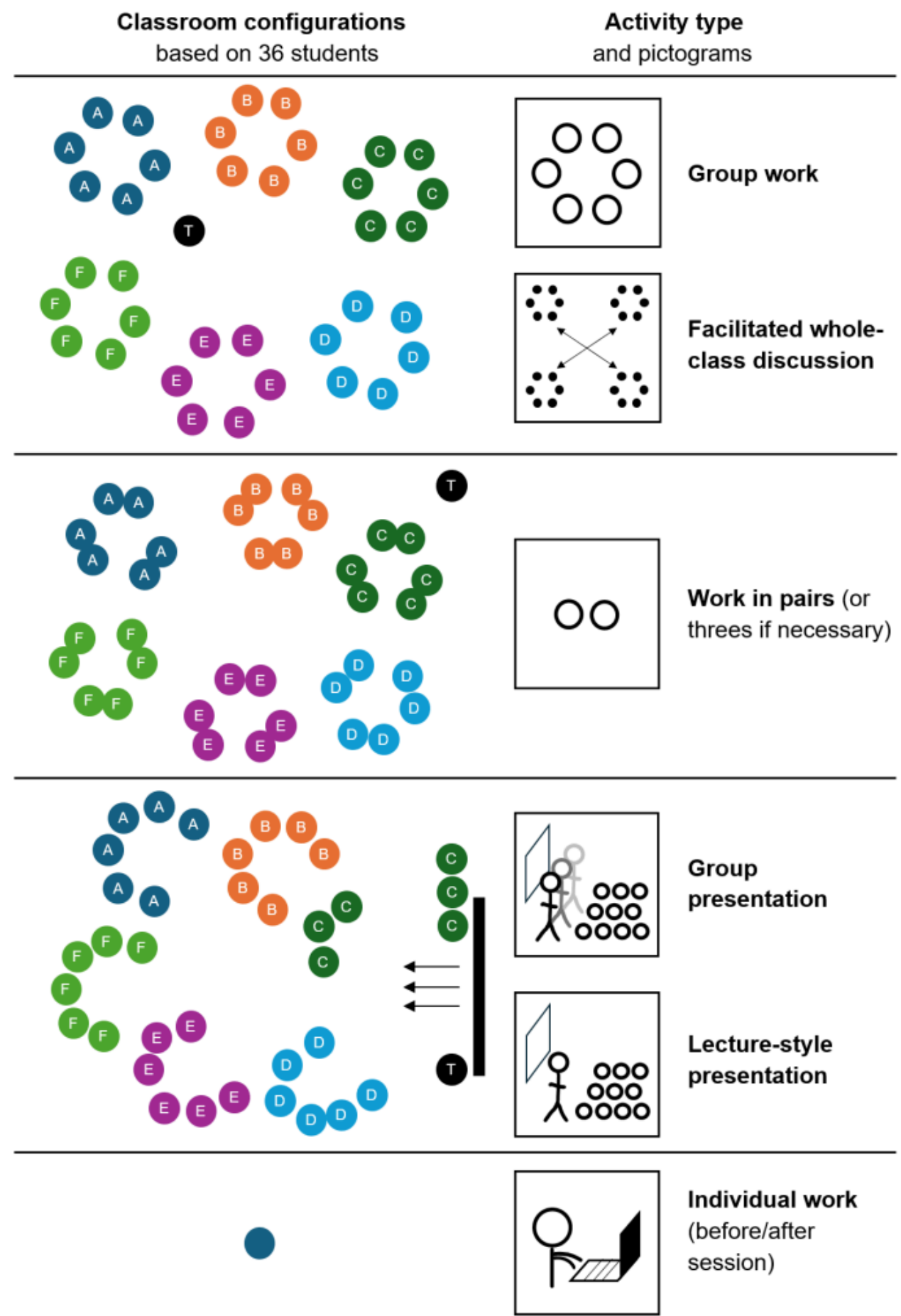


Figure 2: Classroom configurations and types of activities used as part of the new ITU

format. Circled letters represent 36 students in 6 different groups. 'T' represents the tutor. Double-size classes of 80 students can be split into 2 separate rooms during group presentations.

Onboarding 1: Importance of transferrable skills

By 2019/20, many students thought that ITUs were irrelevant because they did not aid exam preparation or grade improvement. To increase student buy-in, we introduced an individual task about transferrable skills before the ITU: students ranked 12 transferable skills that employers seek in chemistry graduates by importance. At the start of the session, the class's responses are compared to 98 employers' ratings (Kondo & Fair, 2017). Our students think quantitative/analytical and problem-solving skills are most important, while employers value interpersonal and teamwork skills the highest. Highlighting the unit's aim, to develop these soft skills in a low-stakes environment and provide groupwork experiences for job interviews, immediately boosts student engagement.

Onboarding 2: Linking lectures, ITUs and real-world problems

To address the other major aim of the ITUs, linking lecture content to real-world problems, we introduced an 'icebreaker quiz' as the first task (see Figure 2). The groups work through simple questions related to their lecture courses linking to the ITU theme. Students' engagement increases as they realise connections between lecture courses and how the ITU relates to examinable content. The relaxed atmosphere and familiar material reduce anxiety and help groups settle into the unfamiliar learning environment before moving to more challenging material.

Later, a PhD student from the SoC whose research relates to the ITU topic gives a brief talk, thereby further emphasising the real-world applications of the Unit's content. It also highlights research within the SoC and provides students with an opportunity to ask questions about postgraduate study.

Content

Students complete two ITUs, one per semester, on different themes. We introduced new topical themes, such as an ITU on carbon capture one week before the COP26 environmental conference was hosted in our city. Other recent themes have included virus mutations (after the Covid-19 pandemic), solar cells, and the chemistry of pain.

The groups are often provided with ‘real’ peer-reviewed scientific papers as a basis for their later presentations, including some written by SoC staff to enhance connections to our research (Fung, 2017). The groups can be further split into pairs to explore sections of the papers in more detail. Papers are selected and guiding questions written in cooperation between staff and student partners to ensure an appropriate level: challenging, but not overloading.

Content delivery mode and collaborative tools

In the traditional format, the sub-groups were drip-fed different information on paper throughout the session for processing, summarising, and finally presenting on overhead projectors. During online teaching (2020/21 and 2021/22), we adopted a shared online workbook using Microsoft OneNote containing all materials. This enabled sub-groups to collaborate remotely by annotating materials and answering questions on the same document in real time, and also resulted in a fully-completed version of *all* the students’ work, which is accessible afterwards. We continue to use shared documents (especially PowerPoint) for live collaborative editing.

Overall, the team of tutors requires the following skills: general subject knowledge (e.g. for icebreaker questions), more in-depth knowledge (e.g. analysing papers and preparing presentations), delivering engaging presentations (introduction, academic literature, genAI), facilitating whole-class discussion and Q&As, and encouraging interactions within groups. Not all tutors have to have all skills; they can complement each other. Additionally, this creates an environment for onboarding subject specialist tutors with little experience of AL pedagogies to work with colleagues who are more experienced in this area.

Integrating a skills development element

A major change in 2023/24 was the introduction of a separate three-hour skills workshop. The elements thereof are now fully integrated into the six-hour unit (Figure 2).

The academic writing skills element started by introducing literature search tools and students tried searching for their favourite lecturers' publications. The difference between primary and secondary literature was described and students tasked to categorise some papers accordingly. Referencing, referencing styles and DOI-numbers were also covered in anticipation of the essay assessment. The essay marking rubric was furthermore introduced and students were asked to read and mark three 500-word essays therewith. After discussing the marks, it was revealed that one essay had been generated using Generative Artificial Intelligence (genAI), leading to discussion on genAI use and UofG's policy on doing so ethically.

The oral communication skills activity aimed to develop public speaking skills. It was created and delivered by a final-year undergraduate student as part of his chemistry education dissertation, and focussed mainly on public speaking anxiety (PSA). Students were encouraged to practice some PSA-coping-techniques by engaging in one-minute debate-style presentations on fun (non-chemistry) topics in the privacy of their groups. 89.6% of students particularly liked that it was led by a student who had overcome these anxieties himself and with whom they could identify better compared to staff.

Table 2: Summary of changes to ITU format by year

Academic year	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25
Location	Lecture hall plus seminar rooms.	online	online	Computer clusters with individual PCs	TEAL Room	TEAL Room
Key modifications this year	None: Traditional format. Traditional content.	Pre-ITU task. Using OneNote.	New content (Carbon Capture)	Traditional ITU format in computer rooms limits interactions severely	New content (solar cells (ITU1) + pain (ITU2)). New 3h-skills session. Student partners.	As 23/24, but skills session integrated with rest of unit.

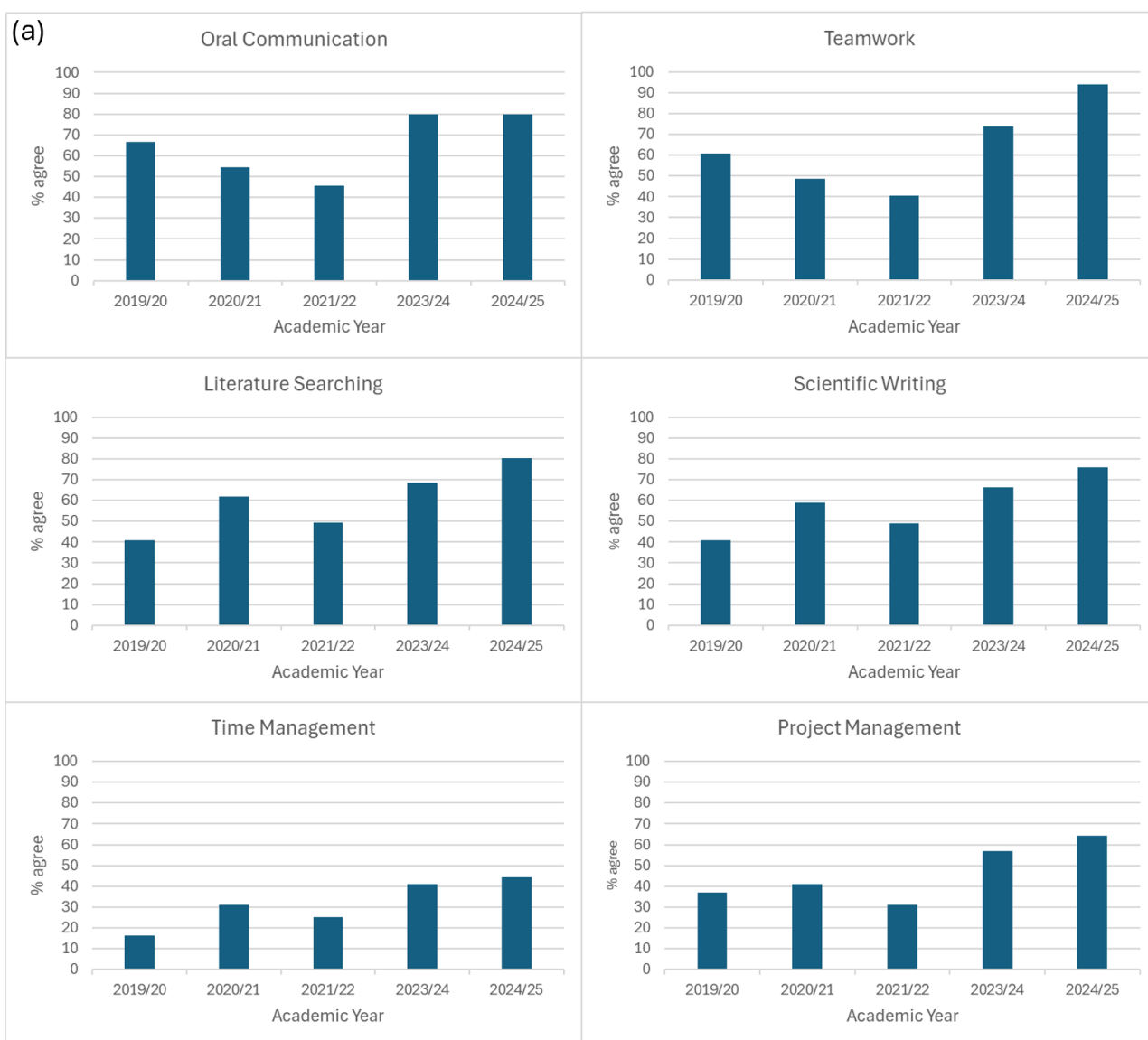
Student feedback

At the end of the ITUs, students were asked in which parts of the curriculum they perceived they had developed various skills. Ethical approval was obtained from the UofG's College of Science and Engineering Ethics Committee for this evaluation. Figure 3(a) shows the percentage of students who felt that the ITU did help them build the skills shown, and how this changed by year, allowing us to estimate the impact of our interventions above, which are summarised in Table 2.

The general trend observed in Figure 3(a) is a dip in skills development in 2020/21 and 2021/22 when the ITU was online. In 2023/24 and 2024/25, large increases have been observed as we adopted the new format with large groups in TEAL rooms, with input from student partners, and with explicit skills development elements.

To compare if there was a statistically significant difference between the data from 2019/20 and 2024/25, Z-scores and p-values were computed for each skill from the raw data as shown in Figure 3(b). The smallest change measured was for oral communication. This is not surprising since it initially scored high since it was the most obvious skills students associated with the ITU. For all other skills a

high Z value and low p value show that there has been a very significant increase in students' belief that these skills have improved through ITUs. In addition to the four core skills we aimed to develop (oral communication, teamwork, literature searching and scientific writing), an unexpected benefit was that more students reported developing time management and project management skills too.



(b)

	Skill					
	Oral Communication	Teamwork	Literature Searching	Scientific Writing	Time Management	Project Management
2019/20 Proportion	0.67	0.61	0.41	0.41	0.16	0.37
2024/25 Proportion	0.80	0.94	0.80	0.76	0.44	0.64
Test statistic Z	-2.26	-5.88	-6.02	-5.30	-4.63	-4.12
p-value	0.0238	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

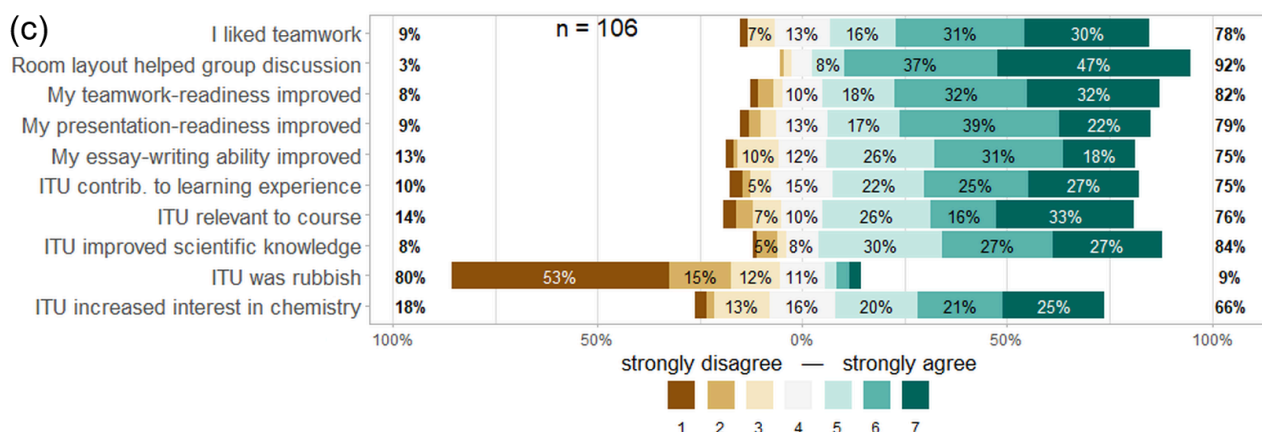


Figure 3: Student feedback data showing (a) The percentage of students who agree that ITUs have helped them to develop each skill in various years. No survey data was collected in 2022/23. Class size 120-150 students each year. Number of respondents per year is 118, 34, 40, 129, 109, chronologically. (b) Statistical analysis of data from the first and final year shows that there is a highly statistically significant increase in the percentage of students who perceive these skills have been developed in the ITU. (c) Student questionnaire responses (2025) demonstrating effectiveness of ITU.

Other feedback (Figure 3(c)) demonstrates the ITU's broad appeal across a variety of factors.

Inclusivity

To improve inclusivity, students chose to sit anywhere. Many students join the tables in friendship groups of twos or threes and so have a mixture of familiar and new peers to work with. This helps form new connections and community, whilst having the support of old friends. In addition, several front-facing and background roles required within the group are discussed at the start of the session, such as researcher, slide creator, timekeeper, and presenter, so students can contribute in a way that is comfortable for them. Reading materials are made available to students in advance if required.

Sustainability and transferability

The new ITU framework is highly adaptable and we envision using it for many years. Content can easily be updated or changed to increase relevance in the future and the skills exercises incorporated could be lengthened or shortened depending on the needs of the cohort, or new activities could be introduced to develop different skills. For instance, our second semester ITU has fewer but larger groups, and gives more time to prepare presentations, which are assessed for credit.

This flexibility lends the model to being highly transferrable to other disciplines by substituting subject-specific content and modifying the skills activities as required.

Key takeaways

- Develop courses with student-partners for excellent insights, ideas and different perspectives.
- Create an inclusive and comfortable environment by hosting multiple groups of 6-9 students in the same room, lowering staff:student ratio, and defining a variety of group roles.
- Onboard students with a pre-activity task, signposting connections to the curriculum and giving evidence-based explanations of the purpose and benefits of the tasks throughout the session.

Acknowledgements

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Case Study: Transition to Active Learning: Introducing Widening Participation Students to Active Learning

VANESSA COOK AND FELICITY CAWLEY

Summary

This case study explores the rationale and outcomes of introducing widening participation (WP) students to active learning within an 'intensive' or 'block teaching' (Davies, 2006) Summer School programme. This case study explores how active learning techniques, such as the flipped classroom and collaborative group work, were adapted and slowly built into intensive block teaching sessions to encourage student participation and engagement with active learning approaches. In designing and delivering the session discussed here, short lectures within a two-hour class were introduced to support interactive and inclusive collaborative learning. While the idea of alternating between lectures and active learning activities or dividing a class into 'lecturettes' is not new (Barkley and Major, 2018), these sessions were consciously aimed to support and develop student confidence and learner identity and were met with positive student feedback. Whilst this case study reflects the inclusion of these active learning approaches within a specific context, this account suggests how others can adapt these approaches to larger group teaching, and across varying levels.

Context

This case study is based on a WP summer school pre-entry course at a Russell Group University. The Summer School can form part of a conditional offer of entry into university following the successful completion of the four-week programme. It provides students with an opportunity to help prepare them for the

transition to university life. At the time of delivery, students who were eligible for Summer School included those who lived in a Scottish Index of Multiple Deprivation decile 1-4 (Scottish Government, 2020); were care experienced; were estranged from family and living without family support; were a carer; were seeking asylum or had refugee status; or were applying to university via college entry. Students could also take part in the Summer School if they had been invited to attend by the institution's Disability Service. The course examined in this case study reflects one subject out of three concurrent courses that students complete within the month-long period.

What We Did

Overview

This active learning intervention integrated short mini-lectures and collaborative activities within the two-hour designated class period. The class introduced students to a broad theme with guided lecture content and group-work activities that encouraged students to reflect on the topics discussed and apply their newly gained knowledge to a series of problem-solving activities. The large topic of the history of housing was broken down into small 'lecturettes' that slowly revealed more information throughout the class. At regular intervals, students were asked to make a source selection based on the information they had learned, building up an evidenced-based argument as the class progressed. In the final section, groups reviewed each other's arguments and assessed these based on the knowledge gained. Housing was chosen as a topic that most students had some basic familiarity with and one that built upon knowledge students had gained in previous sessions. The topic avoided the introduction of complicated theories or highly sensitive discussions that needed additional scaffolding and prior preparation. Students could then participate with the confidence of having some prior knowledge of the subject and develop their understanding throughout the session.

The class began with an overview of the session, including the two lecturers assembling students into groups of four to five participants. In this context, around 25 students were enrolled on the course, creating five groups around the room. Students were instructed to sit in their groups, taking notes during the lec-

ture segments, and engaging in the group work when appropriate. Clear expectations for the class were communicated at the start, including a printed student guide, and students were reminded that no preparation had been required in advance. The activity sheet was also made available to students at least 24 hours in advance via the online Moodle platform, our virtual learning environment (VLE), supporting students' understanding and preparedness for the unfamiliar format.

Table 1: Design, skill mapping, and example of our case study

Activity and Timing	Segment Description	Skill Mapping	Our Example
15-minute Lecture	Introduction to the session, topic overview, and explanation of task(s)	Short lectures supported active listening amongst the cohort as they took notes that could be relevant to their imminent task. Short lectures prepared students for the types of learning they would be introduced to at university whilst also bridging a gap between their school/college expectations and traditional university lectures of 50 minutes.	A brief overview of Glasgow's early housing history. Students introduced to the types of sources used in research.
15-minute Group Work	Students were organised into small groups of 4-5. As a group they were given the first task, using the information from the initial lecture to help them make an initial source selection.	Working together to problem-solve enhanced collaboration in small group activity work. Students were encouraged to share their ideas, critically consider the most suitable evidence, and work together to come to a consensus. Students developed their decision-making skills and communication.	Students were given a historian's argument then asked to read this through and then choose appropriate evidence to support their statement.
15-minute Lecture	Continuing lecture session, topic information, and explanation of next task	Students building on their existing knowledge and working towards the second task, enhancing their note-taking skills.	Mini lecture that continued chronological approach to the topic and introduced new types of historical sources.
15-minute Group Work	Student groups selection further information, choosing which evidence would support their current argument (and existing supporting evidence). Lecturers navigated around the room to discuss why they had chosen their evidence and how it linked.	Continued development of problem-solving skills to align argument with a range of evidence. Students were encouraged to explain their choices to the group and to the lecturer, building their confidence in presenting an argument.	Students asked to choose a landscape image which matched their original argument and existing image.

15-minute Lecture	Continuing lecture session, topic information, and explanation of next task	Students building on their existing knowledge and working towards the third task, enhancing their note-taking skills.	Mini lecture which integrated the lived experiences of housing in Glasgow
15-minute Group Work	Students selected their evidence together once more-reflecting on the presentation of their argument and evidence. Lecturers engaged and prompted small groups to support their confidence in the decision-making process	Students developed their skills in formulating a full argument and working together to align evidence. They continued to work together and communicate during the decision-making process.	Students asked to choose relevant images of people they believed lived in the communities that reflected their historian statement and linked to their other sources.
15-minute Class Conclusion	Groups were encouraged to view the arguments devised by other groups and consider the differences and similarities.	In reviewing others' outputs, students built confidence in reviewing and articulating arguments.	They reviewed their full argument and used the final 5-10 minutes to compare the other arguments represented around the room.

Why We Did It

Student-centred active learning approaches form a core part of our institution's learning and teaching strategy. As a result, we felt that an important part of preparing students for transition to university life should include an introduction to active learning at undergraduate level. However, when discussing how we would incorporate some of the well-established active learning strategies and methods we were aware of the specific context of our cohort. Often categorised as a 'non-traditional' student, WP cohorts are often found to have a more complex and challenging transitional experience (Murphy & Roopchard, 2003; Leese 2010; Young et al., 2009), with issues of confidence and constructions of learner identities highlighted as important areas to address (Keane, 2011; MacFarlane, 2017). Additionally, while many students are facing increasing time pressures and issues of time poverty, the non-traditional student often faces more acute issues with time (Roberts, 2011; Wladis et al., 2018, 2023). Therefore, while active learning

is established as a method of empowering students in their learning (Sewagegn & Diale, 2019) we were aware that the learners in our classroom may have additional barriers to engaging in our active learning session.

When taking this into account, we chose to adapt two well-established strategies in order to make the introduction, and transition, to active learning accessible and inclusive. In initially seeking to adopt the flipped classroom (Tucker, 2012), we recognised that our students may not have the time to engage in online study resources independently, especially given the intensive nature of the programme described above. Importantly, we were also aware of the common issues around the flipped classroom relating to digital equity (Rahman et al., 2021) and did not want to make assumptions about students access to the required technology or quiet space to engage in work outside of the classroom. Students may have felt underprepared and unable to self-direct their learning in completing the pre-class work, particularly if they had come from an educational setting where rote or passive learning was customary. By delivering the short 'preparatory' lectures in class, we could ensure students' engagement with the material while also being available to answer their questions and support their understanding of the topic. Another reason we chose to include in-class lectures, somewhat going against the traditional flipped classroom model, was to encourage participation and to alleviate any concerns around alienation or discomfort for those who may not have been able to dedicate time to learning activities outside of the timetabled sessions.

To maintain the focus on the engaging group activities, it was important to keep the lectures short. In doing so, we emphasised that the importance of the session was the students' engagement with the material and their learning as a group. Again, because of this emphasis on group work and collaborative learning, we wanted to introduce this slowly and build students up to this level of interactivity. In designing the activity, we also included the option for students to contribute to the task via the source selection, allowing students to adapt their role based on their confidence with group work and leadership. Importantly, the teaching team also spent some time discussing the topic that we would use to introduce this method of learning and teaching. As lecturers on an intensive four-week course, we were aware that we were introducing students to a lot of content in a short amount of time. We chose a subject (housing) that was relatable to our students and one that was respectful and inclusive of their prior knowledge and experience, which supported our scaffolding of a session that required more in-depth and intense student engagement (Cattaneo, 2017).

Outcomes

On delivering the session, increased student engagement was noticeable. Throughout the lecture, students were attentive and took notes, spurred by the explanation that the content was directly related to their upcoming group activity. During the group work, students were talkative and enthusiastic, talking among their groups and communicating their ideas and solutions to the proposed task. Student-staff engagement was also positively impacted, with groups keen to share their thoughts and ask questions of the staff. In student feedback at the end of the course, this session was also highlighted as a class that students enjoyed and one that helped them learn more about their own learning style. Students commented that the session emphasised the importance of conversation and collaboration in their learning.

As lecturers on the course, the session outlined above was one that we returned to as a session that we enjoyed and that we felt had encouraged student participation. As a team, we noted that after this session student engagement with the course had shifted and students were more likely to speak out in class and appeared more open to participate in group work in future sessions. The structure of the class and the importance of being concise and deliberate in the shorter allotted lecture time, also challenged us as lecturers, leading to an enjoyable shift in our approach to the familiar lecture format.

After the initial success, this model has been integrated into other sessions delivered throughout the Summer School programme and at varying levels of the subject's undergraduate programme. As a sustainable model, all class material can be reused, shared, and delivered to new cohorts of students. Whilst the initial creation of the material can be time-consuming, the class has been repeated and replicated at different levels of study with appropriate short tasks. Indeed, after the success of this approach at Summer School, we have adapted this activity for classes with students in their final years of undergraduate study. In doing so, the segments were reduced in number (four) and duration (10 minutes) to fit within the 50-minute class more common at this level.

Adopting and Adapting Our Approach

The approach outlined above lends itself to adoption and adaptation in a variety of different educational contexts. In adopting the approach, the emphasis should remain on the inclusive and accessible design of the ‘flipped classroom’ that seeks to alleviate some of the common challenges of this activity. By integrating short lectures into the student-centred learning activity, the emphasis is still on the student interaction and group work activities, but these are scaffolded in a way that supports cohorts to overcome barriers to their participation, particularly low confidence, time constraints, and accessibility concerns. When adapting the approach, the key element is topic choice. As above, the session was based around a topic that was somewhat familiar to the students, and one that had been clearly contextualised and foregrounded in previous classes. In this way, a case study, theory application, or a research design focus would support varied disciplinary approaches.

For larger classes, the activity can easily be scaled up to incorporate more groups of students. To accommodate this, the source selection could be hosted on shared documents or uploaded to a VLE; this would also alleviate logistical issues around managing large numbers of paper handouts (should longer, text-based sources be used, upload to a VLE would also support accessibility). Within a lecture setting in a larger space, a timer function could be used to keep students on task, which would also allow for time management elements of the session to be emphasised for more advanced cohorts. While the case above was built around the ability for staff-student interaction on a smaller-scale, larger class check-ins after each segment could be facilitated by comments submitted to a web-based polling tool or online noticeboard (such as Mentimeter or Padlet), allowing for a single staff member to oversee multiple groups’ progress across the activities.

