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EDITED BY
Alison Julia Katherine Green,
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REVIEWED BY
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Ruhr University Bochum, Germany
Laura Horn,
Roskilde University, Denmark

*CORRESPONDENCE
Calum McGeown
✉ cmcgeown16@qub.ac.uk

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Agents of (un)sustainability: democratising universities for the planetary crisis

Calum McGeown* and John Barry

Centre for Sustainability, Equality and Climate Action (SECA), School of History, Anthropology, Philosophy and Politics (HAPP), Queen's University Belfast, Belfast, Northern Ireland

As producers and gatekeepers of knowledge, and as providers of education and training, our universities play a key role in the reproduction of unsustainability. This article finds that they are, as currently organised, therefore complicit in frustrating and delaying action to address the planetary crisis. However, as highly resourced and influential institutions, they have an inherently transformative potential, should their resources and activities be redirected towards progressive social and ecological ends, which challenge rather than support the unsustainable status quo. This means that, as workers within these institutions, academics and researchers are faced with a choice: to be agents of this reproduction or to be advocates and activists for change. We argue for the latter. In doing so, we seek to build on the analysis and demands of emergent movements such as Fossil Free Research, Faculty for a Future and Scientist Rebellion in making the case for universities to show leadership on listening to the very science they produce on the planetary emergency, and act accordingly. Employing a green political economy critical analysis, the article suggests that, if they are to contribute to societal transformation, universities themselves must undergo transformations that explicitly and systematically reorient academic practices around social and ecological protection and priorities. Building on these findings, it lays out a series of normative and practical arguments for a broad programme of democratisation around three pillars of academic practise: (1) Research, (2) Education and (3) Outreach and engagement. However, any such processes will of course be difficult, especially given the wider neoliberal political and political economy context within which universities operate, as well as a conservative institutional culture which disincentivises dissent from "business as usual". In the discussion that follows, we therefore anticipate and argue that advancing such transformative and innovative changes will initially involve individuals or small groups of academics willing to go beyond "academia as usual".

KEYWORDS

neoliberal university, green political economy, climate action, planetary crisis, academic activism, democratisation, climate activism, post-growth

1. Introduction

As key public and social institutions, universities play a major role in shaping society. Whether it is through preparing students for life beyond education, conducting and disseminating research, informing the development of policy and industrial strategies, engaging with the media and so on, they are widely (if not universally) viewed as trustworthy sources of information and expertise. Given that position of authority, as well as the

resources and expertise available to them, universities have a crucial leadership role to play in shaping responses to and acting on the climate and ecological emergency. However, rather than breaking pathways into a sustainable and just future, this article finds that, as they are currently constituted, universities are complicit in reproducing unsustainability and inequality in ways that undermine and frustrate concerted and effective action on the planetary crisis. It is on this basis that we argue that universities themselves must first or simultaneously undergo radical transformations if they are to step up to this challenge.

Taking a green political economy perspective, we propose that to realise and maximise their potential as "agents of sustainability", universities must be subjected to pervasive processes of democratisation to unsettle the status quo ways in which they operate, including the ecocidal imperatives and interests of neoliberal capitalism to which they have become overwhelmingly captive. To this end, we identify three areas of high impact where this democratisation could and should take place as: (1) *Research*, (2) *Education* and (3) *Outreach and engagement*. However, we also recognise the difficulties associated with any such transformations, where the conservative institutional culture of universities and their constitutive links to the wider economic bias of neoliberal society and the state, means they actively disincentivise practises which do not align with or actively support those imperatives and interests (Barry, 2011). This is especially the case in the UK, where universities are increasingly run as businesses, elevating the values and processes of profit maximisation, economic efficiency, accumulation and growth over ethical and even educational standards, in ways that reduce students to "consumers" and academics to interchangeable workers requiring strict (if often subtle) disciplinary measures and incentive structures to keep them in line. Despite these constraints (or because of them), we find that, rather than wait for top-down reforms from university management or state regulation which may come too late (if ever), such transformations will most likely only be possible if more academics and students become willing to follow the leadership shown by groups such as Scientist Rebellion, Faculty for a Future and End Fossil, to organise and engage in radical and disruptive activism.

2. Green political economy

In applying the normative cornerstones of green political theory to economic relations, a green political economy (GPE) perspective focuses on the realisation of biophysical sustainability, intersectional equality and democratisation as the interrelated foundations of a just and sustainable system of production and consumption (Barry, 2016). Upholding these principles as a critical framework of analysis problematises the current neoliberal capitalist mode of production (including knowledge production) on each of these fronts. It highlights, challenges and advocates struggle against the varied processes of social and ecological exploitation treated in neoclassical economics as the necessary or acceptable consequences of capitalist system-maintenance and growth (Barry, 2012, 2016; Paterson and P-Laberge, 2018), wherein even "[t]he nicest capitalist still has to exploit labour and promote ecocidal consumerism to survive" (Wall, 2005, p. 174). Central to this is a critique of unlimited growth in Gross Domestic Product (GDP) as a permanent fixture and structural imperative of the capitalist economy. Building on the "limits to growth" thesis developed by Meadows et al. (1972), this is the scientifically informed understanding that not only is the systematic extraction of finite natural resources required to sustain the ever-greater levels of production and consumption needed to fuel that growth a biophysical impossibility in the longer-term, but that doing so is already degrading the ecological integrity of the planetary systems on which all life on earth depends (Daly and Farley, 2010; Barry, 2012, 2015, 2016; Daly, 2014; Dobson, 2014, 2016; Jackson, 2017, 2021; Hickel, 2020). Beside this, however, these points of GPE critique also include, but are not limited to, the emission of climate-destabilising levels of greenhouse gases from overproduction in the fossil economy; the commodification of essential goods and services (e.g., housing, transport, energy, food, water and healthcare), which forces individuals into formal employment to earn the wages needed to purchase them; and unsustainable levels of individualised consumption, which in turn create huge inequalities in material wealth and wellbeing. Informed by its normative commitments, a critical GPE perspective should therefore lead us to interrogate the role that key institutions (such as universities) play in mainstreaming and reproducing norms, values and practises that prioritise and normalise—to the point of becoming the dominant "commonsense" or just "the way the world is"—those ecocidal and exploitative processes, and the growth-based system of private wealth accumulation they sustain and support.

As a macro-political concern, this "commonsense" normalisation is most apparent in the way neoliberal fiscal policy is predominantly shaped around the logic that maximising economic growth in a capitalist "free market" economy is necessary for generating public funds, collected through taxation, from the privatised profits that growth generates. This supports, and is in turn supported by, the dominant neoclassical economics perspective that private enterprises and entrepreneurs are, when driven by competition in the market and incentivised by the ability to make profits and accumulate private wealth, "naturally" and axiomatically assumed to be more innovative and efficient than not-for-profit public entities (i.e., the state) in producing the goods and services that society needs and wants. Taken together, these have been instrumental in creating the political legitimacy for neoliberalism's systematic deregulation of the market, to encourage profiteering as the principal driver of growth and a perceived social "good" (Barry, 2012), and then advancing it as a project of structural reform. In many ways, it therefore represents the socialisation of the ideal, put forth by Friedrich Hayek in his proclamation on the virtues of free market capitalism, that "the general licence of politicians to grant special benefits to those whose support they need still must destroy that self-forming order of the market *which serves the general good*" (Hayek, 1979, p. 151, emphasis added). Critically, this ideology of non-intervention has had significant implications for the higher education sector, which has simultaneously experienced systematic cuts in public funding from a neoliberal state in retreat whilst being held to its "entrepreneurial" standards of profitability, growth and "economic impact" as the markers of success (Barry, 2011).

However, market deregulation was only part of a wider programme of neoliberalisation that increased private ownership of and consolidated control over the economy, including through its financialisation (e.g., of assets such as housing and the increase of financial products as a share of economic activity, such as loans and insurance products) and direct state transfers of public goods and services to private interests (e.g., including railways and the Royal Mail postal service in the UK). These reforms might be variously read as a purely economic project driven by Hayekian fetishisation of the free market or as a political project concerned to dismantle class compromises made under the post-war settlement and expansion of the welfare state, to reimpose and re-empower the dominant classes. Either way, they sought to further expand and incentivise privatised profiteering and wealth accumulation and generate high levels of orthodox measured (i.e., undifferentiated) GDP economic growth in the economy. Higher education has not been spared this fate either, which Schulze-Cleven et al. (2017, p. 800) note as having become increasingly dominated by financial mechanisms for generating income and shaping spending strategies since the late 1970s, including "universities' borrowing and investment based on endowments, student loans and interest payments, and profits from commercial higher education."

