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Review article

# The role of school history in helping young people to navigate their future at a time of climate crisis

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## Abstract

The need to prepare school students to respond to the climate and environmental crises is rapidly rising up educational agendas nationally and internationally, but the role of the humanities, and particularly history, is often marginalised. In England, the main context of this article, the climate crisis does not appear on any official history curriculum documentation, reinforcing a separation of nature and culture. This is not surprising, given that the climate crisis in general has been engaged with so little in the humanities, but teaching climate change as a 'science' problem rather than a societal one risks exacerbating students' anxieties and sense of powerlessness. By contrast, humanities subjects, including history, can furnish students with the knowledge and skills to respond in more constructive and critical ways to a crisis that they will experience more acutely than us. We acknowledge and welcome the work that is already underway in school history, but we also call for a greater urgency to reform history curricula and provide better support for teachers. Meanwhile, mindful of how painfully slow these processes can be, we also

call on history educators and academics to take matters into their own hands and make changes within existing curriculum structures where possible.

**Keywords** climate crisis; environment; curriculum; teachers; school history; humanities

## Introduction

Although there is a large and exciting body of research around transformative climate education in general, thinking about how climate and environmental crises should be taught in the history classroom is at a relatively early stage. While the necessity of 'teaching the future' through all disciplines covered by the national curriculum should be indisputable, it has in fact been very far from obvious. In this, the educational sector reflects and has been captive to wider, flawed, approaches to addressing climate change (Selby and Kagawa, 2010). Such work as there is in England has tended to focus on the challenges of how to fit climate and environmental history approaches into the existing curriculum, how to help teachers build confidence with them, whether interdisciplinarity is possible in the current classroom, and what sorts of outcomes there should be for students (for example, Fidler, 2022; Hawkey, 2023; Hawkey et al., 2016). These are essential questions. They may be easier to address if we begin by considering why this most human of all planetary-scale crises has been engaged internationally, as well as in the classroom, with so little reference to humanities, specifically history, expertise. What have been the consequences, especially in educational terms? This will help us build a broad-based and compelling rationale for the work that needs to be done and, on this basis, to suggest a range of complementary possibilities for classroom approaches.

## Context: how and why have the humanities been sidelined in discussions about the climate crisis?

One of the less-discussed contributing factors to the accelerating climate crisis has been the absence of humanities-based contributions to understanding and tackling it (Hulme, 2011). Scientists have established beyond doubt that the causes of global heating and biodiversity loss are anthropogenic. This is widely known, but what does it really mean? It means that our situation is the outcome of human behaviour, ideologies, values, choices, systems, cultures, inequalities, practices of violence, and the histories in which everything is rooted. That means that if we want to understand the causes of climate change, we need to study the human past. What happens now and in years to come will be shaped and lived through these 'human' things. Climate science is diagnostic, but climate change is not a 'science' problem. It is a societal problem, a human problem. Technology-based 'solutions' are not, as often depicted, cleanly separate from the messiness of real life, but will be developed and deployed according to (some) human values, priorities and judgements. Recognising the 'anthropogenic' should immediately have redefined the whole issue and brought the critical thinking and modes of knowledge production of the humanities into the forefront of climate responses. But this is not what has happened.

The reasons for the ongoing marginalisation of humanities voices are complicated, and they can only be discussed briefly here. Much of the research detailing anthropogenic causes was done in response to the claims of fossil-fuel companies that warming was either not happening at all, or that it was a natural climate cycle and, either way, that emissions could safely continue to grow. Denial of an increasingly robust scientific consensus was a strategy to waste time and to take up public, political and research space that might have been used to get to grips with the mounting threat to life on Earth (Lamb et al., 2020; Oreskes and Conway, 2010). Although they recognised this, scientists, and even environmentalists, were manoeuvred into an unwinnable game of 'proving it' to the satisfaction of those who profited most from doubt. The implications of demonstrating that global warming was anthropogenic were lost in the rush to deploy the finding in the arguments with deniers. Even now, recognising that climate change is 'human-induced' is taken as the end, rather than the beginning, of analysis of causes (Ruiu, 2021: 18).

While it is essential to keep deepening the physical science picture, it has been obvious for some decades that setting out ever more fine-grained physical science findings is an ineffective (Glavovic et al., 2021) and unstable (Kellstedt et al., 2008; Milfont, 2012) way to secure a sufficient response. Since we know this, it is troubling that climate education in England is currently largely restricted to teaching 'the science', including in physical geography (DfE, 2014). The degree of certainty about the effects of unchecked emissions that already existed in the 1970s was enough to justify making the difficult but essential transition away from fossil-fuelled capitalism (Nature Climate Change, 2019). That the transition was stymied was nothing to do with 'the science', and everything to do with extractive political and economic systems and their historically rooted governing ideologies – together with a near-universal reluctance to appreciate how these really work (Johnson, 2021) as part of a default to 'system justification' (Feygina, 2021).

