



Facer, K., & Wei, I. (2021). Universities, Futures and Temporal Ambiguity. In *Futures* (pp. 192–210). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780198806820.013.12>

Peer reviewed version

Link to published version (if available):  
[10.1093/oxfordhb/9780198806820.013.12](https://doi.org/10.1093/oxfordhb/9780198806820.013.12)

[Link to publication record in Explore Bristol Research](#)  
PDF-document

This is the accepted author manuscript (AAM). The final published version (version of record) is available online via Oxford University Press at <https://doi.org/10.1093/oxfordhb/9780198806820.013.12>. Please refer to any applicable terms of use of the publisher

## University of Bristol - Explore Bristol Research

### General rights

This document is made available in accordance with publisher policies. Please cite only the published version using the reference above. Full terms of use are available: <http://www.bristol.ac.uk/red/research-policy/pure/user-guides/ebr-terms/>

# Universities, Futures and Temporal Ambiguity

Keri Facer & Ian Wei, University of Bristol

Corresponding Author:  
Keri Facer  
School of Education  
35 Berkeley Square  
University of Bristol  
Bristol  
UK  
BS8 1JA  
Keri.Facer@bristol.ac.uk

## Abstract

Thinking about the future does not happen in a vacuum. It happens in social institutions constituted through material practices that shape what can and cannot be thought. In this chapter, we argue that the University is a critical social institution that has for centuries defined for itself unique roles in relation to futures-thinking, first as arbiter of the foresight accessible to god and accessible to mankind; second, as arbiter of which human knowledge will contribute to progress. We go on to explore how today, as fundamental assumptions about time and change are being unsettled by the quantum sciences, by complexity theory, by the re-pluralisation of cultural concepts of time, the university is again working to define its distinctive role in a landscape where other actors are beginning to claim epistemic authority over 'the future'. We conclude by proposing that a new role for the university might lie in creating transparent, reflexive and responsible conditions in which different accounts of futurity and change might be negotiated. The chapter explores this new role specifically through examining how the university today might respond to the emerging condition of climate change.

## Universities, Futures and Temporal Ambiguity

In this chapter, we take as our focus the distinctive role of the university as a paradigmatic institution in the production and regulation of ideas about the future. These ideas matter, as they act on the world in multiple ways: through research and scholarship, embodied in students, performed by academics in public roles, and in setting societal expectations about what counts as valid knowledge claims about the future. The university as institution, however, is not merely a domain of ideas. It is embroiled in its own material and messy battles for survival, for funding, for prestige and epistemic authority. Its ideas of the future arise within the institutions and practices that emerge from these battles; they shape the knowledge that is produced, the students who are taught, the public voice of academics and the admission or exclusion of other forms of knowledge. Understanding key features of these tensions can help us to understand the conditions within which universities can even think about and speak for the future.

At the same time, the university is not just any other social institution. It is understood to have a distinctive relation to the future. Indeed, today it is precisely the terrain of the future over which the battles for the purpose and survival of the university are being fought (Clegg, 2010). In Europe and the Anglosphere in particular, national funding bodies demand that universities assure the future of the world by addressing 'grand challenges' through their research and scholarship (Facer, 2018). Governments and parents demand that universities offer guarantees of future economic success for students signing up for courses. Such demands imply first, that the university is seen as an institution that can act in powerful ways upon the future for societies and individuals, but equally and at the same time, that it is not to be completely trusted to do so without the governance of states and markets.

Such tension exemplifies what we see as the distinctive *temporal ambiguity* of the university: it is an institution expected to inhabit and work within a longer timeframe of stewardship of the past and care for the future but which still works in, learns from and is subject to the desires and concerns of the present. It is asked to arbitrate between the temporality of millennia and the timescales of political action and individual lives. This chapter aims to explore this tension both in contemporary universities and in the historical antecedents to today's institutions.

We begin by considering two critical moments in which the structures of the university and of university knowledge were renegotiated in response to changing social temporalities: first, the

encounter between the medieval university of Paris and the emergence of mercantile time; and second, the invention of the enlightenment research university in Germany in response to the proliferation of scientific academies and the disruptive novelty that these engendered. Through these two moments, we explore how universities have historically secured their epistemic authority by distinguishing between the specific 'futures expertise' of the university and that of other social actors. We then turn to the present to trace how changing social temporalities are again driving contemporary debates about the purpose and future of university knowledge and battles with new actors for epistemic authority. Finally, we conclude by proposing that the new epistemic authority of the university will be gained not by claiming that the university offers the sole locus of knowledge of the future, but by a new transparency about the distinctive ways in which a university works on the future as compared to other institutions; and by the creation of public spaces for negotiation of the contradictory political choices that emerge from the myriad university and non-university sources of future-oriented knowledge production.

First, though, a caveat. There is evidently no such thing as 'a university'. The very assumption that there is a singular 'idea of a university' following Newman, Humboldt and others, is always a normative statement that ignores the messy and highly contested history of how universities have evolved. Indeed, a defining feature of a university may precisely be in its ongoing debate over its purpose and structures, and its distinctive local responses to those questions. Today, with over 25,000 universities embedded in different cultures and institutional settings around the world, the idea of the university is far from settled.