Despite the "commonsense" perception of exponential economic growth as intrinsically good for social prosperity and development, this is however shaped by an ideological perspective (a very successful one) rather than the empirical analysis of an objective "truth" (Barry, 2020a). Nonetheless, under neoliberal political economy arrangements—where governments' spending on projects and policies not left solely to the whims and wants of "the market" (including on climate action) is in large part determined by the total amount of taxable revenue available from economic activity (i.e., GDP)—economic growth has become neoliberalism's "only one true and fundamental social policy" (Foucault, 2008, p. 144). As such, it might be said that capitalist society has been overwhelmingly captured by the "tyranny of growth", whereby all other social, economic and environmental concerns are subordinated to growth in ways that place stringent limits on the "what is possible" imaginaries of alternative social, environmental, political and economic futures (Barry, 2019, 2020b; McIlroy et al., 2022). For instance, under this capitalist imperative, climate action is constrained by the fact that any climate policy should not or cannot undermine continued economic growth as a perceived fundamental social "good"; hence the dominance of "green growth" and "ecological modernisation" strategies and ideas within mainstream state and business thinking and acting on climate policy (Barry, 2021). In this regard, it is not mere coincidence that powerful (over)developed states in the neoliberal Global North have proved incapable of tackling the planetary emergency but is instead principally due to the playing out of this contradictory attachment to unsustainable and exploitative indefinite economic expansion. Neither is it surprising that universities and the academy in general—as institutions that exist at the interface of civil society, the state and the economy, and which therefore play a key role in the reproduction of dominant ideology in neoliberal capitalist society—have been captured and restructured by this tyrannical and *ecocidal* ideology of growth.

3. Academia and the ideology of growth

Climate breakdown is predominantly framed in mainstream policy and political discourse, informed by academic scholarship, as a technical problem requiring technological solutions that enable (if not accelerate) further exponential ("green") growth, rather than as the inevitable consequence of an inherently unsustainable economic system. This was enshrined in the 2015 Paris Agreement (widely perceived as the biggest success of international climate negotiations to date), which states that, "Accelerating, encouraging and enabling innovation is critical for an effective, long-term global response to climate change and promoting economic growth" (UNFCCC, 2015, p. 15). More than a mere sentiment, however, the priority given to growth over urgent and radical decarbonisation was written into the agreement's proposed pathway for limiting global heating to $<2^{\circ}$C, which was predicated on the deployment of Negative Emissions Technologies (NETs)—tasked with removing previously emitted greenhouse gases from the atmosphere—that are both undeveloped and unproven (EASAC, 2018). This is not an isolated example. In fact, Keary (2016, p. 8) observed this trend across influential past modelling of climate scenarios from the Intergovernmental Panel on Climate Change (IPCC) as well, where "so much of the necessary emissions reduction is achieved painlessly through technological developments that what remains to be done can be accomplished without major changes in patterns of production and consumption." Moreover, as Garcia Freites and Jones (2021, p. 4) find regarding the prominence (and promise) of Carbon Capture and Storage (CCS) technologies in many climate scenarios, strategies and mitigation targets, which are supposed to "fix" carbon at the point of production to avoid it being emitted in the first place, "the current trend of CCS deployment worldwide has yet to reach the pace of development necessary for these scenarios to be realised".

Not only is the prevalence of this "techno-optimism" a concern from a perspective on society's actual material ability to decarbonise the (capitalist) economy as it currently is (Barry, 2017; Alexander and Rutherford, 2019; Marquardt and Nasiritousi, 2022; Ribeiro and Soromenho-Marques, 2022), but it also feeds into the ecocidal "ideology of growth" through the implication that a "robust" economy with "strong" growth is needed to incentivise entrepreneurs to innovate, develop and produce these "saviour" technologies, so that economic "business as usual" may continue unabated and unharmed. Underpinning this is the supposition that capitalism—as an economic system that encourages innovation as a matter of necessity for enterprises to remain competitive and maintain or increase their share of the market—will deliver the solutions to the planetary crisis through the very mechanisms of growth that caused it. For instance, while the International Energy Agency's strategic vision for *Net Zero by 2050* admits the "widespread use of technologies that are not on the market yet" (IEA, 2021, p. 15), their inclusion is justified so long as "major innovation" takes place throughout the current decade "in order to bring these new technologies to market in time" (IEA, 2021, p. 15). Meanwhile, the academy colludes in all this by both supporting this extremely risky strategy and not calling it out for the "mythic thinking" that it is.

Crucially, then, in the current absence of any feasible technological means through which capitalist economic growth can be decoupled from carbon emissions and the use of finite natural resources in absolute terms, the untrammelled pursuit of growth will remain the principal driver of climate breakdown and ecological collapse (Hickel and Kallis, 2019; Parrique et al., 2019). This is especially the case given the short timeframe remaining for taking necessarily radical actions that transcend the economic status quo. The IPCC articulated this in no uncertain terms, stating that, "Any further delay in concerted anticipatory global action on adaptation and mitigation will miss a brief and rapidly closing window of opportunity to secure a liveable and sustainable future for all" (IPCC, 2022, p. 33). However, while technology can undoubtedly play a central role both in mitigating climate breakdown in the immediate term and in a sustainable future generally (not least in the development, production and deployment of the renewable energy infrastructure needed to satisfy essential energy needs, such as spatial heating, cooking, electrified public transport, etc.), this demands transcending the unfounded and risky optimism that there is a technological solution to the planetary crisis to be found that leaves its political and political-economic causes unquestioned, uncontested and untouched. It means that, from a GPE perspective, planetary sustainability (and the social and ecological justice it implies) is inseparable from a post-growth (and post-capitalist) imperative that seeks to restructure politics and the political economy around norms, values and practises that prioritise climate stability, ecological integrity and social equality over economic growth, rather than subordinate them to it (Jackson, 2017, 2021; Raworth, 2017; Barry, 2019).

Considering this, we therefore need to ask why is there considerably less scholarship and support for scholarship that moves beyond "green growth" and "techno-optimism" to propose structural and systemic socio-economic transformations as opposed to modest and system-maintaining reforms and transitions? Given the scale of the challenge, failing to even ask these questions, never mind fund and platform the research and researchers to provide answers to them, amounts to little more than a dereliction of duty on existential issues of universal concern. Moreover, where those transformations imply nothing short of a fundamental restructuring of social, material-economic and socio-ecological relations, appealing to any sense of justice means ensuring that common interests (not least that of a safe and liveable future for all) are elevated over and above the privatised accumulation of wealth.

Installing this capability means that social and economic decisions regarding both short and longer-term trajectories should be democratised as much as possible, and that such democratising solutions must include popular ownership, control and scrutiny in and of the processes and institutions that shape those decisions. Given the authoritative position that academics occupy in public and political spheres, and the influence that university research, education and public engagement activities have over social outcomes, the institutions of academia cannot be overlooked with respect to these imperatives. However, such democratisation is not only generally unwelcomed and unavailable but structurally and actively disabled under the neoliberal status quo, and certainly of marginal interest at best within our universities. This is because, under the ideologically driven processes of neoliberalisation outlined above, which have been overwhelmingly successful in vigorously implementing social, economic and environmental conditions favourable to accumulation and unsustainable consumption under the guise of growth-based material "prosperity", common social, economic and environmental goods or assets have been largely placed either directly into private ownership and control or otherwise subjected to the same competitive capitalist logic of maximising productivity, efficiency, innovation, accumulation and growth. These include our universities, as well as our schools, factories, energy infrastructure, offices, homes, trains and buses, arable land, forests, lakes and so on.

All this amounts to intensive systemic and systematic processes of de-democratisation, where increasing levels of private ownership and control in the economy creates powerful monopolies and oligopolies, and where the more general subjugation of social and environmental assets to the capitalist economic growth imperative marginalises all other concerns and objectives. Again, and as will be explored in more detail below, higher education has not been spared in this respect. This is apparent in the degree to which headline reports on university performance are overwhelmingly equated with "economic impact". For example, a 2022 report commissioned by Queen's University Belfast (where both co-authors are currently based) boasted of its competitive performance in these terms:

> Compared to Queen's University Belfast's total operational costs of approximately £373 million in 2020–21, the total impact of Queen's University Belfast's activities on the UK economy was estimated at £3.041 billion, which corresponds to a benefit to cost ratio of 8.2:1. This compares to an average benefit-to-cost ratio among Russell Group institutions of approximately 5.5:1 and corresponds to a 12% increase in Queen's University Belfast's impact of since 2015–16 (on a comparable basis, in real terms).
>
> Cannings et al. (2022), p. iii

What these headline figures *do not* show is that this economic impact is predicated, in part at least, on the systematic exploitation of staff and the planet. It does not speak to the fact that academic staff at Queen's have throughout this period been engaged in industrial dispute, alongside many other University and College Union (UCU) members based at other UK institutions, over low pay and poor working conditions, including unsustainable workloads and the proliferate use of precarious contracts. Moreover, despite making assurances to disinvest financial resources from the fossil fuel industry following a successful student-led campaign in 2017 (BBC, 2017), the university is yet to do so. And although its economic performance might be the envy of other institutions, a comparative report by the student campaigns group People & Planet ranked Queen's at 94 out of 150 UK universities on sustainability criteria (People and Planet, 2022).

