2 The Climate Crisis and Interdisciplinary Pedagogy

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The Climate Crisis

The climate crisis is not some future threat; it is already here. The climate is not just going to change or is currently changing but has changed and will continue to change. Indeed, even if emissions and environmental destruction ended today, "the climate change that takes place due to increases in carbon dioxide concentration is largely irreversible for 1,000 years after emissions stop" (Solomon et al., 2009, p. 1704). The question, then, is how to address or *solve* it. Can technological progress and innovation solve the crisis without the need for radically changing society, or must we insist that only large-scale structural transformation of society will avert a full-blown catastrophe?

Such transformation could come in many forms, for instance degrowth (Hickel, 2020; Saito, 2023) or eco-socialism (Huber, 2022) or its less-ambitious relative green growth (Jacobs, 2013). Degrowth proposes a break with the economic growth model central to the global economic system of production and consumption. Eco-socialism, in contrast, maintains the possibility of combining economic growth with adequately addressing the climate crisis, through a radical reorganising of the system of production on the basis of social need. This can be achieved through technologies that decouple the relationship between economic activity and emissions. Such technologies include decarbonisation through electrification and renewables replacing fossil fuels, as well as negative emissions technologies such as direct air capture (DAC), carbon capture, utilisation, and storage (CCUS), and perhaps even the highly controversial idea of solar geoengineering (Malm, 2022). Degrowth and eco-modernism alike would upend existing property relations and relations of power both globally and domestically. This might make the proposals less realistic or feasible because they require such major societal changes. Yet, their respective proponents contend only such radical changes can address the sheer scale of the problem.

These are highly complex questions and debates. To make judgements about the most appropriate courses of action to address the manifold interrelated aspects of the climate crisis, it is necessary first of all to *understand* the various diagnoses of the problem and its possible solutions. Yet even this

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is difficult. Universities have traditionally been the major sites of learning and education equipping people with knowledge to understand and judge problems and challenges, whether technical, scientific, social, or political. The climate crisis cuts across all four of these dimensions and probably more. This makes it a different problem to more isolated issues. For example, specific policy problems such as how to eradicate homelessness might require social and political solutions but need not necessarily require technical and scientific ones. Conversely, how to combine two atomic nuclei into one in the process of fusion, which can then produce energy, certainly has downstream political and social ramifications, but in its narrow sense is chiefly a technical and scientific problem. The climate crisis is unlike either of these problems.

Therefore, an interdisciplinary approach can help people understand and judge these and related debates. At the LSE, every year, many hundreds of students choose to enrol on the climate stream of LSE100, entitled variably 'how can we avert the climate catastrophe?' and 'how can we transform our climate futures' across its successive two iterations. Students from all disciplines across the university join the course in a genuinely interdisciplinary fashion. At the LSE, this spans across the social sciences – anthropology, sociology, politics, economics, social policy, geography, gender studies, international relations, and psychology – to humanities and beyond – law, history, economic history, accounting, finance, management, mathematics, statistics, languages and cultures, media and communications, and philosophy. The class groups are deliberately mixed across disciplines, enabling students to transcend the disciplinary boundaries in their regular departmental and disciplinary courses of study. To help set the scene for how interdisciplinarity is central to tackling the problem at hand, I now use this course to draw out key lessons for interdisciplinary university-level pedagogy, reflecting on the most salient issues in relation to understanding and studying the climate crisis from an interdisciplinary perspective. This can offer fellow academics and teachers inspiration for how to design their own interdisciplinary climate crisis curricula, including the perils and limitations of interdisciplinarity in a neoliberal context of commodified education.

Understanding the *causes* of the climate crisis must be the starting point for addressing it. Where does it stem from and how is it produced, literally and figuratively? In the course, students begin with understanding the origins of the problem, focusing on the global fossil fuel regime and the expansion of economic activity through industrialisation. The neoclassical argument around climate change is to see it as a market failure in which emissions are negative externalities not incorporated into the price of a commodity or service. Crucially, this omits particular reference to the destructive logic of capitalism. On a more critical view, however, human exploitation and domination of nature is also mediated by intersubjective human and nonhuman relations (Patel and Moore, 2020). Food, energy, and raw materials do not magically appear but are produced through human and animal labour (Wadiwel, 2023). An interdisciplinary perspective can make understanding these relations

easier since they have a high degree of complexity and span across such wide arenas of social life. Yet even if one accepts that it is the capitalist mode of production and attendant social formations that cause the climate crisis, it is not simply the emergence of industrialisation that capitalism produces the climate crisis.

