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Pedagogies of Resilience amidst a Planetary Crisis: From Mind Training to Social and Environmental Justice

ABSTRACT

This article offers a circular framework for teaching and learning about resilience in higher education contexts. In order to navigate considerations of resilience as both potentially problematic and helpful, our framework stresses the importance of distinguishing between two different sets of questions: a) questions about the possibilities that humans have for cultivating qualities and skills that promote their flourishing, such as attention and mental balance, and b) questions about system change and social design from a social and ecological justice perspective. These questions are deeply implicated with one another, so one of the aims of our framework is to encourage students to explore the unity and mutual interdependencies between the two sets, as well as the possibilities of creating virtuous circles where the quest for nature restoration, social justice, and mental health sustain each other. In combining elements of "learning how" and "learning about," this framework aspires to provide students with tools to make up their own minds about resilience, a term that has become all too present in public discourse and yet remains contentious. Alongside this framework, we also offer a summary of our pedagogical approach, one that stresses reflection, situated learning, and the use of the university campus as a playground to test ideas and build communities of learning.

INTRODUCTION

This article offers a circular framework for teaching and learning about resilience in higher education contexts amidst multiple planetary crises (Figure 1). The notion of resilience has gained currency in recent decades, yet remains politically contentious and somehow elusive given the plurality of disciplines and perspectives from which it has been approached. One of the aims of this framework is to provide tools to help students and their instructors navigate some of the challenges raised by this term. As with any circle, the framework can be accessed from multiple starting points, but for the sake of exposition we present its different aspects in a linear fashion. We begin by noting the multiplicity of definitions of resilience, highlighting how resilience can be construed in bio-psycho-social-ecological terms. We then extend an invitation to explore resilience from the perspective of mind training, which recognises that mental health (and resilience) can be cultivated, similar to many other skills (e.g. learning a musical instrument or a sport). To inoculate students against some of the more problematic aspects of resilience, notably its potential alignment with neoliberal forms of individualism, we note how resilience can be placed within numerous political frameworks, including those seeking to address the planetary emergency in ways that honour both human needs and planetary boundaries. This takes us, in the next sections,

to an invitation to consider resilience from the perspective of system change, socio-political flexibility, and design thinking, as well as from the perspective of nature restoration. Alongside this framework, we also offer a summary of our pedagogical approach, one that stresses reflection, situated learning, and the use of the university campus as a playground to test ideas and build communities of learning (Figure 2).

DESIGNING A FRAMEWORK

The framework builds on lessons learned while designing and teaching a module,[1] "Building Resilience," which addressed student needs following COVID-19 lockdowns at University College Dublin (UCD), an Irish institution of higher education. We approached the design of this course with a large dose of skepticism regarding the notion of resilience, but also with a sense of openness regarding the concept. Our skepticism derived from the impression that resilience can be a risky goal, at least when embraced uncritically. For it can all too easily be rendered as a buzzword calling people to adapt as isolated individuals to dysfunctional or exploitative environments, not least those marked by the influence of neoliberalism (Cretney 2014; Chatzidakis et al. 2020; González Serrano 2022; Webster and Rivers 2019). Indeed, as Raven Cretney remarks, some have seen resilience as "a profoundly conservative concept, actively employed as a tool to privilege and reinforce dominant political ideologies . . ." (Cretney 2014, 632).[2]

In spite of these concerns, our openness derived from how others have approached resilience in ways more aligned with goals like sustainability and the search for post-capitalist futures (Bracamontes Nájera and Benítez Keinrad 2021; Cretney 2014; Cretney and Bond 2014). Thus, we decided that an important component of the framework would entail an invitation to interrogate the concept from a critical perspective and encourage students to see for themselves that resilience can be understood from multiple disciplinary and political angles, some of which are potentially helpful in constructively addressing our multiple planetary crises.

In order to navigate considerations of resilience as both potentially problematic and helpful, our framework stresses the importance of distinguishing between two different sets of questions: the first being a) Questions about the possibilities that human beings have for cultivating qualities and skills that promote their flourishing, such as attention and mental balance (or questions of mind training, for short). Grounded in areas such as positive psychology and contemplative education, this dimension offers students a window to recognise that resilience and mental health can be cultivated and strengthened through practice (see, for example, Johnston 2019; Davidson 2022). And b) Questions about system change from a social and ecological justice perspective, such as how to redesign societies so as to make sure that human needs are met within planetary boundaries, as Kate Raworth outlines in her *Doughnut Economics* (2022), or as the degrowth movement suggests (Hickel 2020; Schmelzer, Vetter, and Vansintjan 2022). We believe that keeping this distinction in mind can help avoid misunderstandings about the limits of each domain. These dimensions, however, interact and are deeply implicated with one another—a point illustrated in books like *Active Hope* (Macy and Johnstone 2022) or *Can We be Happier?* (Layard and Ward 2020). Accordingly, one of the framework's aims is to encourage students to explore the unity and mutual interdependencies between these types of questions (mind training and system change), as well as the possibilities of creating virtuous circles between them.[3]