In telling this story, therefore, we are not seeking to make a claim to have found the historical Ur-Text of 'The University' to which all universities should pay homage. Nor are we seeking to produce a definitive history of universities. Rather, we are hoping to foreground the way in which the debate over claims to expertise to speak about the future has long been at the heart of the university-society relationship. In so doing, we hope to understand more clearly what may be at stake as that relationship is being negotiated again today in the day-to-day life of universities around the world

### *University of Paris 13<sup>th</sup> century*

We begin by thinking with the University of Paris in the thirteenth century. At this period, members of the clergy, although neither studying nor teaching at the University, could nevertheless attend quodlibetal disputations held by the University's masters of theology at or close to Christmas and Easter. These were public occasions, open to men who could speak Latin, and each disputation consisted of two sessions. At the first session questions could be asked by anyone about anything (a quolibet, de quolibet, hence the name), then at the second session the presiding master gave a definitive answer to each question that had been previously raised and debated. Any cleric could therefore come along to this theological discussion to pose a question or a problem. This could be a question that he faced in confession or an interpretive problem. In any case, it would be a question on which he wanted to seek guidance in terms of how he should act and advise others to act – after all, his role was as confessor, his care was for the future souls of his flock, his responsibility was for their fate at the Last Judgement. In so far as the University trained men to preach and hear confession, and this was often declared to be the University's chief purpose, it was profoundly directed towards the salvation of Christians and an eschatological future (Burrow & Wei, 2000).

This was not, however, the only kind of future that concerned university men. Some of the questions asked at quodlibetal disputations were prompted by problems that clerics were facing as a result of the development of the new technologies of merchant time – a temporality in which time was equated with money and which enabled new sorts of trades and businesses. For example, a cleric might ask whether the local noblewoman's purchase of a life rent (where for example, she pays an

individual £1000 now and the individual pays her £100 for the rest of her life) was usury or not? Was such an annuity, as it would be called today, permitted? After all, if someone gave a sum of money in return for an annual payment for the rest of her life, she would eventually, if she lived long enough, have recovered her principal and received an additional sum, which might seem to be much the same as receiving interest on a loan, which was very definitely considered to be usury. And in so asking, the cleric stimulated a discussion, amongst the masters in the university, not just about rent and exchange, but about the future (Wei, 2000).

The theologians of the medieval university in Paris (and those concerned with canon law in Italy), were thus profoundly engaged with developing and negotiating different forms of knowledge about the future. The debate over whether the sale of a life rent was usury or not, for example, entailed a set of discussions about fair valuation and exchange that were fundamentally dependent on forms of prediction of the future: whether someone in the exchange could be expected to live for long, what their health might suggest, what their behaviour was likely to engender. Who, though, could claim to know the future for these individuals? Critically, the response of the theologians in the university to this sort of question was not to position themselves as making predictions about this sort of knowledge, but to *adjudicate on the question of who had the expertise to make these sorts of predictions*.

Here Thomas Aquinas articulated a basic approach that proved critical to solving problems relating to the future. In his *Summa Theologiae*, he distinguished between knowledge of future things *in themselves* – which he argued could only be known by God and revealed by God through prophecy if he so wished – and knowledge of future things *in their causes*, in other words, by the study of cause and effect. This understanding of cause and effect of material things – planets, stars and bodies, for example – was natural knowledge within which fields of specialisation could be established and then taught. Here experts like doctors and astrologers could legitimately make predictions.

At the same time, however, prophetic and eschatological knowledge of the future were still legitimate. Prophetic knowledge was a potentially unruly disruption that risked erupting at any point from any corner of society - it caused the clerics some trouble to manage this knowledge even as it served to bolster their authority through the church<sup>1</sup>. Eschatological knowledge was based on exegesis of ancient texts oriented towards the judgement of moral and ethical behaviour, or on visionary experience. These domains of knowledge of the future were delimited as separate from 'merchant time' and the natural knowledge of cause and effects.

Both temporality and futures were plural in the medieval university then: theologians were dealing with futures in this world and in the next; they were dealing with prophetic time and merchant time. And as a consequence the forms of authority for their claims were diverse: from ancient texts, interpretation and analysis of prophetic knowledge, as well as empirical analysis of causes. By retaining their right to adjudicate on who had the expertise to make predictions about the future, and by retaining oversight of the different forms of knowledge, however, the theologians retained their important role at the head of the hierarchy of learning in the university, pre-eminent above the lawyers, medical doctors, and philosophers.

What is notable, though, is not the fact that these thirteenth-century universities were already dealing with the sorts of predictions that are often identified with modernity, nor the diversity of their

---

<sup>1</sup> According to Aquinas - 'God could give prophetic knowledge to anyone, without regard for their intellectual ability and education' (33) 'As Aquinas viewed it, prophetic knowledge therefore cut across, indeed demolished, the hierarchy of learning which the masters valued so much [...] Prophecy was not a kind of knowledge where there could be specialisation, professional training, or expertise' (33)

approaches to working with the problem of the future, but that the role of the university in these deliberations was to determine *which sort of knowledge of the future should be applied in which contexts to which problems*.