Instead, the foundations for the climate crisis significantly predate the Industrial Revolution – all the way back to European conquest of the Americas in the 15th century, the privatisation of land, and the deforestation of large parts of Europe to prepare the way for agriculture and the intensification of the subjugation of animals (Nibert, 2013; Moore, 2017). We should, therefore, talk not of the Anthropocene but of the Capitalocene, or at the very least of what John Bellamy Foster calls the Capitalinian Age within the Anthropocene Epoch (Foster, 2022). As Jason B. Moore argues, "anthropogenic arguments obscure capitalogenic realities" (Moore, 2017, p. 602). Therefore, not just *human* activity but specifically *capitalist* human activity is causing a potentially existential planetary crisis. Yet even this requires much further unpacking. To understand the dependence on fossil fuels, it is necessary to in turn understand the history of energy and how local water power systems gave rise to coal-powered steam energy (Malm, 2016) and in turn to oil and gas. Likewise, the geopolitics of energy production and its relation to power, colonialism, imperialism, and war is central if one wants to understand how the forces of capital and profit spur fossil fuel production (Mitchell, 2011). Production must be considered in relation to the economic growth paradigm and the profit motive. Whether there are planetary limits to economic growth is a crucial question to grapple with here, as well as the variegated global impacts of the climate crisis, which hits very differently in different parts of the world.

This also introduces questions of responsibility. The principle of common but differentiated responsibility suggests that every country has a duty to contribute toward the struggle against climate change. Yet, this duty falls unevenly depending on the capability of each country to contribute. In other words, the richest countries who have contributed most toward the problem historically will have to contribute the most toward the solution, and vice versa. This introduces questions of morality and ethics into the debate, which goes beyond technical and social dimensions. Ascertaining through philosophical and theoretical reasoning who should be tasked with contributing the most is crucial, an issue in recent literature (Juhola, 2019). The UN has operationalised this concern in the Loss and Damage Fund established at COP27, showing the bidirectional character of philosophical argument and real-world policy scenarios. Students are furthermore tasked with judging the merits of degrowth versus eco-modernism and green growth. Equipped with data and evidence from across the globe around emissions and economic growth figures, as well as key literature that outlines these competing views (Boston, 2022), students bring their own disciplinary backgrounds to the discussion. They are encouraged to draw on their existing disciplinary

knowledge to develop an interdisciplinary, common understanding with their fellow students from different disciplines, as sketched above. This section also invites brainstorming and debate about alternatives to economic growth regarding different metrics, such as well-being, human development, or fairness.

With the expansion of production comes the expansion of consumption and thereby also emissions. The most polluting countries focus not on reducing production of fossil fuels but the consumption of, or demand for, them. This efficiency approach seeks to increase productivity through reducing energy use. Here, students also consider the notions of a circular economy (Stahel, 2016) and doughnut economics (Raworth, 2017), both of which are frameworks of production and consumption that take into account planetary boundaries. Generally, consumption-based initiatives have formed the bulk of states' policy responses to the climate crisis, rather than a focus on, e.g., fossil fuel production (Newell and Adow, 2022). Turning to not just a demand-reduction but a supply-reduction framework, for instance, is best done through an interdisciplinary framework because of the complexity of the socio-economic structures involved in transforming society away from the production of fossil fuels (Newell and Carter, 2024). Indeed, Peter Newell and Angela Carter argue that international political economy, political science, sociology, and socio-technical transition studies must be combined to understand how to understand the drivers of potential production cuts (Newell and Carter, 2024, p. 1). The scale of social transformation required to properly address the need for changing the energy and power systems of the globe means such efforts cannot be left to one discipline alone.

