THE UNIVERSITY AND THE ALGORITHMIC GAZE

Lesley Gourlay

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BLOOMSBURY ACADEMIC
Bloomsbury Publishing Plc
50 Bedford Square, London, WC1B 3DP, UK
1385 Broadway, New York, NY 10018, USA
29 Earlsfort Terrace, Dublin 2, Ireland

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First published in Great Britain 2025

Cover design: Jade Barnett
Cover image © Nenov / Getty Images

A catalogue record for this book is available from the British Library.

A catalog record for this book is available from the Library of Congress.

ISBN: HB: 978-1-3502-8157-8
ePDF: 978-1-3502-8158-5
eBook: 978-1-3502-8159-2

Typeset by Deanta Global Publishing Services, Chennai, India

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Preface

As I open my laptop to write this preface, I reflect that this book has turned out somewhat differently from the one I thought I would write back in February 2021 when I started putting together a proposal. This, I feel, reflects some of the circumstances that surround writing it. First, although I am finishing it now in February 2024, it is in many ways a Covid-19 lockdown book. It is increasingly clear to me that the themes of being seen or not seen, being surveilled, being invisible, seclusion and co-presence or the lack of it are interconnected with the lived experience of the pandemic. This coincided with another major change to my professional direction, in which I was lucky enough to be granted a three-year full-time Leverhulme Major Research Fellowship to pursue my solo studies. The combination of two years of on–off lockdowns in the UK followed by a solitary desk-based project has given me ample opportunity to reflect on the nature of academic work, and that experience has had the effect of moving my focus towards a preoccupation with the rich, subtle and (to me) somewhat mysterious nature of the *lived experience* of study, scholarship and being part of a university, leading me to take my first steps into the postphenomenology of practice. Now that I have come to the end of this book (which has been written in a variety of locations sporadically across around three years, interspersed with various papers), I am aware of the influence of both my complex-lived experience of writing it and the profound philosophical shift I have experienced.

This is not a book about algorithms as such, despite the title. It is not a technical investigation into what algorithms are, what they do or how they operate in the university in a strict sense. There are many other scholars far more qualified than me to take on that important and highly topical field of enquiry. My previous work has attempted to explore how the digital is experienced in study practices, scholarship and authorship; in my last book and other papers, I made a case, alongside others in my field, for the notion of the agency of digital technologies and devices, entangled with bodies and texts in human/non-human relationships and assemblages, following posthuman theory. From that point, I became interested in thinking about the agency of digital technologies in more depth.

In 2020, during the Covid-19 pandemic, in the UK as in many countries, schools were closed for long periods due to the government policy of 'lockdowns'. As a result, high school exams were cancelled, and a standardization algorithm was used by the school regulator bodies in England, Wales, Scotland and Northern Ireland to predict school students' results. When the A-level results were released (exams taken at age eighteen and used for university entrance), a substantial proportion of students received grades lower than their teachers' predictions. There was a huge and extended public outcry, and eventually the government backed down and allowed the teacher-predicted grades to be used instead. This is a brief simplification of a very complex story (see e.g. Bedingfield 2020 for more details), but it was at that point that I started to think about the power and agency of not only the algorithm but the whole culture that surrounded it, the fact that it was 'believed' and trusted by the government over the teachers, the society-wide struggle that ensued and the real-life harms that emanated from it. The algorithm had been imbued with authority by the government as a means of avoiding anticipated 'grade inflation'; in other words, teachers were not to be trusted with predicting the students' grades in the absence of exams, but the algorithm could be. I did not choose to research this specific incident as my field of inquiry is the university, but it sparked my interest. Until then, as a distinctly non-technical researcher of the digital with a background in philosophy and applied linguistics, I had considered algorithms as a topic rather distant from my scholarly project. However, the 2020 exam grading controversy made me consider the notion of digitization and algorithms as agentive social and political forces, and as potent ideas, as opposed to mere technical entities. I soon discovered a rich seam of literature which had already explored these ideas in depth. Around the same time, I was taking an interest in Science and Technology Studies (STS) and exploring the extensive literature on the social nature of technology. Until that point, I had tended to focus on digital technologies in higher education taking a fairly 'close-up' perspective, often concentrating on the detail of individual study practices. This remains my focus, but I was interested in combining that with a consideration of the broader social, political and material forces at work. I came across the influential concept of *sociotechnical imaginaries* (Jasanoff and Kim 2009) in STS and wondered if that concept might provide some theoretical purchase on the phenomenon of algorithms and higher education.