Even in these medieval universities then, we see that the question of futures expertise, who should be considered to have it and how it should be developed, invokes questions of organisational structure and boundary drawing that merge epistemic, ethical and institutional considerations. We see, for example, a set of themes that will become familiar:

1. The delineation of boundaries between lay and expert knowledge of the future
2. The establishment of criteria by which different forms of knowledge of the future can be adjudicated - including the distinction between forms of future that can be discerned through the present and are therefore amenable to inquiry and expertise, those that are determinable through reference to ancient texts, and those that are discernible only through subjective or prophetic revelation; and
3. The defence of the university's social, economic and political power through the development of these distinctions.

This delineation of boundaries between different forms of knowledge of the future, and the identification of specific forms of expertise, also brings with it the idea that such expertise can be taught. A final theme therefore emerges, namely:

4. The responsibility of the university to educate students who will, in turn, work on and with the future and who will maintain the values of the university when they leave it and work in the wider world.

Indeed, this responsibility for education is what, reciprocally, sustains and provides the warrant for the university's authority; defining such knowledge as teachable, as therefore distinct from the knowledge that citizens would otherwise have had, constitutes the university as source of authoritative knowledge absent from other social institutions. The epistemic authority of the university in relation to the future therefore relies both on its research and its teaching functions.

### *The 18<sup>th</sup> Century emergence of the German research university*

The emergence of the research university is the second example we choose to think with. The eighteenth and nineteenth centuries saw significant debates over what should count as a university. Just as manufacturing was being industrialised in the midlands of England with the application of steam and iron, so the processes of making knowledge were industrialised in the midlands of Germany with the invention of the Research University.

Chad Wellmon acts as a useful guide to the transformational nature of this invention. In his analysis of the development of what he calls the 'new technology' of research universities in the eighteenth and nineteenth centuries, he argues that they were shaped in the first instance, by enlightenment demands for democratic access to 'useful knowledge' and for the creation of institutions that would shape the useful citizens that society evidently needed. Consider the University of Gottingen, for example, designed to provide an education in the professions that was oriented toward specialised and 'useful' knowledge and which was therefore radically different from the collegiate institutions and loyalties of the medieval universities.

However, as the pursuit of science was developing in the new academies of London, Paris and Berlin, there was increasing concern about whether the universities were being left behind in relation to the

new science. There was, therefore, some real doubt about the direction of the university. Should the university be eradicated, as an out-of-date institution that was not keeping up with the new technologies and methods proposed by the academies? Should it simply position itself as an instrument of the state and of state bureaucracy?

Wellmon argues that as the massive flood of text and books that characterised the enlightenment undermined the university's prior monopoly on knowledge, and as the scientific academies began to set up competitor institutions for the production of new knowledge, the university moved swiftly to sharply define its new distinctive role. It would no longer be known for inducting students into the analysis of canonical texts (such texts were now widely available), nor would it just be known as a producer of new knowledge (such was the work of the academies). Again and instead, it would define itself as the *'bestower of epistemic authority'* over new knowledge (Wellmon, 2015:183), defining precisely what was worth knowing and not knowing in the context of print-based information overload and new scientific development.

In other words, just as the medieval university adapted itself to changing mercantile time by retaining for itself the right to adjudicate on questions of expertise in relation to future knowledge, so too, the research university reclaimed its distinctive role in a culture of radical novelty, by retaining for itself the role of adjudication on *new* knowledge. As Wellmon puts it, the research university

*"was a system or, as F.W. Schlegel put it, a 'living encyclopedia' in an age thought to be beset by fragmentation and proliferation. And it was designed to organise the institutions, materials, practices and people of knowledge into a relationship, to order into a coherent whole whose end was science. The research university and its ethos of specialised science were a solution to a particular problem in the history of knowledge. The research university stood in for a particular way of managing and legitimating knowledge." (Wellmon, 2015: 264)*

The key mechanism for sustaining this 'living encyclopedia' was the development of the scientific discipline as both a way of organising knowledge and for producing the 'disciplinary self', namely, of producing the student and scholar who is able to discern what knowledge mattered, what questions could be asked about new knowledge, and what inquiries should be pursued in the search for new knowledge. Here, the university was no longer adjudicating only on the question of what could be known by man and what by god, but on the question of what, of all human knowledge, was worth knowing.

The development of the discipline as a core component of the research university's epistemic authority has a number of important consequences for the spatial and temporal form of the university. First, spatial: the reorganisation of the university around distinct disciplines produces a new locus of authority for the university independent from both church and state and located in the scholarly infrastructure of the discipline. The warrant for such a shift, however, necessitated that other potentially competing secular forms of knowledge be undermined. As Dussel (1993) argues, the idea of the disciplinary self, led by reason, was produced through the construction of Africa, of the East, of the Americas as characterised by unreason, or, in Kant's terms 'guilty immaturity'. It depended upon the denial of the scholarly traditions of the Islamic libraries and Islamic scholars (amongst others) and the continuing exclusion of women, and of women's knowledge, from the academy. It depended upon the framing of different cultures not as different but equal but as, again in Kant's terms 'manifestly inferior' (quoted in Dussel, 1993), and upon a reframing of the university not as one site of knowledge within society, but as the ultimate means and realisation of progress..