One way to bring interdisciplinary into the curriculum is to take a genuinely global approach, as this reveals the multifaceted character of the problems at hand. Thus, in the second element of the course, students build on the international perspectives of how the climate crisis affects different parts of the world by foregrounding the concrete experiences of communities in places at the frontlines of losing their livelihoods. The particular prism through which this is done is the idea of the "commons" and common pool resources, which are vulnerable to overexploitation and degradation over time unless robust frameworks of protection are in place. Building on the supply side-focus mentioned above, this element can illuminate the interplay between global corporations in the imperial core and resource-rich countries in the global periphery, and the people who inhabit both of these geographic locales. Yet simply employing an economic analysis or a sociological study of the globally uneven causes and effects of the climate crisis, for instance, will not suffice. That is why the course takes an explicitly interdisciplinary approach, stitching together various perspectives in a way that mutually reinforces the contributions from each discipline. For example, the insights from anthropological studies on the ground can be combined with both abstract normative theorising and quantitative political economy analysis. In turn, this can attune students to the blind spots and limitations of their discipline,

realising its strengths and weaknesses. Understanding the limits of possible inquiry within one's field of study – as a form of intellectual humility – is a powerful realisation that this kind of course can contribute toward producing.

One way of ensuring such robust frameworks is legal protections. Yet, more often than not, legal protections seem to simply facilitate the exploitation and destruction of the natural world. To tackle this challenge, an increasing number of actors have resorted to the juridical activism of lawsuits and court cases to not only hold polluters and emitters to account but to transform the systems of planetary destruction they enable. This approach is quickly gaining ground as a strategy worldwide (Wong, 2024), often with success. Indeed, the landmark ruling in *Urgenda Foundation v. State of the Netherlands* (2015) mandated the Dutch state to implement emissions reductions showed that climate litigation can be effective against states. Spurred by this, the ruling in *Milieudefensie et al. v. Royal Dutch Shell plc*. (2019) showed that such litigation also works against corporations, mandating Shell to reduce its emissions. In a recent ruling, (Greenpeace Nordic and Nature and Youth v. Energy Ministry (The North Sea Fields Case), 2023), the Oslo City Court ruled three previously approved oil field permits as invalid. While at first glance, this might seem like a straightforwardly legal matter that can be understood through the tools offered by the discipline of law to students, upon closer inspection the picture is more multifaceted. Indeed, all these legal rulings came off the back of considerable campaigning from NGOs and climate justice organisations. Understanding the interrelations between states, corporations, and civil society actors can be done only by looking through a wide array of prisms whether sociology, international relations, international political economy, or political science. Even if these elements were possible to study from singular disciplines, in the case of climate litigation, this brings the discipline of law to students from other disciplines. In other words, non-law students become acquainted with legal arguments and the dynamics of court proceedings.

Concretely, students are faced with a mock trial in which they get to simulate a court case of holding a government to account for its climate policies. They get to represent either the litigants, defendants, or expert witnesses. In particular, students have grappled with the real-world court case (*Environmental Justice Australia (EJA) v. Australia*, 2021) about whether Australia's inadequate Nationally Determined Contributions violate the human rights of young people in the country. In the course's recent iteration, the students consider a simulated case, *Lusama v. New Zealand*, of a family from the low-lying island nation Tuvalu who sought asylum in New Zealand and were deported, now appealing the decision to the UN Human Rights Committee. Here, students are introduced to the key UN documents and legal texts, thus exposing them to the workings of international organisations and the principle of multilateralism, as well as how to construct legal arguments not just in theory but in practice, drawing on precedent and statistical data, applying these arguments to the debate in the classroom. In particular,

as law students only take law courses during their degree, this course is their only opportunity to combine broader interdisciplinary and social scientific study with legal cases.

Finally, a plethora of climate social movements and forms of environmental activism take the struggle outside the courtroom and into the streets. The character and roles of these movements are, once again, best understood in an interdisciplinary fashion. They build on long lineages of activism and protest movements, which bring history into the present and demand a longer temporal dimension alongside the spatial dimensions explored above. Students assess, through a data-driven approach, the ability of climate movements to affect public discourse on climate (Vardar and Menegat Schuinski, 2023). This combines media and communications and statistics. Students are also asked to consider the role of direct action – forms of politics that happen not simply through representative electoral politics but in physical space and the street to directly affect political decision-making. Students consider four specific movements of climate resistance: Extinction Rebellion, Fridays for Future, No Dakota Access Pipeline (#NoDAPL), and the Ceibo Alliance/Amazon Frontlines.