Conclusion

To conclude, in seeking an inclusive and accessible way to introduce WP students to active learning within a higher education setting, we have developed a sustainable intervention that is now firmly embedded within our Summer

School programme, with several sessions adopting this approach over the month-long course. Moreover, we have also taken this design and incorporated it into classes run throughout the undergraduate programme, supporting a programmatic approach to active learning for all. As the class is designed to support students with lower confidence and less experience of active learning, we have also recommended that this approach be used for our international and diverse postgraduate cohorts who often experience a learning shock when encountering new teaching strategies (Huang, 2012), much like the WP cohort discussed above.

Key takeaways

Overall, we would summarise the key ideas and takeaways of our approach:

1. Incorporating short lectures into group work activities can support, rather than detract from, student engagement with active learning approaches.
2. When introducing active learning approaches, topic choice is important to support confidence building.
3. Taking a flexible approach to active learning methods can enhance staff and student experience in the long-term.

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Case Study: Active Learning as a Tool for Student-Led Seminars

LUCINDA BECKER

Summary

In this case study I share the ways in which active learning has challenged me in one module I teach, and also challenged students to recognise and respond to a teaching method that is unfamiliar to them. I am in the fortunate position of having the freedom to make any changes freely to the modules I convene, within the published description of the module and the quality assurance processes of my institution.

In a final year degree module entitled 'Shakespeare on Film' I have largely eliminated lectures and now teach through (rather than before or after) student presentations. This has led to active learning on their part and a new form of active teaching on mine. The intention of this innovation was to meet students where they are on their learning journey and to encourage a deeper response to the material on offer (Biggs et al, 2022).

What I did

Students are required (as 20% of the module's summative assessment) to carry out a film sequence analysis of around five minutes of a film version of one of Shakespeare's works. The module is taught in a seminar group of around fifteen students, and each student is free to choose their film, so students largely lead the module content each year. Recent meta-analysis of college students in the humanities and social sciences suggests that 'the relative beneficial effect of active instruction was found to be higher for some course subject matters ... for smaller (≤ 20 students) rather than larger class or group sizes, and for upper level

rather than introductory courses' (Kozanitis & Nenciovici, 2023), suggesting that this type of module in particular could benefit from active learning.

Students prepare a 15-20 minute sequence analysis presentation from their chosen film, which they deliver in the classroom. They might explore a theme from the play, or the way a film-making technique is used to highlight one aspect of a particular scene. I join in throughout, using the points they make to link to the teaching points I need to make.

Students use active learning sheets to record their thoughts. Students are thus challenged to consider the purpose and usefulness of the information, ideas and opinions they choose to record.

It can be a challenge to ensure that all the teaching I want to offer can be incorporated into the time available, so I carve out some specific time for traditional teaching, when I stand up in front of the class. I do this to introduce the module and how it is taught. I also stand up for a part of the early seminars to demonstrate how to carry out an effective sequence analysis. Beyond this, I have given myself access to very little traditional teaching time.

Why I did it

From its first design the module included student presentations, partly as a method to engage students with the module content. Students were enthusiastic about these presentations, regularly creating 12-page handouts (where the guideline was four pages) and delivering 20-minute presentations (after a suggested time of ten minutes). Given this level of enthusiasm, and after consultation with the students, I made the presentations part of the summative assessment for the module.

How students responded

As soon as the presentations became part of the module assessment, I encountered two unexpected problems. Students could be reluctant to interrupt a presentation, perhaps fearing that they might disrupt the flow of the presenter. Also,

many had their heads down, typing on laptops, waiting for the moment when the 'real' teaching began.

The first of these was relatively easy to fix: 20% of the presentation grade comprises audience interaction, in the form of producing a set of three questions/topics for discussion after the presentation. Student interruptions and responses are therefore helping the presenter.

The second was more difficult. I had been congratulating myself on managing to incorporate most of my teaching points into the presentations. I would regularly comment on what students were saying as they presented and the other students in the room were also happy to join in, which this led to active (and sometimes quite noisy) seminars in which we were covering more material than I had in the past. However, it was clear that a few students felt the lack of the more traditional teaching they might have expected. I did not stand proud of the group and give them 'authorised' material in a way that made it easy for them to recognise and capture. More active learning was needed, I felt.

I introduced 'active learning sheets' which are blank spider diagrams, as shown in figure 1. They usually use one per presentation, adding more blank circles to fill in as they need them. By the end of the seminar they have a full-up sheet, with circles containing very brief notes on key points, and lines connecting to the central circle (which includes the details of the film, presenter and sequence).

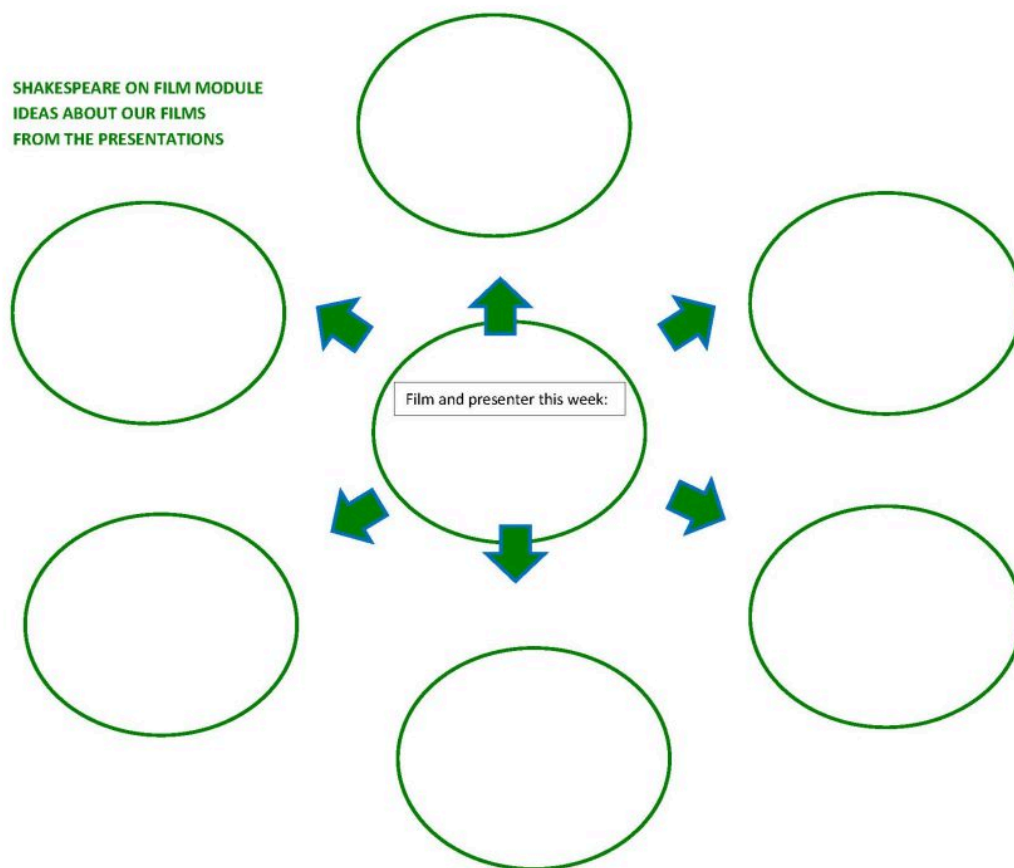


Figure 1: Template for active learning sheets. © Lucinda Becker, 2025

How this is a form of active learning

These active learning sheets are a form of active learning because students use three sources simultaneously. They have the presenter's handout, which contains a huge amount of detail; they are then challenged to find only the key points from the presentation itself, and my additional comments, to record on their active learning sheets.

The active learning sheets encourage reflection on their learning, as I leave time for them to look back at their sheets and reflect on how well they have captured the session. Students are also given additional active learning sheets with 'My Essay' as the title, so they can note down useful points for their module essay (80% of the module assessment) as the semester progresses.

Overcoming barriers to learning

The need to be inclusive:

- Students are given online access to the blank active learning sheets, so students who need to use laptops in class are not excluded.
- Giving a presentation can be a huge hurdle for some students. I have reduced the pressure by stipulating that only 30% of the overall presentation mark comes from their performance as a presenter. All students who need it are offered the opportunity to present alone, to me, in my office. However, they are encouraged only to make this decision once they have seen enough presentations to gauge whether it might be easier for them to present in the classroom, with the support of their peers.
- For students who would not be able to face a presentation of any sort, I have worked with our Disability Advisory Service to set up an alternative assessment in the form of the presentation handout and a script of what would have been said. This is rarely required, but it is an important reasonable adjustment nevertheless.
- For students who might find the 'set text' module films too culturally restrictive, the open choice offered for these presentations (and the essay) allows students to lead on content as well as form. As a result of this choice, we have explored world cinema Shakespeare, silent movie Shakespeare and animated Shakespeare.

Building confidence: Students might lack confidence in analysing a film sequence. but their enthusiasm for a particular film that they have chosen encourages them to take the plunge with their sequence analysis.

- Students sometimes lack confidence in speaking out in class discussions. By reducing the time taken to make notes (the active learning sheets encourage brevity) the students have more time to look up and engage; they also have their active learning sheet to hand to support what they are trying to say.

Meeting students where they are: Respecting the educational journey of our students and recognising the role of emotion in learning has helped shape this module (Hill et al, 2024):

- The joint English Literature and Film students might be expected to shine with confidence from the outset in this module, but in fact their film expertise can be a barrier. Although the medium of film is inherent in the module, our primary focus is on adaptations of Shakespeare's play texts, so I am clear that our discussions, and their assessments, will only need film expertise to a certain extent. I provide a handout on filmmaking techniques, which both helps those who have not studied film before and shows the film students the level of interaction with filmmaking that is most productive in the module.
- There can be an emotional barrier around active note taking that some students exhibit in the class. They are used to their own way of making notes, and introducing a new method of recording their learning in their final year at university can be challenging. I have found that enthusiastically encouraging the use of the active learning sheets in the first three weeks is enough to result in their adoption by most students. Those who still prefer another way to record their learning are then left to do things their way.
- The students taking the module are also researching and writing their dissertation, our capstone project. They can become tired and sometimes overly anxious about such a major project, which could make it seem unfair to introduce a new way of learning in any final year module. This module is run in the Autumn semester in part because of this concern. At this stage of the year the students are more likely to be open to trying something new. Last year, for the first time, more than half the students on the module told me in a planning session that they were using active learning sheets to help them visualise the shape of their dissertations. It was pleasing to see this active learning method rippling out to other academic areas.

Ensuring that it is sustainable

The active learning within this module has now been running successfully for some years. It is reviewed annually to ensure that it is still fit for purpose. This process has allowed for the developments outlined above.

Anonymous student feedback suggests that the active learning is working well, with students appreciating the reassurance and guidance they receive as their confidence grows.

How others could adapt this approach to their own context

This model does not rely on either Shakespeare or film. It would work equally well in any topic area, with the students presenting through slides rather than through a film sequence being shown on the screen. It does not rely on the stage of study of the students, either: I have used this method with Foundation students to good effect.

Much of the published pedagogical research on active learning as a way to engage students and enhance their learning centres around engineering and science teaching and learning. This particular approach (student-led content with active learning sheets) is perhaps more suited to subject areas away from STEM.

This co-creation of material and active learning approach takes time and effort to get right, and I have found it challenging, but the rewards in terms of grade outcome, student evaluation and the sheer pleasure of teaching make it worthwhile.

Key 'takeaways'

- Active learning sheets (of any format) take perseverance. Students need reminders of how and why they are being used.
- If active learning sheets are included that refer specifically to an assessment assignment, students will be helped to think ahead and connect their current learning to their future assessment.
- Students enjoy this process. They are leading on content and engaging with the active learning method. More enjoyment leads to better learning.

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Case Study: Mindful Marketing: Active Learning Beyond the Classroom

RENÉ W J MOOLENAAR

Summary

This case study is about an educational marketing activity that took place in nature. It is an example of a creative and inclusive approach to active learning, designed to provide students with a unique experience through experiential and multi-sensory tasks. This activity was developed to help MBA students on a Marketing Management module to explore innovative concepts outside the conventional classroom setting. By immersing students in a natural environment disconnected from digital distractions and engaging them in some basic mindfulness techniques, students were asked to develop marketing concepts inspired by nature. Students reported heightened awareness and focus and were inspired by principles of nature when developing creative ideas for completing the assignment. As an adaptable, low-cost approach to active learning, this activity aligns with important pedagogical principles and sustainability priorities, making it relevant for educators across various higher education disciplines.

The activity design and pedagogical foundations

This 'Nature Activity' was designed to engage students in a purposeful, multi-sensory learning experience that connects marketing concepts with nature. Conducted in a wooded area nearby the main building of the University of Sussex Business School (see figure 1), this activity required students to disconnect from digital devices such as smartphones and smart watches, practicing mindfulness and focusing entirely on their natural surroundings. Once 'in the zone', students could choose from three marketing tasks that involved using nature as inspiration. Specifically, and for the



Figure 1: Students receiving final activity brief. University of Sussex, 2024

organisation they had chosen for the main assignment of this module, students could either create an eco-friendly or more sustainable version of an existing product, develop a brand story inspired by nature, or develop a nature-inspired experiential marketing campaign. This approach is consistent with the definition of active learning developed by Prince (2004), who states that 'active learning is an instructional method that engages students in the learning process, requiring them to do meaningful learning activities and think about what they are doing.'

Each student worked individually, and they were asked to focus on their breathing and engage their senses fully by observing, listening, smelling, and feeling their woodland surroundings. They did this by, for example, picking up a leaf and studying it in detail, picking up a stick and conscientiously smelling it, or intently listening to the various bird songs (see figure 2). The goal was to help students enter a 'free mental space', liberated from digital distractions, where they could better concentrate on generating creative marketing ideas. By linking such mindfulness activities in a woodland setting with marketing concepts, the activity encouraged students to be creative and consider sustainability and impact on the natural environment. Although on the day the weather was kind, students were advised to bring practical items like notebooks, water, and

weather-appropriate clothing to ensure their comfort and safety. For those who preferred not to venture outside or into the woodlands, an option to complete the task in or near the school building was offered. The session concluded with a discussion reflecting on the individual experiences.

The decision to develop a nature-based activity was based first and foremost on my own interest and experience of learning in nature. Having practiced mindfulness in nature, I experienced first-hand the inspirational and creative effects. This activity embodies experiential learning principles (Kolb & Kolb, 2005) by immersing students in an outdoor woodland environment where they actively apply marketing concepts in an unfamiliar yet real-world setting. Research by Williams (2017) highlights the psychological and cognitive benefits of exposure to nature, suggesting that time spent outdoors can enhance mental well-being and creativity. Furthermore, listening to nature sounds restores attention (Gould van Praag et al., 2017), whilst Kerr and Maze (2019) promote looking up and out on nature because of the range of neurological benefits it has. Therefore, in the context of marketing, where innovation and originality are highly valued, nature provides a conducive environment for students to think beyond conventional ideas and actively engage in more innovative problem-solving.



Figure 2: Student 'in the zone' generating creative ideas inspired by nature.
University of Sussex, 2024

Mindfulness was an important preparatory component of the activity, aligning with insights from Kabat-Zinn's (1994) work on mindfulness as a practice that supports mental clarity and self-awareness. Furthermore, an abdominal breathing exercise increases alertness and reduces symptoms of anxiety and confusion (Zaccaro et al., 2018). By disconnecting from digital devices, students could centre their attention on the present moment and their immediate

environment, helping them tap into deeper levels of creativity and reflection. The integration of mindfulness not only enhanced students' concentration but also facilitated a mental reset, enabling them to approach the marketing task with a clear and open mindset. This emphasis on digital disconnection is supported by the work of Twenge (2017), who highlights the impact of constant connectivity on students' well-being, suggesting that structured periods of digital detachment can improve focus and mental clarity. For the MBA students and the task

they were set, this mindful engagement with nature was particularly beneficial, fostering the cognitive flexibility needed to create eco-friendly products, brand stories, and campaigns inspired by nature.

Student feedback

Feedback from students was very positive – describing the experience as refreshing and invigorating. Students noted that the change of environment, combined with the requirement to disconnect digitally, helped them concentrate more fully on the task. Some students reported a sense of calm that allowed them to approach the marketing challenge with greater creativity and insight. While some initially found the outdoor environment unconventional, they appreciated the break from the usual classroom setting. Many students expressed that the breathing exercise and the sensory engagement through mindfulness, combined with the marketing activity, enhanced their learning experience. This feedback aligns with findings in active learning research, such as the research review by Prince (2004), who found that hands-on and problem-solving tasks increase student engagement and knowledge retention.

However, not all students felt immediately comfortable in the natural environment; a few expressed some discomfort due to the unfamiliar setting and mindfulness exercise. These mixed reactions highlight a common challenge in outdoor learning, as some students may take time to adjust to non-traditional educational settings. Yet, this challenge also underlines the value of outdoor learning as a stimulating departure from routine classroom-based settings. As Quay and Seaman (2015) note, sensory engagement with an environment can enrich the learning process by connecting students more deeply with the material; this was evident in students' reflections on the activity afterwards.

For the first time in a long while, I felt a sense of calm and truly understood what it means to 'live in the moment.' Being in nature allowed

This nature-based activity demonstrates a practical application of active learning by requiring students to engage with marketing concepts in a sensory-rich outdoor setting and after practicing some elementary mindfulness exercises. This environment allowed students to develop marketing ideas in a way that classroom-based learning alone may not facilitate. Engaging multiple senses facilitated con-

nections between the natural environment and their marketing tasks, reflecting research by Kaufman and Gregoire (2015). They argue that creativity thrives when individuals practice mindfulness and connect with new environments. The multi-sensory stimulation provided by the woodlands complemented the cognitive demands of the marketing task, encouraging a mindset that allows students to develop innovative and authentic ideas.

me to experience a tranquility that I had almost forgotten existed.

MBA student

The need for inclusivity

Inclusivity was considered in designing this nature-based activity, as the goal was to create an experience accessible to all students. Offering the option to remain in or near the Business School building allowed students with mobility challenges or discomfort with outdoor settings to participate, avoiding or limiting the feeling of being excluded. As this activity emphasises sensory engagement, modifications like allowing students to complete the task in pairs or providing additional instructions on mindfulness techniques could help those with sensory sensitivities participate comfortably.

A nature-based activity of this type facilitates a sustainable approach as it requires minimal resources and can be easily replicated. By conducting the activity in a nearby wooded area, the educator needed only basic resources to implement the task, making it a low-cost and accessible option, and modest time commitment for preparation. Research on ecotherapy by Jordan and Hinds (2016) suggests that nature-based experiences not only benefit mental well-being but are also self-sustaining due to their reliance on natural spaces rather than specialized materials or buildings. The adaptable nature of this activity also supports its longevity; it can be conducted in various outdoor locations, including urban parks or gardens, and modified to suit different class sizes or educational settings. Moreover, the mindful and sensory focus of the activity aligns with the principles of social-emotional learning (SEL), as discussed by Durlak et al. (2011), who found that SEL activities improve student engagement and academic performance over time. As a result, this activity model holds potential for lasting impact as a versatile and sustainable educational practice.

Transferability to other disciplines

A nature-based learning activity has strong potential for transferability across disciplines beyond marketing. For example, psychology students could use a similar activity to study the cognitive benefits of nature-based mindfulness, while environmental science students could observe ecosystems firsthand and develop conservation ideas inspired by their findings. This interdisciplinary applicability aligns with Sobel's advocacy for place-based education, which connects learning with real-world settings to make it more relevant and memorable (Sobel, 2004). Place-based education fosters a deeper appreciation for the natural environment, making it an excellent approach for fostering sustainability-focused learning in various fields. For educators interested in implementing this model without direct access to woodlands, alternative options could include using green spaces on campus or nearby urban parks and public gardens to facilitate sensory engagement with nature. Indoor adaptations could also be made to retain the sensory elements of the activity, such as incorporating plants or using nature soundscapes to simulate the outdoor experience.

Weather and the need for a 'plan B'

The design of the activity should also address potential challenges, particularly concerning adverse weather or accessibility issues. Contingency plans ensure that students have alternatives if the outdoor setting becomes unsuitable, maintaining the activity's accessibility and appeal. Providing students with clear options for indoor engagement helps educators make this active learning model adaptable and inclusive for various student groups. Such flexibility ensures that all students can participate fully, regardless of physical ability or comfort with the outdoors, reinforcing the activity's inclusivity and sustainability.

Key takeaways

In summary, this nature-based activity demonstrates how active learning principles can be applied through a sustainable, inclusive, and multi-sensory approach to education. By engaging students in mindfulness (digitally disconnected) and

creativity through a real-world marketing challenge, the activity fosters critical skills relevant to marketing and beyond. This model has proven effective in helping students connect marketing concepts with environmental mindfulness, equipping them with valuable tools for innovative thinking. Key takeaways from this activity include:

1. Nature facilitates mindfulness and enhances creativity: engaging students with nature helps foster creativity, focus, and well-being, making it a valuable tool in active learning.
2. Inclusivity through adaptability: flexible options, such as allowing indoor participation, ensure that all students can benefit from this experiential approach.
3. Sustainable and versatile: this activity model requires minimal resources, making it adaptable across disciplines and settings, supporting its longevity as an educational practice.

Ethical approval: Approval was received from the students and photographer to use the photographs and quotes as per institutional policy.

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7.2 INCORPORATING GAMEPLAY

Case Study: Gamified Peer Review: Making Feedback Fun

FREYJA THORODDSEN SIGURDARDOTTIR; RANNVEIG SIGURVINSDDOTTIR;
AND JOHN BAIRD

Summary

This case study focuses on a Gamified Peer Review (GPR) activity designed to position students as partners in a learning process which motivates engagement, feedback quality, and skill development. Our design gamifies the ‘student-as-rater’ action where students evaluate the quality of feedback received, an under-incentivised and under-studied element of GPR design. Most students found the activity valuable and reported performance gains in giving and receiving feedback. Motivation was enhanced by meaningful peer review and the game element, but somewhat undermined by perceived unfairness and excessive workload.

Overview

Peer review is a structured and reciprocal process where students evaluate and provide feedback on peers’ work while also receiving feedback on their own. They can then use this as ‘feed forward’ to improve their work before final submission (Nicol et al., 2014; Quinton & Smallbone, 2010). Gamification incorporates game elements – points and leaderboards being the most common (Indriasari et al., 2020) – into learning to enhance student engagement (Dicheva et al., 2018; Zeybeck & Sagyi, 2023).

Important characteristics of active learning include:

- active engagement in constructing one’s learning (Prince, 2009)

- taking responsibility for one's own learning and, sometimes, that of others
- engagement in higher order cognitive skills like evaluation and creation (Freeman et al., 2014; Odom et al., 2009).

Our Gamified Peer Review (GPR) activity is a form of active learning because students evaluate and produce feedback on each other's work before critically evaluating this feedback and using it to improve their own work. The game component contributes to a positive motivational climate. Our design gamifies the 'student-as-rater' action where students evaluate the quality of feedback received, an under-incentivised and under-studied element of GPR design (Indriasari et al., 2020).

Activity Design

The GPR activity was introduced in 2023 to a course with a typical enrolment of 15-25 undergraduate students. We used the [FeedbackFruits Peer Review tool](#) to support implementation.

GPR has two components (see Figure 1):

1. **Peer review** (25% of the final grade): Students develop a presentation slide deck over the semester, submitting it three times for a round of peer review ('student-as-author'; Indriasari et al., 2020). They also review the slide decks of three peers each round ('student-as-reviewer'; Indriasari et al., 2020). Students use the feedback to refine their final submission ('student-as-author'). They also submit a reflection justifying changes made (or not) based on the feedback ('student-as-author').
2. **Gamified rating** (10% of the final grade): For each round of peer review, students rank the helpfulness of the feedback they receive from each peer by awarding gold, silver, and bronze medals ('student-as-rater'; Indriasari et al., 2020). These medals translate into experience points (XPs) which contribute to their final grade (see Figure 2). A leaderboard displaying accumulated XPs is published after each review round.

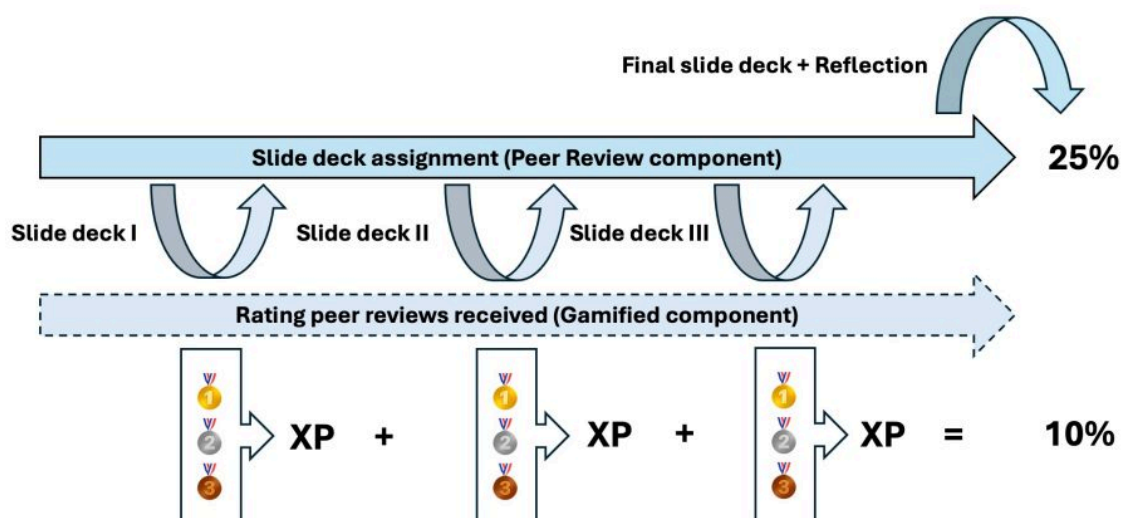


Figure 1: Overview of the Gamified Peer Review activity process. XP = experience points. Percentages refer to how much each component contributes to the final course grade.

	XP	XP	Grade
Gold	3	0-9	0
Silver	2	10-12	5
Bronze	1	13-15	6
		16-18	7
		19-21	8
		22-24	9
		25-27	10

Figure 2: Medal-XP-Grade equivalence

The GPR process is asynchronous and multi-phased, enhancing accessibility. Students have up to a week to complete each step, allowing them to engage at a time that suits them. This structure is particularly helpful for those who benefit from additional processing time, experience performance anxiety, or are studying in a language that is not their first.

Students are encouraged to approach peer review with respect and care. They are reminded that reviews reflect real effort and should be evaluated thoughtfully. While students are not expected to agree with all feedback, they are expected to engage with it critically. In this way, GPR aligns with inclusive teaching principles by allowing students to engage through writing, reviewing, and evaluating feedback – each supporting different strengths and approaches to learning.

To create a safe partnership environment, peer reviews are anonymised – students do not know whose work they are reviewing or who reviewed theirs –

and since 2025, the leaderboard is anonymous by default. These features reduce social pressure and mitigate bias, particularly for students who may feel excluded in more traditional or competitive settings.

The GPR activity is discipline agnostic and can be used with any student-generated 'product'. In our case, this was a slide deck, but could be an essay, report, video, podcast, and so on.

There are a range of educational technology tools, or combinations of tools, that could be used to implement this activity. This case study is intended to empower educators to adapt the GPR activity to their educational technology context.

Rationale

Feedback is crucial for student learning (Chickering & Gamson, 1987; Fraser et al., 1987; Topping, 1998) but can be time-consuming. Timely feedback is particularly important when students can revise and resubmit assignments (Henderson et al., 2019). Peer review serves as an effective alternative to teacher feedback, enhancing learning for both the reviewer and the recipient without adding to the teacher's workload (Nicol et al., 2014). Students often find peer feedback more understandable and helpful than teacher feedback (Falchikov, 2005; Topping, 1998) while receiving multiple peer reviews increases the quantity and diversity of feedback (Topping, 1998).