Second, the temporal foundations of the university also evolved with the emergence of disciplinarity. As Collini argues, disciplines offer a different moral and temporal imperative for inquiry to be *'undertaken under the sign of limitlessness'* (2017: 234) where *'the open-ended quest for*

*understanding has primacy over any application or intermediate outcome'* (234). Becoming disciplined, in this perspective, means entering a temporality that connects past inquiry with open-ended future inquiry, and sees the present merely as a provisional moment within that much longer timeframe in which new knowledge is judged against a narrative of progress.

Finally, from both of these moves – the temporal move relocating authority with the discipline and the spatial move of eradicating other knowledges - arose an intensification of the conception of the university as occupying a distinctive space-time – as a site within but distinct from the everyday, from the other, from the present. As Collini puts it, unconsciously eliding spatial and temporal dimensions, the research university is understood as *'partly-protected space in which the extension and deepening of understanding takes priority over any more immediate or instrumental purposes'* (2017: 233). From this comes the university's contemporary temporal ambiguity.

### *Today: troubled times*

These two examples draw attention to how universities have reconfigured themselves in response to distinctive changes in temporal regimes in wider society in order to ensure their continuing epistemic authority. Whether making claims for the limitless temporality of the discipline, or the distinctive authority of canonical knowledge, whether making claims about how to adjudicate what can be known, or what is worth knowing amongst all of human knowledge - the university has successfully made a niche for itself as a pivotal institution for the production of what we might call 'time-knowledge', namely, the regulation and governance of *how to build knowledge about known and unknown, cause and effect, past and future*.

Today, there are grounds to argue that we are witnessing a moment of reconfiguration in secular temporality as dramatic as that witnessed in the medieval emergence of merchant time or the enlightenment's eruption of performative novelty. Modernity's risk-based probabilistic orientation to the future, dominant for the last century and which promised rational secular responses to uncertainty is looking increasingly vulnerable - both in its failure to offer a foundation for personal agency (Reith, 2014) and in its ethical shortcomings (Adam & Groves, 2007). At the same time, complexity and quantum theory unsettle linear accounts of cause and effect, introducing concepts of phase changes, radical disruption and simultaneity that undermine predictive power. Alongside this, the resurgence in knowledge from the global south and marginalised north (De Sousa Santos, 2018; Kinpainsby, 2008; Fals Borda, 1991) and from feminist and materialist epistemologies (Lather, 1995; Haraway, 2017, Harding, 1996) draw attention to the intellectual and social costs of enlightenment's singular and linear narrative of progress. What it means to produce powerful knowledge of the future is therefore being questioned inside the academy. Whose knowledge counts, for what purposes, under what conditions and to what ends is being debated as fiercely as the medieval university debated what could be known by God, astrologers, medics and clerics<sup>2</sup>.

Just as the epistemological foundations for modern time-knowledge are being unsettled by these challenges, so too a set of interconnected, global problems present themselves in the wider world as requiring urgent attention as well as knowledge and action across multiple timescales. Most obviously, the distinctive contemporary condition of climate change requires ways of knowing that comprehend the non-linearity and complexity of global climatic systems, the capacity to think at the

---

<sup>2</sup> One example of this is the fierce exchanges relating to feminist and materialist anthropologies and science studies, where some scholars' proposals to 'stay with the trouble' living in the complexity of the deep present are met by angry demands to get with the programme and develop solutions to the problems of climate change. The very question of the temporality most appropriate to scholarship is at stake in this debate.



scale of worldly phenomena as well as to attend to the distinctive local patterns of climate change, and the authority to act within the time-scale of contemporary political and economic cycles with reference to an ethical timescale of decades and centuries. Specifically, such realities require a renewed engagement with the question of how we might 'know' and 'make' the future, and the ethical responsibility of the present. That such knowledge so far eludes us both in universities and in society is evident (Rickards et al, 2014).

In this context, when the university is unsure of its own epistemological foundations and when global pressures are demanding new ways of acting over multiple timescales, it is not surprising that a range of new actors are now seeking to claim epistemic authority over time-knowledge. Outside universities, as Andersson (2018) has documented meticulously, a professional cadre of futurists has grown up, proposing methods and practices that claim to provide distinctive forms of knowledge adequate for conditions of radical uncertainty about the future; its new clerisy offering rituals such as scenario planning that offer both personal enlightenment and organisational absolution from responsibility for the future. Elsewhere, structural innovations are developed to address the same problem – in the arena of climate change, in particular, we see the emergence of intergovernmental fora comprising eccentric combinations of academic, political and public knowledge, being convened to attempt to arbitrate on the forms of action that might be adequate to address global complex change processes over long timescales. Commercial companies are also happily moving into this space, offering future-facing predictions through lobbying activity, in the gap left by academics concerned not to exceed their empirical understanding.