A deeper dive into what these movements are, do, and want allows students to better understand how climate movements fight against climate disaster. This is done not in vague terms but through concrete and targeted questions of analysis: What leverage/power does the movement have? Which principles undergird the movement? How does the movement operate strategically? Who are the movement's antagonists/opponents? How do different types of media portray it and why? Answering these requires students to bring in various perspectives and disciplinary analytical tools. The direct action element of the course provokes students to consider the justifications for violence in the climate movement and their responses to this – pushing them to articulate good reasons for why violence is or is not justified to combat the climate crisis. This most importantly centres around the work of Andreas Malm (Malm, 2021) as well as prominent critiques of it from Alyssa Battistoni and Jasper Bernes (Battistoni, 2022; Bernes, 2023) who criticise it on principled and strategic grounds alike. The distinction between principles and strategy is crucial for interdisciplinary engagement, as it brings in the normative dimension of philosophy in a more rigorous way – oftentimes principles can be smuggled in through strategy, and explicit consideration can avoid this problem.

Having gained a firm understanding of key elements of some of the most pressing questions about the climate crisis – growth, consumption, litigation, and resistance, the students then spend the second semester undertaking a group research project that identifies and analyses a particular problem within the climate crisis and develop a proposal for a solution to the problem. Systems thinking and the associated analysis required to formulate concrete solutions unite the thinking around these four elements. Systems thinking is a pedagogical and methodological framework that maps all the

key components of a complex social system and, crucially, how they relate to and interact with each other. This highlights the dynamics of a social system rather than seeing it as a static whole. It foregrounds the social relations that produce institutions and problems, particularly when the system has a degree of complexity that occludes simple analysis of one of its aspects.

Students first map out the system, identifying the risks and problems and targeting a particular one that can help resolve the overall problems associated with that system. Then, they analyse the key stakeholders within that system who have the power to realise change. This involves analysing who is a driver or a blocker of the proposed change and who might be supporters and opponents who do not have sufficient power to drive or block the change. Formulating a concrete intervention is the next task, along with specifying the target stakeholders who can effectuate that proposed change. Anticipating what kind of opposition and resistance will emerge is crucial, as it allows students to theorise and develop counter-resistance strategies that can overcome this opposition, either by assuaging the fears of the opponents or by weakening their power. Crucially, systems thinking also enables students with the tools to identify and target a particular intervention that will ripple across the system, such that solving it will not only address the specific element of the problem in particular but will have synergies and multipliers across the system as a whole. Finally, students turn their thinking and analysis into a written report presented in an interactive digital format. This kind of systems thinking is closely related to interdisciplinarity. To understand and change complex systems, a whole host of disciplines must be brought into the analysis, not in a multidisciplinary but an interdisciplinary fashion. The distinction between the two is that while multidisciplinarity simply aggregates multiple disciplines, interdisciplinarity brings these into conversation such that they become more than the sum of their parts. The group research project takes multiple disciplines and turns these perspectives into an interdisciplinary report and a group presentation.

Is this a model for university education appropriate for addressing the scale of the climate crisis? The university as an institution can, and more accurately *could*, help address the climate crisis in research, teaching, and community engagement. Yet one of the components required to make this meaningful is interdisciplinarity, breaking past the silos of individual disciplines not in conversation with one another. It requires a new framework of interdisciplinarity, such as the one embodied and practiced in LSE100. It is a model for other educators and institutions to emulate. This also means that the climate crisis might challenge the way the university functions today because the type of education that is needed for the major problems of our time, such as the climate crisis, artificial intelligence and automation, runaway domestic and global inequality, war and imperialism, as well as the rise of far right and reactionary politics. In short, such problems require critical thinking on a different scale than narrower, more easily isolatable problems. Yet tackling such problems requires a certain kind of university. The slide

from Humboldtian to neoliberal institutions accompanied by a commodification of university education is a major obstacle for a truly critical and interdisciplinary education. In the following section, I trace the contemporary crisis of universities both institutionally and pedagogically and propose a Humboldtian-inflected critical model of learning that is more appropriate for the scale of the problems facing the planet today.