Approaching resilience: From bio-psychology to ecology

Resilience is a complex construct with varying definitions depending on the disciplinary context. The American Psychological Association defines resilience as "the process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands" (APA Dictionary of Psychology). Many other definitions exist, for example, "the ability to 'bounce back'
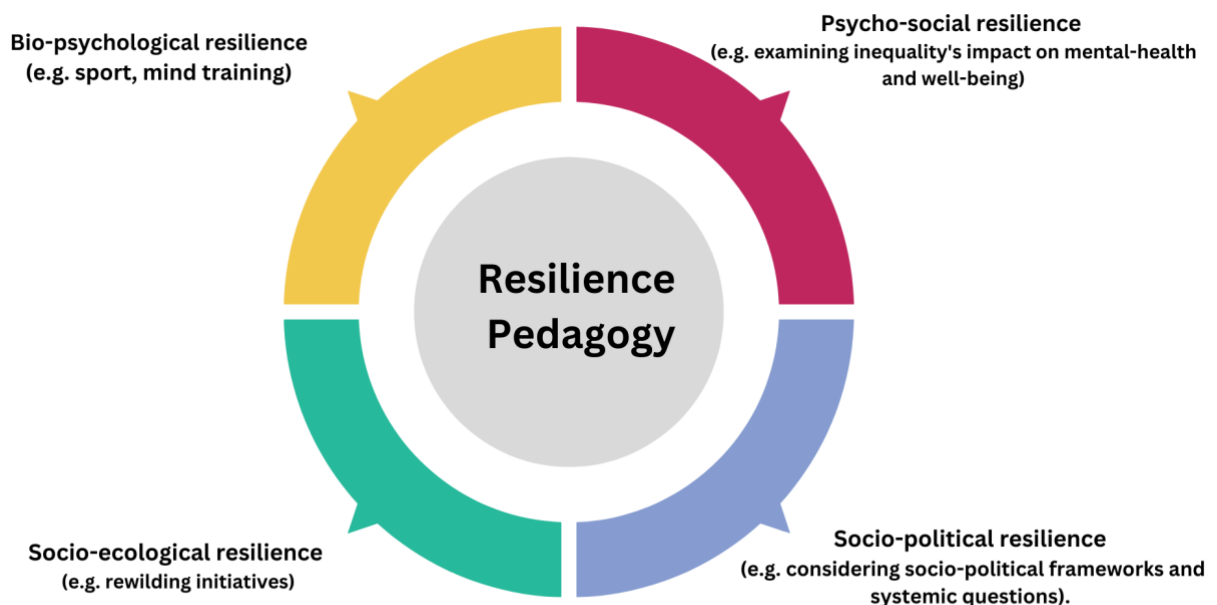
after encountering difficulty" (Southwick and Charney 2012, 6); bending without breaking; or "a concept of healthy, adaptive, or integrated positive functioning over the passage of time in the aftermath of adversity" (Southwick et al. 2014).[4] Within teaching and learning contexts, resilience is often seen as a personality characteristic and/or productive skill that enables students and staff to deal with current and future challenges in their learning process (Putwain 2012; Smith 2020).

Although often perceived as an individual trait, someone's resilience necessarily depends on social conditions of possibility (Southwick and Charney 2012; Ungar 2008).[5] In fact, as White et al. (2023, 8, Table 2) show, it is helpful to see resilience playing out at different levels, such as the biological, psychological, and social—such that we can speak of biopsychosocial resilience.[6] Extending this insight, others see resilience as the property of infrastructure or cities (Haggag et al. 2022), and also of socio-ecological systems (Cretney 2014; Folke 2016). In a similar vein, other approaches, such as that adopted by the Stockholm Resilience Centre, stress the interconnectedness with the living world, where resilience appears as "an attempt to create a new understanding of how humans and nature interact, adapt and impact each other amid change" (https://www.stockholmresilience.org/research/research-news/2015-02-19-what-is-resilience.html; see also Folke 2016).

In the face of the multiple definitions, our framework advocates cultivating a spirit of critical reflection, openness to multiple disciplinary perspectives, and curiosity in the face of an evolving field. It also invites students to consider what "principles and processes" may underlie different manifestations of resilience (Ungar 2018), as well as to explore the interconnection and interplay between different levels of analysis, going from biology and psychology all the way to sociology and ecology and back (Figure 1). At the same time, our framework advises students to reflect on the connection between resilience and other concepts, bearing in mind that "concepts are not formed on their own, nor do they exist in isolation, but form part of a network" (Kinchin 2019, 180).

Figure 1. A circular framework for resilience pedagogy

Bio-psychological resilience
(e.g. sport, mind training)

Psycho-social resilience
(e.g. examining inequality's impact on mental-health and well-being)

Resilience Pedagogy

Socio-ecological resilience
(e.g. rewilding initiatives)

Socio-political resilience
(e.g. considering socio-political frameworks and systemic questions).

Credit: Rubén Flores, Ingrid Holme, and Liam Fogarty 2024

An invitation to explore resilience from the perspective of mind training

Without losing sight of the semantic and interdisciplinary questions above, the following component of the framework involves encouraging students to approach resilience (in some understandings of the term, such as "bouncing back," "adapting," or coping with adversity) from the perspective of mind training. In a nutshell, the idea here is seeing resilience as a skill to be learned (Creswell 2023; Johnstone 2019; Southwick and Charney 2018)—one that has much in common with other skills students may be familiar with, such as riding a bicycle, reading, playing a musical instrument, or becoming more or less proficient at a given sport.[7] The idea is to invite students to recognise that, just as we can learn to look after our bodies by learning relatively simple habits, such as brushing our teeth, well-being is also a skill we can cultivate by engaging with relatively simple practices (Davidson 2021), e.g., a gratitude diary.[8] For example, through mindfulness programmes, ". . . we can each build resilience on a personal level by cultivating greater acceptance of our experience—good or bad, painful or pleasant—in the present moment" (Creswell 2023).