The failure of well-intentioned scientists, environmentalists and policymakers to recognise the need for humanities analyses reflects the old nature–culture separation: the sense that human matters are distinct from 'nature' or 'the environment' (Descola, 2013; Warde et al., 2018). The concept of the Anthropocene, which has helped to break this down, has only recently become available, and even now, operates differently in different fields (Zalasiewicz et al., 2021). More immediately, the absence of humanities expertise seems likely to have been at least partly a product of the neoliberal view of science, technology, engineering and mathematics (STEM) subjects as key contributors to the growth of GDP, and humanities as comparatively unprofitable, and therefore irrelevant. In fact, this position masks a recognition in some quarters of the critical and complicating power of humanities subjects, and thus an active preference for their exclusion (Tomlinson and Lipsitz, 2013).

Among those who understood well the potential of complex cultural narratives were the 'merchants of doubt' (Oreskes and Conway, 2010). As they required climate experts to focus on piling up quantifiable data, they were promulgating stories crafted to cast doubt on the data and the motives of anyone concerned about climate change, and to intensify the emotional investment of significant sections of the population in the continuation of extractive capitalism (Mann, 2012). Scientists hoped to counter these stories with more research. Their own stories were not as psychologically astute (Slovic, 2020), and were not attentive to how people's identities are formulated within conceptions of time. While stranded polar bears, 'scientists' warnings' (Cottey, 2022) and the famous 'hockey stick' temperature graph have rhetorical force, they do not speak directly to most people's understanding of their own ordinary life – in which there are no polar bears anyway – and what might happen to it on a warming planet.

For those who were attentive to what experts were saying about the effects of global warming on the stability of Earth's systems, on which human life entirely depends, the warnings were terrifying. Beyond the headlines of extreme weather, floods, fires, heatwaves and prolonged droughts, lie ecosystem collapses, mass extinctions, ocean acidification and sea-level rise with catastrophic consequences, affecting every part of the world, and, at the same time, diminishing resources to address each of these issues (Peñuelas and Nogué, 2023). Effects include, for example, food and water insecurity, disrupted energy supplies, rising costs of living, toxic air pollution, population displacement, regional and global conflicts, political instability, poverty and starvation, rising gender-based violence, infant mortality and higher disease burden. Despite – or perhaps because of – the enormous complexity of the challenges facing humanity, public discourses around responses were unimaginative, lacked ambition, and were essentially disempowering. In the absence of the analyses and ideas that humanities could have engendered, the public in the wealthy nations responsible for the situation and best placed to address it were encouraged to think only in terms of individualistic and technology-oriented 'solutions', such as recycling and 'lifestyle changes' to address one's 'carbon footprint'. Advertisers continued to urge consumption of high-emissions products such as single-use plastics, fast fashion, electronic devices and SUVs. In effect, everyone's energy was to be put into private, carefully delimited self-improvement and self-denial within profit-oriented systems that were designed to make both extremely challenging. Most people were not equipped with humanities-based critical skills to interrogate the narratives they were offered by media, politicians and businesses, to assess the value of online information, or to grasp the complexity and vulnerability of the globally interdependent infrastructure underpinning their daily life. Through a mixture of omission and disinformation, people in wealthier countries were enabled to believe that climate change would be somewhere else or in the future, and that it would not affect them personally.

This approach has enabled a skilful displacement of responsibility on to consumers and away from governments, legislators and industries with high carbon emissions (Aronczyk and Espinoza, 2022;

Supran and Oreskes, 2021). Public protest and urgent calls for change are over-policed and increasingly criminalised. Citizens have been required to trust, naively, that someone with power would act rationally. In recent years, we have seen deepening societal malaise – especially among children – as people realise that this faith was unfounded. Distrust of governments among young people, together with their wider sense of intergenerational betrayal and moral injury, threatens their lifelong mental and physical health (Hickman et al., 2021; RCPCH, 2023), as well as posing obvious dangers to the future of democracy and societal stability. The problem is, thus, not only a matter of scientific communication about established entities such as ‘climate change’, but also about how these are continuously framed in multiple realms of discourse (Pezzullo and Cox, 2021); that is, how they are imagined when they are discussed in different contexts.

Unfortunately, many humanities graduates have internalised the neoliberal assessment, and lack the professional confidence to bring their expertise into high-level conversations that take place at the intersections of STEM, non-governmental organisations and industry expertise, national policy and international diplomacy (Power et al., 2020). This is, again, reflected in the deference to other disciplines to teach ‘climate’. Yet, where critical commentary from humanities has engaged with public and political conversations – recently, for example, around imperial legacies and Black Lives Matter – it has been effective in building a far more accurate *and* emotionally resonant public understanding of the past. Public confidence in humanities research has persisted despite an obsessive campaign of delegitimisation from the billionaire-owned press, right-wing think tanks and populist politicians (Huber, 2020). Historians, in particular, are uniquely placed to give historical depth and nuance to policy proposals, helping with the assessment and formulation of strategies to address vulnerability and adaptation (Izdebski et al., 2022).

This shows once again that the ‘problem’ with humanities is not that they are irrelevant. It is that they can offer potent critical perspectives grounded in high-quality research (Cologna and Oreskes, 2022; Feola et al., 2021; Turnhout and Lahsen, 2022), they can teach students these skills, and they deal in matters of general interest to wider populations. They are, therefore, potentially, much more able to disentangle the agendas bound up in climate inaction than scientific research. It is a matter of urgency to centre humanities expertise in how we talk about anthropogenic climate change. It is an important key to dispersing the stifling miasma of confusion, indifference and distraction (Hoggett, 2019) that has been permitted to surround whether we want a liveable future and what action needs to be taken to secure it. It is crucial for developing socially, culturally and historically informed approaches to transitions in all areas of life – strategies that are attentive to the needs of different constituencies, and that do not disempower, marginalise or alienate groups.