These developments mean that in universities today changes are underway. Fields such as innovation studies, governance studies, anticipation studies and sustainability studies are emerging to attempt to grasp the complexity of the processes at play in making and attempting to create knowledge of and for a future that persistently exceeds disciplinary inquiry. New institutional structures are being established: the Martin Institutes for the Future at Oxford, the Leverhulme Institute for the Future of Intelligence, The Lancaster University Institute for Social Futures, the Edinburgh Futures Institute (to name just the most notable examples in the UK) bring together academics from multiple disciplines organised around specific named 'future challenges'. These institutional changes have implications not only for the type of knowledge being produced in universities, but for the identities of academics and students working and learning within them. Here, the discipline struggles to act as locus of authority for judging the value of the knowledge being created in these fields – what will replace this, whether new accounts of 'social impact' or internal forms of identity production, however, is very far from clear.

As in previous periods, the internal reconfiguration of knowledge in the university is being matched by a process of renegotiating the boundaries between academic and lay knowledge. Research councils across Europe for example, make demands for academics to 'co-produce' research with 'publics' to ensure the 'relevance' of university research. Politicians say that they have had 'quite enough of experts' when it comes to popular debates<sup>3</sup>. And yet, it is clear that the university is not simply being ignored or replaced by other actors. Indeed, the university remains subject to increasing political debate and intervention seeking to transform its research to 'social' purposes (May, 2005; Hale, 2008; Strathern, 2007). What form this knowledge should take, in whose interests it will act and what epistemological foundations it will be built on, however, remains subject to intense debate. Recent studies of the processes of co-production of research, where boundaries are being renegotiated in the day-to-day meetings and exchanges between academics and actors outside the university, for example, highlight variously its radical emancipatory potential to re-engage with forms of public knowledge disavowed since the enlightenment (Jasanoff, 2005), its potential to reduce academic

---

<sup>3</sup> This is a now notorious quote from Michael Gove, a government minister, during the UK's Brexit Referendum.

knowledge to the practice of commercial public relations (Andersson & Westholm, 2018) and its capacity to reinforce and reinstate academic authority over other forms of previously marginalised knowledge (Facer, 2019)

Implicated in these changes is, again, a struggle over the temporality of the university. Debates over the 'relevance' of the institution relate fundamentally to the question of the allegiance of universities to the present, to a disciplinary history or to a longer-term future. Is the 'rebellious' time of scholarly slowness (Papastephanou, 2015) an invaluable foundation for creating time-knowledge, or an impediment to understanding the 'fast-time' of global challenges and market pressures (Guzman-Valanzuela & Di Napoli, 2015). There are competing ideas about whether the university is responsible to the present or better understood as

*'a collective but intangible enterprise sustained across time, both past and future, which is not the property of any one individual or group of institutions or even generation' (243) [but in which] 'we are only the trustees for the present generation of a complex intellectual inheritance that we did not create, and which it is not ours to allow to be destroyed'. (Collini, 244)*

In these debates, the idea of a university serves as the locus of desire for an institution, a site of epistemic authority, that is capable of creating knowledge that is adequate to the problem of the future - even as its right to fulfil that desire independently of social scrutiny is being questioned.

#### *Discussion: Tomorrow's Universities?*

Reflecting on these negotiations in the university in response to changing temporal regimes we might simplify our narrative as follows: the medieval university can be understood to frame the problem of time-knowledge as a problem of what could be known about the future through inquiry as opposed to through turning to god and god's word; while the enlightenment research university framed the problem as one of determining which, of all of humanity's new knowledge, could be judged to be valuable in securing the idea of progress. Today, what is at stake in conditions of complexity and uncertainty is the proper relation between a necessarily partial knowledge of the future and ethical action in the present (Adam & Groves, 2007). As Reith observes:

The profound uncertainty generated within a globalized, indeterministic world erodes the basis for decision making, freezes action, and ultimately blocks the possibility of forward movement into the future. Indeed, the future no longer exists as something that is open to 'colonization' by confident, rational action, but rather as a site of anxiety, full of unknowns, that is not amenable to human intervention. This creates a quandary, for although the future may be radically contingent and unknowable, the individual must still engage with it. The problem that now faces them is – how to act. (Reith, 2014)

In the remainder of this chapter, therefore, we shift from analysis of the past and present of universities, to a set of normative propositions about the role that a university might take in these conditions. Centrally, we propose that the form of time-knowledge capable of exercising epistemic authority under these conditions must be characterised by deep reflexivity about the way that knowledge of the future is produced, by attention to the political nature of translating that knowledge into actions in the present, and by explicit recognition of the praxis of the university as a knowledge actor, namely, as an institution that both generates theories of the future and is an actor in making futures. This implies, more precisely, that the university needs to develop meta-reflexive knowledge (Archer, 2012) that simultaneously attends to the origins of knowledge, recognises the performativity of knowledge and acknowledges the responsibility of knowledge actors for the worlds that they are making even if they cannot know the outcomes of such world-making in advance. To explore what this might look like, we focus on the issue of climate change, as this is an overarching condition of our

time and the sort of hyperobject (Morton, 2013) that brings into sharp focus the need for a new form of time-knowledge.