This framework element includes declarative and procedural learning— "knowing that" and "knowing how" components, which need to be brought into a virtuous balance.[9] Regarding "knowing how," many exercises can be easily introduced as brief classroom activities to give a taste, in just a few minutes, of the many available tools to cultivate resilience. These include breathing exercises, like those included in the series of "Quick Ways to Manage your Stress" short videos by the APA;[10] gratitude diaries and practices (Johnston 2019, 125); brief reflections;[11] and expressive writing (Johnston 2019).[12] A succinct overview of these and related activities is available via the Action for Happiness monthly calendar, whose Jump Back Up July features 31 actions to cultivate resilience (https://actionforhappiness.org/calendar).[13] The first five days of this calendar read:

> 1. Take a small step to help overcome a problem or worry; 2. Adopt a growth mindset. Change "I can't" into "I can't yet"; 3. Be willing to ask for help when you need it. 4. Find something to look forward to today. 5. Get the basics right: eat well, exercise and go to bed on time.[14]

Those interested in finding ways to become more resilient as students can be directed to concepts such as academic buoyancy (Reid and Botteril 2013; Smith 2020)—with its focus on attitudes and critical skills like developing positive views of one's abilities, improving the capacity to make realistic plans, fostering an internal locus of control, and enhancing communication and emotional management skills. Likewise, students can also be directed to research on how adopting a growth mindset (as per the Action for Happiness calendar) makes a difference in terms of student performance—for it matters whether we operate in a spirit of "learned helplessness" or "learned optimism" (Johnston 2019, 148).

Declarative elements ("knowing that") provide both a factual horizon as well as sources of reflection on the process of "learning how."[15] Like with any other skill, when it comes to mind training, we can get better with practice. And yet, even brief interventions can have meaningful impacts (Davidson 2023; Goyer et al. 2017; Okonofua, Paunesku, and Walton 2016; Walton and Cohen 2011). Here, students could be invited to explore the growing body of scientific literature supporting the connection between mind training and resilience, the emergence of which can be illustrated through the example of one of its branches, the neuroscience of meditation.[16] As two leading researchers in this field tell us: "The past decade has seen an extraordinary broadening of our understanding of the neuroscience underlying meditation; hundreds of clinical studies have highlighted its health benefits. Mindfulness is no longer a fringe activity but a mainstream health practice. . ." (Sacchet and Brewer 2024, 72).

Equally relevant here is the research on mind training that has developed as part of, and in tandem with, broader movements—like what Layard and Ward (2020) call the "world happiness movement"—from which numerous research and policy initiatives have emerged.[17] This includes the creation of academic journals (like *Mindfulness*), yearly reports (e.g. the World Happiness Report), and research centres devoted to the study of mental health and flourishing, such as the University of Wisconsin's Center for Healthy Minds (https://centerhealthyminds.org/); the University of California Berkeley's Greater Good Science Center (https://greatergood.berkeley.edu); the Meditation Research Program at Harvard Medical School and Massachusetts General Hospital; and the Mindfulness Center at Brown University's School of Public Health.[18] Furthermore, by now, experts have translated this body of knowledge into a variety of helpful tools and programmes, including self-help books (Hanson 2018; Johnstone 2019); mobile apps (such as the HealthyMinds Program app,[19] or Headspace); and programmes such as Pathway to Happiness (https://ggia.berkeley.edu/onboarding/start), 10 Days of Happiness (https://10daysofhappiness.org/), Chris Johnstone's online course Personal Resilience in an Hour, or the Penn Resilience Program (PRP) and PERMA™ Workshops.[20] All these resources take us back full circle to "learning how."

Nevertheless, a risk exists that people may approach these tools from an individualist, me-first perspective—or from standpoints that attempt to make individuals responsible for systemic problems (González Serrano 2022; Kinchin 2019). In the face of these risks, advocates of mind training stress the importance of approaching them with an ethical mindset of benevolence, altruism, and compassion for others (Layard and Ward 2020). Indeed, a key idea within contemplative education is to recognise that mental balance rests upon a matrix composed of, inter alia, "connative balance"; "our ability to discern which desires and intentions truly lead to our own and others' well-being"; and ethical balance (Center For Contemplative Research n.d.).[21] Likewise, instructors can alert students of the need to distinguish between questions that pertain to individual agency and those best addressed at a systemic level (Mann 2021). This takes us to the next aspect of this framework, which deals with questions related to political frameworks and social design.

Considering socio-political frameworks and systemic questions

Mindful of the neoliberal exploitation of resilience and the misplaced emphasis on individual responsibility as a solution to systemic problems (Donoghue and Edmiston 2020; Tronto 2013), our framework recommends including core content and reading materials on the importance of social structure, history, power, and politics in shaping individual and collective agency (Cretney 2014; Dagdeviren, Donoghue, and Promberger 2016; Estêvão, Calado, and Capucha 2017; Macy and Johnstone 2012; Ungar 2018). One aim here is to encourage reflection on how uncritical reliance on individual forms of resilience can be problematic in some contexts and framings and, indeed, become a "no-solution solution" (Mann 2021, 173 and ff.)—a distraction from the collective search to bring about systemic transformation in order to combat challenges such as climate change. To illustrate this point during the module's second iteration, we asked students to consider a Tweet in 2022 by Amy Laura Hill (@ProfligateGrace): "Dear Everyone, Please resist being "resilient." Please instead organize for a labor union." What does this Tweet imply?