4. Democratisation as transformation

A full critique of the limitations of the institutions of liberal democracy in addressing these political economy issues is beyond

the scope of this article. However, it is nevertheless essential to make the point that, from a GPE perspective on power in society as inherently linked to the ownership and control of the means of production (i.e., who determines how and to what ends those means are used), the democratisation of social and environmental assets must be structural in focus. That generally means redistributing the material and institutional means of production in radically democratic ways that empower workers, citizens and consumers, and not simply voting for the party or candidate that advocates more socially or environmentally "friendly" management of the economy and the institutions that shape it. It means seeking to dismantle the imbalances of power over society, the more-than-human world and our collective future on an (un)liveable planet which emerge and are reproduced through capitalist ownership and the private consolidation of control of those assets.

This might be broadly conceived as an eco-socialist project, which at an institutional or organisational level implies that all stakeholders, including workers and the wider communities they impact or are sited in, should have more direct control of (or at very least voice and influence over) the ways in which their resources and capabilities are distributed, and in the pursuit of what values and ends they are utilised. This could mean the systemic proliferation of worker and democratic cooperative models of ownership, for example. However, for larger public institutions like universities, as well as local authorities, healthcare trusts, housing associations, etc., processes of democratisation may be more wide-ranging. As "anchor" institutions with key stakes and influence in (and beyond) a locality, which boast "significant levels of spend and numbers of jobs" and which are "extremely unlikely to leave [that place] due to market forces" (Jackson and McInroy, 2015, p. 5), the potentialities of their democratisation spreads across the many activities they engage in, resources they control (including supply chains) and partnerships they establish. Importantly, their social and material influence means that whatever imperatives those institutions are subjected to may make substantial contributions to the wider socialisation and reproduction of norms, values, practises and outputs.

Critically, where those imperatives are of a neoliberal capitalist character, those institutions can (and do) play a fundamental role in reproducing *unsustainability* and *multiple inequalities*, rather than their opposites (as per the example of Queen's University Belfast given above). But this does not need to be the case. Transforming them to reorient their influence, resources and capabilities to the more democratic pursuit and (re)production of sustainability could instead place them at the centre of the struggle for a liveable future for all. This is especially true of universities, given their role as fundamental public (i.e., social, economic and political) institutions that play a significant part in shaping society through research and knowledge production (and the authoritative status that comes with it), as well as through education and training; employment; public engagement; policy development; technological, cultural and intellectual innovation and development; procurement; investment; and control of material assets, including buildings and land. Given the extent to which they have become captured by an operational logic that prioritises "economic impact" (i.e., growth and profit-making) at an institutional/managerial level, as well as the various norms and practises associated with unsustainability that exist across research, education and public outreach and engagement activities, this means that if universities (and the academics, students and support staff that populate them) are to be activated as "agents of sustainability" capable of making interventions in the unsustainable status quo, then they must also undergo processes of radical transformation.

5. "Agents of unsustainability"

As knowledge producers and sites of education, universities have always played an integral role in the reproduction of class society, acting as an ideological apparatus for dominant or orthodox ideas and ideals, through "a condensation of practises and rituals that has to do with social reproduction" (Sotiris, 2012, p. 118). This they have done in different ways, for example from their early constitution in England as sites for socialising elites and preparing them for "high positions in the church, the law and government" (Rustin, 2016, p. 149) to the more expansive and inclusive reform of higher education and the relative "democratisation" of universities from the 1960s as part of the "post-war "welfare" or "class" settlements, in which an idea of enhanced opportunities and shared entitlements became part of the dominant ideology of common sense of the age" (Rustin, 2016, p. 150), thus "allowing access to social fractions which had hitherto been excluded" (Rustin, 2016, p. 151). As Rustin notes, however, "as the overall post war settlement began to unravel, the "democratic educatory" conception of education began to be marginalised, as the neoliberal regime imposed radical changes" (Rustin, 2016, p. 153). This backslide to inequality and the reimposition of dominant class interests through the marketisation of university education (where admission is predicated more on ability to pay than academic ability) has not been universal. Countries with more enduring social democratic political and political economy formations, such as Germany and Sweden, have more closely maintained the ideal of access to university education as a basic right (Rustin, 2016; Cattaneo et al., 2020). However, as Cattaneo et al. note, "Around the world, public undergraduate higher education is still provided free to "home" students in only a handful of countries, such as Argentina, Austria, Denmark, Finland, Norway, Qatar and the United Arab Emirates" (Cattaneo et al., 2020, p. 12).

It is perhaps unsurprising that the Anglo-American progenitors of neoliberalism's individualised, competitive entrepreneurial and "small state" free market thinking, typified by Margaret Thatcher's infamous "there is no alternative" to capitalism, have led the way in the marketisation and commodification of higher education. The stage was set in Britain by cuts to public spending implemented by Thatcher's Conservative government in 1981, after which "the pattern was to squeeze more out of universities for less, reducing costs and increasing productivity" (Vernon, 2018, p. 272). This allowed successive governments to readjust caps on fees through an upwards trajectory, so that a year's study at undergraduate level currently costs up to £9,250 in English institutions for UK citizens (and considerably more for international students). It consequently led to the evolution of what some have called "academic capitalism" (Barry, 2011; Jessop, 2018; Münch, 2020),

where universities have been forced into competition with each other to maximise income through the marketisation of education (which treats degree programmes as commodities delivered by academic "service providers" to student "customers"), as well as commercialisation of research and "the general trend in research funding which allocates fewer resources to fundamental research in favour of supporting and boosting research which has an industrial or economic application" (Barry, 2011, p. 17).

Ultimately, the ongoing and systemic pressure to secure funding and minimise costs means that universities are increasingly run as businesses rather than foundational social institutions that value and conduct research and education as fundamental goods in their own right. As such, the neoliberal university acts as a privatised body despite its status as a public institution (Cornelius-Bell and Bell, 2020). Moreover, though this hyper-marketised neoliberal model of higher education has not been universally implemented, it nevertheless sets a dangerous precedent. This incorporates immediate concerns over the accessibility of university education to all but should also alert us to the possibility of more systematic privatisation within the sector. That is, it should be of concern that it is not one's academic ability, but one's ability to pay, that determines who goes to university. Indeed, by excluding individuals who cannot afford to attend university, and therefore excluding potentially critical working-class perspectives which are otherwise underrepresented, academia functions as an active site for the reproduction of dominant class interests. This should be of particular concern in the context of the planetary emergency, given the increasing prevalence of research agendas around socio-technical solutions and debates on "just transition" which will have enduring impacts on future social relations. Crucially, then, in considering their role in the context of the planetary emergency, the extent to which universities have been, and are increasingly becoming, (re)constituted according to the productivity- and profit-maximising operational logic and ideological "commonsense" of neoliberal capitalism means that they act as *barriers* to sustainability, climate action and a just transition beyond carbon in significant ways (McGeown and Taylor, 2022; McGeown et al., 2022). Transcending these barriers therefore depends on identifying these processes of neoliberalisation and challenging them.

This is where GPE is instructive as a critical perspective. For instance, in recognising neoliberal capitalism's economic growth imperative as the principal driver of the planetary crisis, we might identify the various (if not definitive) ways in which universities promote or otherwise conform to this "commonsense" (but to our minds ecocidal) imperative as actively reproducing unsustainability, and therefore frustrating efforts to take radical actions that are necessarily disruptive to the political and political-economic status quo. This manifests in a range of ways, including the uncritical teaching of neoclassical economics centred on the pursuit of growth as an "objective" fundamental good, the uncritical promotion of "entrepreneurship" within degree programmes, and the disproportionate levels of resources allocated to research projects which offer the potential of lucrative partnerships with private industry (or which otherwise raise the university's "economic impact" profile and status) in the development of scientific research or technologies to be applied, with little-to-no public oversight or accountability, to advancing capitalist economic "development". It can take the form of more direct support for ecocidal interests, through institutional investment portfolios that fund fossil energy and other extractive industries on the basis of generating profitable financial returns or through careers departments that funnel graduate talent into employment in highly paid jobs in those industries. Moreover, throughout their period of study, students are encouraged to adopt individualist entrepreneurial mindsets and approaches to interpersonal competition by building their personal "brand" to "sell" to potential employers.

Meanwhile, methods of management have been imported from the private sector as part of the constant competitive pursuit of maximum productivity and profitability (Sotiris, 2012), whether through the exploitation of academic workers overburdened with unmanageable workloads or the drive to increase overall student numbers and internationalise universities as a means of attracting high fee-paying students from abroad. Importing this CEO mindset from the world of business—of the need for "managerial excellence" and the practise of financial incentivisation to attract "managerial talent" to senior positions—has similarly plagued universities with gross disparities in pay. For instance, while Vice-chancellors in English universities earned on average £269,000 in 2019/20 (Office for Students, 2021) the University and College Union (UCU) has, as noted above, been engaged in a nationwide industrial dispute resulting in strike action over real term pay cuts for academic staff, as well as over the gutting of pensions and the proliferation of precarious contracts in the sector.