A vital factor in the success of any (peer review) activity is 'the extent to which [students] intend to engage in [the] activity' i.e., their motivation (Jones, 2018, p. 5). Motivation is essential for effective learning (Williams & Williams, 2011) and is linked to curiosity, persistence, and performance (Vallerand et al., 1992). Gamification can enhance motivation by incorporating game elements that promote participation and engagement (Zeybeck & Sagyi, 2023). In our GPR activity, gamification is not intended just as an extrinsic motivator – e.g., grades or credits (Ryan & Deci, 2000) – but a structured approach to foster meaningful peer feedback.

Evaluation: Student Response

Survey data were collected from students in 2023 and 2024. Participation was voluntary, anonymous, and students could choose to skip questions. 24 of 27 students (89%) participated in 2023 and 17 of 18 in 2024 (94%).

The survey followed the APA ethical principles and code of conduct and was carried out in accordance with the principles of the Declaration of Helsinki. Quantitative data were used to examine the concepts of Acceptability (Perceived educational value and Process acceptance) (adapted from Grainger et al., 2018), Cost (adapted from Hulleman et al., 2016), and Reported performance gains.

Qualitative data were used to examine the impact of the peer review and game components on student motivation. We used the Expectancy-Value-Cost model of motivation (Barron & Hulleman, 2015; Hulleman et al., 2016) to frame our analysis.

Quantitative Analysis

An independent samples *t*-test showed no significant differences in the concepts studied between the years 2023 and 2024, so the data were pooled for analysis. Figures 3 through 6 show the percentage of participants who agreed and disagreed with survey statements in relation to each construct.

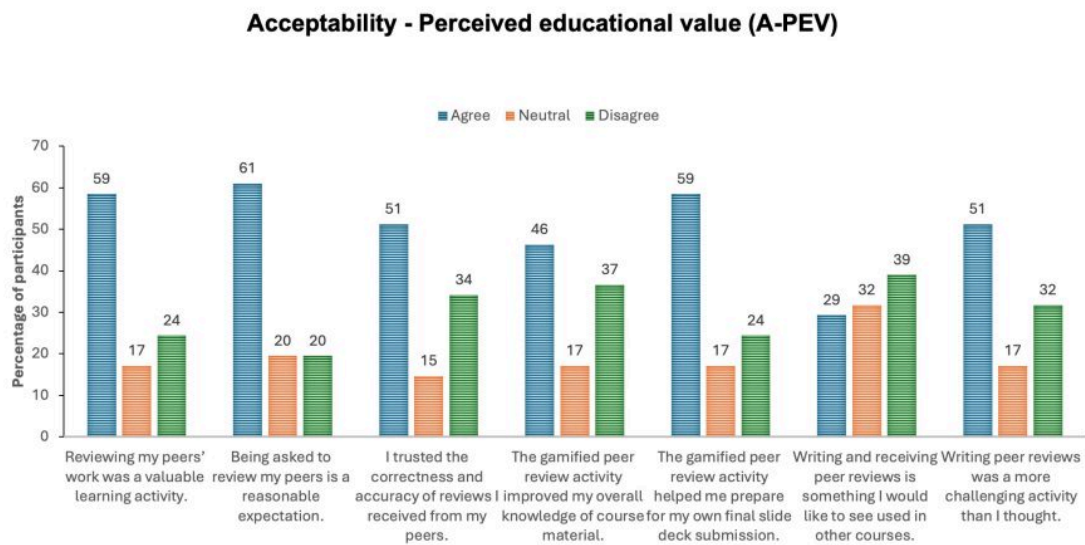


Figure 3: Acceptability – Perceived educational value (A-PEV)

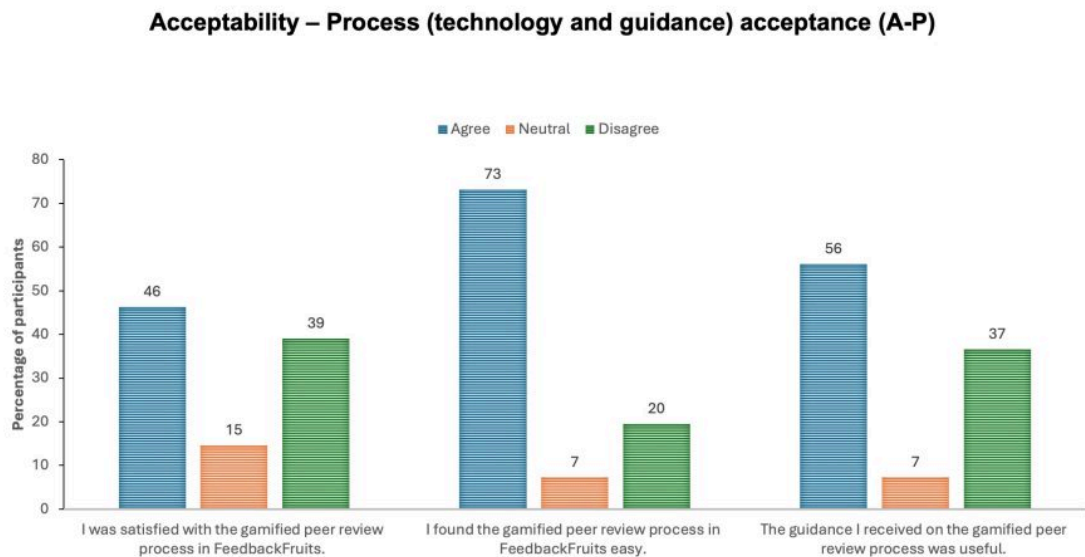


Figure 4: Acceptability – Process (technology and guidance) acceptance (A-P)

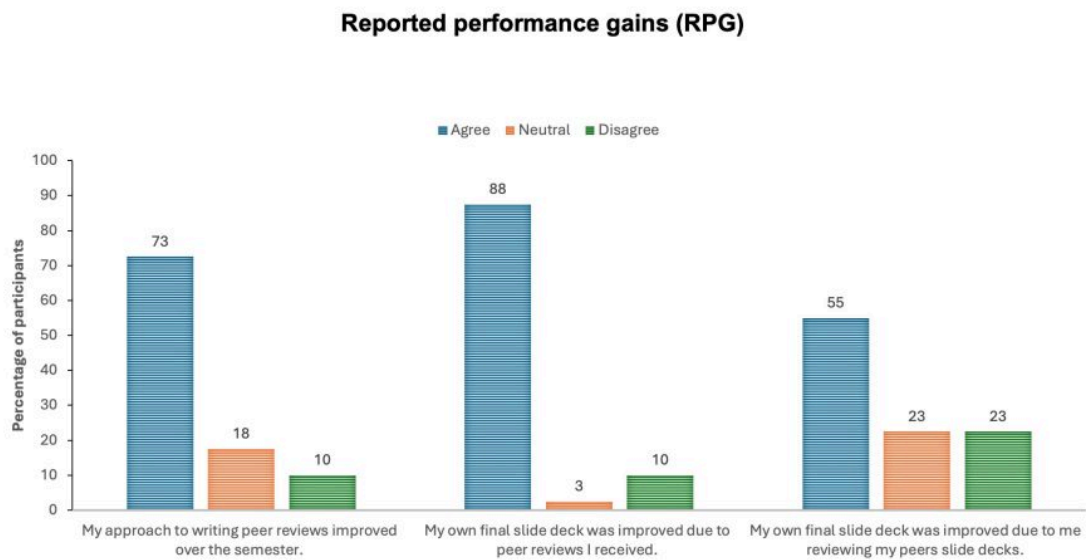


Figure 5: Reported performance gains (RPG)

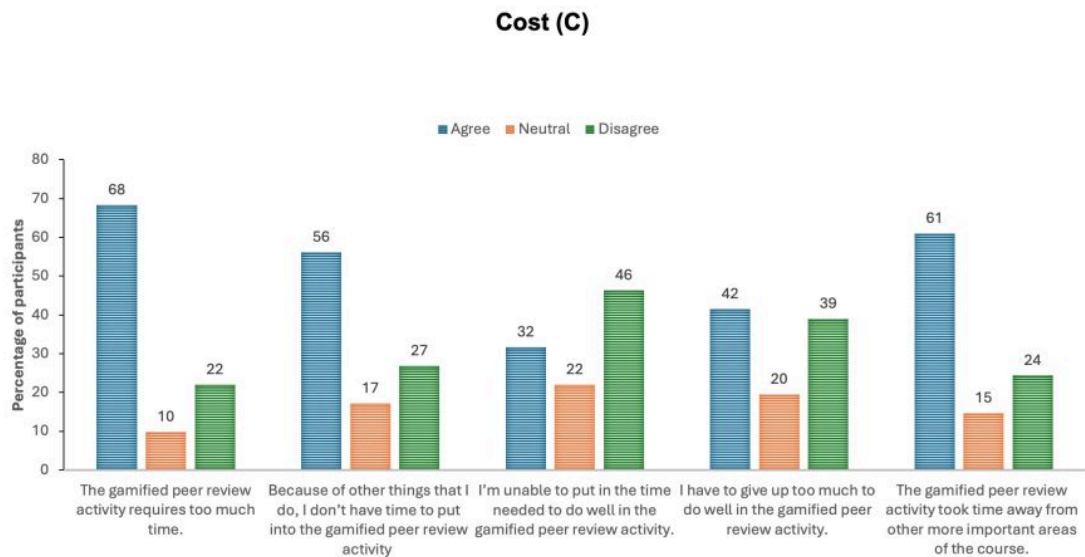


Figure 6: Cost (C)

Did Students Perceive Educational Value in the

Gamified Peer Review Activity?

50-60% of students agreed with most statements. Overall perceived educational value was therefore considerably high. A notable exception was whether the group wanted this activity to be implemented in other courses. While it is difficult for us to conclude exactly why the overall group would not want to see this approach used in other courses, further scrutiny of the data has revealed that the number of peer review rounds appears to make a difference. In Figure 7, we can see that with four rounds of peer review (2023 cohort), 54.2% of participants would not have recommended this for use in other courses, but when only three rounds of peer review were used (2024 cohort), that number dropped to 17.6%. We suggest that this opinion is based on the perceived workload associated with more rounds of peer review, and, therefore, recommend using three rounds of peer review.

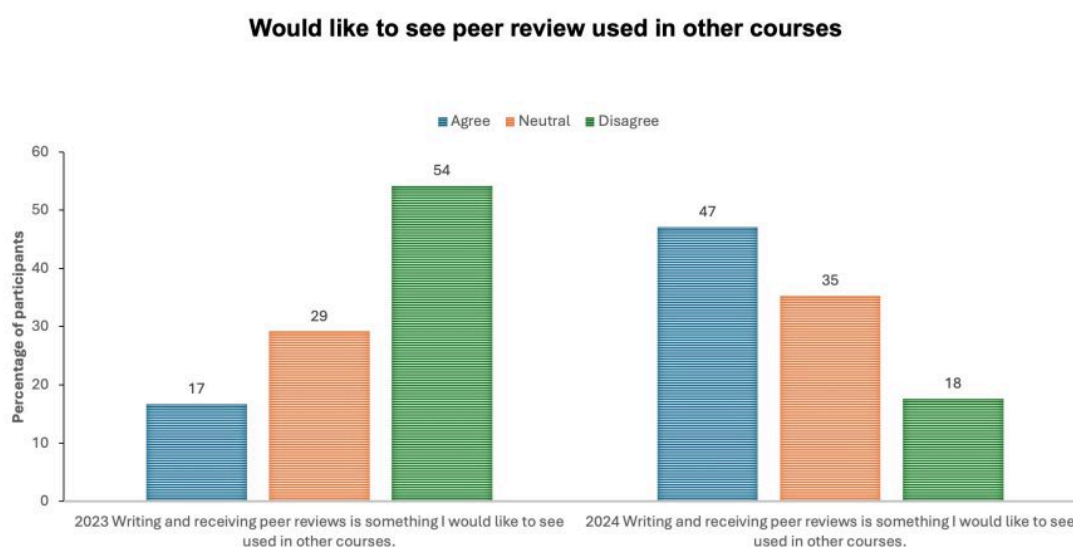


Figure 7: Comparison of 2023 and 2024 participant response to whether they would like to see GPR used in other courses.

Were Students Satisfied with the Implementation of the Gamified Peer Review Activity Process?

Most found the peer review tool easy to use, but the group was quite split on

whether they were satisfied with the activity process and the guidance they received.

Did Students Report Performance Gains From Engaging in the Gamified Peer Review Activity?

73% reported performance gains in terms of their own approach to giving peer reviews and 88% in terms of the impact of feedback on the quality of their final submission. 55% felt that their own final submission had improved because of reviewing peers.

Did Engaging in the Gamified Peer Review Activity Come at a Cost?

Most felt it took too much time, and just over half felt it took time from more important things in the course.

How did Acceptability (Perceived Educational Value and Process Acceptance), Reported Performance Gains and Cost Relate to Each Other?

The survey items formed reliable factors, as items within each concept were highly intercorrelated ($\alpha > 0.70$). The correlation analysis (Table 1) shows significant relationships between the concepts studied. We can see that perceived educational value was statistically related to greater satisfaction with the process, more reported performance gains, and lower perceived cost. Process acceptability was also related to greater reported performance gains.

Table 1: Correlation analysis, Pearson r coefficient and statistical significance

	Process	Reported performance gains	Cost
Perceived educational value	0.708**	0.660**	– 0.316*
Process		0.412**	– 0.227
Reported performance gains			– 0.057

* $p < 0.05$, ** $p < 0.001$

Qualitative Analysis

Peer Review Component

Of 33 comments, the biggest positive impact on motivation related to the Value construct – Is the task worth doing? (15 of 16 comments). Students reported the peer review component as being meaningful and practical (e.g., ‘useful’), having intrinsic motivation benefits (e.g., ‘interesting’), fostering positive peer relationships (e.g., ‘supportive’), and providing variety (e.g., ‘a nice change’).

By contrast, the biggest negative impact related to the Cost construct – Am I free of barriers that prevent me from investing my time, energy, and resources into the activity? (13 of 17 comments). Students felt the peer review component involved an unreasonable workload or was unnecessary, and that it provoked negative psychological reactions (e.g., ‘boring’).

Game Component

Of 39 comments, the biggest positive impact on motivation was again related to the Value construct (20 of 22 comments). Students reported the game component as having intrinsic motivation benefits (e.g., ‘fun’) and being meaningful and practical (e.g., ‘a good method to improve and take the task more seriously’).

By contrast, the biggest negative impact related to perceived unfairness in medal distribution (10 of 17 comments). This is related to either ‘friendship marking’ (Dochy et al., 1999), e.g., ‘some students give out higher medals to their

friends' or a carelessness in approach due to poor engagement (Kao, 2013) resulting in mismatches between the medals awarded and the quality of the feedback received. For example, one student commented: 'I was discussing it with my peers and some of them gave medals randomly or gave the person who was criticising their work a bronze medal.' Perceived unfairness is an overarching motivational issue potentially impacting one or all the expectancy, value and cost dimensions.

Evaluation: Instructor Response

The instructor has found that student reactions to the activity vary; some appreciate its value, while others see it as an unnecessary burden. She acknowledges that students may struggle with new teaching methods.

She has observed that, overall, students engage thoughtfully with peer feedback, distinguishing between useful critiques and those that may not apply. Some students have sought clarification on feedback they have received, either to ensure they understand it correctly or to discuss whether they should incorporate it. She also notes that the quality of the slide decks improves from draft to final submission.

Strategies to Support Student Engagement

We found the following strategies supported students in successfully engaging with this activity:

- Clear articulation of the activity's value to ensure student buy-in.
- Provision of clear, multi-format guidance on completing the process and providing good feedback.
- A practice opportunity at the start of the course to ensure familiarity with the process and identify any technical issues.
- Use of course announcements and course calendar deadlines as reminders for completing GPR process stages.
- Teacher monitoring and timely support, particularly for the first round of reviews.

- In-class opportunities to complete all or part of the process. This facilitates student support and helps mitigate the Cost impact in terms of time.

Key Takeaways

Preparation: Do not implement this design at the last minute. Plan thoroughly before teaching begins.

Relevance and value: Emphasise that the design is about meaningful engagement, not excessive work. Invest in supporting student understanding of the value of the activity and how to successfully engage with it.

Simplicity: Limit the number of rounds and ensure the process is as streamlined as possible and best balances workload with performance gains.

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Case Study: Applying Educational Games to Teaching and Learning of Sustainable Development: A Multinational Case Study

CHUNG-SHING CHAN; WONG SHING YAN; VIENNE LIN; AND XU YUAN

Summary

This case study, informed by an instrumental case study approach (Li, 2023; Stake, 1995), presents a teaching innovation that explores the application of a sustainable tourism planning game and how it potentially enhances the sustainability competences of undergraduate and postgraduate students at a university in Hong Kong, as well as three collaborating universities in Portugal, the United Kingdom, and Taiwan. It has demonstrated that its game workshops, which invite active learning, can be inclusive and sustainable. A mixed-methods approach employing both questionnaires and focus group discussions has been adopted to explore the impact of the innovation. Several practical implications were identified from analysis of the data collected, including the importance of considering students as partners and striking a balance between the educational and entertainment values of the workshops, as well as taking ample care in explaining the rules and relating them to the real-world context.

Introduction

Traditional methods such as lectures and tutorials still play a large part in tourism and sustainable development education today (Fischer et al., 2022; Mínguez et al., 2021). However, over recent decades, tourism has faced a range of emerging

global risks related to unsustainability and resource overexploitation, which have a significant impact across continents (Gössling & Scott, 2025). Navigating such a complex and uncertain world, with evolving political, social, technological, and economic changes in tourism development, it is imperative to inform and guide our students to reflect on the importance of living and travelling sustainably, going beyond the static information written in the textbooks and other printed materials.

Game-based learning has been progressively utilised as a novel active learning approach, which has been shown to improve students' intrinsic motivation (Tüzün et al., 2009) and engagement (Ke et al., 2016), as well as to promote problem-solving and collaboration skills (Sun et al., 2022), thereby providing an ideal platform for active learning (Asniza et al., 2021). Compared with traditional learning methods, participation in game-based learning activities has been found to be more effective for knowledge enrichment and fosters greater confidence and independence in class interactions, which, in turn, enhances the overall teaching and learning process. Well-designed games can advance students from mere knowledge retention to higher-order educational objectives. For example, students could 'apply,' 'analyse,' 'evaluate,' and 'create' knowledge (Anderson et al., 2001; Armstrong, 2010; Chou et al., 2023).

Making active learning inclusive and sustainable through game-based workshops

To effectively realise this active learning experience, a sustainable tourism planning game was presented to local and international students in the form of 13 face-to-face and four online game workshops, depending on the locations of the students. The students were divided into two teams in each workshop to participate in the gameplay. A total of 153 students participated in this study by attending either a face-to-face or online game workshop held between October 2024 and February 2025, details of which are presented in **Table 1**, with no restrictions to their study subject at the university.

Table 1: Details of game workshops held

Type	No. of workshops held	No. of participants	Questionnaire?	Focus group discussion?
Face-to-face (Board version)	13	123 (All from Hong Kong)	Yes	No
Online (Digital version)	4	30 (In total; 16 from Hong Kong, 8 from Portugal, 4 from Taiwan, 2 from United Kingdom)	Yes	Yes

Designed for up to eight players, the game splits participants into two teams to compete on a gameboard to collect all 17 Sustainable Development Goal (SDG) cards as quickly as possible through investing resources into missions representing sustainable tourism practices (**Figure 1**). Players will occasionally encounter abrupt incidents (which are some built-in challenges) that drastically alter the dynamics of the game and require them to navigate unexpected occurrences. The game is developed for two different teaching modalities: a paper board version and a digital version. This is intended to cater to both face-to-face and virtual teaching and learning environments, as well as accommodate small and large class sizes. This project exemplifies active learning, as students engage in activities by playing the game, communicating, cooperating, and competing with their peers. This participation necessitates the synthesis of knowledge about tourism geographies. Specifically, strategic decision-making involving resource investment and possession, as well as consensus-building, are essential skills for students to succeed in the game. Further information on the game is available at https://www.cuhk.edu.hk/eLearning/proj/GRM_SDG-TourismGames/. (A game guidebook is available upon request made to the first author.)



Figure 1: Initial setup of the board version of the game.

The project team has exerted significant efforts to ensure that the game workshops are as inclusive as possible. The students participating in these workshops come from a wide variety of disciplines, such as geography, tourism, urban studies, psychology, business administration, languages, engineering, mathematics,

and other science subjects. Students with diverse backgrounds are essential in fostering the acknowledgement and exchange of ideas and opinions. The theme of the game focuses on the SDGs and sustainable tourism, making it applicable to any student, regardless of their field of study or learning background. A game facilitator, typically a course instructor or teacher, must familiarise themselves with the game rules outlined in the guidebook to lead the workshops effectively. The facilitator may also use the case stories booklet included in the boxset, which contains real-world examples of sustainable and unsustainable tourism development, online resources related to the SDGs, and their own experiences to enhance the teaching and learning process of the students.

Regarding the sustainability of the game platform, both the board and digital versions can be reused multiple times and reproduced easily. For gameplay, teachers can train other instructors to lead the game workshop sessions, while students who have learnt to play can also teach their peers, creating a ripple effect in teaching and learning. Therefore, the game workshops can be conducted multiple times with minimal investment. While the game used in this case study is customised to teach sustainable tourism development, it can be easily adapted to various subjects, (inter)disciplinary and socio-cultural contexts connected to the SDGs. These encompass a wide spectrum of social sciences topics pertinent to people's wellbeing and living, including environmental and resource management, spatial and transport planning, social inequality, consensual decision- and policy-making, and economic development. Beyond the field of social sciences, the game may also be applied to teaching in entrepreneurship and corporate governance. There is strong potential to develop multiple editions of the game by modifying the missions and events while employing the same game mechanics.

Evaluating the effectiveness of game-based learning in heightening students' sustainability competences

Prior to any data collection, ethics approval was obtained from the university ethics committee (Ref. No.: SBRE-23-0367). To assess whether the students' sustainability competences have improved after participating in the game workshops, we adopted a mixed-methods approach to explore a

knowledge-attitude-behaviour (KAB) framework based on Bloom's taxonomy (Gericke et al., 2019; Olsson et al., 2016; Schrader & Lawless, 2004). The KAB framework has been widely applied in different educational contexts, including sustainable development practices, healthcare, and environmental awareness (Lou & Chen, 2009; Schrader & Lawless, 2004). In this study, 'knowledge' refers to the information and understanding students possess about the SDGs and sustainable tourism, while 'attitude' concerns their beliefs and opinions towards sustainable development and tourism. 'Behavioural intention' measures students' intentions to exhibit actions and practices of responsible tourists.

All workshops involved a pre- and post-game questionnaire-based survey, where students indicated their levels of agreement on a series of 7-point Likert scale statements (1 = Strongly Disagree; 7 = Strongly Agree) related to each of the three constructs. The post-game questionnaire also included statements for evaluating the gameplay experience and an open-ended question inviting comments and suggestions about the workshops. Additionally, the online workshops featured a post-game focus group discussion aimed at collecting qualitative feedback on both the gameplay experience and the pedagogical effectiveness of the game.

The quantitative analysis demonstrated significant improvements in students' sustainability competences across KAB intentions. Pre- and post-game comparisons revealed statistically significant increases in mean scores for knowledge (4.72 to 5.72; $t = -9.78, p \leq 0.001, d = -0.89$), attitudes (5.90 to 6.19; $t = -3.33, p = 0.001, d = -0.75$), and behavioural intentions (5.20 to 5.81; $t = -6.03, p < 0.001, d = -0.89$) (**Table 2**). Large effect sizes (Cohen's $d > 0.70$) for knowledge, attitudes, and behavioural intentions emphasise the actual impact of the game, indicating substantial improvement (Cohen, 2013).

Table 2: Changes in KAB before and after the game experience

Mean score	Before workshop	After workshop	Sig.
Knowledge	4.72	5.72	$p \leq 0.001$
Attitude	5.90	6.19	$p \leq 0.001$
Behavioural intention	5.20	5.81	$p \leq 0.001$

One prominent finding from the qualitative data collected is the balance between educational and entertainment values. Participants acknowledged the educational value of the game as an effective tool for conveying the concept of sustainable development while also emphasising the importance of engaging

gameplay in maintaining interest: 'This was excellent as we can learn and enhance awareness towards SDG through a fun and competitive game' (survey respondent from Hong Kong). This highlights the success of the game-based learning approach in SDG and tourism education. Conversely, some feedback revealed tensions between competitive gameplay and learning objectives: 'Sometimes our focus will be on winning rather than the educational information' (focus group discussant from Portugal). This illustrates the challenge of maintaining balance, where the desire to win can diminish the educational experience and overly competitive elements can overshadow educational goals.

Another key finding is the importance of clear instructions and intuitive design, particularly in virtual settings of the digital game version. Participants experienced challenges in understanding game rules: 'The rules were a bit confusing at first, and it took me a few rounds to get into the flow of the game' (focus group discussant from Hong Kong). This aligns with suggestions for providing better tutorials, such as pre-game rehearsals or instructional videos, rather than a textual guidebook. Moreover, some participants emphasised the need for guidance tools: 'There is a need for a "help" option for the game for better guidance' (survey respondent from Hong Kong). These insights underscore the necessity of user-friendly designs and supportive features, such as interactive instructions and accessible help options, to maximise engagement and learning.

Practical implications: From gameplay to active learning

One important practical implication of this case study is the need to consider students as partners. During the game development process, over 20 student partners participated in multiple brainstorming workshops to conceptualise the gameplay rules and select real-world cases, resulting in seven prototypes that were produced and tested. By integrating their insights and feedback throughout the development process, the game can be tailored to meet students' educational needs, maximising its benefits and impacts. In the game workshops, students engaged and immersed themselves in the strategic, interactive, and competitive gameplay. This is evidenced by high evaluation scores (6.24 on a 7-point Likert scale) and positive written feedback in the questionnaire. Students involved in this approach to game-based learning are much more likely to recommend it to their peers, thereby enhancing its sustainability.

Future attempts at similar active learning approaches could consider two key takeaways from this work. First, it is essential to strike a balance between the educational and entertainment values of the game, which can be delicate. A game that focuses too heavily on educational significance may bore students, failing to unleash the benefits of game-based learning. Conversely, if the game is overly competitive or intensive, students may feel they have not learnt much. Justifying how the game mechanics simulate real-world functions can help students understand the consequences of their in-game decisions as if they were made in reality. Second, challenges may arise in explaining the game rules and their relationship to real-life situations. For example, explicating investments in missions representing real-world examples of tourism development and sustainability can be difficult, especially in virtual game workshops where instruction is limited to audio-visual methods rather than hands-on experiences. Therefore, teachers should pay meticulous attention in preparing explanatory materials (Tobias et al., 2014). When students clearly understand how to play the game strategically, their engagement and interest will be maximised, thereby enhancing its pedagogical value. Additionally, the game design and interface should be as intuitive as possible, allowing students to quickly grasp its flow and tactics.

Key takeaways

- Students should be considered as partners when designing active learning approaches.
- Striking a balance between the educational and entertainment values of the game is essential for optimising an active learning environment.
- Attention should be paid to clearly explaining the game flow and tactics to students before the learning session.

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Case Study: Partnering with Students to Create Educational Science Games: Insights from Higher Education in South Asia

KIRAN QASIM ALI; NIMARTA WADWANI; AND RUBY BANO

Summary

This case study explores the experiences of postgraduate science education students who co-designed non-digital educational games through a structured, iterative design process in a higher education institution in Pakistan. By developing 40 curriculum-aligned board and card games using low-cost materials, participants addressed the challenge of making abstract science concepts more accessible. The process fostered professional agency, collaboration, and deeper pedagogical reasoning, while also revealing tensions in balancing engagement with conceptual rigour. The case demonstrates that involving future teachers in co-creation generates not only classroom resources but also a sustainable habit of practice, positioning teachers as adaptive designers rather than passive implementers.

The Case: State of Science Education in Pakistan

Science education in Pakistan faces challenges as studies have consistently shown that student performance in science is below global standards (ASER, 2021; Bhutta & Rizvi, 2022; Mullis et al., 2019). The TIMSS 2019 report found only 1% reaching intermediate or high proficiency, with the majority scoring below 33%. The poor quality of science teaching is a key factor. A recent study of 357

science classrooms found that the majority of lessons scored below 1.5 on the Classroom Observation Scale (COS), indicating weak classroom practices (Bhutta & Rizvi, 2022). Most teachers relied predominantly on transmissive pedagogies, creating a gap between curriculum aspirations and classroom realities. Bridging this gap requires evidence-based adaptable pedagogies suited to the resource constraints of Pakistani schools.