Key here is the recognition that resilience, as many other concepts, can be imbued with different meanings depending on the ethical, sociological, and political frameworks we place it in (Tronto 2013, 24). In the early twenty-first century, resilience has often been framed in neoliberal terms (Dagdeviren, Donoghue, and Promberger 2016; Donoghue and Edmiston 2020; Hickman 2018), leading to ". . . an emphasis being placed on individuals at the expense of social structure and wider social forces . . ." (Garrett 2016, 1911).[22] However, resilience can be understood differently. For example, it can be approached in ways that foreground social justice, sustainability, and the search for hope amidst the climate crisis (Macy and Johnston 2022; Wise 2021/2022); as a

tool in the search for agroecological alternatives to industrial agriculture (Bracamontes Nájera and Benítez Keinrad 2021); or as potentially helpful in the search for post-capitalist futures (Cretney and Bond 2014).

Numerous resources could be used to illustrate the importance of political and economic frameworks, from Stoic philosophy to mental health. As Wilson (2023) reminds us in connection with Epictetus, Stoicism's plea against the slavery of passions in the ancient world was not meant to question slavery as a social system. This can be a good starting place to discuss questions about mind training under capitalism—or about organisational structures that may be conducive to burnout (Tiayon 2024). Or, as the video "Don't Tell me to Just Breath" (2022) points out, the search for individual well-being in a broken system can only take us so far.[23] For the cultivation of mental health can, and perhaps needs to, go hand in hand with the collective search for more humane and sustainable futures, as opposed to individually adapting to business as usual. This perspective shift could lead to discussions around the importance of collective action (e.g. via social movements and trade unions) for advancing social change (Groos 2024b) and to the literature on community organising (e.g., Alinsky 1971).

Keeping in mind the multiple meanings that resilience can take, our framework points attention to how mind training overlaps with policy and political questions, and also with "dominant societal values and hegemonic discourses" (Cretney 2014, 628). Here, students could be invited to explore and reflect on initiatives like the Inner Development Goals (IDGs), which are premised on the view that, if the UN Sustainable Development Goals (SDGs) are to become a reality, we also need to develop skills like empathy, compassion, and perseverance (https://innerdevelopmentgoals.org/). Likewise, students could also be invited to pay heed to literature that critically examines how the type of practices mentioned in the previous section is "culturally patterned," such that, for example, "cultural values profoundly influence the effects of mindfulness" (Cook and Cassaniti 2022, 2–3; Cook 2021; Cook 2023).[24]

Pointing at socio-political flexibility and design thinking
Just as resilience gains different colourings depending on the political framework where it is placed, so too different social arrangements change the conditions of possibility of developing resilience. During our course, we pointed students towards epidemiological research documenting the rise of mental health problems in many Western contexts over the last decades and the finding that more unequal societies suffer more mental health issues (Wilkinson and Pickett 2019). Or that educational resilience—understood as pupils' ability to "exceed expectations based on family socio-economic circumstances" in connection with academic achievement—has been shown to vary as a function of social inequality, with more equal societies performing better than their more unequal counterparts (Wilkinson and Pickett 2019, 166). These findings raise questions of social justice and social design and could easily be linked with reflections about how resilience principles (Ungar 2018) may be linked with the search for new types of politics and polities (Bacha 2024).

Highlighting systemic factors and their bearing on mental health is not a call to reject the promises of mind training, such as in the form of cultivating calm and grit (Hanson 2018; Johnston 2019). Rather, it is an invitation to distinguish between questions about inner development and questions of system change and social design. What our framework stresses is that, just as individuals can learn to become more psychologically flexible, the same goes for societies, which can always be organised otherwise—in ways that foster or undermine human well-being, as critical social thought tells us (e.g. Chatzidakis et al. 2020; Lynch 2022).

Accordingly, the next element of our framework concerns the question of social design and what we term societal and political flexibility. Students could be reminded that social change for the better is feasible and can happen relatively quickly (Marmot 2015). Witness, for example, the adoption of anti-smoking policies in many countries (Carroll 2024), which succeeded despite the

tobacco industry's vested interests and well-documented disinformation campaigns (Oreskes 2019, 66). Or consider that, as David Graeber and David Wengrow (2021) have argued, human societies have a very long history of experimenting with different forms of social organisation, some of which seem to have intentionally aimed to steer away from steep hierarchies of power— the kind of hierarchical structures giving rise to kings, armies, and bureaucracies. Against this historical backdrop, students could be reminded of the urgent need we face in the twenty-first century to reimagine and redesign large areas of society and our way of relating to nature in the face of our multiple planetary crises (Escobar 2018).

Here, students could be pointed towards existing frameworks, such as degrowth (Hickel 2020; Schmelzer et al. 2022) or Doughnut Economics (Raworth 2022), which offer us viable routes towards social worlds where everyone's basic needs (as outlined by, for example, the sustainable development goals), can be met while respecting planetary boundaries. In dialogue with some of these visions, we could invite students to engage with how resilience thinkers have theorised system transformation (Folke 2016), and to consider how resilience appears under a very different light in different types of economic arrangements.[25] Students could also be invited to consider whether resilience can become a key component of a sustainable world (Ražaitytė, Haegman, and SRC Communications 2023) and, indeed, how this term may have a "radical potential" when aligned with the search for post-capitalist futures (Cretney and Bond 2014).