## Rationale: why should we teach about the climate crisis in history classrooms?

The rationale for teaching the climate crisis in history emerges as we consider why the issues have been largely absent from humanities classrooms, and what the challenges might be in introducing them. Historians and history teachers are best placed to help people address two major obstacles to thinking effectively about climate change and all its ramifications. One is scientific determinism; the other, viewing humanity through progress narratives. The first, determinism, is produced by public-facing scientific communication where human agency is simplified (for example, taking action or not taking action) or largely absent. The future is charted out through temperature increases and associated potential ‘tipping points’, such as rising oceans, that either already are, or might soon be, ‘locked in’. The range of possible outcomes is usually presented as depending on which actions are taken *now* to mitigate, and, in the most nuanced arguments, when, and how well strategies for adaptation are conceived and implemented (Schipper, 2020). Of course, these are necessary warnings that urgently seek to bring a sense of reality to political and industry leaders, and to the public who could hold them accountable. But an unintended consequence of this form of climate communication is that the space for action by younger and future generations appears to narrow into nothing. They are strapped in for a rough ride through growing heat, drought, floods, famines, soil degradation, terrible storms, drowning cities and the sixth mass extinction (Garrard, 2020). Not surprisingly, this perception induces feelings of hopelessness, and limits creative thinking about the future. It is increasingly mobilised by forces hostile to climate action (Lamb et al., 2020), and it is likely to open the door for violent, dangerous, authoritarian ‘solutions’ presented as the

only hope (Stengers, 2015). These factors make it even more essential to address determinism in the history classroom.

A person thinking historically – and discussing these issues with students in a history classroom – would observe that predictions of this type can only sketch out the nature of some of the challenges that people are likely to face. Importantly, this kind of prediction does not tell us anything about *how* people as individuals and communities will assess, conceptualise and respond to their circumstances. It cannot anticipate what people will do, day to day, year to year and place to place – any more than assembling evidence that there was severe volcanic activity in the late 530s, or colder periods within the ‘Little Ice Age’, can in itself tell us ‘what happened’ in societal terms (Degroot, 2018, 2022; Gräslund and Price, 2012; Toohey et al., 2016). Teaching students about the diverse, complicated ways that humans responded to changes in past climatic regimes and other environmental challenges restores human agency to interpretation of past, present – and future. It could become an essential element in teaching children how to be engaged, responsible citizens.

The second obstacle to thinking productively about global heating and related environmental crises is their dislocated, untethered, almost ahistorical quality. Powerful cultural narratives tell a story of humans as a species that progresses over time through a growing mastery over the natural world and its resources. There is an entrenched view that modern Westernised nations are now highly advanced and can expect further travel *in the same direction* as economies continue to grow, technologies improve, and poorer nations catch up by ‘developing’. This system of values supports the status quo and legitimises its injustices and inequalities. It is written into the structure of school history curricula, and it underpins much historical analysis, including by students. There is no conceptual space in it for what experts are telling us about the deadly impact of our ‘progress’ on Earth’s systems, biodiversity and human health. How people understand their past and its messages for the present and future – as individuals, communities and larger collectives – is fundamental to their identity. Where new information does not fit, it may be the new information, not ingrained beliefs about the past and future, that is jettisoned. The claim by Sultan Al-Jaber, an oil executive and the president of COP28, that phasing out fossil fuels will take us ‘back to caves’ (Carrington and Stockton, 2023) highlights the dangers of this linear thinking. The habit of seeing human history through a lens of progress (Power, 2022) can be critically and productively examined in the history classroom.

One approach to dismantling the narrative of progress measured by disconnection from the natural world could be enlarging the temporal scale on which we look at humanity. ‘Big histories’ trace the origins of humans through all planetary time, running our ‘progress’ through all the agents that inadvertently created a suitable Holocene world for us (Christian, 2018). Deep time is a valuable contextual tool for history teaching, but it should be handled carefully, so that humans are not presented as a culmination of planetary history. These ‘big’ or ‘deep’ approaches can also work by emphasising contingency and co-evolution, exploring the fragility and wonder of life on Earth, and teaching students to value the whole history of it (Shryock and Smail, 2011). Much that we regard as today’s most valuable ‘resources’ came of deep time processes. Questions of what we use, where it comes from, how and why we use it, and what happens to it afterwards, are profoundly historical in nature. For example, we tend to divide prehistoric time by ‘advances’ in mineral and metal use (Stone Age, Bronze Age, Iron Age), and admire rulers who establish stable coinage. Yet research shows that rates of pollution produced by mining and metallurgy increases under ‘strong’ governments such as the Romans (McConnell et al., 2018), and that contamination remains in the soil centuries later (Asare and Afriyie, 2021). Classroom discussion about how to assess this more balanced and contextualised picture – rather than one that simply valorises exploitation of resources without considering the impacts – could be productive. It is important to see our usage as part of the ongoing planetary processes that have shaped what we take for granted in today’s world, but that are also highly implicated in the habitability of future environments (Power, 2022).