All of this (and much more besides) has the effect of reproducing unsustainability and inaction on the planetary crisis in both direct and indirect ways. Though less apparent than the direct provisioning of interests actively engaged in ecocidal activities such as producing fossil energy, whether with financial investment, technological development or the supply of human resources, the indirect reproduction of unsustainability is no less pervasive or problematic. After all, while it could not be reasonably argued that universities teach materials or actively promote research that determinably undermines the sustainability agenda—indeed, it is from university departments that much of the science on the planetary emergency is developed, taught and communicated—they are nonetheless complicit in reproducing the very neoliberal "commonsense" that fetishises economic growth and valorises competitive individualism to the ultimate detriment of environmental concerns, which in turn reproduces economic entrepreneurialism as a celebrated characteristic of capitalist social relations. For instance, students compete for places in distinguished institutions and degree programmes that will make them more competitive in the graduate jobs market; academics compete for limited research funds, compete (and oftentimes pay) to publish "innovative" research in eminent journals and present at reputable conferences to build their personal "academic profile" in the pursuit of vanishingly few full-time or tenure-track positions. This may seem incidental from a perspective on planetary sustainability. However, breaking with the material seductions of neoliberalism (including its financial incentives), as well as the neoliberalisation of universities and academia in general, is, in the context of addressing issues of systemic unsustainability and inequality as

matters of *emancipation*, a necessary process "that speaks to the urgent need to struggle with and for aggrieved, oppressed, and exploited communities" (Osuna, 2017, p. 24) (not least with regards to the planetary crisis) and which "challenges the petit bourgeois intellectual and scholar to disinvest from their social positions" (Osuna, 2017, p. 24).

This speaks to the need to push back against the professionalisation of academic research in particular, which is especially important from a sustainability perspective on the need for much more critical research and heterodox thinking around the many and intersecting challenges faced by society, as opposed to prioritising research on the basis that it has lucrative commercial potential or will otherwise help attract funding from private sector partners. The same goes for education: universities that fail to prepare students for the realities of the planetary crisis, as well as the inevitable disruption to the economic status quo (whether by design or not), are simply failing to prepare them for the world within which they will live. As the trade union slogan goes, there will be "no jobs on a dead planet". Certainly, there will be no jobs in a fossil fuel industry once halting the production of carbon-based energy ultimately becomes an inescapable reality in a climate-changed world.

This failure might be perceived in terms of the general neglect of a duty of responsibility for universities to disinvest from an unsustainable future and give students, staff and wider society the tools and knowledge for imagining and planning for more sustainable futures; the implications of which would be significant and widespread if they were to establish a normative and practical commitment to that duty. This could include changing the very way in which degree programmes are constructed, around processes of co-creation with students on the issues they care about, as well as a greater interdisciplinary focus that engages them with a wide range of issues and ideas, rather than the dominant siloed and top-down approaches that leave little room for critical reflection and exposure to alternative or challenging perspectives. For example, exposing STEM students to Humanities disciplines could better equip them for considering the social, political and cultural impacts or implications of the phenomena they study, and vice versa.

Moreover, with respect to their extensive influence on society and its shape and trajectory, which goes far beyond the individuals they educate and employ, we argue that extending this "duty of responsibility" to wider communities (up to a global level) would likewise have significant implications for how universities are constituted and managed, as well as for the various research, education and outreach and engagement activities they engage in. This means asking how, as public institutions, do universities (best) serve their publics? If in their current form they are complicit in the reproduction of unsustainability in various ways, and so undermine any sense of obligation to the long-term interests of their students, staff and the wider community by continuing to operate as such, what then are the transformations they must undergo to be active reproducers and facilitators of sustainability instead? If universities are at the forefront of the production of knowledge on the planetary crisis, we argue they cannot legitimately expect to continue engaging in and profiting from practises, norms and activities that undermine efforts to tackle it.

6. Horizons of transformation

What this analysis suggests is that to realise and then maximise the potential role that universities, academics and students could play as "agents of sustainability" in the context of the planetary crisis is not simply a case of changing syllabuses or conducting the "right" research (necessary as these are). Instead, they must themselves first or simultaneously undergo radical transformations to break the hegemonic hold that the ecocidal imperatives of neoliberal capitalism and its socioeconomic "commonsense" and encompassing "ideology of growth" have over them. They must be reconstituted, repurposed and redirected to provide space and support for agitators and disruptors and not only the reproducers of the status quo. Ultimately, this will necessitate fundamental changes to reorient the norms they subscribe to, practises they engage in and imperatives they pursue, towards a radically different vision of the university and its duty of responsibility to current and future societies.

As was implied above, and as we argue below, the nature of these transformations must be such that they accommodate democratically determined common interests, to ensure that universities answer to the needs of students, staff and the wider communities they are sited in and (nominally) serve, rather than to "the capitalist economy" and the relative minority within it that enjoy the benefits of ownership, control and wealth accumulation. With respect to the planetary crisis and the radical action it demands, this must in the first instance mean listening to and being guided by the very scientific knowledge they themselves produce. In the following subsections, we identify three horizons of struggle where these democratic transformations can and should take place. These we perceive as broadly aligning to universities' means of production, incorporating (1) *Research*, (2) *Education* and (3) *Outreach and engagement*.

Before moving on, however, it must be noted that as valid (and indeed necessary) as these struggles are from a GPE perspective, such processes of democratisation will be neither straightforward nor easily won. Given their subjection to decades of neoliberal policy (as well as the institutionalisation of its "commonsense" operational logic and "ideology of growth") and given their conservative institutional culture generally (including the professionalised pro-status quo incentive structure academics face in terms of research funding, status and progression and promotion), fierce resistance to such transformations of universities can be expected—and should therefore be anticipated. Indeed, institutional and sectoral resistance to the comparatively meagre demands being made by the UCU in its ongoing fight for higher pay, better working conditions and the restoration of pensions in UK universities can be taken as indicative of the scale of the challenge this represents. This is not to mention inevitable external pressures from vested interests, whether from politicians, economic elites or the establishment media, for example. However, as with the broader struggle for transformative action on the planetary crisis, the scale of the challenge does not negate its necessity.

Like the current state of radical climate activism, we therefore anticipate that any movement mobilised around these struggles will initially be populated by individuals or small groups of academics

and students willing to counter the structural incentives and institutional cultures of universities (and wider society) in seeking such transformative and innovative changes (even where it may undermine their own status or progression within them). In fact, this is already happening, with the increased mobilisation of groups such as Scientist Rebellion, Faculty for a Future and the student-led End Fossil—as well as the emergence of a critical body of academic work such as this Research Topic represents—leading the way in contesting, reimagining and attempting to reshape the role and responsibility that universities, academics and students should take in the planetary crisis.

These mobilisations provide a crucial foundation to build on. However, in looking forward, we argue that a GPE perspective on the changes required can help these movements organise around a more comprehensive (if radical) strategy and set of aspirations that could have transformative consequences both within and beyond academia. It is worth noting that radicalism is certainly not alien to or without precedent on university campuses, which were key sites of radical (if not revolutionary) movement building and activism during, for example, the US Antiwar movement and civil rights struggle of the 1960s and 70s (Fendrich, 2003). Moreover, in much the same way that universities might be said to have a "duty of responsibility" to society, we argue that to build on these existing movements means acknowledging academics as having a similar duty (especially those in more senior and secure positions)—as knowledge workers within those institutions who are closest to and active within their means of production—to engage in or otherwise proactively support these disruptive struggles. We perceive taking this labour-centric perspective on (activating) the potential for collective agency and action within the academic workforce as a different, but related and complimentary, dynamic and imperative of academic activism on the planetary crisis to what others identify as the authoritative benefits of "both a trusted position within society and a platform for sharing their views, both of which can be seen to confer even greater responsibility to act in accordance with their knowledge" (Gardner et al., 2021, p. 2).

6.1. Research

As the principal means of discovery, elucidation, interpretation, synthesis or innovation through which knowledge is produced, research is fundamental to academia and its authoritative role in contributing to the shaping of social norms, values, trajectories and practises. It therefore matters a great deal what and how research is designed, funded and conducted (or not). And while not all universities engage in research activities equally (some institutions are much more "research intensive" than others), it is nonetheless fundamental to "academic capitalism" and the neoliberalisation of universities in the value(s) ascribed to it. For instance, given that potential private funders or industry interest groups with the deepest pockets may also have a vested interest in maintaining the political-economic status quo they have benefitted from in generating that wealth in the first place, forging partnerships with researchers, research institutes and universities represents a significant opportunity to influence what kind of research is conducted, if not shape its findings, recommendations or societal implications. In turn, accessing new or maintaining existing sources of private funding will be attractive to universities concerned to maximise their income and "economic impact". But when the source of funding is public, we find "system maintaining" rather than disruptive research as prioritised and incentivised (as a brief examining of UKRI calls and funded research illustrates in terms of the sheer amount of funding for research that supports "economic growth" and allied outcomes such as "green growth", "local growth", "sustainable growth" and "levelling up").