Game-Based Learning in Science Education

Game-based learning (GBL) has been known to enhance both cognitive and affective engagement in science education (Chen et al., 2020; Cheng et al., 2022). When designed with disciplinary precision and cognitive rigour, games can foster motivation and improve conceptual understanding (De Freitas, 2018; Lei et al., 2022). Psychologically, the appeal of GBL lies in its responsiveness to learners' intrinsic needs for competence, autonomy, and relatedness through embedding challenges, providing immediate feedback, and engaging learners through progressive difficulty levels (Whitton, 2010; Shute et al., 2019). Pedagogically, GBL supports constructivist principles by positioning learners as active sense-makers who test, apply, and reorganise knowledge within contextualised problems. When properly designed, games immerse learners in experiential learning cycle of action, feedback, and reflection, thereby promoting both cognitive elasticity and disciplinary understanding (Gee, 2003; Lei et al., 2022; Krath et al., 2021).

Meta-analytic evidence indicates that GBL produces greater cognitive gains than conventional methods (Vogel et al., 2006; Sitzmann, 2011). Studies by Wouters et al. (2013) and Clark et al. (2016) provide strong evidence that game-based environments positively influence knowledge acquisition and retention, particularly when integrated with sound pedagogical design and meaningful feedback structures. Although recent studies report positive shifts in science learning and self-efficacy (Riopel et al., 2019; Wang & Zheng, 2021), these outcomes frequently depend on the adaptive design quality of the game, particularly how challenge, feedback, and progression are orchestrated (Gee, 2007; Pirker et al., 2018).

While evidence affirms the positive impact of GBL on knowledge acquisition and retention, its applicability remains underexplored in low-resource contexts. Little is known about how GBL can be effectively designed and enacted within Pakistan's public schools, where class size, instructional time, and infrastructure

constrain practice. Moreover, existing research largely focuses on technology-intensive game designs that often reduces teachers' position to 'implementers' rather than 'co-designers'. Equally overlooked is how teachers' participation in game design shapes their pedagogical reasoning, calibration of cognitive demand, and collaborative engagement in resource-constrained classrooms.

To respond to this gap, a project was initiated at the Aga Khan University Institute for Educational Development (AKU-IED) within its postgraduate programmes, Master of Education (MEd) and Master of Philosophy in Education (MPhil). Grounded in a Students-as-Partners (SaP) framework, this initiative engaged graduate students in designing non-digital games to teach science concepts at the primary and secondary levels. This case study explores how participation in game design served as a catalyst for student-teachers' professional growth and pedagogical reflection. It foregrounds their experiences of navigating design challenges, negotiating cognitive demand, and developing contextually grounded science resources within the constraints of low-resource classrooms.

Design-Based Research Approach

The project employed a Design-Based Research (DBR) approach, well suited to addressing real-world educational challenges through iterative, collaborative design (McKenney & Reeves, 2012). 25 graduate students participated voluntarily, with ethical approval granted by the Aga Khan University Ethics Review Committee and informed consent secured from all participants. The project unfolded in three phases. Phase 1 comprised a 20-hour professional development workshop on game design, where student-teachers examined difficult science concepts, reflected on teaching experiences, and selected topics from Pakistan's National Science Curriculum for game creation. In Phase 2, participants produced prototypes of board and card games, including draft rules and learning tasks. Games were exchanged, played, and refined through structured peer review, which required participants to evaluate playability, mechanics, and alignment with intended learning outcomes. Phase 3 involved piloting revised games in simulated classroom settings. Trials revealed challenges such as unclear rules, uneven progression, and weak balance between engagement and disciplinary depth. Content experts provided additional feedback on scientific accuracy and task sequencing. Drawing on these inputs, participants refined and finalised their

designs, producing 40 non-digital games for primary and middle school science classrooms, with the first 20 published on the AKU-IED website (Ali et al., 2025).

Insights from Student-Teachers' Experiences of Game Design

The following section presents themes drawn from student-teachers' experiences of designing educational games. These insights illustrate how they engaged with pedagogy, collaboration, and classroom realities through the game design process.

Evolving Pedagogical Reasoning Through Design

Beyond creating resources for students, the design process itself functioned as a form of professional learning for student-teachers. As they translated abstract concepts into rules, tokens, and tasks, participants became more conscious of how pedagogical choices shape learner engagement. Their reflections suggest a shift from seeing games as 'fun activities' to recognising them as structured tools that demand attention to cognitive challenge, progression, and conceptual accuracy. The collaborative nature of design also surfaced important lessons: groups negotiated roles, debated trade-offs between simplicity and rigour, and drew on collective expertise to refine their games. These experiences deepened their understanding of active learning principles and highlighted the value of collaboration in creating classroom resources.

Games as Tools for Enhancing Conceptual Understanding

The games revealed genuine potential to make abstract scientific ideas tangible. In the *Atomic Structure* board game, players arranged protons, neutrons, and electrons to create stable atoms, transforming an abstract model into an interactive spatial task. Such representations not only supported comprehension but also foregrounded how game mechanics can act as epistemic tools – artefacts

that shape how knowledge is encountered and made meaningful. Yet this very strength illuminated a deeper dilemma: pedagogical accessibility carries the risk of conceptual dilution. Representing atomic theory through symbolic tokens sharpened recognition of particle roles but also risked misrepresenting the relational intricacies of atomic behaviour. This echoes Squire's (2013) concern that games may 'flatten' disciplinary knowledge if design choices privilege playability over fidelity. The critical challenge here is not whether to simplify, but *how* to simplify without eroding disciplinary essence. Teacher-educators must therefore scaffold student-teachers in identifying what Shulman (1986) called 'the deep structures' of disciplinary knowledge: those elements that must remain intact even in playful representations. Structured reflection on these 'non-negotiables' could help future teachers preserve scientific integrity while making content accessible through games.

From Recall to Reasoning: Designing for Different Levels of Thinking

The design process offered student-teachers a rare opportunity to interrogate the cognitive work demanded of their learners. Early prototypes tended to rely on recall level (e.g., matching, naming, or simple identification) which reflects a common novice assumption that activity alone guarantees learning. However, peer review raised a critical point: *What kind of thinking does this task actually require?* This interrogation catalysed a developmental shift. For example, in the game Pollution Solution (Figure 1), factual recall was replaced with scenario-based reasoning, where players analysed causes of pollution and proposed solutions. In this case, design acted as an apprenticeship in pedagogical reasoning, prompting participants to connect learning outcomes with task structures more deliberately.

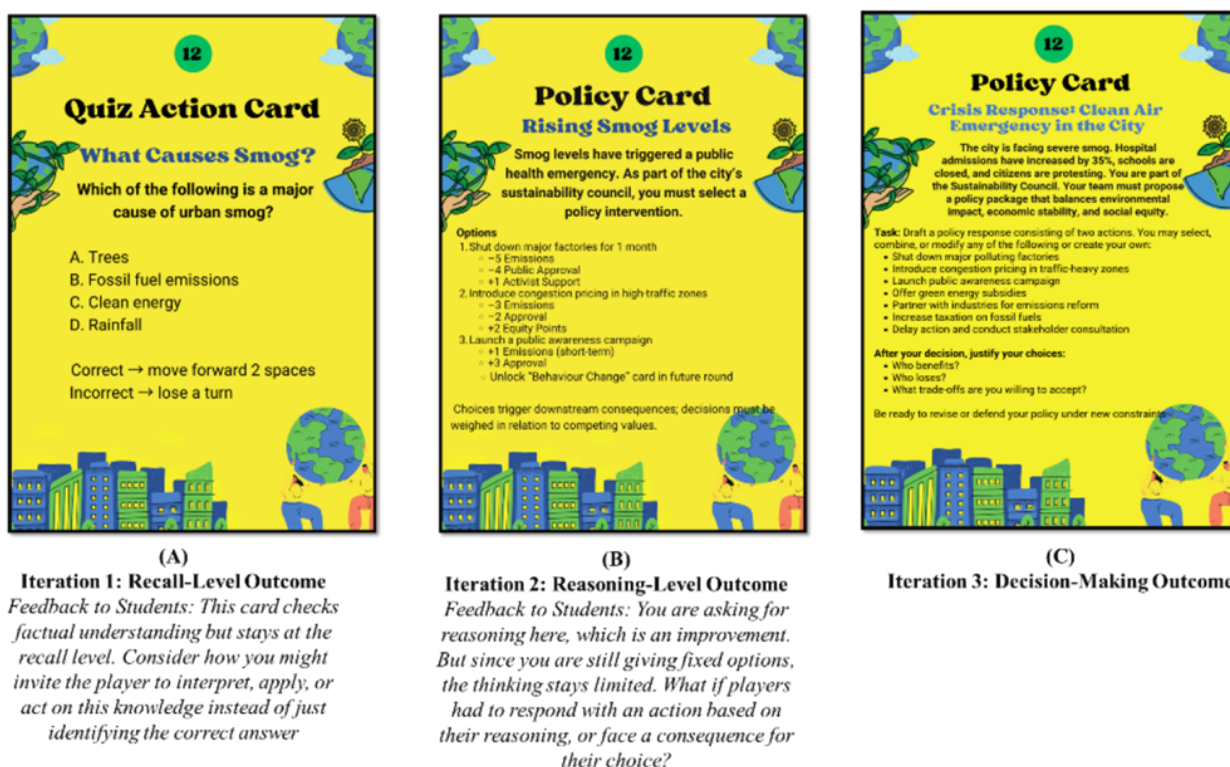


Figure 1: Progression of cognitive outcomes in game design. © Kiran Qasim Ali, Nimarta Wadwani, and Ruby Bano, 2025. CC BY 4.0. Source: <https://ecommons.aku.edu/books/178/>

Having said that, designing games at higher cognitive levels required student-teachers to distinguish clearly between surface activity and genuine cognitive engagement – a distinction that demands meta-pedagogical awareness which many novice teachers are only beginning to cultivate.

To consolidate this developmental shift, teacher education programmes should embed structured tools for cognitive calibration within the design cycle. Asking student-teachers to map each task against established frameworks such as Bloom’s taxonomy or Anderson and Krathwohl’s revision would make the ‘invisible architecture’ of pedagogy more explicit. Institutionalising such reflection would ensure that the shift from recall to reasoning is cultivated as a professional habit rather than left to chance

Striking a Balance Between Fun and Learning

The design process highlighted student-teachers’ growing capacity to think critically about the relationship between enjoyment and learning. In early iterations,

games demonstrated how playful mechanics such as competition, reward and penalty, increasing level of difficulty, and challenges can create an appealing structure that motivates learners. Participants recognised that these features were not trivial; they represented an essential ingredient of game-based pedagogy, since affective engagement often opens the door to sustained cognitive effort.

However, as prototypes were trialled among peers, participants realised that mechanics centred solely on excitement could obscure the underlying pedagogical purpose. For example, in the first version of Circuit Maze (see figure 2), success was determined by how quickly a player could complete the circuit, rather than by their ability to reason about electrical flow.

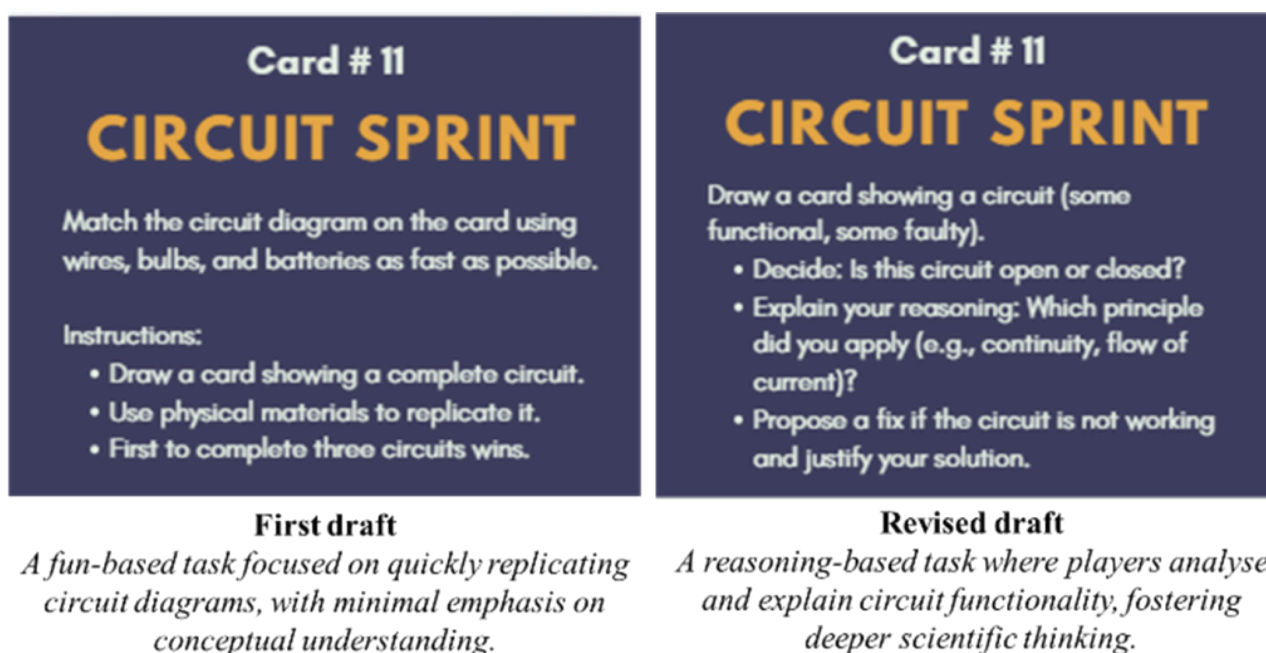


Figure 2: Striking the balance between fun and rigour. © Kiran Qasim Ali, Nimarta Wadwani, and Ruby Bano, 2025. CC BY 4.0. Source: <https://ecommons.aku.edu/books/178/>

This tension revealed a critical insight that enjoyment and rigour are not automatically aligned, and privileging one dimension can easily compromise the other. For novice designers, the difficulty lay in discerning when playful elements enhanced learning and when they distracted from it. Therefore, rather than treating engagement and rigour as opposing poles, we should help student-teachers learn to manage the productive tension between the two. One practical approach is to embed a dual-lens evaluation protocol into peer review, requiring

designers to justify each game mechanic both in terms of its capacity to motivate and its capacity to elicit disciplinary reasoning

Conclusion

This case study explored engaging post-graduate students as partners in designing non-digital science games. The study highlighted that when student-teachers are invited to design materials that respond to real classroom needs, they not only develop a deeper understanding of pedagogy, but also gain confidence in their capacity to contribute meaningfully to the teaching process.

Embedding Co-Creation as a Sustainable Habit of Practice

This case study presents a sustainable model for teacher education, positioning graduate students as co-designers of curriculum-aligned games through the Students-as-Partners approach. By creating board and card games with low-cost, locally available materials, participants ensured contextual relevance, ownership, and feasibility for classroom integration. The model's adaptability is central: designs can be repurposed across subjects, embedded in coursework, or linked to practicum tasks. Sustainability lies not in static artefacts but in cultivating design dispositions; teachers learning to adapt, reuse, and innovate. In this sense, co-creation becomes a durable professional habit that positions teachers as resource developers rather than resource adopters.

Inclusive Practices in Game Creation

Game design fostered inclusive participation among student-teachers with diverse strengths – scientific expertise, digital skills, or writing abilities – ensuring collaborative ownership. The resulting games incorporated visual aids, simple language, and flexible rules, enabling engagement across varied learner needs. Some included differentiated levels to match cognitive readiness. By prioritising

low-cost materials and the classroom realities of Pakistani public schools, participants linked inclusivity with feasibility, reflecting how game design can embed equity within pedagogical practice.

Key Takeaways

- Positioning student-teachers as co-designers of educational games cultivated professional agency, collaborative practice, and deeper engagement with pedagogy. In this role, they shifted from passive receivers of methods to active pedagogical decision-makers.
- Educational games, when carefully designed, can render abstract science concepts accessible and engaging. Yet this accessibility depends on balancing playability with disciplinary accuracy, ensuring that simplification does not erode conceptual depth.
- The implications for teacher education are significant: programmes must move beyond presenting games as ready-made tools and instead prepare future educators to design, adapt, and critically evaluate games in relation to cognitive goals, contextual constraints, and meaningful learning.

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7.3 CO-CREATION

Case Study: Game On: Enhancing University Transition Through Co-Created Active Learning Strategies

AMY STICKELS AND ANNA TRANTER

Summary

This case study showcases a method developed with international foundation year students to support the transition to university study, where co-creation and participation are emphasised. The programme is for international students who have completed high school but do not yet meet entry requirements for a UK undergraduate degree. The approach encouraged students to embrace active learning as a legitimate, effective process of learning whilst simultaneously building learners confidence through co-creation. This activity is readily transferable across disciplines and educational phases.

What did we do?

The activity began as a quiz-based intervention whereby teachers designed a quiz, recapping student learning from the lecture, implemented at the beginning of the following seminar. We used a gamified quiz platform to deliver the quiz, which included leader boards and a timer to increase engagement. The quiz was accessible on any internet enabled device. The platform allowed students to remain anonymous or to input their names as they wished. Although effective for retrieval practice, we felt there was more that could be done to

engage students and enhance learning, and so we introduced a co-created element where students designed the questions for each other to play.

The activity followed a series of steps:

1. Students participated in a knowledge input activity before the seminar: in this case a lecture, although it could equally be reading an article, watching a demonstration, etc.
2. During the seminar, students were given a piece of paper and instructed to write a question and answers based on pre-learning. Students did not write their name on the papers, which were then collected by the teacher. Students were encouraged to write different styles of questions (multiple-choice, true/false, or application).
3. After the seminar, the teacher uploaded the questions and potential answers to the quiz platform, choosing the answer time. Minor changes were made to the wording so that the questions were coherent, and questions were only removed where there was repetition. It was important that students were able to identify their own questions.
4. During subsequent seminars, students accessed the quiz platform via their devices, deciding if they wished to remain anonymous (and therefore choose a pseudonym) or input their own name. Once all were logged on, the quiz began. On the main screen, students were shown the question and possible answers, and they selected the correct answer on their device.
5. At the end of the allotted time, the correct answer is revealed on screen along with the leaderboard positions. At intervals the teacher interjected with further explanation if needed before proceeding to the next question. At the end of the quiz, the top 5 students were revealed.

Why did we do this?

Gamified learning experiences have been shown to enhance motivation and engagement in students' learning (Caponetto et al., 2014), while also fostering stronger relationships between teachers and students, and between peers. This approach creates a collaborative and interactive environment supporting both academic and social development.

The gamified platform provided students the option of anonymity, which is

important in creating a space for 'safe failure' (LaVaque-Manty, 2014) and increasing positive engagement. Actively participating in learning, such as developing a quiz, empowered students to take ownership of their education, fostering deeper understanding and enhancing their overall learning experience (Draper, 2009). The co-created quiz encouraged students to participate in the class in different, more active, ways – both as producers of the lesson but also as participants, increasing engagement with the material. Students also needed a higher level of understanding and critical thinking to be able to write successful quiz questions, with viable potential answers.

Research highlights that transitioning to higher education requires students to develop greater self-direction in learning (Jeffery, 2012). Shifting from teacher-led instruction to a co-created classroom environment is a gradual process relying on educators to foster supportive and enabling conditions. Encouraging students to design a quiz is a small but meaningful step in this journey, helping them build confidence, a sense of belonging, and shifting mindsets from passively answering questions to actively formulating them. This approach aligns with Healey et al.'s (2014) emphasis on engaging students as partners in learning and teaching, which enhances motivation and ownership. It also provides students with an opportunity to reflect on previous learning, or catch up on missed content, making seminar sessions more productive by reducing the need for extensive recaps of lecture material.

How did students and staff respond?

Following ethical approval by University of Warwick Research Governance and Ethics Committee HSSREC 39/21-22, evaluation of this intervention was conducted across one iteration of two modules in 2021/22 via a student questionnaire (43% response rate), a focus group of 14 students, and interviews with two members of staff. Several key themes emerged:

Student engagement – teachers noted most students chose to take part in the quiz: in a seminar group of 15, typically all students were logged in as indicated on the home screen of the platform and 90%+ of students submitted questions for the quiz. This could suggest that by writing the quiz in 'student speak', students understood what the question was asking and so did not have the 'academic speak' as a barrier to participating.

Students in the questionnaire described the quizzes as fun and engaging, viewing them as a game. For example, one commented, 'I'm not a gamer, but this motivates me,' while another said, 'I don't want to lose,' highlighting the competitive aspect. The use of leaderboards proved incentivising – 'I want to see my name' – emphasising how gamification enhanced the feeling of motivation.

Enhanced learning for students and staff – students in the focus group reported that their retention of information improved through developing their own questions, as it made them recall and revise their notes, alongside being able to self-assess their learning through seeing what they got right or wrong. Teachers reported that they were able to identify areas of misunderstanding, either through the initial questions being submitted or in the quiz responses. This enabled teachers to intervene, re-explain concepts, and shape future teaching and learning.

Skill development – at interview, teachers noted that students initially wrote simple questions, such as true/false or knowledge-based questions, but over time the questions became more complex, involving application of concepts or multiple choice where the answers were less obvious. They observed that students were often helping each other write the questions, promoting communication skills and teamwork.

Feeling valued – most surprising was the impact of the quiz on the students' sense of belonging. Students in the focus group claimed that having the opportunity to develop the quizzes, and for those questions to be largely unchanged when they appeared on screen, boosted their self-confidence as well as feelings of enjoyment. One student shared that 'in the past, writing class material was for the teacher, and now the power is being shared with us.' Students also felt that the gamification activity 'makes me feel part of the lesson.' Participating in the quizzes led to friendly competition, with students guessing who the author of the question was and laughing together when someone admitted to getting their own question wrong.

How is this a form of active learning?

The co-created quiz is a simple method of introducing students to active learning in a non-threatening way. It is an effective method as it encourages students to reflect on their own learning and understanding of the subject materials. The

potential anonymity of the quiz platform means that it is non-threatening – the questions are not attributable to a particular person, and neither are the answers. It turns a passive activity into a more active experience of being involved with designing and contributing to the learning, reflecting and recalling what students know and using this knowledge to co-create the lesson.

Furthermore, students are engaged cognitively with the materials and produce evidence of their own learning through both the development of the quiz questions, and through playing the quiz. This method engages them in a sense-making activity, as to write suitable suggested answers, students need to have internalised the information to construct credible responses. Over time the quiz questions invoke higher order thinking skills through application questions or asking others to select appropriate points of evaluation. Students are introduced to being more active agents by becoming co-creators of their learning.

How did we ensure our approach is inclusive?

We endeavoured to make this approach inclusive by:

- Enabling students to remain anonymous if they wish. This reduced the power imbalances that can be experienced in a classroom. Since neither the teacher nor the students knew who set the questions or gave the answers, all were able to participate and feel a part of the lesson.
- Making only minor changes to question wording. This meant questions were accessible as they were in the students' own words. This also validated the students' contribution by enabling students to recognise their own question.

How did we ensure that it was sustainable?

The quizzes were administered weekly, raising an initial concern that students might experience 'game fatigue' due to the frequency and format. However, students responded positively in the focus group to the routine, commenting, 'I'm excited – I like the routine of doing the quiz.' Having said this, the teacher can choose how frequently the activity is undertaken. While previous studies have

identified the potential for diminished novelty in repeated gamified activities (Wang, 2015), in this context, the consistency appeared to support engagement rather than reduce it.

Students viewed mistakes positively, seeing incorrect answers as valuable learning opportunities. The questionnaire responses included, 'I learn from making mistakes,' and 'it reminds me what I need to improve.' For some, the quiz extended beyond knowledge recall, with one student noting, 'we are creating, not just learning.' This emphasis on co-creation not only enriched their immediate learning experience but also fostered skills of collaboration and critical thinking that they could carry forward into their undergraduate studies.

The sustainability of this initiative lies in its adaptability; the interactive and co-creative nature of the quizzes can be seamlessly integrated into future teaching practices, ensuring long-term benefits for students and educators.

How can others adapt this approach to their own context?

The co-creation of quizzes is a highly adaptable strategy that can be tailored to various contexts, including diverse subject areas, classroom types (e.g. online or hybrid), and asynchronous learning environments. Its flexibility makes it suitable for a wide range of disciplines, enabling educators to integrate it into their teaching practices to foster active learning and student engagement. The approach supports flipped classroom methods by allowing students to engage with pre-class materials, such as demonstrations, articles, case studies, videos, or podcasts.

The method is versatile and not limited to standard, in-person, live delivery during term time. For instance, in online or hybrid settings, students can submit questions via email or digital tools like MS Forms. For asynchronous learning or revision, students could contribute questions by a set deadline, with the quiz completed at their convenience. Discussions could then take place in forums to encourage further engagement and reflection.

To implement this gamified active learning approach, educators can use platforms like Kahoot!, Quizlet, or similar tools that support interactive quizzes. In contexts where online access is limited, the activity can be adapted to a tra-

ditional paper-based format, maintaining the core element of student-created questions.

Clear guidance from teachers on designing effective questions and fostering collaboration is essential for the success of this approach. Encouraging students to take ownership of the quiz creation process not only enhances their learning experience but also promotes deeper understanding and active participation.

Key takeaways

The integration of gamification and co-creation into transition pedagogy offers significant benefits for both students and teachers including:

- **Enhanced student engagement and learning:** Gamification and co-creation actively engage students, fostering confidence, a sense of belonging and increased learning.
- **Teacher benefits:** Teachers gain formative feedback on student learning through quizzes, enabling targeted teaching
- **Enhanced classroom dynamics:** Co-creation shifts classroom dynamics positively, encouraging participation and building stronger teacher-student relationships.

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Case Study: Rethinking Learning Spaces with Students as Co-Creators for Social Change

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Summary

The Social Justice Jam: Spaces for Change was a space to explore solutions to communities' challenges through design-thinking and problem-based learning (Nerantzi et al., 2025). Jams are short, intensive and interdisciplinary learning programmes over one or few days that aim to harness collective creativity to provide solutions to pressing challenges (Tang, Vezzani, & Eriksson 2020) and are similar to community-based learning Hackathons (Lara & Lockwood, 2016). The Social Justice Jam was run as a three-day virtual intensive and cross-boundary programme in June 2024. It brought together students and staff to design, facilitate and co-create solutions for social justice. It entailed both live interactive sessions, group work and self-paced activities. The Jam was a perfect illustration of 'learning without borders', with the aim of advancing social justice solutions, compelling learners to challenge-focused learning and critically coming up with diverse solutions to problems faced by the local communities of Seacroft and Mamelodi in both Leeds and Pretoria. Moreover, the Jam gave the students an opportunity to make new connections in the sustainability field. What follows are questions we asked students to reflect on based on their experience with the Social Justice Jam as co-hosts or facilitators. Ethical approval for was received in advance of the research (University of Leeds research ethics committee application number 1669) and all ethical permissions and protocols were followed.

What did you do? Why did you do it (how does it fit with the literature and any other evidence)?

Students 1 and 2

The Jam acted as a learning experience for both attendees and facilitators. The Jam gave us a platform to help raise awareness and make a small impact on the local communities involved in the Jam. The Jam also gave us an opportunity to network with a vast variety of people, helped us make connections not just in the sustainability industry but also people at the forefront of the communities, of whom we were trying to make an impact on.

The Jam focused on creativity, making the delegates think actively about different scenarios and use different methods to channel creativity and come up with forward-thinking solutions on topical issues such as funding in the local communities and how diverse stakeholders can become involved in issues faced by such communities.

We felt empowered and supported prior to and throughout the Jam through the training provided and the non-hierarchical structure. Working in an online, trans-global collaborative environment, we helped our groups of participants share their experiences through using facilitated discussion and tools such as the Six Thinking Hats (de Bono Group, 2019). These methods were chosen by the group as ways to encourage community participation and development in a democratic process, through encouraging agency and voice from those involved (Ledwith, 2016). Importantly, the input of everyone was equally received as important, and local knowledge held valuable.