The exam controversy and the failure of the algorithm seemed to me to be intrinsically connected with seeing, and not seeing, with occlusion, abstraction and elision in that form of gaze. This contrasted, I thought, with the ways in

which the teachers had 'seen' the students and how the algorithm had distorted them, in a way that caused extensive damage. I had been reading work in surveillance studies and began to consider whether I could theorize algorithms as agents that see in ways which are profoundly different from how people see, with far-reaching effects. I then came across work on the *data gaze* (Beer 2019), which led me to develop the idea further into the *algorithmic gaze*. The notion of *algorithmic cultures* (Roberge and Seyfert 2016) allowed me to adopt a looser definition of what I meant by algorithmic.

I was interested in practices such as author bibliometrics, learning analytics and the smart campus, but I also felt that there are other seeing/watching practices like regimes of audit and rankings which are not perhaps at first glance strongly associated with algorithms, but I felt were operating under the same logic, the same ideology. I used the notion of algorithmic cultures to expand my definition, perhaps stretching it too far; I will leave that judgement in the hands of critics, as I am not sure about that point myself and recognize it to be a speculative element of my analysis. This led me to puzzle over why I linked all of this, and the question of what this encompassing ideology might be. The obvious conclusion might be neoliberalism and the marketized nature of UK higher education, and I broadly agree with the many scholars who have made that argument. But I thought there was more to it than that, a more deep-seated fantasy at work. Again, I came back to the idea that it had something to do with abstraction, seeing and not seeing. I considered what was occluded in all these practices, and it occurred to me that perhaps it was actually quite simple. What was not seen was the human. But not only that, I came to feel that the human was not only being unseen; but being actively erased by an unspoken but powerful transhuman ethos.

I then considered how I might approach such a topic. I had used Adams and Thomson's (2016) approach to 'researching posthuman worlds' in my last book and found it very generative. I began to investigate phenomenology in more detail, and wondered if it might offer me a form of inquiry into what it is like to live under these various algorithmic gazes. I decided to adapt Adams and Turville's (2018) *postphenomenology of practice* to explore the *lifeworld existentials* of having captured (or evading) these gazes, an approach based on the work of Max van Manen and his *phenomenology of practice*, combined with insights from Don Ihde's *postphenomenology*. The pre-reflective and observational nature of the postphenomenological methodology I have used led me to reflect on my own lived experience and observations of the lifeworlds of others in my immediate context. For that reason, the focus is on the UK system

and my own university. However, I would suggest that the issues I consider in this book are relevant internationally in a range of other contexts, where the surveillant gaze of algorithmic cultures is actively and agentively influencing universities, scholarship and academic lives. I am also aware that since I started this book, the introduction of generative AIs such as ChatGPT has made the issue of the influence of algorithms on education all the more urgent for educators and researchers. The questions raised regarding knowledge, authorship, and subjecthood are complex and are already prominent in the research agenda of this field, and my intention is to consider that in my next round of scholarly work.

In Chapter 1, I begin by interrogating the notion of 'transformation', which I argue is prevalent to the point of near ubiquity in discourses surrounding the digital in education. Tracing the use of the term in the literature, I consider it in the light of the construct of the sociotechnical imaginary (Jasanoff and Kim 2009), considering whether there is some form of imaginary at work which both expresses and is underpinned by an implicit transhumanist ideology, which seeks to occlude elements which are, I contend, central to the lifeworld of the university. I consider the concept of the *postdigital*, suggesting that it too may be founded to some extent on transhumanist notions of escape from the limitations of human biology and social conventions.