Universities in Crisis

Along with the climate crisis, there is another crisis upon us too: The neoliberal crisis of universities. Many universities, especially in Europe, have instituted wide-scale cuts in the past decades, restructuring and firing academics. In Britain, e.g., major institutions such as Birkbeck and Goldsmiths, both part of the University of London system, as well as the University of Brighton, the University of Roehampton, and Coventry University, are all undergoing major, sweeping cuts and "restructurings". As one *Financial Times* editorial warned, the situation is so dire that it is "not impossible that at least one university could face bankruptcy this year. Either way, necessary cutbacks to research, lecturer salaries and dorm facilities will lower their education standards, innovative potential and competitiveness for international talent" (*The Financial Times*, 2024). The real risk of bankrupt universities is the culmination of a decade-and-a-half-long programme of austerity and the gradual transformation of public universities from sites of learning into commodified service providers, sometimes disparaged simply as "degree factories" (McGettigan, 2013). The university sector "is not only essential for education; it is the bedrock of the country's science and research output" (*The Financial Times*, 2024). The ramifications of the crisis of British universities are therefore vast. This institutional crisis concerns how universities are structured, organised, and run.

While the governance model of universities has changed towards a neoliberal one, the pedagogical model has partly shifted towards a neoliberal one, too. The corresponding pedagogical problems are not straightforwardly causing or caused by this larger structural crisis, yet they are intimately linked (Featherstone, 2023). Indeed, only a certain kind of education and pedagogy is possible in a university in crisis. Genuine critical interdisciplinarity becomes difficult if not impossible in the neoliberal university. Therefore, to embrace and propagate such pedagogy, there must be a break with the prevailing university model as a whole. Indeed, as Stuart Cartland contends, "there needs to be a fundamental ideological, philosophical and discursive shift in how education is viewed within society, and its very purpose" (Cartland, 2023, p. 140). One part of such a shift is to propose alternative models of pedagogy such as the ones charted in this book. Indeed, a key undercurrent in this crisis of universities is their long-term transformation and the bureaucratic models by which they are governed and the pedagogical and educational models of teaching, learning, research, and community engagement. Over the past four

decades, the governance model of universities has shifted towards new public management. Here, students are transformed into consumers or customers paying for a service from the university. The university degree certificate becomes a ticket to certain otherwise inaccessible parts of the labour market, with the prestige of the institution and the accumulated social and academic capital the currency to ensure maximum career success. Meanwhile, the pedagogical models of the university have changed, too, from a more Humboldtian towards a more neoliberal approach. The actual processes of learning and the journey towards self-reliance and both independent and collective living are jeopardised by such a model.

There are alternative models of both institutional design and pedagogical practice that would enable a truly critical interdisciplinary university learning environment for students, which is necessary to address the planetary crisis we face today. Lessons can be learned from the Humboldtian education model which, at this point in time, is notably absent in British universities and beyond. The Humboldtian approach, named after the German philosopher Wilhelm von Humboldt, was the foundational pedagogical model of the early continental European universities of the 19th century. Indeed, the University of Berlin was founded as a modern research university after appeals from Humboldt to the Prussian King Friedrich Wilhelm III and after World War II was renamed in honour of him and his brother Alexander, among other accomplishments a pioneer within environmental studies and climate change. The Humboldtian model of higher education focuses on a research-led and many-sided rather than one-sided approach to education and intellectual and social development. The holistic Humboldtian ideal is to create well-rounded critical citizens, which does not align well with turning students into customers in a commodified and marketised higher education system (Wittrock 2019). Crucially, the Humboldtian method also centres around students discovering for themselves (von Humboldt, 1960), which marshals curiosity to build intellectual confidence through self-discovery of facts, norms, and principles. Education and/as self-development is what Humboldt called *Bildung* (Josephson et al., 2014, p. 2). In the process of finding things out, students realise their own capacity as learners and researchers. Rather than rote learning and memorising facts, setting students loose in a library or on the internet enables them not just to know the facts but to find out *how* to know the facts. This process develops students' reflexivity by enabling them to reflect on how they came to know what they know.