At the same time, students could reflect on the extent to which societal conditions limit the language of individual resilience, or even render it inadequate. As Ryff (2023, 283) suggests: "A critical need is to recognize that many traumas now experienced— job loss, financial strain, eviction and hunger— may not constitute opportunities for personal growth, as positive psychologists would have us believe [. . .]. Instead, they may make life unlivable."[26] Indeed, there may be some contexts where the language of resilience may be inappropriate (Hickman 2018)— situations, for example, where it is "wrong to demand 'resilience' from oppressed people" (Shwaikh 2024)—or potentially distracting. For, as Michael Mann argues in connection with climate change, "There is no amount of resilience or adaptation that will be adequate if we fail to get off fossil fuels" (Mann 2021, 177), which is not to say that building climate resilience is not necessary or that resilience thinking has no place in efforts to find constructive solutions to our multiple planetary crises.

Pointing at socio-ecological resilience

Discussions around resilience in the context of climate change can lead to themes like climate resilience, e.g., urban climate resilience (Bahadur and Tanner 2014), and to conversations about socio-ecological resilience and resilience in nature (Folke 2016). In turn, these reflections can be a prompt for examining the connections between nature, society, and psychology, and the ways in which resilience plays out at these different levels (White et al. 2023), e.g. in the form of bio-psycho-socio-ecological resilience.[27]

Rewilding initiatives could offer a helpful array of examples in this regard, which could be approached through podcasts such as *Rewilding the World* (e.g., Goldsmith 2024). Using the example of rewilding initiatives (Carroll and Noss 2021; Svenning 2020), e.g., in urban areas (Lehmann 2021), students could be invited to consider the nexus between nature restoration, mental well-being, and social resilience (Castaño-Rosa, Pelsmakers, and Järventausta 2024)—and the extent to which this could give rise to virtuous circles, in line with frameworks like "nature-based biopsychosocial resilience theory (NBRT)" (White et al. 2023, 3). Further pedagogical resources in this regard could include walking activities, e.g., going for a walk in a green space, forest bathing (Wen et al. 2019), or brief eco-mindfulness exercises. To return to the theme of mind training, one could direct students to programmes specifically aimed at creating links between "inner" and "outer" transformation, such as the Inner Green Deal's Mindfulness-Based Sustainable Transformation (MBST) programme (https://innergreendeal.com/). Beyond this, students could

discuss the role of resilience in bridging the nature/society divide (Davidson-Hunt and Berkes 2003); the place of resilience in nature; the ways in which the unity of nature and society is disrupted by social forces such as capitalism (Foster, Clark, and York 2011), thus undermining human society's resilience; or how the adoption of ideas and ways of thinking inspired by the Gaia hypothesis, e.g. circular economies, could make for more resilient societies (Lenton 2024; Lenton and Latour 2018).

THE PEDAGOGICAL APPROACH: ENCOURAGING FREEDOM AND COMMUNITY

The pedagogical approach taken during our "Building Resilience" module was one of situated learning via on-campus activities, seminar discussions, and reflective writing as a means to enhance students' agency and critical reflexivity.[28] We framed teaching as an invitation, both to explore and critically interrogate the value and limits of the notion of resilience and to get a taste of the many tools available to cultivate resilience ("learning how"). In terms of topics, the "learning about" section on resilience covered an introduction to systemic shocks and the role of resilience, psychological flexibility, group cohesion, systems recovery, critical approaches to resilience within social policy, and connected social justice issues.

We also built flexibility into the assessment method and strategy, which included two components: a learning portfolio and a group essay. The portfolio was based on the seminar work. The essay required students to conduct a case study of a systemic shock related to one of the UN Suitability Development Goals. For the portfolio, all students chose from several activities on offer, which included: taking a photo that captured "resilience"; drawing a map of a space which they felt related to resilience on the campus; writing a gratitude diary throughout the term; participating in a guided visit to the university's Centre for Experimental Archaeology and Material Culture; watching a YouTube video about future self-visualisation; completing a short online resilience training developed by the U.K. National Health Service (NHS); doing a short daily hassles/uplifts task; a group challenge. For each of these tasks, they had to write a brief reflection (one to two paragraphs)—for example, about the connection between these activities and the notion of resilience, or how they acted in these situations. The portfolio was thus an exercise in reflective writing based on activities that gave all students the chance to meet and interact with their peers. The tasks and seminars provided students with the space to experience activities which invited them to explore ideas and practices of resilience, which in turn required them to consider how their choices and decisions were structured by factors outside of their control (i.e. completing module deadlines, young children/caring duties, near full-time jobs, housing crisis, long commutes).

Supporting reflection

Reflection was considered core, not only for its role within the topic of resilience but also because of our concern that students might misinterpret the module as advocating resilience as a panacea for all psychological and social ills. Accordingly, we actively encouraged students to be critical of resilience interventions by including critical material within the core content and the portfolio's tasks. For reflective writing, we used Jenny Moon's (1999; 2004) work to guide students through the portfolio as a reflective writing task —in the second iteration of the module, students also received a guest lecture on reflective writing courtesy of the university's writing centre.

From the outset, the module used students' experiences in order to reflect about how, when embraced uncritically, resilience is a risky goal. A system, institution, building, or person scoring as highly resilient may be adapting and achieving positive functioning. However, this begs the question: positive functioning according to which criteria? And who has (vested) interests in such criteria? Resilience, in a nutshell, for whom and for what purpose (Cretney 2014)? For example, during class, students considered the case of an employee whose work presentation is

met with irrelevant, harsh criticism by senior staff— an example used in class from an online HR resilience training video. The video's solution was that the resilience response was for the employee to mitigate the situation by up-skilling and reflecting. However, as our students pointed out, the issue is one of employment rights and workplace culture, for which the junior employee is hardly responsible.