Where this indeed influences what research is conducted, its effect is to de-democratise research, which may be chosen according to commercial viability for funders and/or financial value for universities and researchers, rather than on intellectual merit and wider "public interest" considerations. As an issue of concern for academia generally, and academic or student activism specifically, this itself has recent historical precedent in how the tobacco industry manipulated research to protect its interests in the face of mounting criticism from a public health perspective. In an analysis of this manipulation, Bero (2005) identified a series of strategies that were used by the tobacco industry, as including funding and publishing research that supported its position and interests, suppressing and criticising research that did not and disseminating favourable data or interpretations to the lay press and policy makers. Thacker (2022) has identified parallels in how the fossil fuel industry has sought to protect its interests, including financing elite American universities and funding CCS research in particular as a system-maintaining technological "fix" to the problem of emissions from burning fossil resources.

A movement has already begun to take shape around these concerns as they relate to the climate crisis specifically. Fossil Free Research, which emerged as a campaigning coalition in the United States "including student and academic activists from Harvard, George Washington, Cambridge, Oxford, Brown Universities, and more" (Fossil Free Research, n.d.a) has been coordinating efforts "to dismantle Big Oil's toxic influence on the research process across institutions and borders" (Fossil Free Research, n.d.a) by exerting public pressure on "all U.K. and U.S. universities to institute a ban on accepting fossil fuel industry funding for climate change, environmental, and energy policy research" (Fossil Free Research, n.d.b). There have already been successes, with Princeton committing in September 2022 to rejecting "gifts and grants from 90 companies involved in the coal and tar sands sectors of the fossil fuel industry, including current research funders ExxonMobil, Syncrude, and Total E&P" along with a wider commitment to disinvest $1.7 billion from fossil fuels (Gilchrist and Kaufman, 2022). This represents an important win and milestone for the Fossil Free Research movement, given that Princeton had received $26 million in research funding from fossil fuel companies in the previous 5 years (Gilchrist and Kaufman, 2022).

This manipulation should be recognised as part of a wider strategy in which fossil capital has fought to ensure its hegemony in the global economy and energy sector, by downplaying the severity of climate breakdown while shifting responsibility for emissions onto individual consumers and away from the industry that has a financial stake in sustaining the carbon energy system (Supran and Oreskes, 2021). However, as outright climate denial

becomes less persuasive, with increasing sequences of extreme weather events around the world being linked more authoritatively to climate breakdown (Clarke et al., 2022), Sekera and Goodwin (2021) find that the industry is changing tack by instead presenting itself as the source of solutions. This it can do through research partnerships; for instance, by funding CCS research, the fossil fuel industry is shaping a techno-optimistic narrative that not only leaves the political-economic status quo unchallenged (i.e., if indefinite fossil fuelled economic growth can be made possible with CCS technologies, then Big Oil and Gas can maintain its monopolistic grip over the energy means of production) but also gives the appearance that fossil capitalists are invested in a low-carbon future, by literally investing in the (as yet unproven at scale) technologies that will "save" us (Sekera and Goodwin, 2021; Thacker, 2022)—or rather "save" the capitalist status quo.

Removing the ability of companies, lobby organisations or individuals with vested interests in sustaining ecocidal industries (e.g., whether in the production of fossil fuels or other extractive practises that despoil natural environments and degrade their ecological integrity, such as industrial mining) to influence research activities in universities should be an obvious first step to (re)democratising research. However, it should not or cannot be the last. It is one thing to exclude powerful vested interests from processes that help shape our collective social, political, economic, technological and planetary futures, but another to welcome and integrate those that have been historically excluded from them. We argue that this is important not only to counter the role that (fossil) capital has played in de-democratising research (especially under the neoliberalisation of higher education) but also because of the inevitable disruption that climate breakdown and responses and adaptations to it will cause across society, as new notions of the "good life" that break with the "commonsense" individualised and growth-based consumerism of neoliberal capitalism become necessary. If universities are to play any role in a "just transformation" beyond the ecocidal "ideology of growth" and the carbon energy it depends on, they must therefore be prepared to shape research imperatives and methodologies around the needs of the communities and individuals who are, or stand to be, most impacted by it. This is what the campaign organisation Faculty for a Future frame as the need for "co-developing disruptive solutions" between academics, affected community representatives and practitioners (Faculty for a Future, n.d.).

As Bell and Pahl put it, forging co-productive relationships with affected communities is a way of "bringing air into the closed system" of academia in ways that "empower "communities" to collectively construct new lifeworlds" (Bell and Pahl, 2018, p. 108). It is on this basis that co-produced research "understands that useful and critical knowledge is dispersed throughout society and seeks to activate, expand and apply this knowledge" (Bell and Pahl, 2018, p 107) to effect transformation at different scales and in various places, where its "methods can empower co-producers to shape the world in which they live" (Bell and Pahl, 2018, p. 107). This is especially important from an emancipatory perspective on the need to respond to the planetary crisis in ways that promote, generate and secure greater levels of equality. However, as Bell and Pahl caution, neoliberalism has through the marketisation of universities and commodification of academic knowledge already opened their closed systems in ways that undermine the radical and democratising potentialities of co-production. In other words, it matters to whom, what and around what interests and aims those systems are opened. As discussed above, giving powerful vested interests a foothold in academia only serves to further de-democratise it. As a truly democratising force, it must instead be opened to voices, identities and interests that have been otherwise marginalised (e.g., because the knowledge they hold or value is from a research perspective of little "economic impact").

In this sense, democratising research must therefore also mean rethinking the role and responsibility of the researcher: What research is being designed, why and by whom? In whose interest is it being conducted? What need does it address, if any? Who will or might the research process or findings impact? Centring these questions as research directives, and not simply as ethics form checkboxes when direct engagement of research subjects or participants is proposed, could reshape the research process and landscape generally. After all, determining those needs and interests as part of a "duty of responsibility" implies much greater, if not systemic, involvement of non-academic communities, for example in "participatory" and "action research" methodologies that seek to instate "purpose" over "professionalism" or "commercialism" in research. As Osuna notes, "Interventions from radical scholarship that identify the root causes and structural conditions of exploitation and oppression and that prioritise the interests of aggrieved communities are vital, and will occur only if scholars and intellectuals are in conversation with these communities" (Osuna, 2017, p. 22).

In relation to research, academics have much to learn from other workers' democratic experiences and experiments, such as the 1976 "Lucas Plan"; a trade union initiative in the UK located within the Lucas Aerospace firm that asked and empowered workers to explore how the existing means of production could be repurposed and designed to create "socially useful" products. In January 1976, workers published their Alternative Corporate Plan for the future of the company, in response to announcements that thousands of jobs were to be cut in the face of restructuring, globalisation and technological change. Instead of redundancy, the workers argued their right to socially useful production (Smith, 2014). As a result of this initiative, the Lucas Trades Union Combine proposed approximately 150 products, including "proposals for the development of heat pumps, solar cell technology, wind turbines and fuel cell technology". As such, the Lucas Plan stands as an unprecedented and inspiring intervention in the politics of climate change and a "just transition" to a green and sustainable future (Ridley, 2018), as well as highlighting the sustainable and life-enhancing possibilities from democratically produced socially useful technological innovation (Cooley, 2017). As Ridley (2018) notes, academics and other workers in higher education have much to learn from the democratic way the Lucas Pan was developed, and how workers can, when given the opportunity and collective support, reimagine workplaces and what and how they produce, not least in engaging with local communities as to the types of knowledge and activities they think the university should be delivering. Such democratic workplace proposals hold much promise in enabling universities to become part of the solution as opposed to part of the problem in reproducing "actually existing

unsustainability" via reorienting themselves towards "socially useful production".

6.2. Education

Unsurprisingly, there are similar concerns with education in universities as a major force for the reproduction of unsustainability, and therefore similar ways through which it might be countered, reshaped and reoriented. From a GPE perspective, this begins with the need to critique the content of modules and degree programmes generally (e.g., do they at least provide opportunities for thinking about the economy and the "good life" in heterodox ways or do they offer no alternative to capitalism?). Besides the examples given above, such as encouraging greater levels of critical thinking and interdisciplinarity across all degree pathways, we argue that engaging students with some form of compulsory *critical* content on the climate and ecological emergency should be considered a bare minimum with respect to universities' responsibility to both prepare students for life after higher education and also expose them to the full range of explanations and knowledge bases in relation to the causes, consequences and solutions to the planetary crisis. This would mean including but going way beyond "carbon literacy" courses for all students.