Another approach to unravelling ‘progress’ narratives involves asking different questions, which, again, can be done within teaching of established topics. Students should, of course, be equipped and encouraged to ask critical questions of all conventional narratives. This does not mean telling students that the narratives are incorrect, but rather asking them to think harder about such stories, recognising that ideas have their histories as much as everything else (for example, see Huber and Kitson, 2020). How do such narratives help us organise ‘the past’ into ‘usable history’? What assumptions and values might they carry – intentionally or otherwise? What perspectives might they overlook? For example, how might we think about the effects in Britain of what is commonly described as the ‘decline and fall’ of the Roman empire? How was the withdrawal of the Roman state, with its demands for large-scale grain, cattle and

salt production for export to the Rhine frontier, experienced by ordinary people, domesticated or wild animals, and vegetation? What happened in the centuries that followed (Fleming, 2021)? These sorts of questions could prompt reflection on whether ambitious, centralised, 'strong' states were inevitably better for non-elite people and environments, or might there be more complicated things to say?

One final element in this rationale for addressing climate and environmental crises in the history curriculum is the observation that this sort of work could be an important step forward for educators in these unprecedented times. It will not be easy. Teachers will have to help students learn to think and act in ways that are largely alien to the teachers' and parents' own education and socialisation. Yet it seems likely that for many of us, teachers and parents alike (Cripps, 2023), it might be a relief to be able to feel that we are doing our very best to prepare our students for the hard and deeply uncertain future that they face. There have been concerns about student (and teacher) mental health around addressing these issues in the classroom. Yet it seems to be the case that a studied silence from adults, a refusal to engage, or a determination to restrict classroom discussion to 'the science' is highly problematic for children's mental health and resilience (Vergunst and Berry, 2022). Humanities subjects – perhaps especially history – have a tremendous, almost untapped, power to speak to urgent educational and mental health needs in helping children deal with climate change psychologically and practically (Cutter-Mackenzie and Rousell, 2019; Rousell and Cutter-Mackenzie-Knowles, 2020; Seddighi et al., 2020). Humanities can offer better information, tell different and unexpected stories, teach critical skills and resilience, change minds, and stimulate imaginations. These have been widely identified as essential to any education that will adequately prepare children for the future (Groleau et al., 2021; Selby and Kagawa, 2018) and provide them with the hope and agency they need.

## Challenges in responding to the climate crisis in history classrooms

Climate change does not feature in the national curriculum for history in England, or in external qualifications for history students aged 16 and 18. At the beginning of the current national curriculum for history in England (DfE, 2013: n.p.), a paragraph about the purpose of studying history includes the statement that 'history helps pupils to understand ... the challenges of their time'. However, after this promising start, the nature of these challenges is never specified, nor is this goal explicitly referred to again. The goals of school history are frequently contested across the political spectrum in England and beyond, and often spill into public discourse because of perceived links between history and identity formation (Phillips, 1998). The current curriculum places emphasis on the accumulation of knowledge and understanding, rather than on the role such knowledge might have in helping young people understand 'their time'. This is in contrast to Lee's (2011: 147) argument that an important purpose of learning history in schools is to enable young people to understand that future possibilities are influenced – although not determined – by the past; otherwise, 'knowledge of the past is taken to be the accumulation of facts or stories that are necessarily confined to the past, and therefore irrelevant to anything present'.

Given that environmental perspectives are not currently embedded within the history curriculum for England, it is hardly surprising that there is limited existing practice by history teachers in England incorporating them, even where this is feasible. Until very recently, *Teaching History* and *Primary History*, the two main journals for history teachers in England, included few articles which focused on climate and the environment, notable exceptions being Hawkey et al. (2016), Morgan (2017) and Fidler (2022). The history curriculum in England is traditionally organised around national boundaries and human event scales, and even where innovation is possible – for example, in academies where it is possible to disapply the national curriculum – teachers do not always exploit such freedoms (Harris, 2018). The reasons for this are familiar: time is already at a premium, and squeezing new materials and topics into an overcrowded, over-examined and high-stakes curriculum is challenging. It also reflects teachers' training in British undergraduate and even graduate-level history programmes, where global history notwithstanding, geographical region and chronological period still underpin structure, requirements and even labelling of degree programmes. While some survey courses equip students to think across time and place, most history departments regard the focused source work of the third-year dissertation as the culmination of the degree, while master's and doctoral programmes are largely assessed through more advanced versions of the same exercise. Academic historians have been wary of writing on the large scale, or with climate and environmental factors at the forefront, often feeling ill-equipped to do

so. Although this is now changing quite fast, it takes time for such change to penetrate. History teachers have also been grappling with the imperative to incorporate more diverse topics into their curricula as part of a wider move to decolonise the school curriculum in the wake of the Black Lives Matter movement (Glowach et al., 2023; Moncrieffe, 2020), and there is a danger that asking them also to respond to the environmental crisis will be seen as just ‘one more thing’ to do. While we believe that radical curriculum change at state level is vital, we cannot simply wait until this is achieved; we must also support and encourage teachers to innovate within existing frameworks. There is certainly scope to achieve this, as we explore in a later section.