The plurality of forms of knowledge that will be required to understand, address and live with climate change is evident. In this area, western traditions of scientific disciplinary knowledge have been essential to building an empirical understanding of the material nature of the physics of climate science at a global scale. The epistemic authority and power of such models, however, needs reframing. It is not to be understood in their detachment from the world in the 'no-place' of a supposedly objective academy but precisely in the patient, slow production of data from local actors working with a detailed knowledge of their local conditions, around the world (Latour, 2015). This scientific empirical understanding, moreover, is not all that is needed or wanted to comprehend the meaning of climate change for our societies. Rather, the wisdom to live with climate as a living, recalcitrant, nurturing, disruptive and active entity is required; along with the affective capacity to care for its implications for different peoples and places. Here, western scientific knowledge has less to offer. Instead, other knowledges, rejected by the enlightenment academy, may help. As Zoe Todd observes, for example, Inuit knowledge has long been shaped by the concept of *Sila*, understood both as 'climate' and also as "the breathe [sic] that circulates into and out of every living thing" (Qitsualik 1998, quoted in Todd, 2016). This is a form of knowledge that has led to global Inuit leadership in the field of climate change and to practices of life that are compatible with living within planetary boundaries (Todd, 2016). Building knowledge of what it means to live with climate, with *Gaia*, with *Sila*, therefore, is unlikely to be the preserve of western science alone.

At the same time, climate change is also a cultural, social and political phenomenon that will manifest its effects radically differently in, say the low lying islands of the pacific, the ocean sea front of Miami, the archipelago of Mumbai and the port of London. Here, it is necessary to understand the historic entanglements between the physical phenomenon of global warming and the situated cultural and political phenomenon of living with climate change, an entanglement shaped by political and historical forces of empire that both accelerated and impeded the emergence of fossil-fuelled civilisations in different parts of the world (Ghosh, 2017). Historic, social and political accounts of the world, therefore, are required. Notably, however, such accounts will necessarily need to draw on experiences and knowledge that have been excluded from western universities embedded deep within the traditions of empire (De Sousa Santos, 2007/2018; Fals Borda & Rahman, 1991). Gestures toward such practices might be seen in Latour's proposal that the climate change debate be reframed as a nexus for encounters between situated, local, specific and distinctive forms of knowledge in which the very embodied and embedded nature of its modes of production are introduced into the encounter. His proposal that such encounters might be built into the international climate negotiations, however, are unlikely to be taken up given the current state of the global infrastructure for such discussions (Anderson 2017).

Here, then, is an urgent role for the university today, and one that no other institution is likely to take up, namely, to stimulate controversies amongst different knowledge traditions and to convene publics and around matters of concern (Simons & Masschelein, 2009). This means, to bring together the globally and epistemologically diverse practices of knowledge and scholarship that may provide insights into how we might understand and live with the broad condition of climate change. Such a process of convening would make transparent the material and social origins of such knowledge and the competing interests shaping how that knowledge is being made. This should not be understood as a move to relativise all knowledge, nor to read all knowledge as reducible to social and political interests that inform its production. Rather its purpose would be to create the conditions for debate about the grounds upon which, collectively as local and global societies, we wish to build and trust the knowledge we make of the future, and the choices that we have to make in that process. Rather than depending on global negotiations via nation states, this suggests that universities, embedded in place

but within global networks, might act as a site for localised but globally interconnected encounters between different forms of knowledge. Here the epistemic authority of the university would lie less in claiming the monopoly over the creation of valuable knowledge, and more in transparently creating conditions within which different knowledges and their implications might be contested.

If this thought experiment were to become a reality, if the creation of a new public space for encounter between different forms of knowledge were to become a role of the university, however, the university's own allegiances and interests would reciprocally need to become transparent. This means addressing the university's own economic allegiances, commitments to particular modes of knowledge production, selection of students and staff and, in many cases, close affiliation with and dependence upon fossil fuel industries and their finance (Wright, 2017; Barnett, 2018). In taking up this role, the university's own affiliations, identity and dependences become an epistemological rather than an organisational concern and reposition the university as an actor embedded within and in many cases complicit with preserving the political, economic and material structures of a carbon-based economy. Addressing these issues will require not only the development of methodological tools that better make visible and trace the ways in which knowledge is being produced through research and teaching but may also engender significant change in processes as diverse as student recruitment, institutional investment and patterns of academic travel and dialogue. Here, the processes of decolonisation of universities and the preparation of universities to act as a platform for addressing climate change, are likely to align.

Such a spatial shift disrupts the framing of the university as outside and separate from society. This does not, however, necessarily imply a temporal shift. Indeed, the primary warrant for the university to act as this site for enabling such climate debates may be precisely in its temporal ambiguity. As Nigel Thrift observes, universities may be the only institutions capable of engaging in what he calls: 'temporal arbitrage', between the long-term environmental, economic and social problems of complex, inter-dependent global societies and the short term political and practical questions of how to act in these societies. Universities, he argues, are the only institutions capable of investing in the long term projects for research and investment needed to address such problems as well as communicating and engaging with societies on a day to day basis to translate that knowledge into action. Provocatively, he draws on Brian Aldiss's recent Science Fiction novel *Finches of Mars* to envisage a future global university institution 'Universities United' that takes on the responsibility for saving the planet by developing the means to populate other planets.