Wilhelm Krull argues that Humboldt's model of education has four key components: The integration of teaching and research in the function of the university, the importance of freedom in both studying and teaching, the role of solitude and freedom in the pursuit of truth, and finally the role of the seminar as opposed to simply unidirectional lectures for learning (Krull, 2005, p. 99). Because no knowledge is final, teaching and learning must necessarily also not be final. Therefore, students must be brought into contact with cutting-edge research which seeks to get closer to the truth

(von Humboldt, 1960). Indeed, Humboldt was pushing back against separating the university as a site of teaching and the academy as a site of research, fusing these into one coherent unit of teaching and research (von Humboldt, 1960). Research-led teaching becomes a central part of such a model. This applies both to the teacher and to the student. For the teacher, teaching is not simply about transmitting timeless truths. Rather, it is about both being attuned to the cutting edge of research in a particular field, including their own research, and more generally centring the teaching around ongoing debates in the literature rather than ossified knowledge. For the students, university education is not simply the accumulation of facts but the active engagement with research and its attendant culture. Through research-led learning, where students are not simply recalling and regurgitating pieces of information but critically engaging with scholarship, they learn holistic skills of critical thinking and writing as well as reflexivity and perspective-building that enables them to learn how to not only understand but also judge and critique knowledge and claims in the social sciences and humanities.

However, there are major shortcomings of such a Humboldtian model, which is profoundly liberal tending towards libertarian. Indeed, a prominent criticism of Humboldt's vision for the meaning of life is that it revolves around "individual self-activity" (Geuss, 2001, pp. 72–73) in the pursuit of individual freedom. An orthodox Humboldtian model of education is individualistic and is about the individual student gaining enlightenment and knowledge for themselves through independent study. The approach is useful insofar as it cultivates and encourages purposive self-activity that teaches students how to become mini-researchers who can find and judge knowledge on their own terms. Yet it also fits neatly within a neoliberal, individualistic model of learning where the student is simultaneously treated as and self-reproduces the role of a consumer. The strongly instrumental approach of learning not for learning's sake but for a restricted purpose of learning for employment might work well in more vocational subjects such as law, medicine, or engineering. Still, it is unclear how it fits within the social sciences and humanities. Here, learning critical thinking, comprehension, and writing skills transcends specific disciplinary knowledge and a direct corporate employment purpose. Individualism can foster unhealthy competition between students and the protection of knowledge for the fear of others benefiting, seeing fellow students as rivals rather than co-learners.

According to contemporary Humboldt scholars, this mirrors a shift in knowledge production and how teaching and research institutions have changed from what sociologists call Mode 1 to Mode 2 (Gibbons et al., 1994; Josephson et al., 2014, p. 14). Whereas "Mode 1 was Humboldtian, in which research proceeded on the basis of subject-specific and researcher-driven processes", Mode 2 centres around "interdisciplinary approaches, transparency, flexibility, and a new sensitivity to the growing expectations of society, and the demands it placed on the university" (Josephson et al., 2014, p. 14). Interdisciplinarity is here directly linked to the demise of the Humboldtian

model of universities because it speaks to the requirements of the corporate world rather than knowledge production and critical thinking. The shift from Mode 1 to Mode 2 has been the subject of major contestation, however. Indeed, Humboldt and the principles derived from his work have long been a political and pedagogical battleground. Susan Wright points out that "in debates about the future of universities, 'Humboldt' is a key-word, a site of contestation" (Wright, 2014, p. 143). In the process, the marketisation of universities can be aided by the Humboldtian principles of freedom and autonomy (Wright, 2014, p. 144). The kind of freedom he had in mind is quite different from that of neoliberal pro-marketisation politicians.