A further difficulty for schools arises from the framing of climate change as a ‘political’ topic, rather than, say, an educational priority. Yet the 2023 United Nations Emissions Gap report again shows how far action by national governments is falling short of what is required. Significantly, it asserts that ‘well planned and socially just transformations can bring economic benefits, create new jobs, advance gender equality, and empower people, communities and societies’ – but these must be deployed ‘immediately, and at unprecedented rates’ (UN Environment Programme, 2023: 2). These transformations are far easier to implement when the education system is aligned with their goals; that is, if it is producing new generations of well-informed workers, with at least a basic grasp of the causes and nature of current and future challenges, and a desire to tackle them through innovation and enterprise. With all this in mind, we must ask: what could reasonably be considered ‘political’ in the context of addressing global warming in the classroom, why might it be presented in this way, and how should teachers, as responsible educators, navigate the issues that doing so would raise?

Recent Department for Education guidance in England defines ‘political’ capaciously (DfE, 2022). It is anything ‘relating to ongoing government activity’; anything where ‘the main political parties have different views’; and ‘many ongoing ethical debates and topics’ where there is not wide public consensus (DfE, 2022: n.p.). It should be noted that the UK government’s own statistics show that there is ‘wide public consensus’ on climate change, with 75 per cent of adults ‘either very or somewhat worried about the impact of climate change’ (ONS, 2021a, 2021b). Where a matter is deemed ‘political’, teachers may teach it, but they must offer a ‘balanced factual account’. What does the guidance think that this looks like in relation to global warming? It states that ‘teaching about climate change and the scientific facts and evidence behind this’ is not political, but discussion of ‘potential solutions for tackling climate change’ might be political. The next sentence rather oddly transforms ‘potential solutions’ into ‘partisan political views on the best way to address climate change’. The legal duty of schools is to ‘prohibit the promotion of partisan political views’. But what are these, and how do they relate to the ‘potential solutions’ with which they appear to be elided? The guidance sees a ‘political view’ as one expressed with a ‘political purpose’, such as to ‘change the law or change government policy’. The inclusion of the qualifier ‘partisan’, defined as ‘one-sided’, seems to suggest that there is a category of ‘potential solutions’ that are *not* partisan. The section on climate change then concludes that ‘this part of the topic’, that is, potential solutions, ‘should be taught in a balanced manner, with teachers not promoting any of the partisan political views covered’ (DfE, 2022: n.p.). Being balanced and not promoting specific potential solutions seem to be the key concerns of the document, which can otherwise be read as broadly supportive of teaching about climate change. It does not restrict the subject areas in which this can be done. It does not even restrict discussions that fit its definition of ‘political’, provided they are conducted in a ‘balanced’ way.

How can schools work with this framing to achieve meaningful climate education, and how does history fit in? Thinking about climate education across the curriculum, students need to be equipped with a solid understanding of how scientific opinion is formed, including historically; how evidence and hypothesis work, and of the scientific consensus on the state of Earth’s systems and biosphere. Mathematical literacy is crucial (Coles et al., 2013; MetLink, 2024). Effects on different regions should be studied in geography, politics, economics and history. Impacts on human health (Romanello et al., 2023), and especially risks to children’s health (Etzel et al., 2021), need to be addressed in the PSHE (personal, social, health and economic) curriculum, together with social media as a source of climate information. All this factual and evidence-led teaching should give children a robust understanding of how experts in the relevant disciplines assemble and interpret their evidence to produce research-led conclusions.

Where teachers may feel more uncomfortable in the current framing is in equipping students with the skills to recognise and assess the merits of ‘partisan political views’ on how to tackle climate change. As citizens, students should understand the long-term roles of lobbyists, think tanks, political donors and corporate interest groups in shaping government policies (Lucas, 2021; Rocchi, 2022), influencing

environmental legislation, and sometimes spreading misinformation. In short, while the Department for Education rightly says that ‘partisan political views’ should not be *promoted* in schools, and that ‘misinformation’ need not be taught to provide ‘balance’, this is not enough. More needs to be done in the classroom. It can be done across different subjects, as each equips students to distinguish evidence-based research from misinformation.

The history classroom is a good place to use historical case studies to help students think about the development of government policy as a crucial element in political, social and economic history from at least the First World War onwards (McNeill and Unger, 2010). This could include how solutions to problems emerge, and why there might be different views on these solutions. As students already study propaganda, this is one area where the current curriculum may not need much adjustment. Historical case studies focused on the political uses of scientific research, and the complicated outcomes, could be illuminating. One example could be the decision of the US government during the Second World War to put resources and expertise into creating nuclear weapons, and to deploy them on the civilian population of Japan as part of broader political, military, military-industrial and economic strategies, a topic often taught in secondary schools in England. At the same time, students can scrutinise various narratives around those choices and their outcomes. ‘Slow violence’ is a useful concept here, as it focuses attention on less visible, long-term violence that unfolds slowly in places and lives – particularly the lives of the poor – from environmental toxins such as Agent Orange, to mining and industrial contamination, deforestation and soil loss (Nixon, 2011). Researching and debating consequential political decisions, especially those concerning the use of advanced technologies, will enable older students to reflect on the issues that have to be navigated by decision makers, and their ongoing effects on different groups. They will also be able to see how public attitudes are built, and how they change over time. Used in this way, balanced classroom discussion can be a key tool to educate students to assess conflicting views, to grasp the complexity of governmental decision making, and to become engaged and informed citizens.