While the hubris of Finch's Universities United is clear (and its affiliation with escapist technological fantasies of salvation evident) there is something in this notion of temporal arbitrage that merits unpacking. Indeed, we might use this generative metaphor to consider how, across disciplines, academics are engaged in the practice of working across and between temporalities. Not only are academics, in their disciplinary identities, working within communities of scholars that extend from the deep past to the future, but the very practices of research and scholarship are dependent upon working in multiple temporalities. The practice of stewardship and scholarship that has characterised universities since medieval times and which continues to be central to university institutions from libraries to museums and in all disciplines of the humanities, for example, engages deeply with bringing the past into the present. The practices of modelling that are evident in everything from climate science and economics to the arts and literart studies, engage academics in imaginative encounters with the future and the past. The practice of experimentation that characterises fields from sciences and engineering to socially engaged professional practice, brings new beings and activities into the world (Facer, 2018).

Critical to a university that is able to engage in temporal arbitrage responsibly, therefore, is the reflexivity necessary to name these modes and to consider carefully how and under what

circumstances these modes of temporal arbitrage should be employed. When are stewardship, experimentation and imagination required and how can and when should they be combined? Such questions may be addressed by modes of interdisciplinarity that focus not only on the common theme being explored but on the assumptions about the relationship between knowledge, ethics and agency that different disciplines are premised upon.

In making this argument, we are not suggesting a reorientation of the university to 'The Future' such as that proposed by those who would turn universities into 'innovation engines' for example. Rather, we are recovering and making explicit an older argument, one found in Alfred Lord Whitehead's analyses, that the university might best be understood as a place where 'the adventure of thought meets the adventure of action'. In so doing, we are proposing that an enriched attention to the *praxis* of university knowledge, to the interplay between ideas and actions, will be a component of the university's response to the changing secular temporal regime of today. Diverging from Whitehead, however, and recognising that deep complexity is a condition of climate change, we would propose that this attention to praxis should be characterised not only by attention to the interactions between theory and knowledge, to the interplay between stewardship, experimentation and imagination, but also to the attentive monitoring of what emerges from this praxis, and to the unintended consequences and worlds that ensue. In other words, attention to praxis in conditions of complexity requires a constant attention to what is being made through the interaction of knowledge and action.

The current orientation of the university to what is emerging in the world is akin to Benjamin's Angel of History (Fig 1), thrown backwards into the future staring horrified at what is being made, as if separated from what it sees. Instead, thinking of the university as an institution of temporal arbitrage might better be understood through the Adinkra symbol of Sankofa (Fig 2). This is a rich and complex image, usually interpreted as meaning 'it is not taboo to fetch what is at risk of being left behind', which shows a bird reaching backwards to place or hold an egg in its wings. Here, the image is of resolute movement, change and novelty but also stewardship, care, concern for those and that which is at risk. Rather than an angel, disconnected from the world, being blown backwards horrified into the future, here, the bird has a commitment to care and responsibility for past and future. Walking forwards, looking back, paying attention, taking care.

What might such observations mean for the twinned roles of research and teaching in the university? They would imply a sharp attention to the question of which knowledge traditions, histories and peoples are present in both teaching and research; they would require a methodological debate that engages with the orientations toward temporality that are latent in different disciplinary and knowledge traditions; and they would require an exploration of the ways in which these might be productively put into dialogue. They would also imply a reframing of the university as a site of modest temporal arbitrage that is both working in the time of the world, working beyond the time of the world and working alongside it. Namely, engaged with the present, drawing on past and future to open up spaces of possibility and dialogue and taking responsibility for how the world evolves.

## Conclusion

Thinking about the future does not happen in a vacuum. It happens in social institutions constituted through material practices that shape what can and cannot be thought. The University is a critical social institution that has for centuries defined for itself unique roles in relation to futures-thinking, first as arbiter of the foresight accessible to god and accessible to mankind; second, as arbiter of which human knowledge will contribute to progress.

Today, as fundamental assumptions about time and change are being unsettled by the quantum sciences, by complexity theory, by the re-pluralisation of cultural concepts of time, the university

again is working to define its distinctive role in a landscape where other actors are beginning to claim epistemic authority over 'the future'. In this chapter we argue that the long term implications of these changes is far from clear, but we propose that there may be a critical role for the university in acting as a site of temporal arbitrage between long term global conditions such as climate change, and the immediate, local and specific choices that are facing local and national communities. Such temporal arbitrage, we propose, would not consist in the highhanded appropriation of the future by universities on behalf of society, but of creating the conditions within which the different accounts of futurity, change and living with climate change might be negotiated. Epistemic authority here, we propose, is characterised by the creation of conditions of transparency in the processes of knowledge production, reflexivity about the ways in which different forms of knowledge production work on the future, and responsibility in complexity.