Using the built environment as a playing ground

Our face-to-face seminar work allowed us to play with these skills while critically engaging with the university campus in a way that invited student socialisation. As a result of the COVID pandemic, the module sought to harness outdoor space as much as possible, while also requiring students to work together to overcome isolation and build community. Accordingly, we used the university campus as a playground where students could explore ideas about the course. For example, as part of one activity, students had to undertake a mapping of space on the university campus. Accordingly, they were directed to find a location they felt connected to resilience, with the aim of prompting reflection on the interface between resilience and disciplines such as geography, architecture, and urban planning. Part of the in-class time was used to show them a video of Fuji Kindergarten in Japan, designed by architect Takaharu Tezuka to be round, with a roof where the children can run, play, and fall into trees (Tezuka 2015). The aim of the video was to invite students to consider how the built environment can shape social interaction and foster a sense of resilience. There was broad flexibility regarding how the students carried out "mapping"; they were allowed to take photos, draw, or use online material.

Using the built environment as a teaching resource enables students to face questions of design, for example through the politics of space and architecture. It also allows them to experiment with the possibilities of thinking while walking. For instance, during 30-minute breaks (Kell 2024), walking exercises can be used to invite students to experience the natural environment surrounding them—and to encourage them to examine the interplay between nature, the built-environment, and resilience. Such activities could be a springboard for engaging with theory, e.g., nature-based biopsychosocial resilience theory (NBRT) (White et al. 2023); or for exploring resilience and hope in connection with the climate crisis (Atkinson and Ray 2024; Wise 2021/2022, 26–27). In passing, we note that such on-campus activities acquire more salience in a context marked by the rise of artificial intelligence tools. Indeed, "the more granular and local the teaching or assignment topic, especially on-campus focused topics/activities, the less likely that there will be online material that ChatGPT could harvest" (Dr. Treasa De Loughry, personal communication, 10 April 2024).

Co-creating communities of learning

The module's activities required students to work together in small groups regularly. This aspect of the module design aimed to encourage a spirit of community and partnership that could offer a constructive alternative to neoliberal versions of individualism, while also facilitating the cultivation of togetherness after the period of enforced isolation brought about by the pandemic. Using the built-environment as a teaching tool enabled students to select their groups and spend unmonitored time with each other outside their classroom. They were given a loose reason for their interaction so that the groups had a shared purpose. Second, it enabled discussion of resilience from their own experience and setting, prioritising their standpoint as the starting point of the module. Finally, it meant that each student created their own teaching materials and learning experiences, which we could draw their attention to later in the module. This co-created a space where students could approach and interrogate the idea of resilience in a safe and considered way while also implicitly cultivating their sociological imaginations.

Embracing interdisciplinarity

Last but not least, our pedagogical approach embraced interdisciplinarity. During the course, we examined resilience through perspectives stemming from different disciplines, from psychology to sociology, and from social policy to archaeology and design. As resilience spans multiple fields, this cross-disciplinary perspective was essential, and interdisciplinary teaching is often seen as valuable in preparing students to address real-world problems (Lyall et al. 2015; Pharo et al. 2014). However, implementing interdisciplinary work presents significant challenges, including resource and time constraints, traditional departmental and disciplinary structures, and the limited availability of evidence-based pedagogical approaches (Corbacho et al. 2021; Jacob 2015; Lindvig, Lyall, and Meagher 2019; Pharo et al. 2012).

Our pedagogical approach aimed to address these challenges by encouraging participation through activities like group challenges (Corbacho et al. 2021), the creation of communities of practice (Pharo et al. 2012), and the inclusion of problem-based learning as suggested by Lyall et al. (2015). This strategy aligns with the findings from Tijsma et al. (2023) and Stentoft (2017), which reported positive student learning outcomes when employing community service and problem-based learning. Additionally, reflection activities provided students with opportunities to examine their own experiences working across disciplines, an approach supported by research demonstrating how reflection enhances engagement with interdisciplinary learning (Noy et al. 2017; Wallin et al. 2017).

Finally, we recommend fostering a more integrated approach to learning by making room for informal connections between staff and students from different disciplinary backgrounds, an approach which can help break down disciplinary silos. Strategies like extended introductions and dedicated time for socialising can facilitate personal relationships within interdisciplinary teams, relationships whose value has been underscored as essential for managing disciplinary disagreements and debates (McDonald et al. 2019; Perignat et al. 2023). Taking this into account, future work could focus on expanding the framework and pedagogical approach to explicitly address staff dynamics and collegiality, as emphasised by Perignat et al. (2023).

Figure 2. The Pedagogical Approach
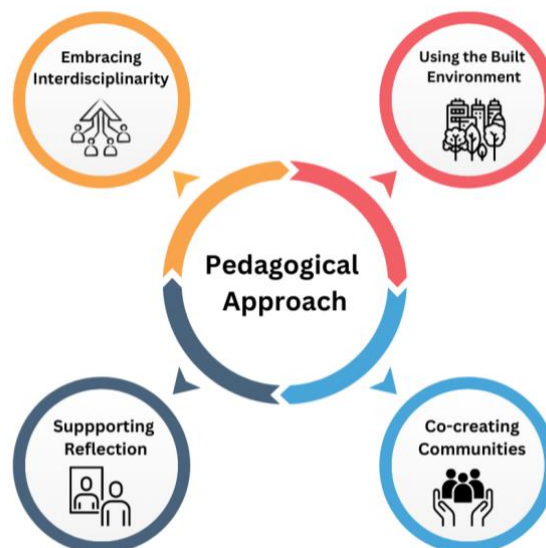
Credit: Rubén Flores, Ingrid Holme, and Liam Fogarty 2024

CONCLUSION

This article has offered a framework for teaching resilience amidst multiple planetary crises and a pedagogical approach to facilitate that learning process. We suggest that students can benefit from exploring the growing field of mind training while also developing an understanding of system change via relevant social and political theories and practical knowledge of structure and agency, so that they can select skills from the resilience toolbox that work for them. To the extent that resilience teaching in higher education has tended to separate mental well-being from questions of institutional and system change,[29] bringing these two dimensions together may represent a step forward in this field.