While the technological aspects and scientific basis of many of today’s ‘potential solutions’ may be more appropriately explored in other disciplines, there are some larger considerations that are perhaps best approached through the study of the past. There is no doubt that the success of both mitigation and adaptation strategies will depend on the capacity of human populations to imagine and embrace transformative change. To take us to any meaningfully ‘liveable’ future, such changes will have to be culturally attentive, justice-oriented, and legitimised by informed public consensus (Cripps, 2022). We know that communicating the results of scientific studies has not produced this consensus. One element in a better approach is to ask children to develop an understanding of how previous societies have, over the millennia, tackled environmental and climatic challenges. What factors have contributed to vulnerability and resilience? What has led to more violent, destructive and inequitable responses, and what has enabled better transitions? How have responses to challenges impacted on different groups within society; for example, are impacts gendered? None of the conversations we suggest require schools to promote particular ‘climate solutions’, but they should equip students to develop a more clear-sighted view of why different groups favour different approaches, and that policy choices and political language are consequential.

## Further opportunities to enhance students’ understanding of the climate crisis in history classrooms

A radical overhaul of the national curriculum for history in England would need to take more seriously the proposition that the past young people learn about ought to be ‘usable’ (Lee and Howson, 2009) in helping them to understand the relationships between past, present and future. Often referred to as a type of historical consciousness (Rüsen, 2004), we argue that an understanding of the ‘challenges of our time’ (DfE, 2013), including the climate crisis, is considerably enhanced by a sense of our *orientation* in time, and an understanding of what it means to be a human being in this day and age in relation to the past (which we cannot remake) and the future (which we can make, but which is limited by the past and present) (Shemilt, 2009). These two concepts of a ‘usable past’ and ‘understanding the challenges of our time’ have profound implications for the school history curriculum. (See Kitson [2021] for a summary of what powerful historical knowledge might enable students to do.) There is only space here to illustrate briefly what a radical overhaul of the curriculum might look like. The first element is the pressing need to follow the lead of an increasing number of historians and embed an environmental perspective into



everything we teach. The second is the need to locate what we teach within a much broader framework of the past (Hawkey, 2014).

Our proposed curriculum would include an explicit environmental perspective alongside the more typical ones of social, political and economic history. This would help to shape specified areas of content, and it would encourage teachers to refer to environmental factors and impacts, whatever they are teaching. New areas of content, meanwhile, might include a greater emphasis on Indigenous histories, informed by recent recognitions of the superior expertise of Indigenous populations in maintaining biodiversity and managing environments sustainably (IPBES, n.d.; Pikirayi et al., 2022); or changing local landscapes and food production; or our ongoing relationship with natural materials such as wood, stone and fossil fuels. Students could engage with debates about when the Anthropocene began, and could be invited to share their own views (see Langdon [n.d.] for a classroom example of this). The intersection of issues such as race and environment could be explored in the context of colonial histories, and linked to contemporary debates about climate justice. Students could also learn about the more recent history of the environmental movement itself, marginalised for so long, but now increasingly mainstream. Study of any period and place could be enriched by voices expressing connection to, love of, and concern for the natural world in ways that shed new light on their societies. The definition of significant people in the past – a key feature of the current history curriculum for 5–7-year-olds in England – could be widened to include those who have helped to shape and define the ways we view our environment, such as Wangari Maathai (see Fidler, 2022) and Rachel Carson. Digital technology could be deployed to help young people reimagine lost landscapes. These approaches are a far cry from the well-worn topics often taught in schools, so well-worn that teachers themselves sometimes lose sight of why they are teaching them (Harris, 2013). Most are also possible within the current curriculum frameworks, with some imaginative thinking.

The call to structure young people's learning around a holistic framework of the past is not new. Shemilt (2009) presented a compelling case by drawing on research into young people's understanding as part of the Schools Council History Project evaluation study (Shemilt, 1980). The findings suggest that young people are rarely able to connect the specific topics they learn to more overarching themes, and that this can limit their ability to apply historical perspectives to the analysis of contemporary events and options. They may be more likely to provide 'monothetic' accounts, where history is viewed as a 'one-way street' – things happened because they happened. This could make students more likely to see the future as predetermined. Shemilt's solution was for students to periodically revisit an overall narrative framework. Updated to reflect new directions in historical research, this framework could take a global, rather than a national, perspective, and it could include changing relationships between societies and their environments.

In practical terms, we need a curriculum structured around history at very different scales, from the micro to the macro, rather than a lens which seems to be 'stuck' at a particular magnitude (Hughes-Warrington, 2005). We need to zoom out to the whole of human history, and, as we noted above, there are arguments to place human history itself into an even bigger cosmic framework (Christian, 2018), which demands a more interdisciplinary approach. We are not suggesting that other scales of history are less important, only that the macro scale is one that is often lost. Many students aged 11–14 in England (from which age history is no longer compulsory) will never study history earlier than 1000 CE (despite the requirement in the national curriculum to do so). Courses for those who continue their studies to 16 do feature a 'study in development' that commonly spans about a thousand years, but comparable units in previous years took students much further back in time. The argument that chronological understanding is best developed by starting with the Stone Age with 8-year-olds and moving on to more recent history as students get older is fundamentally flawed (Barton, 2009), and means that early history will forever be understood in simplistic terms and not properly connected to a more sophisticated framework of the past. To take one example, if we are serious about helping young people understand the changing relationships between humans and their environments, the shifts that took place in the Mesolithic and Neolithic need to be revisited and understood in increasingly sophisticated ways.