Students 3 and 4

We worked to promote and co-host the Jam. To generate interest, we engaged directly with students at a sustainability pop-up stall on the University of Leeds campus, highlighting how participation could benefit them both personally and professionally. Simultaneously, we ran a strategic social media campaign to

reach a diverse audience of students, academic staff, and community members, reinforcing the Jam's commitment to sustainability, social justice, and collaborative problem-solving. Our objective was to raise awareness, inspire curiosity, and encourage broad participation, recognizing that sustainability is relevant across disciplines. Research on community engagement highlights those participatory approaches, where individuals feel directly involved, are more likely to foster long-term commitment to sustainability (Kiss et al., 2022). These direct interactions, both online and in person, proved to be powerful tools for engaging potential participants.

Beyond promotion, we co-hosted the Jam, ensuring the smooth facilitation of presentations and activities over three days. Our motivation stemmed from a desire to empower participants from diverse backgrounds to recognize their role in sustainability efforts and contribute to collaborative solutions. Local engagement is crucial in building momentum for systemic change, and the Jam exemplified how small, collective actions can address global challenges. On the final day, we served as panelists, reviewing group presentations that tackled community issues – an experience that underscored the power of collective innovation.

This approach aligns with the principles of Participatory Research, which emphasises collaboration with those directly affected by the issues under study. In this case, the Jam reframed community members from Seacroft and Mamelodi as active contributors rather than mere subjects of traditional research, valuing their lived experiences (Cargo & Mercer, 2008; Jagosh et al., 2012; Vaughn & Jacquez, 2020). Drawing on key frameworks, such as relationship-building, shared understanding, and action planning, the Social Justice Jam demonstrated how participatory methodologies can foster inclusive, context-specific solutions to real-world challenges (Cornish et al., 2023).

How did students, staff, and community members respond? How is this a form of active learning?

Student 1

In terms of the staff, students and community members involved in the Jam,

they responded well, and some have even stayed in touch after the Jam itself. Some members of the community really enjoyed the platform to share their issues within their communities, with the Jam really acting as a pedestal to shine a light on key issues, leading to a collaborative discussion between students and staff from the University of Leeds and both communities.

In terms of active learning, it is seen as the delegates being able to work collaboratively and creatively to come up with a forward-thinking solution. It is considered a form of active learning because the scenarios act as a point of reflection which can help the delegates consolidate learning and make connections to the knowledge gained during the Jam. There was also active participation throughout the jam, with the delegates participating in the live and group sessions. This allowed them to take ownership of the learning process and increase engagement levels through the course of the three days.

Students 3 and 4

Local organisations, such as LS14 Trust and Mothong African Heritage, played a crucial role in shaping discussions by providing invaluable insights into the real-world challenges faced by their communities. This ensured that both communities were central to the Jam, with their lived experiences guiding the dialogue. The event exemplified active learning, as participants were not passive recipients of information but co-creators of knowledge, collaboratively developing contextually relevant solutions.

Student 2

Participants and hosts of the event all responded generously with their time and knowledge. There was a great spirit of collaboration and co-creation, with participants listening to presentations respectfully and asking thoughtful and useful questions. By taking learning out of the classroom for students, and applying it to real-life scenarios, active learning took place. Through the application of knowledge gained on programmes of study, it became clear that all students had relevant information that could assist in the problem-solving process, even where the degree may not have immediately seemed to have links to sustainability or community development. Through enabling space to question structures and

processes that impacted both communities, it sparked moments of critical pedagogical work in the Freirean spirit (Freire, 1970), alongside illustrating possibilities of applying learning in tangible ways. Personally, the jam supported my interest in community development through allowing me insight into the power of collaborative and fast-paced initiatives which harness the opportunity to build relationships and utilise interdisciplinary knowledge.

How did you make sure your approach was inclusive?

Student 1

We developed a participant handbook, which we adapted from the first day to help the participants understand the scenario, break it down into the key components, and come up with the end product, which was developing a solution for the funding, and identifying key stakeholders involved in each of the processes within both of the local communities (Wood et al., 1976). This scaffolding approach, helping learners break tasks down into more manageable tasks, in order to reach the long-term goal of coming up with a solution to the Jam itself was proven successful.

Students 5 and 2

Considering inclusivity from a collaborative perspective, we ensured that all voices were valued – particularly those with indigenous experience from the communities involved – and expertise was prioritised. There were some technical challenges to be mindful of – specifically the reliability of internet connection for our participants in Pretoria and Mamelodi – these were worked around with flexibility wherever possible, but it is something to be mindful of for future synchronous sessions.

Student 3

We prioritised inclusivity by ensuring that community members and organisations were active contributors to the Jam (Wenger, 1999). The event also demonstrated how digital engagement can bridge stakeholders, bringing them together on a shared platform. In-person interactions would have been challenging – if not impossible – for connecting the communities of Seacroft and Mamelodi. Moreover, we approached the issues not solely as sustainability challenges but through the perspectives of these communities.

How did you ensure that it is sustainable?

Student 1

The connections with the communities are seen as sustainable because we are keeping in touch with delegates from the jam and trying to form a long-term view in terms of how we can support them going forward.

Student 3

The Open Educational Resources (OER) (University of Leeds Discovery Delivery Group, 2024) we developed provide a foundation for those who wish to replicate our work in the future, ensuring broader impact and long-term sustainability (Butcher et al., 2023). Inclusive participation, rooted in active learning, fostered a sense of ownership among community members – an essential factor in preventing the initiative from fading over time (Wenger, 1999).

Student 5

Including community members (indigenous) in the learning enhanced sustainability as it promoted intergenerational knowledge transfer among the participants (Freire, 1970).

Student 2

Through the connections fostered throughout the jam, the aim was to create sustainable, transformational potential. Funding was available through University of Leeds Horizons' Institute 'What comes after the SDGs?' fund to support the implementation of ideas by the communities after the event had finished.

How can others adapt your approach to their own context?

Student 1

For future jams, others could take the Jam blueprint we developed and use it for a different topic. It could be any topic; it doesn't have to be sustainability or social justice related. In addition, future users could adapt to organising the Jam as a hybrid event to make it more accessible, but through which they can still reach global communities further afield. It could also be run with local schools to raise awareness of sustainability or other topics and encourage active learning from a younger age as well.

Student 5

The Jam has a degree of flexibility to accommodate various modes of learning or to allow for merging them together. This is quite beneficial as it ensures that most people are included and can identify with the kind of learning that works for them. This entails opening the learning to all participants regardless of their ages. The power of the Jam could lie in adapting it for non-formal and informal learning to include everyone.

Communities can run their own Jams using our OER, identify and solve their own challenges related to the UN SDGs and become empowered to share their knowledge and solutions.

Key takeaways

The above authentic narratives by student facilitators and co-hosts provide valuable insights into their experience of working closely with staff as partners during the Social Justice Jam: Spaces for Change. What follows are key takeaways that will be of value for students and educators considering educational jams.

- The event successfully brought together diverse participants (students, staff, community leaders, community development workers and other interested parties) to engage in active learning. The participants reflected on two key scenarios which supported making connections between their academic knowledge and change-making and helped student facilitators and co-hosts develop employability skills.
- The student co-hosts and facilitators worked to promote inclusive working through adapting resources, valuing all experiences and fostering a collaborative atmosphere. Hosting the Jam online removed barriers of travel, enabling those in Leeds (UK) and Mamelodi (SA) to participate together.
- Sharing the Jam resources through OER provides opportunities for adaptation in the future by other groups wishing to conduct collaborative sessions. This also ensures sustainability and allows for development of resources.

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About the authors

We are a group of academics, students and professional services staff from the University of Leeds from diverse schools and faculties, who as part of the Discovery Delivery project team co-created and co-hosted the Social Justice Jam: Spaces for Change, a three-day online, interdisciplinary and intercultural programme on social justice.

7.4 INTERDISCIPLINARY COLLABORATION

Case Study: Active Learning as Interdisciplinary and Collaborative Learning: Building Student Capacity for the Complex Challenges of the 21st Century

VICTORIA TAIT

Summary

The following case study describes the use of a number of active learning activities to scaffold the development of students' skills in collaborative and interdisciplinary ways of working that seek to meet the challenges of the 21st century, with a particular focus on climate change and sustainability. The activities cover:

- The development of group cohesion;
- The scaffolding of multi-disciplinary perspectives;
- The introduction of an interdisciplinary identity.

Suggested alternatives and key takeaways are offered to help educators who might be considering adopting a similar initiative.

Introduction

In the 21st century, universities are increasingly reflecting on their curriculum and its underpinning practices and ideologies, as well as its ability to engage critically with complex societal and planetary challenges which lack simple solu-

tions (McCune, 2020; Wieman, 2019). Within this context there are calls (Loughlin et al., 2020; Misiaszek, 2021; UNESCO, 2017) to disrupt traditional approaches to teaching (didactic, passive, siloed) and to champion instead student-centred active learning (Spelt et al., 2009), interdisciplinarity, and higher-order skills such as analysis, synthesis and critical thinking (Bonwell & Eison, 1991). Through their collaborative engagement with real-world problems, these approaches are more likely to be individually transformative (Mezirow, 1991) and also to equip students to think critically about oppression at a systemic level, thus preparing them for societal-level transformation (Taylor & Cranton, 2012). Active learning is now well established in the literature as one of the most powerful forms of teaching, a key technique that engages students in their own learning and in constructing meaning (Macfarlane, 2009). As a concept, it lends itself to different interpretations and variations in format.

Using an example from classroom experience, this case study illustrates the multifaceted nature of active learning where collaborative and interdisciplinary forms of engagement form a complex learner-centred experience, and where students encounter diverse perspectives, position themselves authentically in relation to real-world problems, and co-construct learning.

Context

The module ‘Climate Change and Social Inequality: Can You be an Agent for Change?’ was designed as part of a suite of online interdisciplinary modules taken by second-year undergraduate students (Anghel & Tait, 2025). 79 students from 41 Humanities and STEM disciplines participated. The learning activities described were introduced in the first year of delivery of both the module and the wider suite of interdisciplinary modules, and therefore reflect our careful approach to building student capacity in a dynamic and innovative context for both students and staff.

Facilitating group cohesion

Prior to the start of the module, my co-module lead and I allocated students to groups, carefully ensuring an appropriate balance of disciplinary perspectives

across each group. Private Teams channels were set up, providing students with a space in which to take ownership of their collective work, and share ideas. Throughout the module, students attended synchronous sessions with the module leads, were allocated time to work together synchronously on activities in their groups via private Teams channels, and were set tasks to complete asynchronously as they developed their summative assessment. These measures were adopted to mediate the challenges of working with a large, interdisciplinary cohort, and in recognition of the need to build in flexibility to meet the needs of a diverse range of students (Hockings, 2010).

As module leads, we recognised that groups require time and an appropriate environment to establish (Healey, 2024). Measures were adopted to support good working practices. In the first three weeks of the module, classroom time was allocated to groups to work synchronously in private Teams channels on a series of pre-prepared, self-facilitated activities. These activities foregrounded the interdisciplinary group work students would do later in the module, by introducing active learning activities designed to support cohesion, and enable identification of personal values, passions and strengths, and a greater emphasis on an exploration of students' own views, a key component of active learning (Bonwell & Eison, 1991). The activities embodied our model of distributed leadership as a pedagogical approach to group work (Anghel & Tait, 2025), and included:

- Asking students to identify their individual strengths, values and passions;
- Completing a Team Charter based on a template provided by the module leads;
- Identifying a team wellbeing liaison member who would reach out to the module leads in case of unresolvable issues.

Scaffolding gains from interdisciplinary diversity

A third of the way through the module, an active learning technique was introduced to scaffold students' ability to acknowledge, and gain from, their interdisciplinary diversity. In pedagogy, scaffolding is a support structure that enables students to grasp a subject gradually, from basic to increasing complexity. For interdisciplinary learning scaffolding is considered a necessary pre-condition (Hammond, 2001; Spelt et al., 2009). It involves providing students with a grounding in their disciplinary identity before moving on to an integrated approach in

which different disciplinary perspectives are synthesised to create a holistic solution that is more than the sum of its parts (Boix Mansilla & Duraisingh, 2007).

The activity took place after students formed a social connection as a group, an important pre-condition (Wals, 2010), but before they had started working on interdisciplinary group projects that contributed to their summative assessment. The active learning activity had two parts, reflecting the transition from multidisciplinary towards interdisciplinarity.

Firstly, students were asked to interpret from within their disciplines the image of an advert for a popular fast-food brand. Comments (in the chat or directly) were wide-ranging, from a student who offered a legal interpretation, to a drama student who observed how lighting was used to highlight certain features. Due to the siloed nature of higher education, as co-module lead I was cognisant that for many students this was likely to be the first time they had been exposed to another disciplinary lens. For this reason, and despite group work forming a major part of the module, the activity was set up in a plenary format so that students could benefit from engaging with as wide a range of perspectives as possible.

Supporting interdisciplinary identity

In the second part, the students were asked to reflect on whether the fast-food product could be made sustainable. This was inspired by an exercise conducted by Wals (2010) with small groups of students. Whilst these students were not always multi-disciplinary, Wals observed that ‘when the groups consist of members coming from different backgrounds, the solutions found appear more creative and more complete’ (p. 385). This reflection showed that the activity was suitable to an interdisciplinary context. Our students were provided with facts about the brand that covered a range of interdisciplinary topics: workers’ rights; farming; plastic pollution and waste. They were asked to comment (in the chat or directly) on these aspects from their disciplinary perspective and to listen to other students’ ideas. This activity aimed to begin to move students towards synthesis, and a holistic solution that would be greater than that offered by any one discipline alone. An example was used to aid their thinking: to solve issues of land erosion due to agricultural expansion, Zoology, Agriculture, Business Management, and Marketing and Product Design graduates would need to work

together to understand the impact of what we produce and consume, and to generate new ideas for changes in corporate behaviour and consumer demand, and for ecological health. Recognising the complex and abstract nature of the task, a range of visuals were provided alongside the examples to aid students in their conceptualisation. The visuals included examples of different types of land degradation and a range of corporate brands.

Benefits of the approach and how others might adapt it

To extend the active learning opportunities in this activity and given the range of factors involved in deciding whether a brand could be made sustainable, interested educators could consider giving students time to conduct their own research before discussing with peers. This would extend the activity beyond an individual session, but it is similar to Wals' approach, who first asked students to research different aspects of the fast-food brand before analysing its potential for becoming sustainable. Providing students with space to conduct this research for themselves before entering into dialogue with peers would likely also support neurodiverse students through the provision of an extended period of reflection. Outputs could then be shared amongst group members to enhance opportunities for exposure to interdisciplinary skill development.

This activity was designed to give students the opportunity to consider themselves as knowers able to share a unique disciplinary perspective, an identity that was still emerging in their second year of study. Using a simple image of a fast-food brand familiar via popular culture, provided an accessible starting point for students with an array of disciplinary lenses, and resulted in an engaging activity that sparked their observational skills. Whilst not the first time students were engaged in a form of active learning on the module, the exercise was unique in providing all students with a rich diversity of interpretations and distinctive ways of seeing that began to illustrate the enhanced value of an interdisciplinary meeting of minds. It was an activity inclusive of all perspectives, in the knowledge that all responses were equally valid, and that the purpose of the exercise was to embrace difference and to open themselves up to having their understanding enhanced through it. Indeed, one student commented in their final assignment that it was the first time they had really understood the concept of interdisciplinarity.

This activity can be easily replicated and does not require an interdisciplinary group. Students could share from their intercultural perspectives, thereby embracing the diversity of the group and ensuring that international students feel included. The activity does not require a specific skill-set and can be adapted to other topics and focus of analysis.

Moving beyond multi-disciplinarity to achieve interdisciplinarity is a complex and time-consuming endeavour (Spelt, 2009). Whilst educators can achieve interdisciplinary teaching without working in a cross-boundary way themselves, it nonetheless provides a useful insight into the types of challenges students will face when working across disciplinary boundaries, and is likely to better prepare educators for these challenges. For this reason, it is advised that, where possible, educators engage with colleagues from different disciplinary backgrounds during the module design phase when embarking upon interdisciplinary teaching. At a practical level, careful consideration should be given to group sizes when setting up interdisciplinary groups, with a maximum of 5-6 students recommended depending on the nature of the activity being undertaken.

Conclusion

In the early 21st century the world is facing an unprecedented number of grand challenges of existential significance. We are dealing with post-truth, climate change, economic uncertainties in conditions of political fragility, and deep social inequalities. Universities are recognising that the curriculum needs to prepare students to become critical thinkers, able to collaborate beyond disciplinary silos, to understand society and its complex problems in depth, to produce innovative problem solving, and to take action for societal transformation. To achieve such learning outcomes the pedagogical approach also needs to change.

This case study has offered an example of activities that can operationalise the process of acquiring such skills and knowledge through active learning that respects and utilises the students' position as knowers and as contributors to each other's learning.

Key takeaways

To support interested colleagues, we would like to offer three takeaway points:

- Active learning exercises multiple concurrent skills thus facilitating a more holistic development.
- Interdisciplinary learning is helped by a scaffolding approach that illustrates first the distinctiveness of one's discipline and then how understanding expands in interaction with other viewpoints. As this can challenge novice identities, care is needed to address feelings of vulnerability.
- Careful consideration of appropriate pedagogical models for group work and active learning is required for interdisciplinary working to be successful.

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Case Study: Using Problem-Based Collaborative Active Learning as a Scaffold for Developing Professional Competencies

CHERYL GREYSON

Summary

This case study outlines an innovative approach to developing professional competencies through active learning on a redesigned interdisciplinary major project for a Master's programme at ARU Peterborough. Replacing the traditional thesis, the Consultancy Major Project enables students from varied disciplines to collaborate with clients, build consultancy skills, and reflect on professional skills development. Using problem-based learning (PBL), students engaged in group work, flipped learning, and field trips to strengthen practical and analytical skills. An optional opportunity to gain teaching experience, where postgraduates delivered the client brief in a local school, led to improved career outcomes, while supporting Gatsby Benchmarks for pupils. The module's inclusive design enhanced student engagement, employability, and client collaboration delivering transformative outcomes.

What did you do?

The traditional postgraduate major project involves a significant individual research project, typically requiring secondary and/or primary research on a relevant topic with academic conventions of writing and style. It can be challenging, particularly for international students and those with special educational

needs and disabilities (SEND), due to pressures around topic selection, academic writing and time management. Concerns around what constitutes ethical and unethical use of generative artificial intelligence adds additional complexity.

As a new institution, we redesigned the postgraduate major project to prioritise employability, aligning with our strategic mission. This new business pathway brings together management students from business, computing and health to tackle real-world problems and deliver consultancy advice. Mapped to course outcomes for each specialised business pathway, the consultancy project fosters interdisciplinary collaboration, consultancy skills, and potential future employability in the global management consultancy sector.

The distinctiveness of this redesigned capstone project lies in its emphasis on group work, the integration of theory with professional practice (Bishop-Monroe et al., 2022), and the alignment of learning outcomes with the professional competencies expected at the Foundation stage of the Chartered Management Consultant Competency Framework (ChMC).

Selecting the client required careful consideration to ensure students from each business pathway could bring their subject specialist knowledge and skills to their mixed project teams. Clients are selected based on their flexibility and willingness to engage, not size. Although students could not choose the client, they could select from three briefs on rebranding, supply chain challenges or developing sustainable practices, retaining an element of choice as seen in a traditional project. Students formed their own interdisciplinary teams, bringing diverse perspectives, subject expertise and soft skills.

In the first half of the module, students worked on the live consultancy brief, with flipped learning, field trips and weekly tutor-led workshops offering scaffolded support (Acosta-Gonzaga & Ramirez-Arellano, 2022). As confidence grew, the learning process (Sousa & Costa, 2022) moved from structured support to critical friend questioning, enabling deeper understanding (e.g., the organisation's supply chain processes) and the confidence to make actionable recommendations.

In the second half of the module, students individually produced a data-led brochure (styled as a white paper) for a broader audience. Working in small action learning sets (joining two project teams together, students received support in planning, writing, and data visualisation, continuing the supportive dynamic from their earlier teamwork.

Ten postgraduate students participated in an optional teacher training programme before delivering a simplified version of their client brief to 180 schoolchildren aged 14-15 during a three-day entrepreneurship event, which formed part of their Careers Education programme aimed at giving them the knowledge, skills and confidence to make informed decisions about their future education, training and careers. The university students shared insights about teamwork and problem-solving, and supported the schoolchildren to tackle the brief themselves as junior consultants. Reinforcing Salvador et al. (2023), this tripartite relationship offered mutual benefits: the joy of sharing knowledge, work experience and teaching insights for postgraduates, client publicity, and improved careers provision for a school lacking a formal work experience programme. The activity supported Gatsby (2025) Benchmarks 4, 5 and 7 (drawing careers into the curriculum and encounters with employers and higher education).

Throughout, the postgraduates tracked their professional development against the ChMC Framework with reflections forming part of their summative assessment.

Why did you do it?

ARU Peterborough was created to widen participation in Peterborough, one of the most deprived 20% of local authorities in the country (Gov.UK, 2019), by attracting a diverse student population from non-traditional backgrounds to improve social mobility and to redress the skills gaps within business and industries across the region.

Management consultancy, as a 'key agent in the adoption of new management ideas and practices in organisations' (Sturdy et al., 2009), offers higher UK starting salaries for graduates than average, and significant potential for social mobility (Consultancy.UK, 2025; Prospects, 2024). This module was designed to improve postgraduate prospects, especially for those lacking professional or social networks. By aligning the assessment with the Chartered Management Consultant (ChMC) Competency Framework, students could gauge their progress towards junior consultant criteria, typically met within two years. This also introduced them to continuous professional development (CPD) and a sense of belonging to a professional association, enhancing employability skills.

The UK Postgraduate Taught Experience Survey highlights that the development of skills towards a career is very important to the experience of many taught postgraduates and is highly valued (Advance HE, 2023). This capstone module incorporated an optional CPD opportunity for the postgraduates to take the client's real-life problem to local schoolchildren to tackle under their tutelage, allowing them to gain valuable work experience as a subject specialist teacher and extending their career options.

How is this a form of active learning?

This case study showcases an 'interdisciplinary approach' to active learning where postgraduate students from various disciplines collaborate as consultants to address real-life challenges for an industry partner in a capstone project. Using problem based collaborative active learning, 'relevant problems are introduced at the beginning of the instruction cycle', namely the client's brief, and tutors develop their 'students' ability to solve open-ended problems or engage in life-long learning' (Prince, 2004). Reflection against the key competency framework for junior consultants further reinforced this mindset.

Deslauriers et al. (2019) indicate that students in the active classroom 'learn more, but they feel like they learn less', but this can be changed through successful intervention. In this case, the students were repeatedly told and shown what they were learning against the framework of professional competencies, then asked to reflect upon that in their final assessment. The 'value of their increased cognitive effort' (Deslauriers et al., 2019) was rewarded mid-module when the client was actively involved in the consultancy presentation marking, giving them direct instantaneous feedback.

How do you make sure your approach is inclusive?

The challenges of forming groups were addressed during class using co-creation activities such as online anonymous polling. Students helped to make decisions about how groups would be formed, the size of groups (4-6 students), and how many subject specialists could be in each group. Reinforcing the value of diverse

teams with different skills and backgrounds fostered inclusivity, and reduced anxiety by allowing tasks to be divided according to expertise. Crucially, not every student in the team had to present, but they had to contribute their skills equally. Students with additional needs received bespoke support and alternative arrangements as appropriate; this included support with joining a group where they felt comfortable.

Peer review ensured fairness in group marks, enhancing student confidence. Using varied assessment formats, such as presentations, brochures, and reflective frameworks, helped students develop transferable oral and written skills, and students with English as an additional language felt more comfortable writing in brochure format for a professional audience than in a traditional academic writing style, making the experience more relevant and aligned with real-world professional expectations. Overall, increased contact time and formative assessment kept students on track more effectively than with a traditional thesis.

How do you ensure that it is sustainable?

Problem-based learning with real-life projects risks exhausting employer partnerships. However, using one client across multiple briefs in a shared capstone module is more resource-efficient whilst maintaining student choice. As modules grow, preserving client goodwill is essential. Technology can streamline processes, such as hosting online briefings for multiple seminar groups and compiling student questions for submission to the client. Positive experiences, including quality student work, good publicity, and the chance to support future professionals, further strengthen client goodwill and ensure long-term collaboration.

How did students and staff respond?

Prince (2004) highlighted that problem-based learning can 'attract instructors interested in developing their students' ability to solve open-ended problems' and this certainly appears to be highly satisfying work with lecturers requesting to join the team because they enjoyed the coaching and facilitatory style.

All students demonstrated positive gains in professional competencies through their reflective assessment. Module survey responses were positive, highlighting the value of building professional skills. Notably, the client hired one student to implement their digital marketing strategy and adopted a student team's recommendation to revise part of their commercial strategy. The Managing Partner of the client firm said:

I am very passionate about supporting young talent, and our partnership with ARU Peterborough is allowing us to test these young minds in real-world business situations while taking on board new and different ideas for our own rebrand journey from an array of minds.

The schoolchildren developed confidence and benefited from practical work experience that was missing from their curriculum. This initiative formed part of the university's outreach programme, designed to work with schools such as this where many pupils face additional barriers to learning, such as having English as an additional language or being eligible for free school meals, therefore helping to promote equity and broaden opportunities. The Principal of the school said:

As well as gaining real-life work experience in the areas of branding, marketing and consultancy, the students collaborated with business students from ARU to put together and present an advertising campaign. They came back full of enthusiasm and inspired for what they could achieve in the future!

How can others adapt your approach to their own context?

This interdisciplinary approach to problem-based active learning connects students through their shared interest in management. The client must present a problem that can be explored from multiple perspectives, within the timeframe, and using data readily available to students. As primary research adds complexity in terms of ethical approval, additional training and time management, the module focuses on secondary data, however the approach could be adapted. Lecturers can expose students to professionally relevant scenarios, helping them to build practical expertise aligned with industry expectations and mapped to appropriate professional competency frameworks. Scaffolded support is key to

building student confidence, but lecturers may need training to develop an appropriate facilitative teaching style that encourages students to solve problems independently. Students also need consultancy skills training to effectively clarify the client brief and understand their needs and desired outcomes.

Key takeaways

1. Real-world briefs enhance employability but retaining choice in the brief, output design, or the way teams are formed supports student satisfaction and helps them develop competencies relevant to their chosen career path.
2. Problem-based active learning enables students to engage deeply with real-world problems, but student engagement and skills acquisition can be enhanced by integrating reflective practices, mapping professional standards to learning outcomes, and establishing a lifelong learning habit as part of continuing professional development.
3. Valuing diversity and skills in group formation and employing flexible assessment formats reduced student anxiety and allowed international and SEND students to demonstrate their capabilities, creating a more equitable and inclusive major project module.

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Case Study: Making Multidisciplinary Work: An Active Learning Approach

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Summary

In this case study, we show how we implemented playful active learning to respond to the passive pedagogy that was dominating in our Postgraduate Certificate in Research Methods. We start by outlining the challenges we were experiencing in our multidisciplinary course context. Then we describe the Play-Doh method that we used in class. We conclude the case study by arguing that playful pedagogic approaches can help to transcend disciplinary boundaries and build inclusive communities in education.

Introduction

The Postgraduate Certificate in Research Methods at Southampton Solent University in the UK is a course designed for students who are embarking on a doctorate. Newly enrolled MPhil/PhD students, from all academic departments across the University, complete the programme during the first academic year of their studies. In the first 30 credit module, students are introduced to key transferable skills such as project management and planning. In the second 30 credit module, students develop their understanding of research design, impact and communication. The course is hosted by the University's central Research Office but delivered by a teaching team of academics from across our departments of Art and Music, Business and Law, Social Sciences and Nursing, Science and Engineering, Film and Media, Sport and Health, and Maritime Studies. As such, students and staff from a broad range of disciplines come together in one class-

room for postgraduate research methods education. In theory, this creates an inclusive course community for cross-disciplinary learning. In practice, it did not.

Despite the pedagogic opportunities that a multidisciplinary programme presents, some things were not working as well as they could.

Challenge one:

Sessions were typically being delivered in a didactic style with guest lecturers ‘parachuting’ into the programme and delivering content on a topic related to their research expertise. Students were passive recipients of their research methods education, rather than active learners.