Combining elements of "learning how" and "learning about," the framework presented here invites students to appreciate the way resilience operates across multiple dimensions, such that we can speak of bio-psycho-social (White et al. 2023) and socio-ecological forms of resilience. At the same time, the framework encourages building bridges across disciplines and domains, as Ungar (2018) recommends, and promotes the possibility of creating virtuous cycles between these different dimensions. For the world, after all, is one, as philosophers would tell us (Haas 2020). At the same time, the framework acknowledges the importance of power and politics when configuring resilience (Cretney 2014). Thus, "resilience for whom?" (Cretney 2014), and from which perspective? (Ungar 2018)? What criteria and political frameworks do we rely on to speak of desirable or undesirable outcomes? In encouraging students to ask these questions, our framework aims to inoculate them against some of the more problematic aspects of the concept of resilience—while also showing its potential to contribute to individual well-being and regenerative economies and societies (Hickel 2020; Raworth 2022).

In turn, our pedagogical approach suggests ways of enriching students' learning journeys through the use of reflection, engagement with the built environment, design thinking, the co-creation of communities of learning, the combination of procedural learning, and the celebration of interdisciplinarity as sensemaking pathways. As mentioned above, in providing highly contextual and granular assignments, some of these approaches to teaching can be helpful in learning environments impacted by the rise of artificial intelligence.

Although this framework and pedagogical approach are interrelated, each can be used on their own amidst "the inherent, and healthy, messiness of the teaching enterprise" (Kinchin 2019, 177). Together or separately, we hope that they will provide food for thought to instructors and students seeking to navigate questions of resilience within higher education institutions. Beyond this, the basic principles underlying the framework and teaching approach could also be applied to teaching and learning activities related to other notions, such as care, compassion, or mindfulness. Undoubtedly, both framework and approach could be further improved, and many of their aspects would require further exploration. For example, the interplay between procedural and declarative knowledge (Saks, Ilves, and Noppel 2021) could be further researched—e.g., with a view of better integrating contemplative practices, design thinking, and community organising. Future work could also develop more comprehensive frameworks supporting interdisciplinary collaboration among students and staff to build salutogenic universities (Kirchin 2019).

As Ungar writes, "If there is any consensus in the field of resilience, it is that the potential of the construct has yet to be fully realized . . ." (Ungar 2018, 12). Tapping into this potential in the classroom may enable universities to rise to the many challenges facing humanity.[30]

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NOTES

1. Following our university's terminology, by "module" we mean, to quote one of our anonymous reviewers, "a full-term, credit-bearing, formally recorded (i.e., university course transcript) course of study." Accordingly, we use the terms "module" and "course" interchangeably.
2. In an interview, Andreas Malm observes that the left has historically tended to be skeptical of the idea of adaptation, which perhaps explains why, in our experience, many colleagues find the idea of resilience irritating. However, as Malm argues, given the state of the climate crisis, it seems unavoidable that communities around the world will have to deploy something like adaptation and resilience. Which is not to say that efforts to decarbonize our economies should not continue with a sense of urgency (Groos 2024a; see also Cretney 2014, 632).
3. On the themes of unity and implication, and their philosophical importance, see the work of philosopher Andrew Haas (2018; 2020).
4. Cretney (2014, 631) alerts readers to the fact that, in popular discourse, the view of resilience as "bouncing back" has overshadowed other accounts, such as the idea of resilience as adaptation.
5. "It is important to note that healthy adaptations to stress depends not only on the individual, but also on available resources through family, friends, and a variety of organizations, and on the characteristics of specific cultures and religions, communities, societies, and governments —all of which, in themselves, may be more or less resilient [. . .]" (Southwick and Charney 2012, 7).
6. This table could be helpful as a starting point for discussing different dimensions of resilience. The same goes for Cretney's table "definition of resilience" (Cretney 2014, 629).
7. And, if we can learn, it is because we are flexible beings, as the ideas of neuroplasticity and epigenetic plasticity demonstrate (Davidson 2022; Goleman and Davidson 2022). Students could also be directed to the literature on sports resilience, which may help illustrate this point (e.g., Bryan, O'Shea, and MacIntyre 2017; Gupta and McCarthy 2022; Sarkar and Fletcher 2014).
8. A close analogy compares learning mind training with first aid: "While physical first aid is widely taught, psychological first aid has not been, at least until recently." (Johnstone 2019, 102). Yet another compares psychological well-being with nutrition guidelines: "If five fruit and vegetables a day are good for your physical health, what five things each day are good for your mental health?", as the British government once asked (Layard and Ward 2022, 88).

9. Declarative knowledge ("knowing that") "describes things, events, and processes, and their relation to each other." (Saks, Ilves, and Noppel 2021, 2) In contrast, "Procedural knowledge (also called practical knowledge or knowing-how) involves an individual's skill and ability to accomplish an activity using certain strategies" (ibid; see also Davidson 2022).