Again, there are already examples of this that movements for the transformation of universities and academia could build upon. As of the 2024 academic year, all 14,000 undergraduate and postgraduate students at the University of Barcelona will have to take a mandatory module on the climate crisis (Burgen, 2022). Thought to be the first of its kind, this commitment was won as a key demand of the international youth-led group End Fossil, who staged a multi-day occupation at the university (Burgen, 2022). This is significant on two levels. *First*, it demonstrates the potential for change when students organise in radical ways with support from staff members, which should act as a motivating factor for the numerous other End Fossil movement-building efforts and occupations happening on university campuses across Europe (End Fossil, n.d.) as well as inspire other campuses into action. It implies that building this power to determine their education will only come when students reject the passive role assigned to them as "customers" by the neoliberal university and actively mobilise for change. *Second*, much like ending research funding partnerships with the fossil fuel industry, making a commitment to educate all students (regardless of discipline) on the climate crisis represents a progressive step towards sustainability by working to introduce new or alternative ideas and issues, and therefore potentially counteract the reproduction of neoliberal "commonsense" as it relates to the planetary crisis.

However, as with the issue of research funding, these counterhegemonic potentialities can only be realised if accompanied with more structural democratising transformations that actually empower students in determining the education they receive. Indeed, we could reasonably speculate that doing so could be consequential from a sustainability perspective, given that the prevalence of youth activists in the climate movement (such as the many around the world who participated in global school strikes) indicates that current and incoming students care deeply about the climate and ecological crisis (Hymer and Knights, 2022). Yet, while implementing mandatory education on the climate crisis is progressive in the sense that it better reflects its all-encompassing severity, if it is not suitably critical of and divorced from neoliberal "commonsense" perspectives that espouse unfounded techno-optimism or individualise the responsibility of action (i.e., as a matter of consumers choosing "green", "ethical", "eco" or "sustainable" options, rather than transcending the inherently unsustainable capitalist mode of production), then it risks becoming yet another platform for reproducing unsustainability and rendering invisible the substantive and structural underlying issues of political economy and unlimited growth that drive climate-destabilising levels of emissions in the first place.

In this sense, empowering students with some level of agency and control over the education they receive therefore necessitates deconstructing the hierarchy of expertise, which again assigns students a passive role as the "receivers" of expert wisdom (Cornelius-Bell and Bell, 2020). In action, this hierarchy amounts to what Paolo Freire calls the "banking" concept of education, in which "knowledge is a gift bestowed by those who consider themselves knowledgeable upon those whom they consider to know nothing" (Freire, 2017, p. 45). This model for disseminating knowledge not only impedes the development of students' critical capabilities but should also be recognised as contradictory to the cyclical processes of enquiry through which that knowledge is produced, tested, contested and further developed in light of new evidence or insights. Critically, it is in diminishing the capacity for and opportunities to debate, challenge and generally enter dialogue about a subject or issue that certain forms of knowledge can become reified and (re)produced as "objective" truths and "commonsense". Conversely, as Freire notes, realising and maximising the emancipatory potential of education depends on entering critical dialogue *with* the oppressed (Freire, 2017). This has universal application for the many intersections of injustice experienced under capitalism. But it has specific relevance to how students and academics engage with issues relating to the climate and ecological crisis and its implications for younger and future generations' capacities to survive and thrive under conditions that, one way or other, will look very different to those of today.

All this implies subjecting education in universities to the same co-production ideals necessary for mobilising academic research as an emancipatory force for underrepresented, exploited, oppressed or otherwise marginalised communities. It necessitates educators forging co-productive relations with students to build models of education or processes of learning capable of reflecting on and responding to students' interests and the challenges they are faced with, as well as those of the wider community. It would by necessity form the basis of more democratic (and we would add "problem-based" and interdisciplinary) approaches to learning, which at its most foundational requires understanding the contexts from which relevant needs, interests and capabilities emerge. For instance, it would require asking what the challenges are that students face or foresee within (and beyond) the parameters of the issues, problems or subjects they are concerned with, and what expertise is available (or not) within the institution to help them engage with those challenges in comprehensively critical, innovative, creative, ethical and practical ways.

While this all paints a very different role for university educators than is currently the norm, it is important to note that we do not wish to burden them with the full onus of responsibility in this regard, which clearly goes beyond the current contractual obligations of an already overburdened workforce. However, given that institutional resistance to any substantive reform to how education is approached can be expected where it threatens to undermine the efficiency and profitability of the neoliberal "degree factory" model, it follows that disrupting it will again require protagonist *disruptors*. The only way this can be achieved is if both the educator and student parties are invested in such transformations as to mount pressure on their institutions to force change. In this sense, they might forge relations for change that prefigure the kinds of co-productive relations required, for example to identify where those changes in the university must be made and how they could or should be implemented. Building such movements could take any number of forms. It could involve occupations of university buildings to build the profile of the demands being made and attract public pressure to the institution to better serve the needs of students and their communities, such as the End Fossil student groups in Barcelona and elsewhere have been engaged in. It might include students organising to collectively withhold fees in protest that they are not receiving the education they need to equip them to face the challenges of the future (not least those of climate breakdown and ecological collapse). In the prefigurative sense, it could involve collaborating to actively construct new educatory processes, working with sympathetic academics and educators to forge these relations and processes *despite* institutional norms of top-down "service provision". Ultimately, it necessitates building movements for change that incorporate both faculty and student bodies.

6.3. Outreach and engagement

Given the central role that universities play in shaping society through the various academic and education activities they engage in, their real and potential impact on wider non-academic and non-student communities must be considered in any application of a revised "duty of responsibility" as publicly funded institutions, and therefore part of their "public good" mission. As discussed above, this means opening universities to a plurality of public interests, concerns and accountability in a process of democratisation that counters the disproportionate influence that the capitalist economy and its vested "agents of unsustainability" currently enjoy. This in turn means rethinking the role of universities and academics as "outward facing" public rather than only or mainly self-interested professional(ised) institutions and knowledge workers. From a perspective on the planetary emergency, this must begin with engaging the wider public on the severe reality of the climate and ecological crisis and the necessarily disruptive transformations required to tackle it, which will ultimately pervade almost all aspects of life, whether in work, study, relationships, health, wellbeing, material aspirations and so on.

The conservative culture of professionalised academia and the profit-seeking character of the neoliberal university means that fully engaging with these imperatives under the status quo could threaten the profitability and "economic impact" model of success they are overwhelmingly captured by. As an anecdotal example, this might be seen as reflected in the co-authors' current institution's reluctance to follow others in taking the admittedly symbolic step of declaring a climate and ecological emergency (Latter and Capstick, 2021), not to mention the lack of action on it. While there are examples of institutions taking this duty of responsibility more seriously, this is nevertheless representative of a failure that is endemic to the higher education sector. In this respect, where suitable institutional mechanisms are not in place, it again falls to the relatively small number of academics willing to "go beyond" their contractual obligations (or indeed "step out of line") to communicate the realities of the planetary crisis and its social, economic, political and cultural implications. On this, we agree with Racimo et al. (2022, p. 6), that in the context of our planetary emergency, "outreach must go beyond conventional ways of making scientific knowledge available to the public" so that "scientists [and academics] must actively participate in movements that are openly engaging with the emergency, via effective forms of direct action that can garner media attention". By way of example, the academic-activist group Scientist Rebellion has mobilised around just these imperatives. In its open letter, the group states,

> We are scientists and academics who believe we should expose the reality and severity of the climate and ecological emergency by engaging in non-violent civil disobedience. Unless those best placed to understand behave as if this is an emergency, we cannot expect the public to do so. Some believe that appearing "alarmist" is detrimental—but we are terrified by what we see, and believe it is both vital and right to express our fears openly.
>
> Scientist Rebellion (n.d.)

As with the End Fossil student occupation discussed above, and the wider use of civil disobedience by groups such as Extinction Rebellion, Just Stop Oil and Insulate Britain in the broader climate movement, this can be seen as drawing from an understanding of the deliberative communicative function of civil disobedience as a contestatory form of dissent that serves to highlight ongoing injustice (and unsustainability) (Brownlee, 2007; Atilgan, 2020). For Scientist Rebellion activists frustrated by the lack of action on the knowledge of the planetary crisis that they have been instrumental in producing, their actions have thus far included risking arrest by blocking roads during COP26 in Glasgow (Thompson, 2021) and chaining themselves to the doors of fossil fuel funders JP Morgan Chase (Kalmus, 2022). The group have also targeted specific institutions, including universities and the scientific journal Nature, by pasting copies of IPCC reports and climate-related articles to administrative buildings, as well as staging occupations, to highlight their continued inaction on the planetary crisis.