Challenge two:

Interactions within the classroom mainly took place between the teacher and individual learners (often in the form of questions and answers). Students were rarely given opportunities to collaborate and learn from each other.

Challenge three:

Some students demonstrated goal-oriented attitudes towards the course rather than an intrinsic desire to learn about different methodologies and approaches to research. They also struggled to articulate their doctoral research plans to other learners outside their own disciplines.

Taking action

New course leadership of the PGCert Research Methods in 2023-4 created an opportunity to address these issues through a participatory action research project. Participatory action research is a qualitative research methodology that involves researchers and participants collaborating to understand issues and taking actions to bring about change (Dancis et al., 2023). To support new doctoral

students in overcoming the challenges of studying in a multidisciplinary course community, an active learning activity was introduced in class. Seven out of a possible eight students took part in the new teaching and learning intervention (one student was absent on the day). The one-hour session was facilitated in a hybrid setup, with two students participating online and five students in person with the teacher on campus. Drawing on the principles of play (Hoflod, 2023; Koeners & Francis, 2020) students were asked to engage in the following three Play-Doh modelling activities (see figure 1 below):

Figure 1: Play-Doh modelling activities

ACTIVITY ONE	ACTIVITY TWO	ACTIVITY THREE
(20 minutes)	(20 minutes)	(20 minutes)
What is your research discipline/s?	How is knowledge created in your research discipline/s?	How does your research discipline/s connect to others in the group?
Make a Play-Doh model to represent this and describe it to the group.	Make a Play-Doh model to represent this and describe it to the group.	Work together to make a model of the course community.

The models were photographed, and verbal comments were audio-recorded for research purposes. After the session, students were asked to review the visual and verbal data they had generated and provide some further reflections, in writing, on the challenges and opportunities of studying in a multidisciplinary course. Narrative thematic analysis was undertaken within individual cases and across the whole dataset (Riessman, 2007). As part of the project, students were invited to take an active role in the analysis and writing process as co-researchers. The intention was to create a real-world interdisciplinary learning experience for the student researchers. This case study has been prepared by the Course Leader in partnership with the participating students. Ethical approval was gained from the Southampton Solent University Research Ethics Committee for its inclusion of illustrative visual and verbal data created in the project. All participants provided informed consent for their names to be included in the publication.

Making multidisciplinary

Students worked individually to make and describe Play-Doh models that represent their research discipline and the knowledge that they hope their doctorate will produce. The outcomes of these activities are displayed in figures 2 -8 below (photographs all supplied by authors with participant's consent):

Figure 2: Play-Doh models by Melissa Goss, PhD student in Psychology. Working title of thesis: A Journey into investigating Social Rejection: A Three-Part Study



So essential the basis of my project looks primarily at social rejection and like the thought processes behind social rejection. So to demonstrate that, I made two little blobs talking to each other and another little blob to be excluded. And then at the bottom here I put a broken heart to indicate social rejection can have correlations of a broken heart and physical pain. Which was kinda like the basis of doing my Masters project and something, a philosophy, that I want to carry forward throughout my PhD project as well.

The second image looks at more like cognition; the cognitive responses. So, I have done the brain which is kinda in a blueish grey colour because that's the colour closest to grey that I could find. And these little purple blobs represent thoughts and the thoughts – these little purple lines here represent the thoughts being processed into like emotional and behavioural manifestations. And that's kind of demonstrated through the difference in behaviour manifestations. I made two blobs and a little line between saying that there could be different reactions depending on the individual.



Figure 3: Play-Doh models by Velu Immonen, PhD student in Sports Science. Working title of thesis: The Concept of Muscular Strength and its Relationship to Muscle Size



It's a mess but so is my thesis! [laughs] The first one was.... I hope it's obvious – a muscle [laughs]. I think it's pretty self-explanatory. The thing I am interested in is how it produces force, how it is related to force products.

However, the second part was... the question itself is not so obvious. I draw on multiple sources and use data analytic techniques and kind of figure out how they all relate, if they do and erm if there is even a thing called strength. So I was meant to do something in the middle but I didn't know what to do. I guess it is a moving target not necessarily a central thing that exists necessarily, but maybe some 'data factor' so to speak.



Figure 4: Play-Doh models by Nathan Ghann, PhD student in Education. Working title of thesis: They just don't engage. Reframing learner engagement for success. A behavioural approach



So the first thing I noticed was the colours. I wanted to choose the right colour. Blue for me is very 'Education'. Because blue means 'safe' and I feel like that is the basis of education – a very safe foundational part of life. But then I've got bars which erm could be grey but they're black. And these are the structures that have grown out of education. So these are the ways that you have to do stuff. Then I had the purple on top as a roof. And the purple represented higher education or education aspirations and ambitions. And then it started to kind of fall down [laughs] and I thought 'actually this is perfect!' Like education has got all these aspirations that are almost like a weight – they can't sustain or keep up. So I thought I'd leave it like that.



My second one is about learning engagement. So it was about this piece of Play-Doh that represents all the students and all the different people and taking almost a piece of them and putting it into these aspirations of higher education and swapping it out. So the aim of the data is to figure out 'how do these pieces fit in one another?'

Figure 5: Play-Doh models by Sophiia deFaia, PhD student in Psychology. Working title of thesis: *The weight of the matter is serious – an Interpretative Phenomenological Analysis into the lives and experiences of people with Binge Eating Disorder*



So my initial little piece – I started off by making a little brain. And I made it purple because that feels the most ‘brain-like’ to me because where it is Psychology-focused and everything I thought about that. But then it sort of occurred to me that’s not my entire focus. Obviously my focus is eating disorders so I made a little plate and some cutlery – that will fall apart if I pick it up! Erm so I loaded up this plate with loads of different things because the whole point of binge-eating disorder is that you over-consume, you have no sort of control over your consumption. So I have that sort of mound over this plate. So that is sort of what my research area is.



And this lovely [laughs] really, really odd-looking little model is the sort of collaboration between lived personal experience of the eating disorder and lived professional experience. So, the little lived person is blue. And my little lived professional clinicians that work with people with these eating disorders is in green. Because that sort of makes more sense to me sort of healthcare wise... And this [laughs]... this really weird little blue thing in the middle is the sort of knowledge connection between the heart of the lived person sort of being filtered over to the lived professional clinician. And that sort of personal experience and the sort of everything that this lived person has experienced will be fed through to the clinicians so hopefully they will have a better understanding both in mind and in heart. And that is supposed to be a little lightbulb. It looks like a mushroom! But it’s about that connection between the two of them and that sort of real understanding from the experience of the person who has experienced the disorder, filtering through to the person who works with them.

Figure 6: Play-Doh models by Sawsan Jaghsi, Postgraduate student in Biomedical Science. Working title of thesis: The Association between Vitamin K metabolism and miRNAs: Do miRNAs improve Vitamin K uptake and metabolism?



This is the discipline. I have made the seeds of a plant and I put it under the soil... this is the soil. And I have to water it to grow the tree. Which would be a useful tree. Which is related to health because it is orange... it is an orange tree. Some of the seeds haven't grown. And some of the seeds have grown into beautiful flower plants. This is the aim of the journey – to finish [laughs]. And a butterfly comes and we can forget all in my point of view. Because I research cancer... if the butterflies and the flowers are comfortable because they land, it means relaxed and with no issues, no problems – no health issues.

Figure 7: Play-Doh models by Kush Varia, PhD student in Film. Working title of thesis: Mutating Movies: Genetics, Gender and Genre in Hollywood Cinema

I'm not very artistic [laughs]! I did a... I tried to make a film cell. Because obviously I'm working in the film cell discipline. It's actually blank in the middle of the cell because I'm waiting to find out what the film might be – the one that I might be shooting in a metaphorical sense. Then for the second part I did erm... my thesis is looking at the representation of genetics. I tried to make a double helix which is really difficult. But I think it kind of comes together if you're screening DNA I suppose. That's what I was trying to say.



Figure 8: Drawings by Yoi Kawakubo, PhD student in Fine Art. Working title of thesis: Exposing The Imperceptible: A Practice-Based Investigation Into The Intangible Aspects of Nuclear Culture



So that's the first question – this is the discipline. So this is kind of a horizon or a map. And a little ship here on the right-hand side is erm exploring the big folds that are supposed to be behind the end of the world where there is a great waterfall that leads into nothing. But I felt that it is an area that is expanding boundaries and definitions. So I definitely think all research does probably have this aspect, but I felt like art does have this characteristic of trying to be a discipline of trying to really find itself. So what is art? Or what is beauty? Whatever people think is art. So this, during the twentieth century, has been explaining. So I guess research could be said to be art and participatory art, exploration, activism interventions. So that's my first one.



The second one is a bit more messy [laughs]! So it's a drawing of erm.... For example, well it starts with kind of a landscape which is kind of captured in some ways that is later represented and grown into three financial charts, liquids, sounds, music, perfumes, speculative novels, letters, sounds, constellations and all the answers. And that's it.

Students then worked together to agree, create and describe a metaphorical model that represents their multidisciplinary research community on the PGCert Research Methods (see figure 9 below):

Figure 9: Play-Doh model of the multidisciplinary course community



It is an Island with different patches of vegetation representing our research. And the purpose of each vegetation patch is to nurture humans. Some vegetation is for their brain and wellbeing, some for food and nourishment, some for collaboration and social acceptance, some are to heal, others are to make sure that their muscles and their bodies work properly, and some are to help with their thinking.

What worked?

Using Play-Doh modelling in our PGCert Research Methods brought several observable benefits which are summarised under analytical themes below:

1. **Active learning**

Play is a pedagogy for supporting students to actively engage in their learning (Toft-Nielsen & Whitton, 2017). Rather than passively receiving research methods knowledge in the classroom, the Play-Doh modelling activities helped our learners to become knowledge producers themselves – creating knowledge through the physical process of making. As James and Nerantzi (2019) argue, play is an innovative way to co-create knowledge amongst learners. It not only helps to dismantle traditional hierarchies between teacher and learner but also brings more active engagement to the learning experience. Indeed, we observed a noticeable increase in positive energy in the classroom during the Play-Doh making session with students moving around the learning space more freely and interacting with each other.

The students get out of their seats to grab the Play-Doh colours of their choice. Their enthusiasm is evident in their increased level of conversation and open body language. They joke and laugh as they acknowledge their shared vulnerability in the creative task, whilst busily working on finessing

their Play-Doh models. (Dr Karen Arm – Senior Lecturer, extract from teaching diary)

At the end of the session, the students summarised their experience of the Play-Doh learning activities using words such as ‘immersive’, ‘active’, ‘engaging’, ‘enjoyable’, and ‘fun’ (see Figure 10 below).

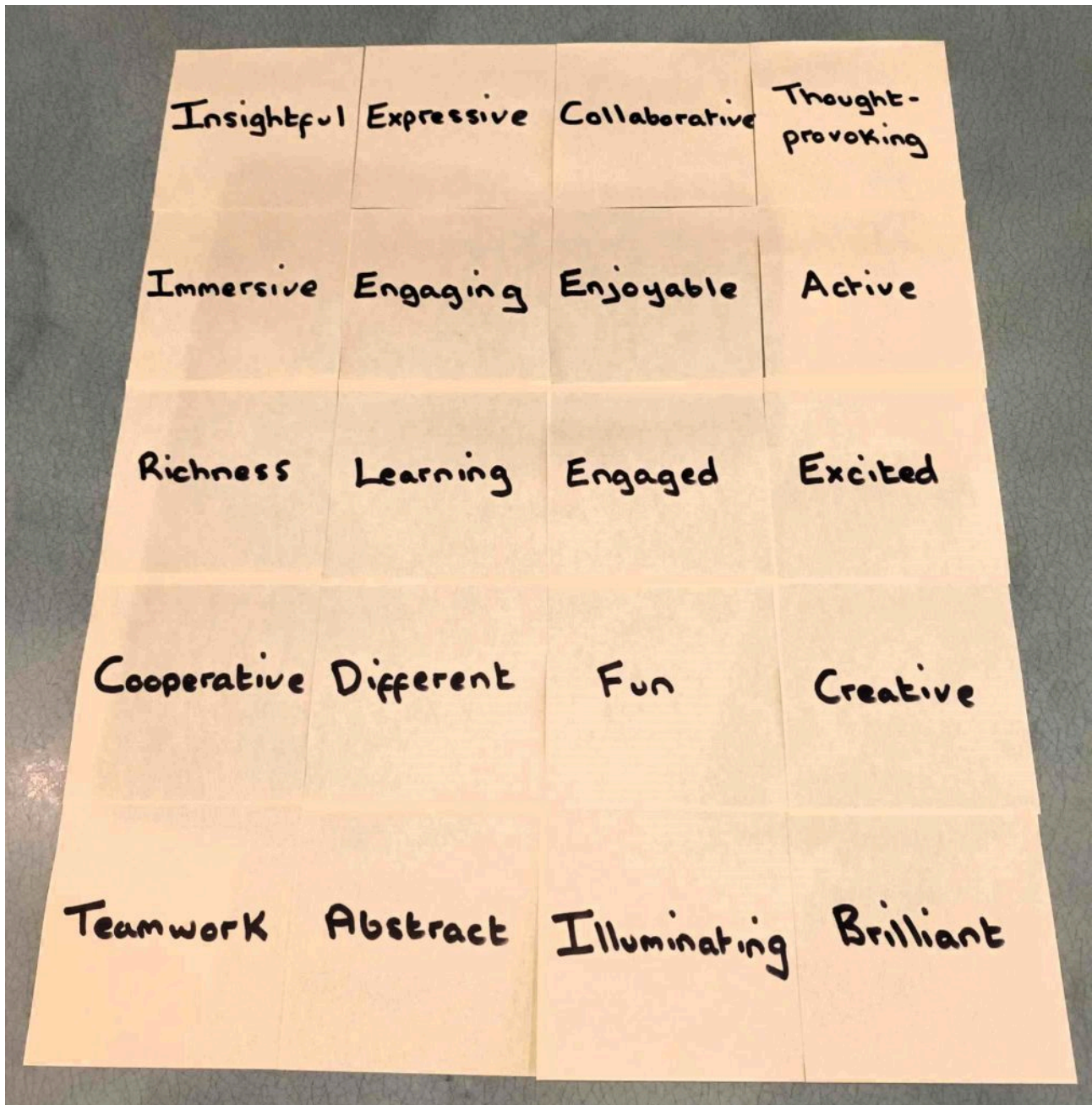


Figure 10: Words used by the students to describe the Play-Doh activities

2. Deepening understanding

Understanding how disciplines shape research is arguably a ‘threshold concept’ (Meyer & Land, 2006) in doctoral education. Once the threshold is crossed, students can more confidently situate themselves within their field and understand the original contribution their study will make. Our Play-Doh activities encouraged doctoral students to think about their research from its disciplinary position, deepening their understanding of the philosophical foundations of research. Discussing the Play-Doh models with each other helped individuals develop new and more sophisticated perspectives on their doctoral studies as the following student comments demonstrate:

Together, they [the Play-Doh models] gave me the thought that the research question itself is relatively ‘simple’, and on a surface level, we’re just looking at how muscle size related to force production (hence the concrete representation of a muscle). But on the other hand, it’s much more nuanced than that, and so many variables are at play... There are many angles we can look at, and all are interconnected somehow (hence the more abstract web). (Velu Immonen – PhD Student in Sport Science)

3. Articulating the abstract

The challenge of creating a physical object to represent an abstract idea can help students with expressing the not easily expressible aspects of their research (Arm, 2025; Stead, 2019). We found that the Play-Doh modelling activities helped learners critically reflect on and communicate their research in a way that they could not in words alone. Nathan Ghann (PhD Student in Education) described how ‘it forced me to communicate abstract ideas like “an institution” as well as “students” and who they are and/or might become.’

In this way, creative methods offer a way of going beyond the constraints of the spoken word in research education (Kara, 2015). Metaphorical modelling can help support students to verbalise their research more clearly and in simple terms for diverse and non-specialist audiences.

4. Inclusive teaching

Play-Doh modelling activities offer a multi-sensory experience to learners. As well as the tactile learning stimulated through physical touch and hand movements, other stimuli are activated – for example auditory (via discussion of models), visual (via the colours and appearance of the models) and olfactory (the smells of the Play-Doh). This multi-model learning is arguably more accessible to a broader range of learning preferences than single model lecturing methods of teaching (Varga-Atkins, 2024).

Our Play-Doh activities created a learning experience that is more personalised than transmissive styles of teaching since they allowed every student an opportunity to express their thoughts and ideas in a way that is meaningful to their individual PhD journey (Rossi, 2023). As with any pedagogy, it was important to make sure that the activities were designed to be appropriate for all learners, including those with additional support needs. Offering different options for engaging in the task further helped to support inclusivity. For example, students who were unable to attend the session in person, were supported to participate online with Play-Doh sent to them in advance. In the case of one student who was unexpectedly unable to attend in person (due to childcare needs), they were still able to join in all the activities using pencil drawing instead. Indeed, students appreciated the accessible approach to teaching as well as the opportunity to explore their research topics through an inclusive lens.

5. Community building

Play offers ‘potential for creativity, immersion, and ways of knowing, permeating disciplinary and professional boundaries’ (Kolflod, 2023, p. 478). Our Play-Doh modelling activities helped our students move beyond siloed thinking to consider ways that research transcends disciplinary boundaries. This was especially evident in the final activity where students modelled their multidisciplinary course community together. Reflecting on this, the students said: ‘It allowed me to be a part of the whole and see my research from a holistic perspective.’ (Melissa Goss – PhD Student in Psychology), and ‘it made my academic journey feel more like a teamwork, or a joint journey’ (Yoi Yawakubo – PhD Student in Fine Art).

Collaboratively creating a model of the course community not only built a stronger sense of community within the multidisciplinary group but also helped learners see how the knowledge created through their own research can integrate with others in their cohort. As Jacobs (2013, p. 224) argues; ‘disciplines are nodes in a remarkably vibrant web of scholarship’. Within each disciplinary node there are distinct practices towards the nature of knowledge, how knowledge is created and how it should be communicated. Using creative methods to evoke a reflexivity about these foundations of knowledge helps research students understand their own disciplinary positionality and avoid value judgements of others (Rossi, 2023). This arguably prepares students for a more inclusive interdisciplinary real-world of research.

Moulding the future

It is ironic that our PGCert Research Methods is about the *activity* of research yet learning had become predominantly *passive* on the course. Our action research project tackled this head-on by implementing Play-Doh modelling activities into the classroom. This kinaesthetic and playful approach to research education helped us develop a more inclusive course community for cross-disciplinary learning.

Central to the success of our Play-Doh activities was the low risk and failure associated with the educational activity (Whitton, 2018). By creating a relaxed and comfortable learning environment, we were able to take our students out of their goal-oriented comfort-zone and consider ways of making new knowledge together. This helped deepen their understanding of the disciplinary foundations of research and embrace the future possibilities of interdisciplinary working.

Going forward we will continue to use playful learning techniques with future cohorts to support our students at the beginning of their doctoral journeys. This will ensure that it becomes an embedded and sustainable part of our course pedagogy. Building a variety of different play activities into our research education curriculum will help develop student’s familiarity with the principles of playful learning whilst also retaining the novelty and surprise needed for its success.

Our experience has been that Play-Doh is a powerful pedagogy for promoting physical and active engagement in the classroom, collaboration with diverse

others, and imagining interdisciplinary possibilities within research (Toft-Nielsen & Whitton, 2017). We hope that our case study encourages others to use Play-Doh modelling in their teaching and learning. It might just mould the future of your pedagogy.

Key takeaways

- Play-Doh modelling can be used in any discipline and with different cohort sizes. It helps build an inclusive course community.
- Play-Doh modelling supports students to critically engage with aspects of learning that are not easily expressible in words (for example, abstract and/or difficult concepts).
- Play-Doh modelling helps transcend disciplinary difference in the classroom and promote interdisciplinary learning.

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7.5 EMBEDDING THE PRINCIPLES OF UNIVERSAL DESIGN FOR LEARNING

Chapter: ‘All for One, and One for All’: Making Active Learning Work for Every Student

PAMELA ABRAMS AND AVIS WHYTE

The Essence of Our Quest: Summary

This chapter shares our approach, in our first-year undergraduate law module, to making active learning work for all students, with a particular focus on the context of their individual differences. We highlight aspects of the Universal Design for Learning (UDL) approach used to provide for diverse learning needs, thereby affording students multiple means of representation, engagement, action and expression. We include practical steps others can take in transferring our ideas to their own context.

The Gauntlet is Thrown: Introduction

Unless one is familiar with Latin, the meaning of the chiasmus *unus pro omnibus, omnes pro uno*, might not be immediately obvious; its reversed version, ‘all for one and one for all’, is more recognisable as the motto of Alexandre Dumas’ three musketeers. We use the motto as the title of this chapter because it encapsulates the approach, design and delivery of our law school’s new Private Law module, which focuses on inclusivity, teamwork and shared responsibility. Consequently, the module’s resources are designed for all learners, learning is collaborative with students supporting one another and lesson instruction is differentiated, thus allowing multiple approaches. In addition, Blackboard, the virtual learning environment which supports the running of the module, utilises customisable settings allowing students to adjust the presentation of informa-

tion to suit their needs. The module's structure fits firmly within the UDL educational framework ([CAST, 2024](#)). This framework ensures that learning is accessible and effective for all students, regardless of their abilities, learning styles, or backgrounds. It focuses on providing multiple ways for students to engage, process information, demonstrate their knowledge and express their understanding and ideas. The goal of UDL is to create inclusive, flexible, and adaptable learning environments where every student has an equal opportunity to succeed. We adopted this approach in the Private Law module where teaching and learning became a shared responsibility and every student was supported; following the musketeers' ethos, no one was left behind.

In this chapter we share our approach to making active learning work for all students in the module, with a particular focus on the context of their individual differences. We highlight aspects of the UDL approach used in tailoring the module to provide for diverse learning needs, thereby affording students multiple means of representation, engagement, action and expression. We also draw more widely from examples of the UDL approach we used in an earlier module initially delivered online during the Covid pandemic but later adapted for face-to-face delivery. We start with some context explaining the background to inception of the module. We then consider module delivery, feedback and assessment. We conclude with reflections on the module including its challenges, actions to address these and student feedback on their engagement and learning. We include some practical steps for others to follow this approach, and we hope to inspire readers to try some of the proven techniques in their own context.

The Origins of Our Quest: Context and Background

From September 2023 as part of a revalidated undergraduate law degree, the module team designed and delivered 'Private Law', a first year undergraduate module for around 400 students. Private law governs rights and duties that exist between individuals and/or organisations, rather than the State. This module introduced students to these duties and their application, within the fields of tort and contract law. It aimed to encourage students to consider how real-world private law issues are solved or why they might be unresolvable.

As part of the revalidation, the module was designed to address some of the teaching and learning issues identified with previous cohorts. One was the use of large lecture theatres to deliver module content. The debate and criticism surrounding the ‘sage on the [big] stage’ (King, 1993) approach to teaching and learning is not a new but a continuing one. Blight’s seminal work in the early 1970s questioned the value of traditional, passive lectures in large classrooms, arguing that they often fail to achieve their educational aims (Blight, 1971). Recently Loughlin suggested that low demands placed on both staff and students in transmissive lectures create an ‘illusion of attendance,’ where assumptions about learning and physical presence exceed what empirical data supports (Loughlin, 2024; Loughlin & Lindberg-Sand, 2023).

Our large lecture theatre is a rigid space accommodating 400+ students. This made incorporation of active learning strategies more difficult, allowing little opportunity for nurturing students’ critical thinking skills, developing their autonomy or increasing their engagement. Large lecture theatre delivery also hampered group cohesion and students’ abilities to engage with their peers and develop supportive groups. This was an important consideration when designing a course for first year undergraduates, new to university and exacerbated by the non-campus environment of our city faculty. We aimed to ensure that we developed the module to ‘foster collaboration, interdependence, and collective learning’ in accordance with [UDL consideration 8.3](#). Another driver of the change in module design was to provide opportunities in smaller class environments to enable tutors to evaluate students’ understanding of the legal principles and their application as the module progressed. To meet these objectives in the course design and within our module, large lectures were replaced with seminar groups of around 50 students and tutorial groups of around 20.

In designing this module, we drew on our previous experience of adapting in-person teaching of our tort law module to online delivery during the Covid pandemic. We followed Willam Horton’s ‘Absorb, Do, Connect’ approach to online delivery (Horton, 2011). To introduce students to key concepts in a flipped classroom approach, we used pre-recorded short voiceover PowerPoints (named Knowledge Nuggets) for students to ‘absorb’ prior to joining the online synchronous classroom. In online lectures (to 200 plus students) and online tutorials (to around 25) we used simulations, quizzes, media clips, and breakout rooms, as well as other interactive activities, to enable students to ‘do’ something with the material they had absorbed and ‘connect’ legal principles and concepts to each other and their application in real-world scenarios. Statistics showed that over

70% of students attended the online synchronous classes over 70% of the time. We were keen to see if this was because students were at home during Covid lockdowns with little else to occupy them. Later, we evaluated the success of this approach through a 'Students as Co-Creators' University-funded research project (Abrams & Whyte, 2022): working with student partners we gathered data from the online cohort and the subsequent face-to-face cohort. Students valued the Knowledge Nuggets, both as an accessible and adaptable way to learn the legal principles and as a revision aid. They enjoyed the interactive activities and the range of active learning strategies. We therefore incorporated the more successful elements of this approach in designing the Private Law module.

The Battle Plan: Structuring the Learning Process

The module combined two areas of private law, tort and contract, previously delivered separately, each over a twelve-week period. The task was to refashion and rewrite the content, combining them in the same period. Consequently, we based the module content around common themes and principles by devising a set of Threshold Concepts (Myers & Land, 2003; 2005; 2006). These differed from the module Learning Outcomes which focused on the skills of analysis and application of the law to private law problems, research, communication and teamwork. Here we used Threshold Concepts to refer to the key gateway notions which students needed to grasp to understand the module, such as duties and responsibilities, breaches and causation. Using Threshold Concepts as a foundation enabled students to appreciate areas of congruence and difference across the two areas of Private Law and track these through the module's units. They provided a goal for students to meet; each week, seminar and tutorial slides linked the content of that session to the Concept being explored. In this way we implemented [UDL consideration 6.1](#), to set meaningful goals for our learners, using guides and checklists for scaffolding goal setting. This approach also enabled us to implement UDL [consideration 6.3](#), organising the information and resources provided to our learners to enable them to categorise and discover themes and patterns across the areas of Private Law.

The module was designed to be delivered in a two-hour seminar (replacing the large lecture) and a 90-minute tutorial each week. It made use of the flipped classroom approach (King, 1993; Baig & Yadegaridehkordi, 2023; Specht & Saun-

ders, 2023) whereby the main legal principles and key cases were delivered to students via short bite-sized voiceover PowerPoints called 'Critical Concepts'. These were no more than 10 minutes long to maximise students' engagement with them prior to class, as the information is chunked into 'smaller elements helping to prevent cognitive overload' ([UDL consideration 3.3](#)). Students were also provided with a written transcript of the recording to ensure accessibility and cater to different learning styles. This enabled learners to perceive information in multiple ways to ensure they had equal access to information ([UDL consideration 1.2](#)). Some of the Critical Concepts included media clips to retain students' attention. In this way we implemented the UDL approach, illustrating key concepts through multiple media, ensuring that learners who might find information inaccessible through text were able to access these concepts in a more relatable and comprehensible way ([UDL consideration 2.5](#)). This pre-released content allowed class time to be spent on activities developed from and reliant on the Critical Concepts, improving students' understanding and their critical and evaluative skills.

In seminars, tort and contract principles were blended in an authentic central case study based on a real-life scenario concerning an apprentice electrician injured in an accident at work. This developed each week to introduce new events, characters and legal principles. This progressive release of information guided learners in their step-by-step construction of knowledge, thus embedding that knowledge and understanding long term ([UDL consideration 3.3](#)). It enabled students to explore concepts that applied equally in tort and contract such as duties, obligations, breaches of those obligations, causative harm and remedies.