In Chapter 2, I review some key critical literature on digitization and 'big data' in education, with a focus on how this also reflects imaginaries of future education in which the human is optimized, then moving on to consider Beer's (2019) notion of the agentive *data gaze* and his related concept of the *data imaginary*. I then consider work in surveillance studies, in particular Lyon's (2018) notion of *surveillance cultures*, in which citizens may comply with surveillance in order to gain access to leisure or social media, or other desired goods or services. Lyon's analysis reveals the complexity and ambiguity of our relationship to surveillance in contemporary society, a point which I return to later in the book. I review the literature on algorithms, algorithmic cultures and code space and go on to propose the concept of the *algorithmic gaze,* a gaze which does more than watch but also intervenes*,* drawing on the notion of *algorithmic cultures*, which act on society and govern daily life.

In Chapter 3 I set out the approach used throughout the book. My intention is to focus on daily life in the contemporary university under the algorithmic gaze, considering different types of gaze in terms of lived experience, in an effort to uncover the essence of the experience of these phenomena. Drawing on Max van Manen's *phenomenology of practice* (2014, 2023), I focus on his

lifeworld existentials, which are lived space, lived body, lived time and lived others. I review and discuss relevant work in postphenomenology, in particular Adams and Turville's (2018) *postphenomenology of practice*, which I adapt for my analysis, focusing on van Mannen's four categories of experience by composing anecdotes through self-observation, description through interview and composing anecdotes through observation of others. Any deviations from these sources in my adaptation of this approach are, of course, my own scholarly responsibility.

In taking this approach, I immediately discerned that there is a high degree of overlap across the categories of lived space, lived body, lived time and lived others and arguably it is nigh impossible to separate these meaningfully as all are intertwined in the flow of lived experience. However, following van Manen and Adams and Turville, I do so for analytical purposes in order to allow for possible insights which might not present themselves clearly otherwise. I include materiality and physical objects in 'lived space', in addition to the layout and appearance of texts and online platforms. In 'lived body', I include my physical position, embodied actions, emotions and personal facts where relevant. In 'lived time', I include not only the temporality of the experience being described but also any relevant discussion of past and future time. In 'lived others', I include relationality during the phenomenon described and any other forms of relationality to others which are relevant. Throughout this and my subsequent analysis, I pose a further question of 'what is the nature of the gaze?'

Chapter 4 is the first of two analysis chapters and considers a range of phenomena which I propose constitute examples of the *audit gaze*, trained on academic staff. I focus first on the literature relating to self-surveillance technology of the author's bibliometric h-index, then address the four lifeworld existentials via self-observation. The second example I look at is the UK-based Research Excellence Framework (REF). I review the literature, drawing on particular on Pardo-Guerra's (2023) book, *The Quantified Scholar*. I then consider the phenomenon with reference to my lived experience of the 'mock REF'. My third example is international university league tables, specifically the Quacquarelli Symonds (QS) rankings. I draw on the associated literature, drawing on the work of Branković and Locke, among others and then explore the lifeworld existentials in this case through my own experience, observation of others and the institution.

Chapter 5 looks at what I suggest are instances of the *performative gaze*, which I argue is a gaze that is more interventionist in day-to-day practices

and experiences, demanding a particular type of embodied response and performance. I look at three examples of this gaze; the first consists of an analysis of video- conferencing technologies such as Zoom and Teams. I refer to an anecdote provided by a participant in the University College London (UCL) Moving Online to Teaching and Homeworking study as part of an interview (Gourlay 2022a) and explore the lifeworld existentials by considering a composite self-observation and observation of another on a video call. The second example is taken from the field of learning analytics, considering the potential effects of a learning analytics dashboard on a student, with a composed anecdote. The third and final example focuses on surveillance on the physical campus, developing an analysis of the infrared sensor technology OccupEye, used in a university library. I provide an overview of the technology and the controversies surrounding it, then again address my questions, this time by means of two contrasting composed anecdotes tracing a student visiting UCL library.