However, in the same way that a Freirean conception of the dialogic aspect of emancipatory pedagogy requires reflexive processes that integrate the knowledge, expertise and concerns of oppressed individuals and communities, we argue that democratising public outreach and engagement means creating spaces for non-hierarchical deliberation as a form of collective

learning. Examples of this include public, free and open lectures and other opportunities for citizens to learn more about the planetary crisis and its solutions, as well as having the opportunity to both ask questions but also ideally co-determine the topics of such extramural learning opportunities. As an example, we offer the 2022–23 "What is to be done?: Responding to Our Multiple Crises" weekly public lecture series within the co-authors' current institution, but note that this is "extra" to the normal duties of the academics and students involved in coordinating and managing it. As yet, there are few examples of such public engagement being part of the "Work Allocation Model" of a member of staff.

7. Conclusion

The examples given here are meant to be indicative rather than definitive. They show that there is already work happening in these areas that can be built upon. Moreover, in doing so we argue for taking a GPE perspective which is capable of connecting these movements and issues in a comprehensive analysis of the role that universities currently play in reproducing unsustainability but also recognising their capabilities for doing the opposite.

Questions that both motivated this paper and to which we hope to have provided some indicative but incomplete answers include the following: If we are in a planetary crisis (as all available scientific evidence suggests), why do we not witness academia and academics acting as if it is a crisis? How do we explain and understand how and why we, as academics and academic institutions, continue with a more or less "business as usual" approach? What would academic work across teaching, research, outreach and engagement look like if our profession was to rise to the challenge and opportunity of addressing the planetary and related socio-economic and socio-ecological crises we face? Is badging university research with one of the 17 Sustainable Development Goals and a university corporate "sustainability plan" the best we can do? Such questions should help answer perhaps the biggest and most complex one that faces not just universities and university workers but all sectors of society: namely, "what it to be done?"

This article has offered some reflections on how academia should transform itself, indeed remake and reimagine itself in the context of the planetary crisis and the intersections of the climate and biodiversity emergency, with growing inequality and injustice within and between societies. However, we view this as a preliminary analysis in an emergent area of study and research requiring much greater and urgent input and development. Due to its encompassing nature, both in terms of the planetary emergency and of the role of academia in its entirety in addressing it, this future work should be interdisciplinary in focus. Indeed, it should be taken as an opportunity to prefigure the kinds of norms and practises required of academia in responding to the planetary crisis. To this end, we offer some further questions that might guide future investigations: What is our responsibility as trusted sources of knowledge production and dissemination? Do concerned and engaged academics have a "theory of change"? Should universities become more activist oriented and more engaged in informing the public about the causes, consequences and solutions to our worsening predicament, as groups like Scientist Rebellion and Faculty for Future suggest? And if so, how? How do we transform academia starting from the difficult assessment that, as currently constituted, universities play a key role in the reproduction of unsustainability?

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

CM and JB contributed equally to the conceptual development, planning, and writing of this article.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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References

Alexander, S., and Rutherford, J. (2019). "A critique of techno-optimism", in Kalfagianni, A., Fuchs, D., and Hayden, A., eds. *Routledge Handbook of Global Sustainability Governance,* (Abingdon: Routledge), p. 152–67. doi: 10.4324/9781315170237-19

Atilgan, H. (2020). Reframing civil disobedience as a communicative action: toward a critical deliberative theory of civil disobedience. *Int. J. Sociol. Social Policy* 40, 169–183. doi: 10.1108/IJSSP-06-2019-0127

Barry, J. (2011). Knowledge as power, knowledge as capital: a political economy critique of modern "academic capitalism". *Irish Rev.* 43, 14–25.

Barry, J. (2012). *The Politics of Actually Existing Unsustainability: Human Flourishing in a Climate-Changed, Carbon Constrained World*. New York: Oxford University Press. doi: 10.1093/acprof:oso/9780199695393.001.0001

Barry, J. (2015). *What's the Story with Unsustainable Economic Growth?: Understanding Economic Growth as Ideology, Myth, Religion and Cultural Meme.* Rachel Carson Centre for Society and Environment.

Barry, J. (2016). "Green political economy: beyond orthodox undifferentiated economic growth as a permanent feature of the economy," in T. Gabrielson, Hall, C., Meyer, J. M., Schlosberg, D., eds *The Oxford Handbook of Environmental Political Theory* (Oxford: Oxford University Press), 304–319. doi: 10.1093/oxfordhb/9780199685271.013.30

Barry, J. (2017). "Bio-fuelling the Hummer? Transdisciplinary Thoughts on Techno-Optimism and Innovation in the Transition from Unsustainability", in Byrne, E., Mullally, G., and Sage, C. eds, *Transdisciplinary Perspectives on Transitions to Sustainability* (Manchester: Routledge), p. 106–124. doi: 10.4324/9781315550206-6

Barry, J. (2019). Green republicanism and a "Just Transition" from the tyranny of economic growth. *Critical Rev. Int. Social Polit. Philosophy* 24, 725–42. doi: 10.1080/13698230.2019.1698134

Barry, J. (2020a). A genealogy of economic growth as ideology and cold war core state imperative. *New Polit. Economy* 25, 18–29. doi: 10.1080/13563467.2018.1526268

Barry, J. (2020b). Green republican political economy: Towards the liberation from economic growth and work as disutility. *Ecol. Citizen* 3, 67–76.

Barry, J. (2021). "A just transition to a sustainable economy: Towards the liberation from economic growth and work as disutility," in Breen, K., and Deranty, J., eds *The Politics and Ethics of Contemporary Work* (London: Routledge), p. 166–82. doi: 10.4324/9780429243394-12

BBC (2017). QUB to disinvest from fossil fuels after student campaign. *BBC News*. Available online at: https://www.bbc.co.uk/news/uk-northern-ireland-39926520 (accessed December 18, 2022).

Bell, D., and Pahl, K. (2018). Co-production: towards a utopian approach. *Int. J. Soc. Res. Methodol.* 21, 105–117. doi: 10.1080/13645579.2017.1348581

Bero, L. (2005). Tobacco industry manipulation of research. *Public Health Rep.* 120, 200–208. doi: 10.1177/003335490512000215

Brownlee, K. (2007). The communicative aspects of civil disobedience and lawful punishment. *Criminal Law Philosophy* 1, 179–192. doi: 10.1007/s11572-006-9015-9

Burgen, S. (2022). Barcelona students to take mandatory climate crisis module from 2024. *The Guardian*. Available online at: https://www.theguardian.com/world/2022/nov/12/barcelona-students-to-take-mandatory-climate-crisis-module-from-2024 (accessed December 18, 2022).

Cannings, J., Forrester, J., Williams, R., and Conlon, G. (2022). *The economic and social impact of Queen's University Belfast*. London Economics.

Cattaneo, M., Civera, A., Meoli, M., and Paleari, S. (2020). Analysing policies to increase graduate population: do tuition fees matter? *Europ. J. Higher Edu.* 10, 10–27. doi: 10.1080/21568235.2019.1694422

Clarke, B., Otto, F., Stuart-Smith, R., and Harrington, L. (2022). Extreme weather impacts of climate change: an attribution perspective. *Environ. Res. Climate* 1, 1–25. doi: 10.1088/2752-5295/ac6e7d

Cooley, M. (2017). *Architectog Bee? The Human Price of Technology*. London: Spokesman Books.

Cornelius-Bell, A., and Bell, P. (2020). Partnership as student power: democracy and governance in a neoliberal university. *Radical Teacher* 118, 21–30. doi: 10.5195/rt.2020.738

Daly, H. (2014). *From Uneconomic Growth to a Steady-State Economy, Cheltenham, UK/Northampton.* MA, USA: Edward Elgar. doi: 10.4337/9781783479979

Daly, H., and Farley, J. (2010). *Ecological Economics: Principles and Applications.* Washington, DC: Island Press.

Dobson, A. (2014). "The Politics of Post-Growth", in Blewitt, J., and Cunningham, R., eds *The Post-Growth Project* (Norwich: Green House Publishing), p. 153–170.

Dobson, A. (2016). "Are There Limits to Limits?", in Gabrielson, T., Hall, C., Meyer, J., and Schlosberg, D. eds, *The Oxford Handbook of Environmental Political Theory* (Oxford, UK: Oxford University Press), p. 289–303. doi: 10.1093/oxfordhb/9780199685271.013.41

EASAC (2018). *"Negative emission technologies: What role in meeting Paris Agreement targets?", in: EASAC policy report 35* (European Academies Science Advisory Council).

End Fossil (n.d.). *End Fossil*. Available online at: https://endfossil.com (accessed December 4, 2022).

Faculty for a Future (n.d.). *Research for a Future*. Available online at: https://facultyforafuture.org/research (accessed December 3, 2022).