Group work was a central feature of the seminars. Students were expected to remain in their groups for the whole module and work together on activities to develop their understanding of, and ability to apply, the central legal principles to the case study. Initially, students were given flipchart paper and pens to record their groups' output. To enable students to focus and connect as a group, activities that required use of mobile phones and laptops were not used early in the module. Each week, students were provided with a new section of the case study in class and were required to undertake tasks such as fact management (e.g. drawing legal relationships between parties), drafting, negotiation, research and client interviewing. Several activities aimed to replicate tasks that students might undertake as trainee solicitors, thereby providing an authentic experience in which they could see themselves in that role. Following each seminar, stu-

dents were asked to reflect on their experience of group work that had taken place and were encouraged to do so using a reflection log. In the second year of delivery an improvement was made to embed this reflection activity into class time (see below). As the weeks progressed, we implemented [UDL consideration 7.1](#) (optimising choice and autonomy) giving students the option of moving their flipchart group work output onto virtual mind mapping programmes like Miro or Lucidchart. Students were also given the option to create WhatsApp groups or rely on tutors to create Blackboard groups to communicate outside class. This provided students with choice and autonomy to 'develop agency ... and increase connection to their learning' ([UDL consideration 7.1](#)).

All materials and activities were designed with accessibility and diverse learning styles in mind to meet the UDL guidelines relating to Action and Expression and Representation. Active learning classrooms were generally used with flexible furniture and multiple interactive whiteboards, creating collaborative spaces. Alternatives to mouse control, such as QR codes and interactive applications like Padlet and PollEverywhere, were used to obtain students' responses. In this way, we varied our learner's methods for 'response, navigation, and movement' ([UDL consideration 4.1](#)). To enhance accessibility of materials, pre-session slides outlining each week's class activities were provided. Later, more detailed post-session slides were released. All slides aligned with accessibility requirements ensuring access by all learners, including those using accessible technologies ([UDL consideration 4.2](#)). Seminar and tutorial slides were colour-coded using a standard template to facilitate differentiation and maintain consistency across the module and the teaching team of eight tutors. This gave students the security of knowing what to expect from each session and enabled them to use these templates as an organisational aid ([UDL consideration 6.3](#)).

Tutorial group work also scaffolded the Threshold Concepts and understanding of key legal principles and cases with additional active learning activities. A variety of media was used to deliver knowledge about legal principles and case law ([UDL considerations 1.2](#), supporting multiple ways to perceive information and [2.5](#), illustrating through multiple media). Students learnt about offer and acceptance by looking at Apple's terms and conditions in an activity that replicated making an online purchase. Tailor-made client videos enabled students to take part in the authentic experience of advising a client. Media clips (such as the Netflix series *Pepsi, Where's my Jet* and a BBC Documentary about the Hoover Flights fiasco) were used to illustrate key contractual principles giving rise to newsworthy headlines. Students had opportunities to critique letters and simu-

lated GenAI information, highlighting errors and suggesting improvements. In addition, an AI-generated avatar, created by a member of the teaching team, 'joined' an experimental class to discuss their claim with students.

To embed knowledge and understanding, seminars started with a recap of the previous week's activities and a list of tasks or goals to accomplish in class ([UDL consideration 3.1](#)). The slides covered those tasks, signposting as students' progressed through them. Critical Concepts were further recapped weekly in tutorials with an initial slide reminding students of the legal principles and key cases that had been covered in them ([UDL consideration 3.1](#)).

Social context was provided by embedding tasks that required students to consider the role of law in society. For instance, they researched welfare benefits and lawyers' fees, which gave rise to discussions about social inequality and the ethics of renumeration lawyers based on successful outcomes. These discussions were prompted by developments in the case study giving students real-world perspectives on their learning, contextualised to their lives and thereby promoting their 'relevance, value and authenticity' ([UDL consideration 7.2](#)).

Measuring Our Musketeers: Feedback and Assessment

Throughout the module we provided students with ongoing formative feedback, and formative assessment, fully preparing them for the module's two-part summative assessment. Part A of the summative task was authentic, involving advice to a client, and Part B was reflective, involving reflection on group work.

In terms of ongoing formative feedback, although most of the activities involved working together with and learning from peers, there were also opportunities for students to work alongside second year student mentors who had studied Private Law the previous year. They acted as 'differentiated mentors' who were able to motivate, guide and provide feedback to students on tasks with which they were familiar ([UDL consideration 5.3](#)). Additional formative feedback was provided synchronously in class with tutors facilitating group work and commenting on notes, diagrams and research completed by students. This multi-faceted approach provided students with a learning environment which embedded a

‘variety of formative assessment opportunities and scaffolds to support the development of learners’ fluencies’ ([UDL consideration 5.3](#)).

Formative assessment took place ‘informally’ and formally. A peer-assessed group legal quiz was undertaken during a seminar mid-semester. The subsequent plenary discussed strengths and common misconceptions, enabling us to evaluate understanding of the main legal principles and supporting cases in an active and engaging manner. This was followed by a formal formative assessment, which mirrored the summative, albeit at shorter length. Prior to submission we shared the assessment rubric so students could be clear on the metrics for success, thus increasing their confidence and reducing potential anxiety around assessments (Taylor et al., 2024). Staff marked the formative, providing individual feedback. A general cohort feedback document highlighted common themes and approaches across submissions and enhanced students’ capacity for monitoring their progress ([UDL consideration 6.4](#)).

To prepare for the final summative assessment, we devoted four sessions to consolidation of the module material. Using mind mapping diagrams to build connections between prior learning and new knowledge ([UDL consideration 3.1](#)), the module’s overall content was represented to students to visualise connections between areas of law and the legal relationships, obligations, breaches and remedies available (see figure 1 below). This was particularly beneficial for Part A, the client advice task. During these sessions we also examined models of reflection; focusing on the ‘What, So What, Now What?’ model (Borton, 1970; Kolb, 1984) as we considered this the most accessible for first years and the best approach to prepare students for Part B of the assessment.

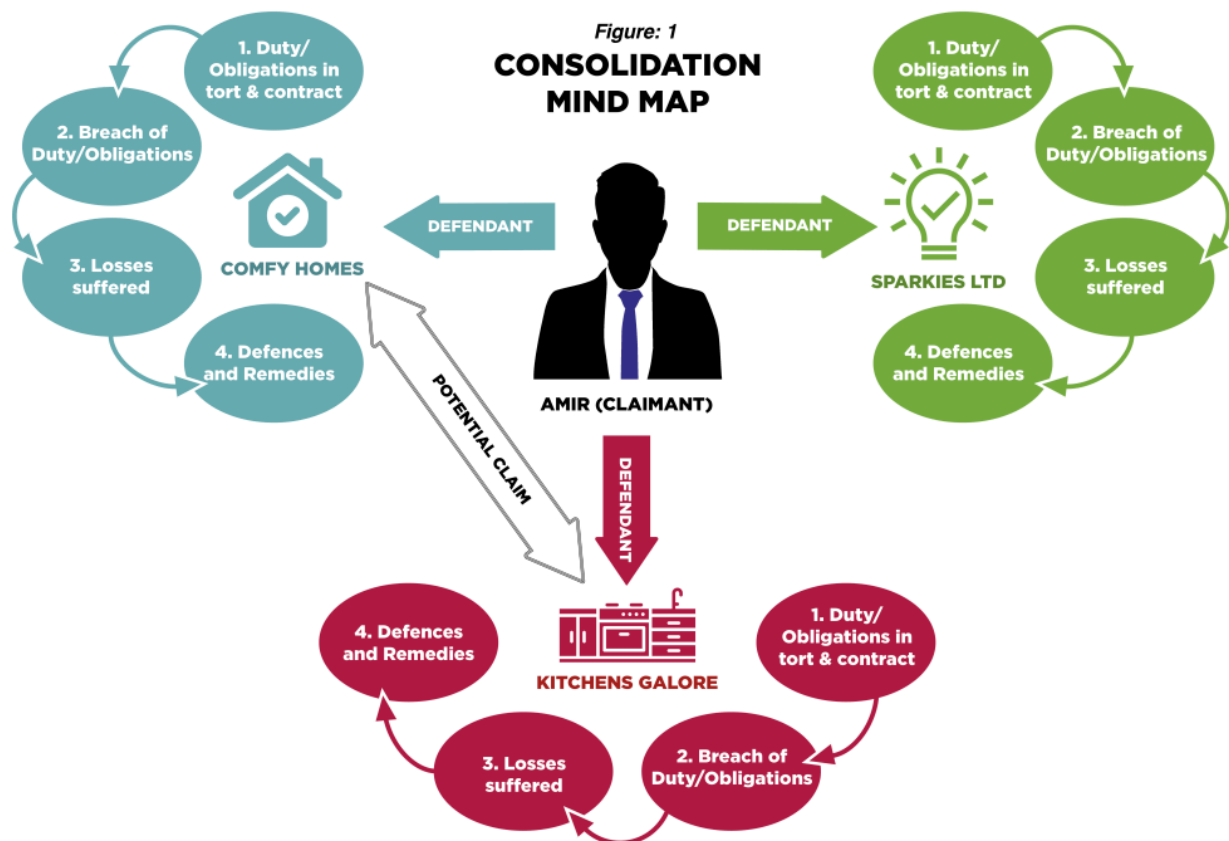


Figure 1: Consolidation mind map

Part A of the final summative assessment was an authentic one aiming “to integrate what happens in the classroom with employment, replicating the tasks and performance standards typically faced by professionals in the world of work” (Villarroel et al., 2018, p. 841). It required students, in their capacity as trainee lawyers, to write a memorandum to their supervisor on a client’s problem involving tortious and contractual issues. It tested students’ understanding of the legal principles and key cases and their skills of application. To support all students, particularly those requiring more structure, a memorandum template was provided. Additionally, rather than a general request for advice, the question highlighted specific aspects of the problem and potential claims about which advice was sought. Together, these features helped students to structure their answers.

Given the pivotal role of group work in the module, and the crucial role reflection plays in the learning process (Schön, 1983; Kolb, 1984), Part B of their final summative assessment required students to write 500 words of reflection, examining and evaluating their experience of seminar group work. The reflection was structured around questions to help students focus on areas of personal development

gained through group work (Zimmerman, 2002). Combining knowledge and application of the law with a reflective element (Boud et al., 1985) meant that the assessment provided a level of challenge for stronger students as well as supporting weaker students to do well.

Battle Weary: Challenges in Delivery and Content

Initially, it was a challenge to form groups and provide them with a shared online space to record weekly work. In the first year of delivery, we used the 'Groups' function on Blackboard which limited students to an inflexible Word document to which photographs and images had to be attached. Finding it too static, few students took advantage of this. Creating online groups was cumbersome and undermined by the second challenge: students enrolling late or moving seminar groups due to timetabling issues. In addition, although some groups worked effectively, a few were beset by poor or fluctuating attendance, which sometimes required group amalgamation. Students could reflect on this flux in their assessments and for some, it was an opportunity to develop communication skills, resilience and flexibility. In the second year of delivery, we navigated this problem by encouraging students to create WhatsApp groups to enable them to more easily communicate whilst continuing to offer them the option of an online space through Blackboard. There was no take up of the second option; students often commented in their assessed reflection that WhatsApp groups worked well to keep them informed and on work if they missed classes. Despite difficulties in setting up the groups and fluctuations in attendance, students benefitted from group work beyond the classroom. Many reflected that they had formed good support networks and made friends, which is crucial to student retention (Kreig et al. 2023). In this respect the module succeeded in bringing students together in a way that the lecture format had not.

Some tutors found the materials for the seminars cumbersome; paper copies of new sections of the case study and flipcharts and pens had to be brought to class. In the second year of delivery, we promoted the use of online mapping software to address this, retaining the option of pen and flipchart paper to cater for students preferring physical materials. On balance, we plan to continue this approach, at least in the short term; the act of sitting around a central piece of paper helped to coalesce the groups at the early stage of joining university so this

has considerable merit, despite the challenge. Moreover, not all students are as 'tech-savvy' as is often assumed (Paul & Crowe, 2023; Kirschner & De Bruyckere, 2017) and some learning styles are better suited to physical materials.

The lack of a recent appropriate textbook on private law for first year undergraduates also presented a challenge and informed our decision to deliver the legal principles through the Critical Concepts. The Concepts proved successful for most students to acquire an understanding of these principles. However, during the first year of delivery, stronger students communicated to their tutors that, having engaged fully with the Concepts, they would benefit from additional reading to deepen their contextual understanding of, for example, the policy considerations behind the development of legal obligations. In the second year of delivery, we therefore introduced some additional reading linked to contract and tort. These were accessible digitally via the module's Blackboard reading list as well as physically in our university library.

Formulating our assessment criteria presented challenges. We used an analytic rubric to break the assessment down into specific criteria and performance levels (see Mikell, 2023). Following the first year of delivery we concluded that the rubric could inform students more clearly about our marking criteria and better assist markers in identifying and classifying submissions at both ends of the marking scales. We therefore revised the rubric, making more specific reference to aspects of the assessment that should be present or absent. For example, in terms of application of the law, the criteria for a third-class answer (40-49%) was amended from

an adequate ability to apply knowledge and to provide and communicate legal and non-legal solutions to the hypothetical client problem,

to the more informative

an adequate ability to apply legal principles and supporting evidence to the problem. An attempt to apply the legal principles & case law correctly with basic understanding and substantial gaps in knowledge. Limited solutions proposed. Communicates adequately with several errors.

The rubric was incorporated into student feedback so they could see how well they performed against these clearer criteria.

It was challenging to keep on task classes containing 50+ students working in groups, given some tendency to complete the activity and start chatting. Whilst

group work was introduced partly to enable students to connect with peers, it was also important to ensure that students were able to engage with the activities fully. A solution would have been seminars delivered by two tutors, but resources prevented this. However, we were fortunate to have student mentors in some seminars, supporting tutors and keeping students focused.

In the first year of delivery, seminars focused on students' exploration of legal concepts raised by the case study without their prior knowledge of the law. For example, students considering why there might be a responsibility from an employer to an employee. Subsequently the Critical Concepts were made available to students to introduce 'the law' prior to tutorials. However, we found that releasing the Concepts after the seminar made tutorials very challenging as they had to be recapped *and* applied in one 90-minute session. In the second year of delivery, we frontloaded the Concepts, releasing them prior to the seminars. Also, seminars were revised to include some discussion of the legal principles and an exploration of their relevance to the case study. Later, in tutorials students worked to apply the Concepts, making connections between the theoretical and practical application of the law.

The reflective element of assessment (Part B) presented an additional challenge. Submissions relied heavily on generic descriptions of both group work interactions and skills acquired, some of which appeared to have been produced by GenAI. To address this, following the formative assessment in the first year of delivery, we revised the reflection questions, moving away from emphasising skills acquired and focusing on emotional responses and personal development. This provided an opportunity for students to 'process their emotions and reflect on their strengths and challenges' ([UDL consideration 9.2](#)). Furthermore, in the second year of delivery, seminar time was allocated for students to complete a reflection log under tutor guidance. A template for the log was also provided containing questions to prompt reflection and suggested sentence starters to help students formulate their writing. Additionally, we revised one of the four consolidation sessions to deepen understanding of the 'What, So What, Now What' reflection model. Drawing on the previous cohort's submissions, we provided students with good and less good examples of reflective writing. As well as the usual timetabled classes, the module also, as a necessity, made use of two whole cohort lectures. We used these to reinforce reflective practice for the assessment. Exemplars were again shared with students providing a clearer understanding of the requirements for a good answer. Consequently, the submissions in the second year of delivery demonstrated less reliance on GenAI for

the reflection than previously. This is likely to have resulted from increased scaffolding of reflective writing practice and the use of exemplars and templates.

We conclude by considering the impact of this delivery and content on staff workloads. Overall, workloads are unlikely to be adversely affected by module design time. For module leaders, there may be initial front loading of designing and disseminating class materials amongst the team to ensure parity of experience for students, but this is no different to any other module. Staff may spend slightly longer preparing the equipment for the classes (such as flipchart paper and pens) and familiarising themselves with media clips and active learning tasks. Managing group work in larger seminar classes may be more demanding than in smaller tutorial groups. This may be alleviated by the involvement of student mentors. Class management can also be supported by establishing ground rules setting out expectations for group work at the start of sessions. Limiting the word count for formative assessments and using an informative rubric can ensure that staff are not overburdened with marking yet are still able to provide meaningful feedback for students.

Returning to Battle: Outcomes and Enhancement

To measure the outcomes of the module's delivery and gauge student views, our sources of information were Blackboard's Gradebook data (which holds the modules' assessment grades) and our student module evaluation surveys (SME). Students are asked to complete these anonymous online SMEs towards the end of the module delivery, and we analysed responses from the 2023/24 delivery and the 2024/25 delivery. Ethical approval for using this anonymised data was provided by the institution.

Gradebook data showed a high pass rate for the module; 86% in the first year (of which 62% achieved a 2:2 and above) and 94% in the second year (of which 72% achieved a 2:2 and above), both rates being recorded prior to the referral/deferral assessment period).

SME data showed that for the initial 23/24 delivery of the module, the response rate was 12.2% (53 from a possible 436). For the module's second year of delivery the response rate was 12.8% (57 from a possible 446). Undoubtedly these are low

rates, with a non-response bias of approximately 88% (Fincham, 2008). Zumrawi et al. (2014) estimate that for a module with over 100 students the validity threshold (response rate) should be $\geq 15\%$ which contrasts with the 30% response rates universities see as typical (Zaitseva & Carey, 2023). However, there is no universally defined threshold for a “good” response rate. Although the rates were lower than ideal, the data collected may still be viewed as representing a meaningful contribution to understanding specific aspects of the module’s delivery, particularly when triangulated with other sources, for instance, reports from course committees, informal feedback from student mentors and feedback from the module team gathered during regular module team meetings.

Students provided positive feedback through the SME process, particularly about the case study. They appreciated its value in providing an insight into real-world application of the legal principles they were learning. One student commented, ‘This module made me realise I enjoy learning about business ... learning about contracts and I also enjoy learning about Amir. Another said, ‘Contract ... and Tort ... are both very interesting and relates well to everyday life. I found tutorials intellectually stimulating’.

Students also valued the way in which the module developed their skills. As this student commented,

I enjoyed learning how to determine liability based on Tort ... and Contract ... legal principles. I found it enjoyable learning new legal concepts through [Amir’s] story by developing problem-solving skills and critical thinking during the development of the events that contributed to enhancing my understanding of the claims, damages and remedies.

Another added,

I like what I am learning – it is interesting I loved learning the principles alongside the scenarios in the seminars and applying the knowledge through the problem exercises in the tutorials.

Moreover, students enjoyed and recognised the value of group work, despite the challenges of fluctuating numbers and resulting realignment of some groups. One commented,

Honestly, I didn’t really think the group work would be great since my group went down from a 6-member group to a 3-member group, but overall, I

think this was the part I liked the most during the seminars. It made concentration much easier.

Another wrote, 'I like that we write facts about Amir's [the subject of the case study] legal journey on the large chart sheet and then explain it to the class'.

Students also found the Critical Concepts a valuable resource, supported by the seminar activities. One commented 'the critical slides are really helpful. The seminar story is very well explained, it makes learning about duty of care, contracts and negligence much more interesting'. As with their Knowledge Nuggets predecessor, a student found the 'Critical Concept PowerPoints and voice recordings very useful during revision'.

Given the outcomes above, we have considered adaptations to enhance future delivery of the module. Having decided to frontload access to the Critical Concepts prior to the start of seminars (rather than prior to tutorials as in the first year of delivery), we intend to continue the introduction of more legal principles into the seminar case study thereby reducing the burdensome level of content in tutorials. This approach will scaffold students' understanding of the principles more securely, enabling them to make stronger connections in their learning through the subsequent tutorial activities.

Another adaptation recognises the notable rise in our students' reliance on emerging technologies in their assessments. This became more apparent in the second year of delivery, particularly in relation to Part A (advice to the client). Reliance went beyond the assistance of software tools, such as Grammarly, to improve writing quality. Students' reliance on GenAI was evident in the repeated use of cases from other jurisdictions, cases which had not been covered in the module or advice which was not specific enough to relate to the problem given. For example, explaining both consumer and business to business contractual obligations when only one could apply. Our experience mirrors a finding from the Higher Education Policy Institute's 2025 survey that 88% of undergraduate students reported using GenAI tools for assessments, a notable rise from 53% in 2024 (Foster, 2025). Moving forwards, as part of our continuous improvement process, we are considering ways to address this issue. Whilst we are training the next generation of lawyers who will certainly use AI in practice, it is vital that students learn the skill of evaluating legal options for the client, and the assessment should test their ability to apply the law to the specific facts of their client's case. We plan to provide students with artefacts which more closely mirror the

evidence a legal practitioner would evaluate in providing clients with advice on their claims.

In our initial design of the module, given the limited delivery time, we intended that the Critical Concepts would serve as the sole vehicle to deliver the legal principles. As mentioned, we subsequently added more reading to challenge stronger learners. We aim to continue this journey of providing enhanced materials, such as journal articles, podcasts and practitioner periodicals. This will enable these learners to delve deeper into the sociological, contextual and historical underpinning of Private Law.

We aim to increase our teaching team's awareness of and responses to diverse learning needs by disseminating inclusive teaching toolkits. These include strategies to equip the team to adapt their teaching practice to better accommodate all learners. Our institution is currently developing a number of these resources including guides for teaching students with dyslexia, dyspraxia and ADHD and inclusive teaching toolkits. Similar resources have been produced by, for instance, Imperial College, York and Brunel Universities.

The Final Stroke: Conclusion

Private Law successfully blended two modules, Tort and Contract Law, each previously taught over 12 weeks. During the same time frame the module provided students with an overview of the main principles and key legal authorities in both areas. It tested students' abilities to apply the law to a 'real life' client problem and reflect on their personal development and experience of working in groups whilst doing so. Although we faced challenges implementing this approach, such as managing group work in larger class sizes, stretching stronger students and balancing material across the seminars and tutorials, this 'all for one and one for all' approach resulted in successful module outcomes and positive student feedback. To assist others interested in adopting this method, Table 1 below sets out elements of our module design indicating how and why it incorporates UDL considerations.

Table 1: How to Apply UDL to Your Module's Framework and Why: Engagement, Representation, Action and Expression

Increasing Engagement	Class Materials	Group Cohesion	Accessibility of Materials	Over-Reliance on Computer Keyboard	Learner Agency	Support and Feedback
Record short voice over PPT slides with 'chunked' information for students to absorb prior to classes ('cultivate multiple ways of knowing and making meaning' UDL consideration 3.3)	Use evolving case study with new sections each week ('cultivate multiple ways of knowing and making meaning' UDL consideration 3.3)	Seminar groups foster better working relationships with other students ('foster collaboration, interdependence, and collective learning' UDL consideration 8.3)	Use colour coded templates to distinguish between class formats ('organise information and resources' UDL consideration 6.3)	Use interactive elements, e.g., polling for students to select options ('cultivate multiple ways of knowing and making meaning' UDL consideration 3.3)	Give students choices of methods of engagement with topic, e.g., online mind mapping 'v' flipchart paper ('cultivate multiple ways of knowing and making meaning' UDL consideration 3.3)	Ongoing formative feedback in smaller seminar and tutorial classes ('Build fluencies with graduated support for practice and performance' UDL consideration 5.3)
Replace lectures with smaller seminar groups ('foster collaboration, interdependence, and collective learning' UDL consideration 8.3)	Use websites to simulate transactions ('illustrate through multiple media' UDL consideration 2.5)	Tutors know students better in smaller groups and foster stronger relationships ('foster collaboration, interdependence, and collective learning' UDL consideration 8.3)	Provide audio transcription for voice over PPT slides ('support multiple ways to perceive information' UDL consideration 1.2)	Use alternative materials (Lucid Chart / Miro / Canva etc.) for students to map topic understanding ('optimising choice and autonomy' UDL consideration 7.1)	Give students choices as to how to communicate with each other outside class ('optimising choice and autonomy' UDL consideration 7.1)	Differentiated support through peer assessment and student mentors ('Build fluencies with graduated support for practice and performance' UDL consideration 5.3)

Create 'working together' groups for peer support and collaboration ('foster collaboration, interdependence, and collective learning' UDL consideration 8.3) Use media clips, e.g., TV, Netflix, and TikTok ('illustrate through multiple media' UDL consideration 2.5)	Use peer assessed quizzes ('Build fluencies with graduated support for practice and performance' UDL consideration 5.3)	Provide pre-and post-session PPT slides so students have advance materials ('Optimize access to accessible materials and assistive and accessible technologies and tools' UDL consideration 4.2)	Create QR codes to access materials and interactive elements, e.g., Padlet and Poll Everywhere ('vary and honour the methods for response, navigation, and movement' UDL consideration 4.1)	Include reflection element in classes and/or assessments for students to consider their agency and process their emotions ('develop awareness of self and others' UDL consideration 9.2)	Formative assessment to mirror summative with feedback, including rubrics ('Build fluencies with graduated support for practice and performance' UDL consideration 5.3)
Develop 'Threshold Concepts' which act as learning goals ('Set meaningful goals' UDL consideration 6.1) Use, tailor made videos. Use AI avatars to aid role play ('illustrate through multiple media' UDL consideration 2.5)	Incorporate oral communication skills into activities with authentic role play ('Optimise relevance, value and authenticity' UDL consideration 7.2)	Provide templates for assessments and include rubrics ('organise information and resources' UDL consideration 6.3)	Use quick and easy activities to improve understanding, e.g., critiquing a document, filling in the blanks and 'odd one out' lists ('support multiple ways to perceive information' UDL consideration 1.2)	Use rubrics so students are clear on assessment criteria ('organise information and resources' UDL consideration 6.3)	Targeted consolidation sessions building connections between module content ('connect prior knowledge to new learning' UDL consideration 3.1)

Use flexible spaces, e.g., furniture, whiteboards, multiple screens ('vary and honour the methods for response, navigation, and movement' UDL consideration 4.1)	Regularly recap prior learning and outline goals for current learning ('connect prior knowledge to new learning' UDL consideration 3.1)	Use physical materials to record work to break down laptop barrier ('optimising choice and autonomy' UDL consideration 7.1)	Ensure all PPT slides and materials meet accessibility standards ('Optimize access to accessible materials and assistive and accessible technologies and tools' UDL consideration 4.2)	Use physical materials, e.g., pen and flipchart paper ('vary and honour the methods for response, navigation, and movement' UDL consideration 4.1)	Provide 'current' context whenever possible, e.g., professional, social and environmental context in case studies ('Optimise relevance, value and authenticity' (UDL consideration 7.2)	Share exemplars in whole cohort feedback session and provide general feedback highlighting common themes and approaches across submissions ('enhance capacity for monitoring progress' (UDL consideration 6.4)

Bearing this in mind, we end with three takeaways from our experience:

1. **Create a collaborative environment and a shared responsibility for learning.** A crucial aspect of our module design was to foster a sense of community and belonging across the cohort, previously missing in large lecture delivery. Using UDL principles the module focused on providing students with a collaborative learning experience with a shared responsibility for their learning using groupwork as the mainstay of seminar activities. Indeed, the students' reflective assessment revealed that seminar-based learning fostered closer working relationships with peers.
2. **Design a wide variety of inclusive and engaging activities and materials.** We ensured that activities in seminars and tutorials plus the range of materials used were designed to be inclusive and effective for all learners, regardless of their circumstances or learning style. They provided learners with multiple means of representation, engagement, action and expression to enhance their agency. These included various methods of conveying information such as media clips, recorded PowerPoints and tailor-made videos. Students were also provided with multiple means to engage with the materials including mind mapping software, physical materials, QR codes, colour-coded templates and quizzes.
3. **Keep your eye on GenAI and regularly review module delivery.** Continuing our Musketeers theme, we are adapting our battle tactics by adjusting and refining the module design and future proofing the assessment against overreliance on GenAI. However, as technology develops, we will seek ways to harness GenAI's role in our implementation of the UDL framework by further incorporation into the module. This may enhance the module's accessibility and its learning environment to maximise every student's chance to succeed.

We urge others to try this approach, elements of which can be adapted in other contexts to increase learner agency and improve student engagement and outcomes. This inclusive approach, based on teamwork and shared responsibility, resonates with the ethos exemplified by Dumas' three musketeers, and encapsulated in their motto, 'all for one and one for all'.