In Chapter 6, I argue that the effects of the algorithmic gaze in the university render core aspects of lived human experience and daily university routines invisible, in terms of space, the body, time and others. I discuss recent commentaries which have sought to resist the influence of the digital on society and the university, some arguing for a return to analogue practices and ways of being. I return to my critique of the influence of transhumanism and conclude with a call for a reconsideration of the central value of these *fugitive practices*, which take place in the interstices, outside of the audit and performative forces of the algorithmic gaze.

This book interleaves, extends and deepens analyses published in the following papers: Gourlay, L. (2020), 'Quarantined, sequestered, closed: theorising academic bodies under Covid-19 lockdown', *Postdigital Science and Education* (2), 791–811; Gourlay, L. (2021a), 'There is no virtual learning: the materiality of digital education', *Journal of New Approaches in Educational Research* (10), 1: 57–66; Gourlay, L. (2021b), 'Presence, absence, and alterity: fire space and Goffman's selves in postdigital education', *Postdigital Science and Education* (4), 57–69; Gourlay, L. (2022a), 'Digital masks: screens, selves, and symbolic hygiene in online higher education', *Learning, Media and Technology* 47 (3), 398–406; Gourlay, L. (2022b), 'Surveillance and datafication in higher education: documentation of the human', *Postdigital Science and Education;* Gourlay, L. (2023), 'Postdigital/more-than-digital: ephemerality, seclusion, and copresence in the university', In Jandrić, P., MacKenzie, A. and Knox, J.

(eds.), *Postdigital Research: Genealogies, Challenges and Future Perspectives*. London: Springer; Gourlay, L. (2024a), 'Is a star a document? Catalogued students and learning analytics', *Postdigital Science and Education;* Gourlay, L. (2024b), 'Fugitive pathways: sensors, lines and knots in the academic library', In Bohlman, M. and Breil, P. (eds.), *Postphenomenology and Technologies in Educational Settings*. Leiden, Netherlands: Brill.

Acknowledgements

This project was funded by a Leverhulme Trust Major Research Fellowship MRF-2020-135, which has supported my scholarly work over the period 2021–4. I am grateful to Leverhulme for this incredible award and the opportunity it afforded me to concentrate fully on my studies for three years. I am also indebted to my editors at Bloomsbury Academic for their guidance, flexibility and patience. I want to acknowledge University College London Open Access for their support from their long-form fund, which allowed this book to be available as Gold Open Access. Most importantly, I want to thank my husband Jim Pavitt for his unstinting support.

1

Dreams of Transcendence

Introduction

This chapter will provide a critical overview and synthesis of the notion that digital technologies and devices bring about a 'transformation' in higher education, with a particular focus on the idea that digitization allows students and academics to 'transcend' a range of barriers at university. These include geographical, physical and material contexts. It will begin by arguing that these claims are implicitly founded on the notion of transcendence of the human and will present a critique of the notion of transhumanism, arguing that it implicitly contributes to fantasies and possibly sociotechnical imaginaries regarding human flourishing and potential, which in turn influence education. Digital mediation combined with utopian/dystopian discourses regarding the future, I will propose, forms a potent gathering point for imaginaries of transcendence and transhumanism. I argue that these discourses distort the reality of day-to-day embodied and material experience of the university. This will lay out some of the important theoretical foundations and the postphenomenological approach to be used throughout the book.