The need to study history of different scales is not only related to time, but also to space. The climate crisis, along with many other challenges of our time, is not defined by national boundaries, and yet history curricula – including in England – usually are. Just as the scales of time need to vary, so do the scales of place, with local, regional and global histories combining to provide a much more outward-looking, future-oriented perspective. There is already a wealth of material to support such study, looking at connections, movements of people, material objects and ideas over millennia. Combined with

environmental history, there is a growing body of work on pandemic diseases such as the Black Death or the 1918 'Spanish' flu. From a climate perspective, there is much work on the effects of climatic and other Earth systems changes through time and across the planet. For example, the effects of El Niño events in the Pacific included the Irish potato famine (Grove and Adamson, 2018), the French Revolution (Grove, 2007) and devastating famine across the tropical monsoon belt and northern areas of China and Africa, with lasting social and economic consequences (Davis, 2002: 6).

We have already noted the value of studying the past as a counter to a sense of determinism or pessimism that might be engendered by taking graphs showing temperature rises and other alarming trajectories as *social* predictions. While environmental and climate history has often focused on the effects of crises (for example, Parker, 2013), this can include examining examples of adaptability, creativity and resilience (see definitions in Van Bavel et al., 2020) – either within a wider, mixed picture, or as the key point of inquiry. What can be seen as 'sustainability', historically speaking, and how do communities work towards it (Van der Leeuw, 2019)? What enables societies or communities to work together for survival? What does this look like in practice? When do challenges provoke fruitful adjustments to existing approaches, positive innovations, even radical creativity? What kinds of societies and systems can be most robust and why? And, conversely, what factors weaken social cohesion, hamper fresh thinking and successful adaptation, intensify vulnerabilities, and lead to worse outcomes? What wider lessons can be taken from asking such questions?

One example is Degroot's (2018) work on the Dutch Republic during the Little Ice Age, which, he argues, prospered in a 'golden age', while others did not. There were many reasons for this, including the capacity of big Dutch merchant ships both to handle the changed weather patterns, and to use them to travel at faster speeds. The need to negotiate thickened sea ice drove technological improvisations, such as strengthening and greasing hulls. In warfare, one defensive measure against Spanish invasion was to flood fields around towns, which was more effective in a climatic regime of high rainfall and low temperatures. Stockpiling grain supplies and maintaining a more variable diet to reduce grain dependency were two further factors. The analysis is attentive to the fact that Dutch adaptation strategies, inevitably, came at a price: to the farmers whose fields were flooded; to those experiencing grain shortages due to Dutch monopolies; to the people and ecologies in Dutch overseas colonies; to Arctic whale and walrus populations (Degroot, 2018, 2022; see also Parker, 2013, on bad choices). In the classroom, it is essential to establish practices of critical reflection on the complex consequences of choices and actions, including proposed 'solutions'.

While radical change is needed, we know that this will take time. However, there is still much that teachers can do to embed an environmental dimension in their classrooms within existing curriculum frameworks. To take the example of the Industrial Revolution, ubiquitous across curricula for 11–14-year-olds in England, a more explicit environmental perspective could breathe new life into the topic. It would enhance students' understanding of the relationship between past, present and future, and the contingent nature of past events. Typically, the focus in schools is to explore the causes of the Industrial Revolution, emphasising inventions and entrepreneurs, the availability of raw materials from across the world, and the introduction of new forms of transport. The impacts of these changes commonly include the growth of towns, poor public health and child labour. There will certainly be pioneering teachers who already connect this narrative to the climate crisis. We would like to see more explicit encouragement and support of this, for example, by locating the Industrial Revolution in a longer history of energy, and exploring why it could quite easily have taken a different turn.

Around this latter point, there is a rich seam of scholarship which challenges a sense of inevitability that the Industrial Revolution would be based on the use of coal, and later oil. For example, there were many reasons why water provided a better source of energy than coal, given that, first, it was cheap and in plentiful supply most of the time (Malm, 2016) and, second, that the first steam engines were both expensive and inefficient (Bonneuil and Fressoz, 2017). The history of energy was not predetermined: 'its transitions and additions follow neither an internal logic of technical progress ... nor a logic of scarcity and substitution' (Bonneuil and Fressoz, 2017: 107), and the paths that were chosen owed much to the strategic interests of particular groups. Renewable forms of energy, such as wind and animals, remained widespread, and new forms such as solar power were investigated in the nineteenth century, suggesting that these were not perceived only as 'alternatives' or novel 'innovations', in the way they are in today's cultural and economic narratives. How far, then, does the Industrial Revolution represent a significant shift in our relationship with natural resources, and what kind of light does it shine on our love affair with fossil fuels? A question such as 'When and why did we become addicted to fossil fuels?' might

serve to open up these debates in classrooms, noting that not all societies and regions have followed this path of dependency. Students could explore concerns about the effects of widespread burning of coal that were voiced in Britain at the time, along with opposition to mechanisation and its wider impacts. Questions such as 'Why did people oppose industrialisation?' and 'How far did human attitudes towards the rest of the natural world change in the eighteenth and nineteenth centuries?' could be useful in opening up a sense of the diversity of opinions at the time, and the reasons for these. Collectively, these perspectives could challenge a sense of determinism, and could contribute positively to young people's understanding that choices made in the past were by no means inevitable, just as there are different choices available to us now that could take us in many directions.