Therefore, the Humboldtian model must be inflected with a critical theory-based learning model. Critical theory can mean many things depending on the context, but here I use it in the sense the Frankfurt School conceived of it: As the twin commitment to enlightenment and emancipation (Geuss, 1981). Emancipation here means freedom from domination and exploitation, while enlightenment can mean both the processes of learning about these and the overall development of a rational self-reflexive understanding of the social world, which is crucial for critical theory's ambition of emancipation. This means that learning about domination and exploitation is tied together with the struggle to overturn them. In the climate crisis, emancipation must be liberation from the social unfreedom of exploitation, domination, *and* ecological disaster, because the climate crisis poses a novel kind of social and political problem that is not simply about one group of people oppressing another. While exploitation and domination involve abstract structures, these are nevertheless also concrete: The capitalist class, a state, or an international financial institution. Due to the long-term and geographically dispersed character of the causes of rising temperatures and extreme weather events such as global historical emissions, there is a less direct relationship between ecological catastrophe and emancipation from it.

It is entirely possible to cross-pollinate these two into a coherent joint pedagogical approach. As Raymond Geuss points out, Humboldt was "extremely influential" on the early Marx (Geuss, 2001, p. 83 note 16). Both take "individual self-development to be the end of human life" (Geuss, 2001, p. 83 note 16) even if they also disagree on the politics of what that means. Humboldt eschews attention to crucial questions of social and economic power (Geuss, 2001, p. 97), domination, and the social structures within which freedom is or is not possible. This is what a critical model brings to the table as a corrective. Indeed, Marx took from Humboldt the idea of many-sided human development as opposed to a one-sided idea of human development (Geuss, 2014, p. 244 note 21). Humboldt does consider the role of learning beyond individualism, claiming that "the spiritual activity of mankind can only flourish in cooperation" (von Humboldt, 1960). Yet it is easy to see how his vision can be corrupted and turned into a neoliberal model that defunds education by placing the onus onto the student alone, under the guise of fostering independence. A critical Humboldtian model of higher

education combines the arguments for the two models. Such a combined model is particularly well suited to be practiced through interdisciplinary pedagogy because the latter demands a certain kind of engaged critical activity that encourages collective and cooperative research and teaching that specifically seeks to contribute with knowledge that can help address the major social, economic, and political problems of our time.

The Promises and Perils of Interdisciplinarity

What, then, is the role of interdisciplinarity in challenging both the climate crisis and the neoliberal university? Evaluating and reflecting on the concrete experience of teaching LSE100 shows how the course both challenges and reinforces these problems. This offers several lessons for teachers and educators seeking to develop a critical practice and push their institutions in a more critical direction. Pockets of critical, interdisciplinary group-based learning can contribute to addressing the climate crisis, as well as raise doubts about the viability of the individualistic, competition-driven, commodified university to do so. Such novel ways of teaching offer promising resources for scholars and educators. Without new pedagogies, the university seems to be an ill-suited model for tackling climate change.

Concretely, the element of interdisciplinarity on the climate crisis course brought a raft of benefits. It is, in many cases, the only chance for students to encounter other disciplines, as well as students from other disciplines. It is certainly one of the very few chances to encounter interdisciplinarity. This means it can be a transformative or, at the very least, memorable experience because it introduces students to a novel way of thinking and studying. It can also help create more well-rounded students as it allows quantitative students to become more familiar with qualitative subjects and vice versa, as well as how they can relate to each other. Crucially, one important element is also that by elucidating the contrast, students are pushed to be able to justify the appropriate methodology or approach for a particular problem. Hence, an economics student might be confronted by an anthropologist who insists that numerical data does not capture the full experience of an issue and must be supplemented, or perhaps even supplanted by, qualitative ethnographic fieldwork data. Likewise, a philosophy student might realise that only through the combination and interaction between sociology, environmental studies, and history is it possible to understand how certain communities are resistant to climate change adaption or transformative change because of, e.g., a connection to land, ancestry, relationship to nature, or attachment to community.

Yet, as I have already suggested above, interdisciplinarity can also be marshalled for the neoliberal university. On a pedagogical level, perhaps interdisciplinarity does not actually challenge the neoliberal paradigm because the students are still competitive and individualistic, and have been interpellated into a social structure that rewards self-sufficiency and self-centredness and punishes cooperation. This may be particularly bad at an elite university like

the LSE where students are overwhelmingly from wealthy backgrounds. In other kinds of institutions, especially those with more working-class students, perhaps the problem is not just that students are self-centred but that they have already embodied the neoliberal subjectivity and furthermore do not have the academic and social capital to succeed in a course that pushes outside the comfort zones of the tried and tested. Likewise, a potentially less significant problem is that some disciplines and their students dominate over others. It might not be possible to be truly egalitarian between them, as some disciplines or ways of thinking are still foregrounded in the course. Thus, it can be unfair if it means some students are expected or pressured into doing significantly more work to achieve the same outcomes.