Fendrich, J. (2003). The forgotten movement: the vietnam antiwar movement. *Sociol. Enquiry* 73, 338–358. doi: 10.1111/1475-682X.00060

Fossil Free Research (n.d.a). *Coalition*. Available online at: https://fossilfreeresearch.com/coalition (accessed December 3, 2022).

Fossil Free Research (n.d.b). *Our Letter*. Available online at: https://fossilfreeresearch.com/letter (accessed December 3, 2022).

Foucault, M. (2008). *The Birth of Biopolitics: Lectures at the Collège de France, 1978-1979*. London: Palgrave Macmillan UK.

Freire, P. (2017). *Pedagogy of the Oppressed*. London: Penguin Random House UK.

Garcia Freites, S., and Jones, C. (2021). *A Review of the Role of Fossil Fuel-Based Carbon Capture and Storage in the Energy System*. Manchester: Friends of the Earth Scotland.

Gardner, C., Thierry, A., Rowlandson, W., and Steinberger, J. (2021). From publications to public actions: the role of universities in facilitating academic advocacy and activism in the climate and ecological emergency. *Front. Sustain.* 2, 679019. doi: 10.3389/frsus.2021.679019

Gilchrist, C., and Kaufman, C. (2022). Princeton activists just won a historic victory for climate research. *The Nation*. Available online at: https://www.thenation.com/article/environment/princeton-fossil-fuel-divestment-climate-change/ (accessed December 18, 2022).

Hayek, F. (1979). *Law, Legislation and Liberty: Volume 3 The Political Order of a Free People*. Chicago: The University of Chicago Press. doi: 10.7208/chicago/9780226321264.001.0001

Hickel, J. (2020). *Less is More: How Degrowth Will Save the World*, London: William Heinemann/Penguin Random House.

Hickel, J., and Kallis, G. (2019). *Is Green Growth Possible*? *New Political Economy*, p. 1–18. doi: 10.1080/13563467.2019.1598964

Hymer, C., and Knights, S. (2022). Students are occupying schools and universities in protest at climate chaos. *Novara Media*. Available online at: https://novaramedia.com/2022/12/06/students-are-occupying-schools-and-universities-to-protest-climate-breakdown/ (accessed December 11, 2022).

IEA (2021). *Net Zero by 2050: A Roadmap for the Global Energy Sector*. Online: International Energy Agency.

IPCC (2022). "Climate change 2022: impacts, adaptation and vulnerability: working group II contribution to the sixth assessment report of the intergovernmental panel on climate change", in Pörtner, H., Roberts, D. C., Tignor, M. M. B., Poloczanska, E., Mintenbeck, K., Alegría, A., eds (Cambridge, UK/New York, NY, USA: Intergovernmental Panel on Climate Change).

Jackson, M., and McInroy, N. (2015). *Creating a Good Local Economy: The Role of Anchor Institutions.* Centre for Local Economic Strategies (CLES). Available online at: https://cles.org.uk/publications/creating-a-good-local-economy-the-role-of-anchor-institutions/ (accessed December 4, 2022).

Jackson, T. (2017). *Prosperity Without Growth.* Oxon: Routledge. doi: 10.4324/9781315677453

Jackson, T. (2021). *Postgrowth: Life after Capitalism.* Cambridge: Polity Press.

Jessop, B. (2018). On academic capitalism. *Critical Polit. Stud.* 12, 104–109. doi: 10.1080/19460171.2017.1403342

Kalmus, P. (2022). Climate scientists are desperate: we're crying, begging and getting arrested. *The Guardian*. Available online at: https://www.theguardian.com/commentisfree/2022/apr/06/climate-scientists-are-desperate-were-crying-begging-and-getting-arrested (accessed December 15, 2022).

Keary, M. (2016). The new prometheans: technological optimism in climate change mitigation modelling. *Environ. Values* 25, 7–28. doi: 10.3197/096327115X14497392134801

Latter, B., and Capstick, S. (2021). Climate emergency: UK universities" declarations and their role in responding to climate change. *Front. Sustain.* 2, 660596. doi: 10.3389/frsus.2021.660596

Marquardt, J., and Nasiritousi, N. (2022). Imaginary lock-ins in climate change politics: the challenge to envision a fossil-free future. *Environ. Polit.* 31, 621–642. doi: 10.1080/09644016.2021.1951479

McGeown, C., Barry, J., and Taylor, L. (2022). Universities for climate action. *Reflections* 33, 12–13.

McGeown, C., and Taylor, L. (2022). Striking against the neoliberal university. *Green Europ J.* Available online at: https://www.greeneuropeanjournal.eu/striking-against-the-neoliberal-university/ (accessed December 15, 2022).

McIlroy, D., McGeown, C., and Park, J. (2022). A cost of living: dialectics of the necrocene and securing the means of resistance. *J. Class Culture* 1, 195–215. doi: 10.1386/jclc_00015_1

Meadows, D. H., Meadows, D. L., Randers, J., and Brehrens, W. H. (1972). *The Limits to Growth*. New York: Universe Books.

Münch, R. (2020). *Academic Capitalism*. Oxford: Oxford University Press.

Office for Students (2021). *Senior Staff Remuneration: Analysis of the 2019–20 Disclosures*.

Osuna, S. (2017). "Class Suicide: The Black Radical Tradition, Radical Scholarship, and the Neoliberal Turn," in Johnson, G. T. and Lubin, A., eds *Futures of Black Radicalism* (London/Brooklyn, NY: Verso), p. 21–38.

Parrique, T., Barth, J., Briens, F., Kerschner, C., Kraus-Polk, A., Kuokkanen, A., et al. (2019). "*Decoupling Debunked: Evidence and Arguments Against Green Growth as a Sole Strategy for Sustainability*". European Environmental Bureau.

Paterson, M., and P-Laberge, X. (2018). Political economies of climate change. *WIREs Climate Change* 9, *E*506. doi: 10.1002/wcc.506

People and Planet (2022). *How Sustainable is Your University?*. Available online at: https://peopleandplanet.org/university-league (accessed December 18, 2022).

Racimo, F., Valentini, E., Rijo De León, G., Santos, T. L., Norberg, A., Atmore, L. M., et al. (2022). Point of view: the biospheric emergency calls for scientists to change tactics. *eLife* 11, E83292. doi: 10.7554/eLife.83292

Raworth, K. (2017). *Doughnut Economics*. White River Junction: Chelsea Green Publishing.

Ribeiro, S., and Soromenho-Marques, V. (2022). The techno-optimists of climate change: science communication or technowashing? *Societies* 12, 1–11. doi: 10.3390/soc12020064

Ridley, D. (2018). What can academics learn from the Lucas Plan? *Red Pepper*. Available online at: https://www.redpepper.org.uk/what-can-academics-learn-from-the-lucas-plan/ (accessed January 10, 2022).

Rustin, M. (2016). The neoliberal university and its alternatives. *Soundings* 63, 147–176. doi: 10.3898/136266216819377057

Schulze-Cleven, T., Reitz, T., Maesse, J., and Angermuller, J. (2017). The new political economuy of higher education: between distributional conflicts and discursive stratification. *Higher Educ.* 73, 795–812. doi: 10.1007/s10734-017-0114-4

Scientist Rebellion (n.d.). *Our Positions and Demands*. Available online at: https://scientistrebellion.com/our-positions-and-demands (accessed December 3, 2022).

Sekera, J., and Goodwin, N. (2021). Why the oil industry's pivot to carbon capture and storage—while it keeps on drilling—isn't a climate change solution. *The Conversation*. Available online at: https://theconversation.com/why-the-oil-industrys-pivot-to-carbon-capture-and-storage-while-it-keeps-on-drilling-isnt-a-climate-change-solution-171791 (accessed December 3, 2022).

Smith, A. (2014). *Socially Useful Production*. Sussex: STEPs Centre, University of Sussex.

Sotiris, P. (2012). Theorizing the entrepreneurial university: open questions and possible answers. *J. Crit. Educ. Policy Stud.* 10, 112–126.

Supran, G., and Oreskes, N. (2021). Rhetoric and frame analysis of ExxonMobil's climate change communications. *One Earth* 4, 696–719. doi: 10.1016/j.oneear.2021.04.014

Thacker, P. (2022). Stealing from the tobacco playbook, fossil fuel companies pour money into elite American universities. *BMJ*. 378. doi: 10.1136/bmj.o2095

Thompson, T. (2021). Scientist Rebellion: researchers join protesters at COP26. *Nature*. 599, 357. doi: 10.1038/d41586-021-03430-5

UNFCCC (2015). "*Adoption of the Paris Agreement*". (United Nations Framework Convention on Climate Change).

Vernon, J. (2018). The making of the neoliberal university in Britain. *Crit. Historical Stud.* 5, 267–280. doi: 10.1086/699686

Wall, D. (2005). *Babylon and Beyond: The Economics of Anti-capitalist, Anti-globalist and Radical Green Movements*. London/Ann Arbor, MI: Pluto Press.