Locating the Industrial Revolution in a bigger history of energy is another fruitful approach. Looking at 'flows and surpluses of energy' (Degroot, 2018: 302) is an effective way of bringing together humans and environment in history. How do different societies acquire it – from the sun, plant matter, the labour of domesticated animals and humans (free or otherwise), harnessing fire, water, wind, or burning stored carbon from earlier biomass? The point here is that for most of our history, fossil fuels were not a significant source of energy. This puts the current dependence of the modern world on coal, oil and gas into perspective. A bigger history of energy would go beyond the nineteenth century, which is seldom done, in England at least, and would consider the causes and legacy of the second Industrial Revolution, which saw widespread use of oil, electricity and the internal combustion engine. Leaving students at the invention of steam power does little to convey the magnitude of what the first Industrial Revolution started. Even better would be to bring the story up to date, and to consider the impact of fossil fuels in conjunction with sharp population increases from the 1950s, and equally sharp rises in personal consumption in many (although not all) parts of the world (a period some refer to as the 'great acceleration'). Questions such as 'What did the First Industrial Revolution start?', 'What factors drove increases in consumption?' or 'When did the Anthropocene begin?' might provide a way into these issues in classrooms.

## Conclusion

In a recent survey of teachers across all subjects and ages in England, 105 teachers of history reported including issues of climate change and sustainability specifically in their teaching of history in schools (Greer et al., 2023). Of these 105 teachers, 9.5 per cent claimed to commonly do so. Although it is encouraging that some history teachers do prioritise these issues, it does indicate that most teachers, in this case out of a relatively engaged cohort who completed the survey, do not connect the history they teach with the climate crisis with any regularity, if at all. In this article, we have set out compelling reasons for the inclusion of these issues in school history curricula, and we have speculated about why this is not happening on a meaningful scale. In this final section, we return to these issues, and we consider signs that the situation may be changing, but we end with a call for more urgency to achieve the curricular changes we badly need.

As we have already seen, environmental issues are absent from the history curriculum in England, so there is no obligation to address them (although there are opportunities to do so, if the teacher wishes). A further connected challenge that spans the whole school curriculum is the lack of subject-specific professional development for teachers. In the survey of teachers mentioned above, fewer than 13 per cent of respondents across all subject areas reported inclusion of these issues in their initial teacher education, and fewer than half reported any subsequent engagement in formal professional development to help them embed issues of climate change and sustainability in their teaching (Greer et al., 2023). Respondents who reported teaching history specifically were even less likely to have engaged in relevant formal professional development, and consequently the likelihood of history teachers introducing environmental perspectives in their lessons, about which they themselves may be very unfamiliar, is reduced.

More positively, there are signs of change in England that we can build on. The Historical Association is encouraging a focus on environmental history in classrooms through its programme of webinars and conference workshops, and environmental history is the focus of *Teaching History* and *Primary History* editions this year. The UCL Centre for Climate Change and Sustainability Education has launched a new programme of free online professional development for teachers in history called Teaching for Sustainable Futures (CCCSE, n.d.), and a new open access book specifically aimed at

supporting environmental history in the classroom has recently been published (Hawkey, 2023). Beyond England, there are promising signs that environmental issues are being embedded in history curricula, including where Indigenous attitudes are influencing curriculum reform and practices. In New Zealand, for example, the revised national curriculum for history identifies ‘place and environment’ as one of four knowledge contexts, which ‘focuses on the relationships of individuals, groups, and communities with the land, water, and resources, and on the history of contests over their control, use, and protection’ (Ta Poutahu Curriculum Centre, n.d.: n.p.).

However, this growing interest in how history education can support young people in their response to a climate-altered present and future is not yet matched by an equivalent sense of urgency. Opinions expressed by school students such as ‘where I get most of my information [about the climate crisis] from is online and social media ... because even though it’s pushed in my school, they’re not really doing anything. They just mention it every once in a while’ (Gillow et al., 2022: 11) reaffirm that not enough is being done across the whole curriculum, in England at least. Students may not realise the relevance of history in this context, but making this explicit could be hugely motivating. Discussions in the history classroom have a particular potential to be reassuring, and to open up spaces for reflection and hope. They combat determinist narratives about the future and the fears that these generate, showing children that there are always choices to be made. They ground the present crises in the past, enabling wide-ranging analysis of how we got here – and therefore ways in which we might act to change direction – and they enable students to consider how individuals and communities have chosen to act in existentially challenging circumstances throughout the centuries. We believe that history lessons that support these ways of thinking would be welcomed by many students by providing usable pasts that help them understand a hugely pressing challenge ‘of our time’ (DfE, 2013).

## Declarations and conflicts of interest

### Research ethics statement

Not applicable to this article.

### Consent for publication statement

Not applicable to this article.

### Conflicts of interest statement

Alison Kitson is an Editorial Board member of *History Education Research Journal*. All efforts to sufficiently anonymise the authors during peer review of this article have been made. The authors declare no further conflicts with this article.

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