I will begin by exploring the possible bases of these claims, drawing on Jasanoff and Kim's (2009) notion of the *sociotechnical imaginary*, which they originally defined as 'collectively imagined forms of social life and social order reflected in the design and fulfilment of nation-specific scientific and/or technological projects' (Jasanoff and Kim 2009: 120). I will argue that the assumptions surrounding digital 'transformations' of higher education are ideologically similar to the philosophy of *transhumanism*. I will provide a critical overview of this set of ideas and will set out how I see their influence in universities, arguing for a return to four elements of the lived experience of contemporary higher education that I propose are being threatened in this process: *embodiment*, *ephemerality*, *seclusion* and *co-presence*. This critique and alternative proposal

will underpin the rest of the book. In subsequent chapters, I will discuss this beyond the more obvious digital regimes of audit and surveillance, examining the perhaps less obvious roles of algorithmic cultures in the day-to-day life of higher education. With reference to academic staff, this includes a consideration of author metrics in the form of the h-index, a national audit of research outputs in the UK Research Excellence Framework (REF), the international university rankings in the form of the QS Rankings, and a separate chapter on video conferencing, learning analytics and infrared scanners on campus.

'Transformation' in higher education

A Google search conducted this morning (late February 2024) using the words 'transforming education' generated 814,000,000 pages of results. The search on Google Scholar generated 7,1500,000 pages. Narrowing the search to 'transforming higher education' also finds millions of webpages. The notion that education is in need of 'transformation' is strikingly pervasive in media commentary, educational research and policy discourse; so much so that it may seem in some sense obvious, an unquestionably positive aspiration. However, it is worth looking more closely at the notion of transformation and the work that the word is doing. Clearly, it is part of the role of society to pay attention to educational standards and outcomes in order to promote human flourishing, equality of opportunity and meet society's needs in terms of knowledge and skills. It is also undeniable that education must change in response to/in interaction with changes in society and new challenges faced by humanity. Educational discourses are also replete with references to 'improvement' or 'enhancement'. 'Transform', however, is something different. The Online Etymology Dictionary (2024) traces the origin of the word to the mid-fourteenth century, defining it as a transitive verb 'to change the form of' from the old French word *transformer*, which came from the Latin *transformare* meaning 'change in shape, metamorphose', from *trans* meaning 'across, beyond' and *formare* meaning 'to form'. It traces the intransitive sense to the 1590s, meaning 'to undergo a change of form'. The emphasis is not simply on qualitative improvement of an existing entity but on *a fundamental metamorphosis*, becoming something else entirely.

There is, then, a widespread idea that education should not simply improve but ought to be made into something else altogether. This implies that there is a major problem, even a crisis which must be addressed; why else would millions of webpages and missions of academic articles aspire to this goal? Education is

implicitly cast as flawed, problematic and in need of urgent remediation. Harvey and Knight in their (1996) book *Transforming Higher Education*, contrast the concepts of 'quality' and 'transformation'. Reporting on a large-scale research project in the UK during a period in which 'quality assurance' of teaching in higher education was receiving more emphasis from government, they state, 'Our case is that quality needs to be understood as a transformative process' (1996: vii), identifying a tension between what they characterize as 'quality-as-accountability' and 'quality-as-transformation', with the former leading to 'compliance culture', and 'not, in fact, producing the transformation in students that is called for in our view' (1996: vii). This introduces another dimension of the transformative urge; the notion that the students must also be transformed. The authors refer to this directly, referring to their title: 'Transformation lies at the heart of this book as the title implies. The deliberate pun in the title is intended to highlight both the need to transform higher education for the twenty-first century and that higher education is itself a major transformative process' (Harvey and Knight 1996: vii). They set out the rationale:

> If higher education is to play an effective role in education for the twenty-first century then it must focus its attention on the transformative process of learning. A prime goal should be to transform learners so they are able to take initiative, work with independence, to choose appropriate frames of reference, while being able to see the limitations of those frameworks and stand outside of them when necessary. To be an effective transformative process, higher education must itself be transformed, we argue, so that it produces transformative agents: critical reflective learners able to cope with a rapidly changing world. (Harvey and Knight 1996: viii)