## Acknowledgements

Thanks to the organisers of the 2018 Grappling with the Futures Symposium at Harvard where Keri presented an early version of this paper. Thanks also to the Arts and Humanities Research Council for their support of Keri's fellowship, grant reference number: AH/N504518/1

## References

- Adam, B and Groves, C (2007) *Future Matters: Action, Knowledge, Ethics*, Leiden/Boston: Brill
- Andersson, J and Westholm, E (2018) *Closing the Future: Environmental Research and the Management of Conflicting Value Orders*, Science, Technology and Human Values, XX-X, 1-26.
- Anderson, K (2017) *Personal Reflections on the 23<sup>rd</sup> COP in Bonn-Fiji*, Blog post, accessed 14. December 2018, <https://kevinanderson.info/blog/personal-reflections-on-the-23rd-cop-in-bonn-fiji-nov-2017/>
- Appadurai, A (2000) *Grassroots Globalization and the Research Imagination*, Public Culture, Volume 12, Number 1, Winter 2000, pp. 1-19
- Barnett, R (2018) *The Ecological University: A feasible Utopia*, London: Routledge
- Burrow, J & Wei, I (eds) (2000) *Medieval Futures: Attitudes to the Future in the Middle Ages*, Woodbridge
- Clegg, S (2010) *Time Future- the dominant discourse of higher education*, Time and Society, 19 (3), 345-364
- Collini, S (2017) *Speaking of Universities*, London: Verso, Chapter 11: Who does the university belong to? Pp231-287
- De Sousa Santos, B (2018) *The End of Cognitive Empire: the coming of age of epistemologies of the south*, Durham& London: Duke University Press
- De Sousa Santos, B. (2007) *Cognitive Justice in a Global World: Prudent Knowledges for a Decent Life*. Lanham: Lexington Books.
- Dussel, E (1993) *Eurocentrism and Modernity (Introduction to the Frankfurt Lectures)*, Boundary 2, No1 20, No 3
- Facer, K (2017) *The University as Engine for Anticipation: Stewardship, Modelling, Experimentation and Critique in Public* in R.Poli (ed) *Handbook of Anticipation*, New York: Springer
- Facer, K (2018) *Universities as Engines of Anticipation*, in R. Poli (ed) *Handbook of Anticipation*, New York: Springer

- Facer, K (2019 – in press) Danish yearbook paper reference
- Fals Borda, O. and Rahman, A. (1991) *Action and Knowledge: Breaking the Monopoly with Participatory Action Research*, Apex Press, New York; Intermediate Technology Publications, London.
- Guzman-Valenzuela C and Di Napoli, R (2015) Competing Narratives of Time in the Managerial University in Gibbs, P et al (eds) *Universities in the flux of time: an exploration of time and temporality in university life*, Abingdon: Routledge, p 154-167
- Haraway, D (2017) *Staying with the Trouble*, Durham & London: Duke University Press
- Jasanoff, S. 2005. *Designs on Nature. Science and Democracy in Europe and the United States*. Princeton, NJ: Princeton University Press.
- Kinpaisby, Mrs. (2008) Taking stock of participatory geographies: envisioning the communiversity. *Transactions of the Institute of British Geographers*, 33(3): 292–299.
- Lather, P (1995) The Validity of Angels, *Qualitative Inquiry*, 1 (1), 41-68
- Harding, S (1996) Science is ‘Good to Think With’, *Social Text*, 46/47, 15-26
- Hale, C. (ed) (2008) *Engaging Contradictions, Theory, Practice and Methods of Activist Scholarship*, University of California Press
- May, T (2005) “Transformations in Academic Production Content, Context and Consequence.” *European Journal of Social Theory* 8 (2): 193–209.
- Tsing, A (2017) *The Mushroom at the End of the World*, Duke University Press
- Papastephanou, M (2015) Higher Education and an ethic of time in Gibbs, P et al (eds) *Universities in the flux of time: an exploration of time and temporality in university life*, Abingdon: Routledge 168-181
- Poli, R (2017) *Introduction to Anticipation Studies*, New York: Springer
- Reith, G (2014) Uncertain Times: The notion of ‘risk’ and the development of modernity, *Time and Society*, 13 2-3, 383-402
- Rickards, L et al (2014) Opening and Closing the Future: climate change, adaptation and scenario planning, *Environment and Planning C, Government and Policy*, 32, 587-602
- Simons, M and Masschelein, J (2009) The Public and Its University: beyond learning for civic employability? *European Education Research Journal*, 8 (2) 204-217
- Thrift, N (2016) The University of Life, *New Literary History* 47(2-3):399-417
- Wei, I.P (1995) The Self-Image of the Masters of Theology at the University fo Paris in the Late Thirteenth and Early Fourteenth Centuries, in *Journal of Ecclesiastical History*, Vol 46 NO 3, 398- 431
- Wei, I.P (2000) Predicting the Future to Judge the Present: Paris Theologians and Attitudes to the Future in J.A Burrow & Ian P Wei (eds) (2000) *Medieval Futures: Attitudes to the Future in the Middle Ages*, Woodbridge
- Wellmon, C (2015) *Organising Enlightenment: Information Overload and the Invention of the Modern Research University*, Baltimore: Johns Hopkins University Press
- Wright, S (2017) Can the Unviersity Be a Liveable Institution in the Anthropocene in R Deem and H Eggins (eds) *The University as a Critical Institution?*, Rotterdam: Sense Publishers