Likewise, interdisciplinarity places certain demands on the teacher or lecturer, too. It requires teachers who are equipped for and committed to interdisciplinary teaching. Perhaps they are not familiar or experienced with teaching outside their narrow disciplinary expertise. This might mean throwing teachers into the deep end for them to develop the necessary experience and expertise that enables them to excel. This, then, can create future generations of students with good experiences and improved knowledge of interdisciplinarity, setting in motion a virtuous cycle. Yet it might not suffice for teachers to only learn by doing – institutional support in the form of stable and secure working conditions is crucial. Experimenting with novel initiatives and pushing staff to teach in new ways is best done if there are as few insecure external factors. In the neoliberal university, such casualisation and precarity are not only rife, but also growing. This negatively affects the mental health and broader quality of life of staff, which is unlikely to positively affect attempts to implement interdisciplinarity.

It is impossible to transform the university or even the educational experience it provides from within merely one course. Rather, institutions and the entire wider, socio-economic structure of society must be changed. This much is a given. Therefore, interdisciplinarity can perhaps only be a modest albeit still useful contribution. That might be all that we can hope or ask for in the current situation. A small change is better than no change at all unless it is introduced on a small scale or not done well, which means it could actually be worse than not doing it at all. This can be because it makes students sceptical of interdisciplinarity, as evidenced in criticism from LSE students of LSE100 in its infancy (The Beaver, 2011). However, the official, statistically sound internal course feedback seems to contradict the more anecdotal experiences of particular vocal students. It seems LSE100 as a practice of interdisciplinarity is worthwhile as a starting point for a more ambitious, integrated, and expansive endeavour.

Institutionally, dissolving traditional disciplines and the long time-tested practices of conducting research and teaching are also at risk. Indeed, the commodification and marketisation of the university risks leaving the institution and its practices vulnerable to the whims of the market and private interests. Unless universities are to be finishing schools of training for

corporate jobs, then rigorous and scholarly methods must be protected. Thus, a basic tension around interdisciplinarity is whether it is in the service of innovation for good or innovation for harm. Perhaps LSE100 is a model that suits corporate employers seeking employees with a skillset that reduces depth in favour of surface-level breadth to better accommodate the ability to shape employees into the corporate mould. One scathing editorial in the LSE student newspaper described the course as "an empty vessel sailing towards higher employability, and not deeper understanding" (*The Beaver*, 2018). Indeed, the LSE's official video presenting the course from 2012 opens with shots not just of the Palace of Westminster but also the beating hearts of finance capital, the headquarters of major financial institutions – Citi, Barclays, and HSBC (LSE100: the story of a course, 2012). Citi, incidentally, is the world's second-largest funder of fossil fuels, providing at least 332 billion euros in finance for fossil fuel projects between 2016 and 2022 alone (Salam, 2023). One way to shield against such commodification of education is to ensure that interdisciplinarity is combined with a commitment to a critical version of the Humboldtian paradigm as outlined above.

In this chapter I have outlined the pedagogical underpinnings and concrete structure of an interdisciplinary university course on the climate crisis, explaining the importance of tackling such a major problem through an interdisciplinary approach. I then charted a crisis occurring concurrently with the climate crisis – the crisis of universities. The combination of the neoliberalisation and the marketised commodity form of education, in which students are consumers, has hollowed out the possibility for critical learning. This development, combined with the sheer scale and urgency of the climate crisis, calls for developing a renewed critical Humboldtian pedagogy, which I briefly detailed. I have made the case for employing innovative interdisciplinary teaching pedagogies to address the climate crisis, which are extendable to today's pressing societal challenges. It is not simply enough to return to Humboldt; for a truly transformative education that can help change the world, it is necessary to critically inflect this, and to turn to the promise of interdisciplinarity within such a model.

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