10. We thank Clodagh Flinn from the UCD Resilience & Health Lab for drawing our attention to this resource.

11. For example: "Reflection: Think back to a time when you jumped to an instant negative conclusion about someone or something that happened (keep it to a small example)? What were your in-the-moment thoughts about why it happened? How did that cause you to feel, and what did you do as a result? What might have been an alternative, less negative, interpretation at that time? How would that have led you feel and act?" (https://actionforhappiness.org/10-keys/resilience).

12. Further tools include, for example, the Resilience Kit: Persistence Growth produced by the company Holstee in association with the Greater Good Science Center at the University of California Berkeley.

13. One could compare this list with the one offered by Davidson (2021): awareness, connection, self-knowledge, and purpose.

14. Since the benefits of exercise are widely accepted, we do not dwell on this point, which of course, should not be overlooked either.

15. Our framework recognises that there are tensions between "learning how" and "learning about," but takes these tensions as productive sites of learning and reflection.

16. This involves offering a window into a number of overlapping research streams that, in recent decades, have sought to foreground the conditions conducive to well-being, as well as the possibilities of intentionally cultivating mental health (Davidson 2019; Goleman and Davidson 2018; Layard and Ward 2020; Ricard 2015). These streams include contributions from positive psychology, cognitive science, medicine, and neuroscience, and are commonly referred to with terms such as the science of well-being and happiness (Layard 2005; Layard and Ward 2020; Ricard 2015), the science of resilience (Southwick and Charney 2012), the science of meditation (Goleman and Davidson 2018), and the psychology of mind training (Layard and Ward 2020, 4–5).

17. See, for example, the initiatives such as Action for Happiness, with its 10 keys for happier living, one of which is resilience (https://actionforhappiness.org/).

18. For more examples of other practices, see Johnston (2019, 110). As Johnston (2019, 109) suggests, one could communicate to students that, rather than "use the same technique every time, it can be helpful to have a 'playlist' of a few you're working on, or already have confidence in."

19. In early 2024, a study was underway at the Center for Healthy Minds to evaluate the use of the HealthyMinds program app using a randomized controlled trial (https://centerhealthyminds.org/science/studies/evaluating-the-healthy-minds-program-application-in-a-fully-remote-randomized-controlled-trial).

20. "The Penn Resilience Program (PRP) and PERMA™ Workshops are evidence-based training programs that have been demonstrated to build resilience, well-being, and optimism" (https://ppc.sas.upenn.edu/services/penn-resilience-training). Chris Johnstone's online course Personal Resilience in an Hour can be accessed here: https://collegeofwellbeing.com/personal-resilience-in-an-hour/. But these are far from being the only programmes available. For example, "Shawn Achor developed a workplace wellbeing training programme in which he invited people to engage in a three-week challenge, where each day they did at least one short wellbeing activity, one of these being to give mindful attention to their breathing for just two minutes. Four months later a

survey of those who'd taken part showed they had a significant increase in their inner life satisfaction" (Johnstone 2019, 114). At UCD, our colleague David Delaney is developing an original "resilience toolkit based on the conscious activation of the parasympathetic nervous system combined with targeted breathing exercises" (Delaney, personal communication, 5 December 2024).

21. A definition of contemplative education reads as follows: "Contemplative education is a journey of self-discovery in which learners cultivate optimal mental health and authentic well-being based on developing conative, ethical, cognitive, and attentional balance and a consequent capacity for emotional regulation and spiritual equilibrium in daily life." (https://centerforcontemplativeresearch.org/education/what-is-contemplative-education/; see also Miller 2015). We note in passing that the search for mental balance goes beyond the arguably excessive emphasis on abstract reasoning that marked educational practice in the second half of the 20th century (Lynch 2022, 211).

22. A similar critique has been made concerning the notion of "emotional intelligence" (e.g., Emre 2021).

23. The charity Swarm Dynamics and the Centre for the Understanding of Sustainable Prosperity created this video (https://www.youtube.com/watch?v=R4IFM2iZgbk).

24. As Cook and Cassaniti (2022, 2) write: "Assumptions about the nature of time, the structure of emotion, the workings of power, the patterning of ethical conduct and even the very idea of what a person is, all underlie mindfulness' expression."

25. For example, students could be invited to consider the following statement: "Today's economy is divisive and degenerative by default. Tomorrow's economy must be distributive and regenerative by design" (Raworth 2022, 156).

26. In this connection, food could offer a window to reflect on the interplay between economic arrangements, social justice, and resilience (Kingston, MacCartney, and Miller 2024). As Kingston and colleagues note (2024, 75): "The Food Research and Action Center (FRAC) offers [. . .] online resources for a "Food Stamp Challenge" at the community level (Food Research and Action Center), while Oxfam provides materials for planning a "hunger banquet" to raise awareness of global hunger (Oxfam America)."

27. Socio-ecological resilience can be understood as "the interplay of factors involved in recovering from disturbances, re-organisation and the development of socio-ecological system" (Cretney 2014, 629).

28. This decision was taken, in part, as a result of seeing that school leavers were daunted by their first experience of large-scale classes, and many second-year students had never been to the university campus due to the COVID pandemic. Thus, a conscious choice was made to ensure the learning load was as light as possible while addressing the learning objectives.

29. Price (2023) identifies a trend where articles on resilience programs in higher education do not address institutional, let alone systemic questions. Price (2023, 95) writes: "By treating current institutional challenges that affect HE student wellbeing as beyond the agency of teachers or students, an opportunity is lost to familiarise students with the rigours of enacting socio-technical change."

30. See in this respect the Human Education in the 3rd Millennium Global Declaration 2024, https://humaneducation.net/declaration.

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