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Case Study: Student Engagement and Learning Economics Through Photographs

LOVLEEN KUSHWAH AND GEETHANJALI SELVARETNAM

Summary

Getting students to feel excited about their studies, see the real-world implications and engage with their learning can be challenging for educators. In response, educators are embracing active learning frameworks that emphasise practical and experiential processes (Bonwell & Eison, 1991; Prince, 2004) to break free from rigid and complex ideas, and abstraction of theories. Active learning follows an aspect of constructivist learning philosophy which highlights that students build on existing knowledge and skills by doing something and reflecting upon their own experiences and interactions. Since this involves the use of their senses, experience and creation, it results in deeper and more meaningful learning. (Main, 2021; Misseyanni, 2018). 'Active learning is a transformative process that brings together knowledge artifacts, learning contexts, humans, and social problems as well as challenges for the present and future of our societies.' (Misseyanni et al, 2018., p. xviii). This case study discusses such an assessment in an undergraduate Economics course, which required students to work in groups, take photographs of their real-life encounters and explain some economic concepts through them, which we found to be effective in several ways.

Motivation

It is vital for students to learn many concepts before applying them to analyse real life situations. As teachers, we have observed students being unengaged

and struggling with some theoretical concepts being taught in classrooms. One potential reason for students' disengagement and struggles could be that the delivery of the core courses is too 'classroom-based', failing to engage and help them understand the concepts well. Usually, we relate real-world examples verbally to explain the concepts, or show photos during the lectures. Assessment questions would ask for a definition with an example, which students can just memorise from the lecture notes without really learning and understanding them deeply. Or, we might ask some problem-solving types of question about these concepts. When we reflect on our teaching practice and students' experience, although real-world examples were used to explain the concepts in the classroom, these were still abstract for students.

Students needed to experience these concepts directly, get hands-on experience, understand the real-world relevance of what they learnt and be excited to learn. Experiential learning is very useful here, and we recognised that scaffolding students would be an important element of this experience. It is an important aspect of active learning to facilitate multisensory engagement to help students understand theoretical concepts (Bartle, 2015; Bayer & Finlay, 2022; Burch et al., 2019; Kolb, 2015; Kolb & Kolb, 2022; McLeod, 2025). While, Burch et al. (2019) provide strong empirical evidence of its effectiveness in achieving higher-level learning outcomes, Bartle (2015) highlights its benefits in promoting real-world engagement and lifelong learning.

A similar approach using ecopedagogy, which focuses on encouraging environmental awareness, real-world application, and reflective practices like field journaling (Bayer & Finlay, 2022) could be supportive. Further, foundational works by Kolb (2015) and Kolb & Kolb (2022) present experiential learning as transformative, offering practical insights into its application. McLeod (2025) has also explored Kolb's learning styles and the broad potential of experiential learning.

The assessment

In order to integrate active learning through an experiential approach, we selected a Level 3 undergraduate course, Contemporary Topics in Economics, which is delivered to a small class. Unlike the large class students were accustomed to in the Level 2, this small class size provided us the opportunity to introduce a different type of active assessment for learning. The experience from this

course can enable us to embed this idea into different types of courses including larger classes, given the learning benefits it affords.

Formative and summative assessments were designed to address the issues discussed in the previous section which motivated our case study. We chose related theoretical economic concepts which students find confusing – moral hazard and adverse selection, two aspects of asymmetric information. We explain these concepts briefly in the textbox below.

Asymmetric information – One of the basic assumptions about competitive markets is that all agents (consumers, producers, governments etc.) are fully informed about traded commodities and other aspects of the market. Imperfectly informed markets with one side better informed than the other are markets with asymmetric information. E.g. An insurance buyer knows more about his risky behaviour than does the seller. It encompasses two types of possibilities/ concepts which affect the functioning of markets, and one party has more information about something relevant.

Moral hazard – Hidden action where one party has private information about some action which the other party is not aware of. E.g. I might be careless with candles in my house which the insurer is not aware of. Students might engage in copying material from a friend in an online exam which the teacher cannot see or be aware of.

Adverse selection – Hidden information where one party has information about a good/bad service which the other party is unaware of. For example, a seller will have more information about quality of its products than the buyer.

The lecturer would typically teach the theoretic concept and provide one or two real world examples for students to see the connection between theory and practice. In order to engage students actively and to reinforce the learning, students were given opportunities to interact with their peers during lectures through formative group assessments where they were allocated in small groups and had to come up with at least one real-world example that may explain the theoretic concepts. They were encouraged to do this to support not only their understanding of the theory but also to meet students to whom they had never spoken before. Motivating students at this stage to share their examples with the whole class can be challenging, as they may either lack confidence in speaking in front of everyone or believe their examples are not good enough. At this stage, the teacher's role becomes crucial in helping students recognise the benefits of discussions with both peers and the teacher. Students were made aware of the summative assessment question from the outset, which was in line with the formative assessments, giving them ample opportunities to learn, understand, assimilate, discuss and practice.

All nine students in the class were asked to work in small groups of three, but only two groups participated in this exercise and consented to participate in the research. Ethics approval has been granted for this research. We used photographs only for students who agreed to the following: 'I consent for the photographs from my assessment to be used anonymously for the research study.' The tasks they were set to complete the assessment were:

- Explore their surroundings and identify instances that exemplify asymmetric information, adverse selection, and moral hazard.
- Capture photographs within their immediate environment, symbolizing the above economic concepts.
- Address potential solutions to alleviate the identified issues in each case.
- Present their work clearly in power point slides and oral presentation.

Group presentations for the summative assessments were for 10-15 minutes, including some time for questions. This assessment was worth 35% of the overall grade. Students worked in groups for several weeks to decide what real-life experiences can be used to explain these theoretic concepts, what photos to take, prepare the slides and how to present their work.

Student output

It is interesting that each group chose photos from different scenarios to explain these concepts. Since the other students were watching, this was an opportunity for students to learn from each other.

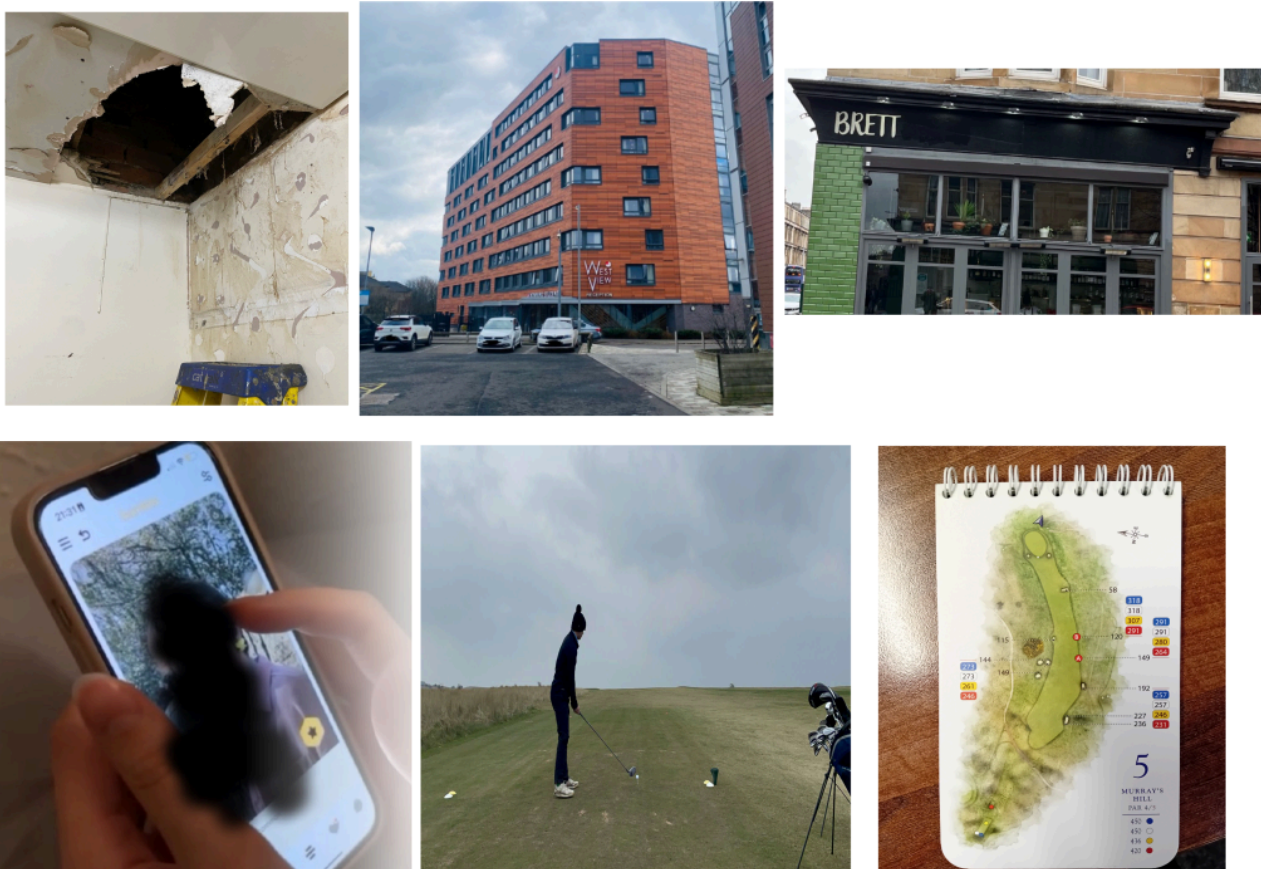


Figure 1 (clockwise): A room with a damaged ceiling; a multi-storey student accommodation building with cars parked outside; the front façade of a restaurant named Brett; a mobile phone displaying an online dating application with potential matches (image blurred for privacy); an individual preparing to take a shot on a golf course; and a course map showing hole details. All photographs were taken by participants as part of the photo-journaling exercise..

In Figure 1, we share some photos that students presented. For adverse selection, they showed photos of a dating app and golf course, where the app users and golf players respectively do not have the information about their potential dates and the golf course (hidden information). For moral hazard, they brought to light how student apartments could be taken for rent and then sublet without the knowledge of owners.

Students' experience

Students responded well to this assessment and according to the feedback sur-

veys, all of them liked the assessment design and agreed that it enabled them to understand economic concepts better.

These are two comments from students in each of the two groups:

I found the photo journaling assessment to be a really positive experience for several reasons. Firstly, it gave me the chance to combine creative expression with academic work. I enjoyed being able to tell a story through photos, which made the assignment feel more personal and engaging.

It allowed a level of creativity which there has not been room for in other university level assessments.

Benefits of this design

The assessment had several aspects that enabled students to actively participate, and develop skills using different sensors: listening, observing, doing (taking photos) and connecting things they notice outside with classroom discussions. Key features of this assessment design that are worth highlighting, including insights into active learning, are:

- Authentic experiences: Even though discussed in the classroom, students had to actively find real-life examples from their own experiences on a weekly basis, something that teachers perhaps cannot know because they are examples that the students encounter, thus making it even more relevant to the authentic experience.
- Peer learning and co-creation: This enables learning from peers through discussions and observing presentations of others.
- Self-reflection: When we give opportunities to students to learn from activities, it is important to provide dedicated time and structured questions for active reflection.
- Student engagement: The assessment requires students to be more alert to their environment in order to be able to think and apply economics to things they see and encounter all the time, resulting in active engagement.
- Experiential learning in an outdoor setting (ecopedagogy): This took economics out of the classroom and provided an experiential learning opportunity. Students got hands-on experience where they discussed, photo-journalled and reflected to examine their experiences using formative and

- summative assessments, which facilitated Kolb's experiential learning cycle.
- Sensory-based learning: Along with experiential learning, this enables immersive and sensory exploration of the immediate environment where students could feel and smell the surroundings, see the objects and people, and hear what is happening around them. These could be powerful reminders of what they learnt and help them to remember the associated concepts.
 - Graduate skills development: Students built oral and communication skills, team working and collaboration skills, digital and creative skills through photography and critical thinking.

While the small class size was useful for testing this assessment design for active learning, this very feature also presents a limitation, as we had a relatively limited set of student experiences to analyse. To strengthen the study, we could use this assessment design and run the survey across multiple years or pilot it in a course with a larger class size.

Key takeaways

The takeaway message from this case study can be encompassed in the following important areas.

- Adaptability: For all students to engage, we must focus on topics that students personally encounter and that are of current interest when designing the assessment and course content. In this case, we have shown the importance of setting tasks that require students to go outside the classroom or library setting and beyond books. Staff and students must be able to adapt and change their plans based on conditions, availability and interest.
- Transferability: When designing such an assessment, we must consider whether the skills they learn in such an activity will develop graduate skills such as working in teams, observation/noticing, applying subject concepts to analyse and finding solutions, presentations, and so on.
- Inclusivity: It is important that all activities and technology are inclusive and accessible (e.g. take photos without having to go on expensive trips). In order to ensure all students make use of this opportunity, it is better to have this as a summative assessment to ensure students engage but are aided by a formative assessment with clear instructions to scaffold them.

Concluding remarks

This assessment design delivers some of the important outcomes of a multi-modal approach, enabling experiential learning so that students with different types of learning preferences could all engage. The experience facilitates deep learning because they go out and do activities together and discuss. In our case, it led students to be more engaged and motivated. Most importantly, students highlighted that the assessment facilitated and enhanced creative engagement with the task. Student feedback for the course has been excellent, and we are thinking of introducing such an assessment in larger courses.

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Conclusion

SARAH WILSON-MEDHURST AND JANET HORROCKS

This book's focus is on the question of how to make active learning happen *for all*. We have therefore included contributions that speak directly to how the challenges of implementing active learning have been successfully addressed in practice to be both inclusive and sustainable for staff, students and institutions.

We have explored how the challenges associated with making active learning widely available can be tackled, using a systems thinking lens ([Wilson-Medhurst](#)). Our central question has been: what have we learned from these contributions about making active learning happen for all? These insights are encapsulated in Figure 1, which represents the key factors that drive engagement with active learning.

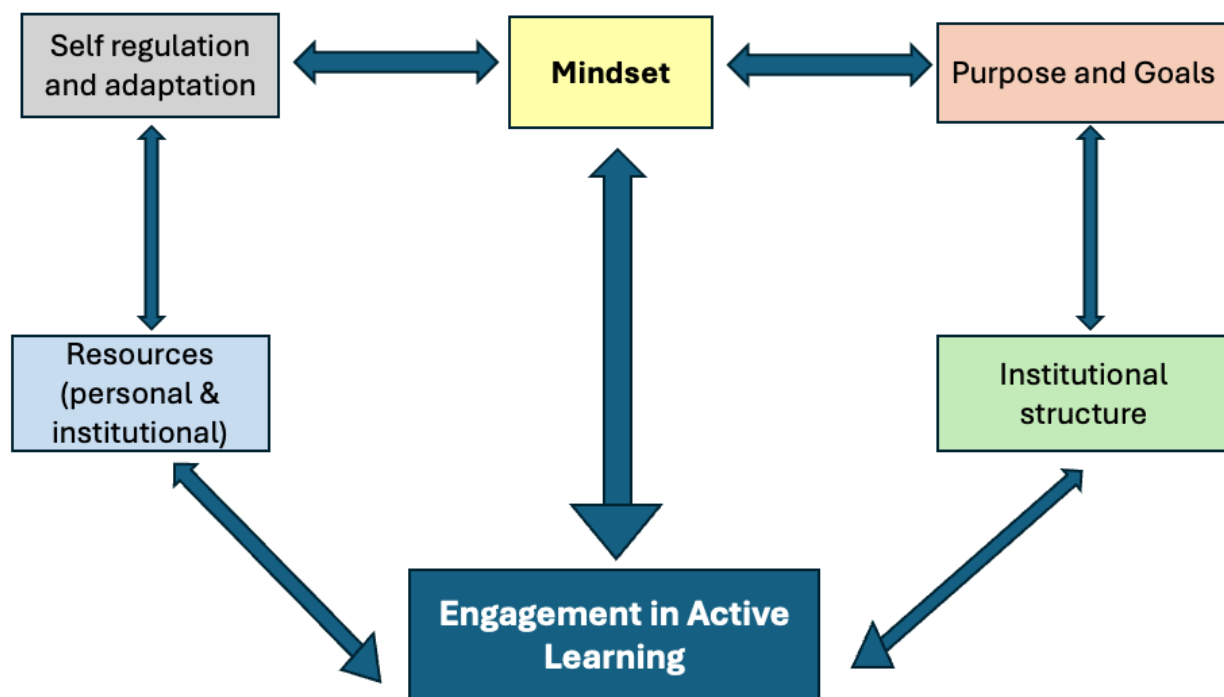


Figure 1: Factors contributing to engagement in active learning. © Sarah Wilson-Medhurst and Janet Horrocks, 2026. CC BY-NC-ND

Figure 1 highlights the complex interactions between various factors, with mind-

set being a central driving force. A key conclusion is that the mindsets of staff, students and institutional leaders are crucial to making active learning successful. However, those mindsets and associated narratives are in turn influenced by the working and learning institutional context in which those individuals are situated. Nonetheless when staff hold a mindset that views active learning as important and worthwhile, perceived challenges and barriers are more likely to be addressed and overcome. When learners see learning as something they actively engage in, rather than as a spectator activity (Chickering & Gamson, 1987), active learning will be well received. When leaders see their role to steward coherence among strategy, policies, incentives and cultural norms so that active learning is the accepted choice rather than an option, active learning will become the norm. Figure 1 illustrates the way in which mindsets are shaped and influenced by the organisational (and wider) context in which they reside. Another central conclusion is that relying on individual mindset and personal effort to overcome challenges and barriers is not sustainable, nor inclusive.

The examples in [Section 2](#) explore the institutional context in more depth. They demonstrate how different institutional parts that include policies, practices, information and resource flows can shape the institutional narrative and accompanying mindsets, and foster institution-wide engagement with active learning.

At an individual level, mindsets both influence and are influenced by personal goals and the capacity to reflect on practice. Reflective approaches to teaching are not automatic (Bray & Fotheringham, 2022). Developing a reflective mindset can begin when staff themselves adopt the role of learners within active learning scenarios. [Section 4](#) provides several examples of how experiencing active learning can promote reflective practice and provide the catalyst to change practice, while [Section 3](#) focuses on ways in which staff mindsets can be surfaced, influenced and contested as appropriate. Individual goals also shape mindset; while these goals may be personal, they are strongly influenced by the broader purpose and priorities of the institution.

Similarly, when students are or become self-regulated, reflective learners, their confidence and 'comfort' with active learning increases. Crucial to this development is the scaffolding of active learning activities in an environment that builds learner confidence and normalises active participation from the outset of their studies, as described in [Section 5](#) and [Section 6](#).

Institutional purpose and values also play an important role. For example, institutions that place a high value on teaching and provide an environment con-

ducive to investing time and effort in planning, developing and implementing active learning may influence the goals and priorities of individuals working within them. In turn, such institutions may attract staff who value teaching using active learning approaches and methods. [Section 2](#) includes several contributions that describe how institutions have developed strategies to promote and embed active learning. This institutional support is shaped by organisational purposes and goals, such as teaching and learning strategies, but also structural influences including policies, practices, information and resource flows.

The availability of resources further influences the implementation of active learning. These include time to invest in developing active learning as well as physical resources (such as appropriate learning spaces), organisational resources (such as timetabling), and human resources, including the skills and capabilities of staff and students. Together, these factors support staff in implementing active learning approaches effectively.

Figure 1 illustrates the central role of mindset in engagement with active learning, while also demonstrating how interventions in other parts of the system can influence mindset. We can use this diagram to think about several scenarios where we want to make active learning happen for all.

- Example 1: Intervention in resources and practices.
A staff member adopts an active learning approach such as those described in [Section 7](#) with their students. This experience prompts broader reflection on teaching practice, leading to a shift in mindset towards active learning and, potentially, a greater recognition of the importance of teaching.
- Example 2: Intervention in self-regulation and adaptation.
Students receive scaffolded support to participate in the active learning elements of their programme based on the contributions in [Section 5](#). As they experience the benefits of active learning, there is a change in mindset, and they become more willing and able to engage actively in future learning activities. This encourages other staff to adopt active learning approaches.
- Example 3: Professional development through active learning.
A professional development programme for staff is itself delivered using active learning approaches based on the contributions in [Section 4](#). This experience influences staff mindset and increases motivation to seek out resources and opportunities to implement active learning in their own practice. They may perhaps influence institutional policy and process to make them more conducive to active learning.

- Example 4: An institution wide approach.

The institution's overarching strategy as well as its teaching and learning strategy is revised to include a commitment to active learning. This institution uses the framework in [Section 1](#) and the examples in [Section 2](#) to inform how it draws together system components to make active learning happen for all. Leaders, staff and students start to see this is 'the way we do things around here', and staff who were sceptical of active learning are encouraged to try active learning after supportive staff development and seeing that active learning is valued and rewarded.

While all the elements of the system are important, our analysis indicates that stakeholder and organisational mindsets remain a primary driver of implementing active learning. When leaders, staff and students are enthusiastic about active learning, and the organisation signals that it values active learning above all other forms, they are more likely to engage with available resources and sustain active learning approaches across their teaching and learning.

We must consider however that mindset and a desire to implement active learning are not enough if they are not supported by the other parts of the system. Using the iceberg analogy in Figure 2, the visible aspects of active learning, activities, physical infrastructure, and people participating in active learning are supported not only by an active learning mindset but also by other factors. These are: the institution's purpose and goals; structure such as policies, regulations, information flows, reward and recognition, and workload allocation models; and feedback dynamics (at the individual level the capacity to gather, reflect on, and respond to feedback and at the institutional level gathering accurate and timely data to monitor progress towards desired goals). When these 'invisible' elements are missing, the active learning iceberg becomes unstable and cannot be sustained.

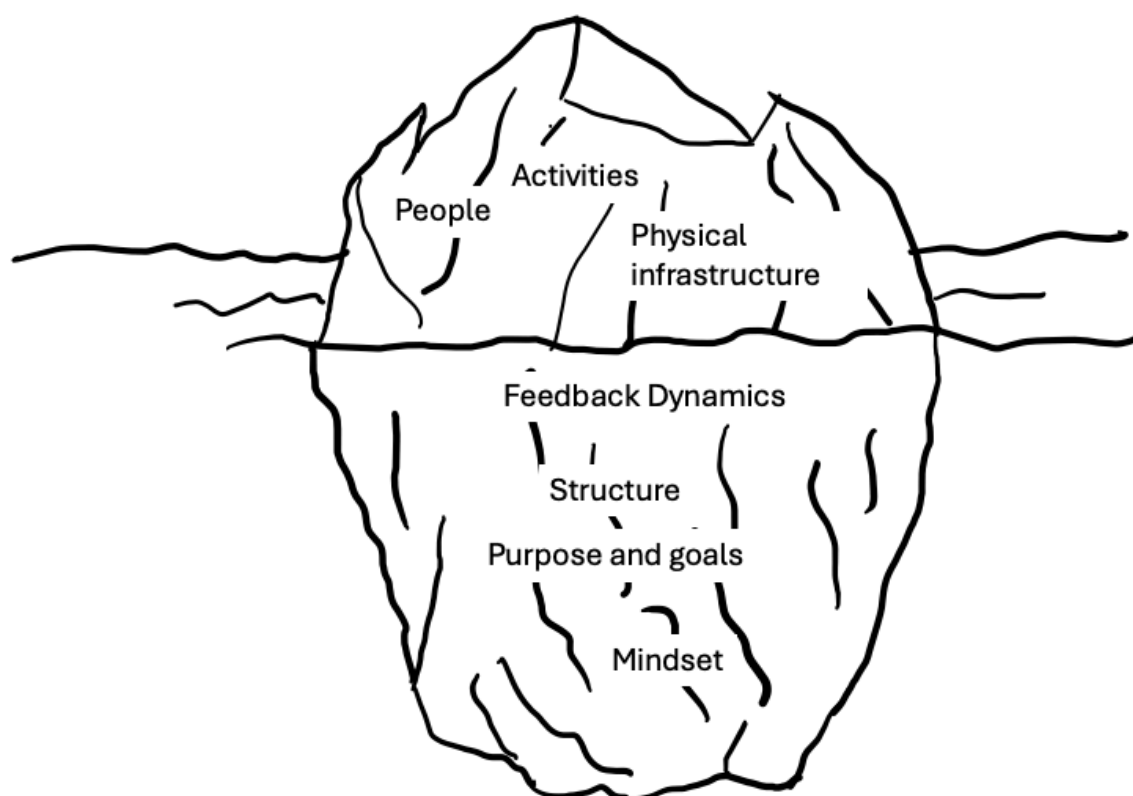


Figure 2: The iceberg model for stable and sustainable implementation of active learning for all. © Sarah Wilson-Medhurst and Janet Horrocks, 2026. CC BY-NC-ND

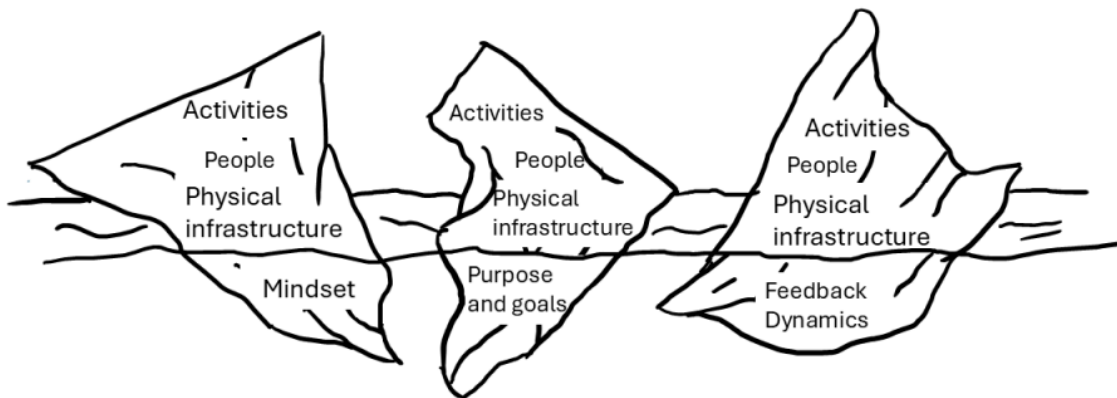


Figure 3: The iceberg model showing that active learning for all is not stable and sustainable if some supporting factors are missing. © Sarah Wilson-Medhurst and Janet Horrocks, 2026. CC BY-NC-ND

As illustrated in Figure 3, if the institution sets its purpose and goals to support active learning but fails to nurture the staff mindset and develop a reflective approach then active learning will not be sustainable and, to continue our analogy the iceberg will topple. Likewise, if the institution develops data gathering processes and fosters reflective responsive practice among staff but has not aligned this work with its broader purpose and goals then again, the iceberg is unstable and active learning will not be sustained. The same is true if staff are committed to active learning but institutional priorities and its structure are misaligned and there is little opportunity to reflect and evaluate the impact of active learning.

The challenge for the active learning community, if we want to make active learning happen for all, is to strengthen all the parts that make active learning sustainable. Enthusiasm alone is not enough. And while, of course, the onus is not solely on us, we should take every opportunity to influence the purpose and goals of our institutions, and the choices they make in relation to all the organisational (system) parts highlighted in this book. One of the ways we can do this is to continue to provide evidence that active learning is effective, inclusive and

sustainable. Gathering and providing such evidence is our 'call to arms' and one each of us might continue to influence and work on within our means.

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What is the Active Learning Network?

The [Active Learning Network](#) is a global community for revolutionising learning. The network is a collaborative, community-led initiative for anyone interested in making active learning happen for all including academics, educational developers, learning technologists and students, with satellite groups at universities around the world. It is a community that aims to provide a collaborative platform to share ideas, produce openly available resources, showcase active learning projects, pedagogic scholarship/research and international discussions around active learning.

The network's approach is distinctive because it aims to challenge and disrupt existing paradigms in HE and operates in the spirit of sharing and open education. This provides an antidote to top-down, siloed approaches prevalent in HE and means that those involved in learning and teaching can benefit from reciprocal sharing of practice, rather than having to constantly reinvent the wheel and fight isolated struggles for change in their own institutions.

Since 2017, the network has grown from a small group at one university, to a large-scale network with an international membership and satellite groups from across the world. In 2021 the Active Learning Network held the world's first Global Festival of Active Learning, and you find out more about this and our other festivals, conferences and continuing professional development (CPD) events via Active Learning Network [website](#).

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