They then expand on the notion of 'quality as transformation', echoing the definition provided above: 'The transformative view of quality is rooted in the notion of "qualitative change", a fundamental change of *form*. Ice is trans*formed* into water and eventually steam if it experiences an increase in temperature. While the increase in temperature can be measured, the transformation involves a qualitative change. Ice has different qualities from those of steam or water' (Harvey and Knight 1996: 7). They go on to include as part of transformation 'cognitive transcendence', linking this to discussions of dialectical transformation in the works of Aristotle, Kant, Hegel and Marx, also referencing transcendental philosophies such as Buddhism and Janism (Harvey and Knight 1996). They suggest two elements of transformative quality in education: enhancing the participant and empowering the participant. Proposing the notion of critical

transformation, they state that 'Transformation is a process of transmutation of one form into another' (Harvey and Knight 1996: 10). The book explores the theme in more depth, but for the purposes of this review, these definitions are illuminating in that they make explicit the aspiration for the student to undergo a complete change of form; it is worth noting that the term transmutation in physics refers to a change from one element to another or in biology, a change of species. What is noteworthy here is the emphasis on this complete change from one type of being to another.

Ashwin (2020) in a book-length work *Transforming University Education: A Manifesto*, puts forward an incisive critique of the dominance of the economic justification for university degree. He provides a nuanced discussion of the tensions between the reproductive and transformative effects of university education, but still maintains that the purpose of university education should be as follows, 'It is understood in this book as an education that is personally transformative to the students concerned. Personally transformative because it changes who they are, their understanding of the world, and their ability to change the world. This book argues that the central educational purpose of an undergraduate degree is to transform students in this way' (Ashwin 2020: 8–9). He elaborates on why he chose the word 'transformation': 'The unambiguous meaning of the title of this book "Transforming University Education" is deliberate. The book is about the ways in which a university education can contribute to transformation of students and society; it is about how we can change university education to make this transformation more likely' (Ashwin 2020: 9).

I am in wholehearted agreement with the thrust of Ashwin's book, in particular his calling out of a range of 'myths' surrounding higher education, such as 'the myth of graduate premiums', and 'the myth of generic skills' (Ashwin 2020: 10). His analysis represents a bracing challenge to received wisdom surrounding what a university degree should be. However, I would counter that both the need and the potential for 'transformation' of the student, society and university education itself is also a myth that needs to be questioned. The discourse of equipping students with the capabilities to 'change the world' is another pervasive trope in educational circles which requires scrutiny. There are clearly a range of major problems and challenges facing humanity, which education needs to address. However, I would argue that ascribing as an intrinsic part of the core purpose of undergraduate education the potential for the individual to 'change the world' is somewhat utopian, unrealistic, and arguably draws upon a strongly humanistic 'saviour' narrative in which the

world is a bounded and singular separate entity to be saved by individual creativity.

Discourses concerning technology and education also refer frequently to the notion of 'transformation', as any web search amply demonstrates. If anything, the emphasis on transformation intensifies in discussions of the digital, which is frequently portrayed as transformative, or even 'revolutionary' force, a kind of lightning rod for radical change, via a solutionist discourse. The concept of transformation regarding education appears to have two main applications. One is that education should be a force for transformation of individuals, society, nations and even globally. These aspirations manifest themselves in higher education at the level of individual students and are also apparent in discourses of opportunity and employability. Clearly, these are, on the face of it, worthy goals for higher education institutions and, taking the UK as an example, it would be difficult to find a university that does not include some expression of intent along the lines of 'transforming lives' in their mission statement. On a larger scale, universities also commonly aspire to transform local communities and society at large, in addition to aspiring to address global challenges such as climate change. As with the claims made about the effect on individuals, these visions appear laudable, and it may seem contrary to critique them.

However, critical questions may be raised regarding these pervasive discourses, the first of which might be 'why transformation?' As discussed above, to transform something is not to improve it while retaining or maintaining elements which may be of value. It is to change it fundamentally, so it becomes something else. It then follows that the object of transformation must be in some respect fundamentally problematic, flawed and unacceptable. Everything must go, to be replaced anew. The question remains as to why exactly 'transformation' should be proposed as the solution to global challenges, implying that regions, communities and society should change in all their fundamentals. Arguably, a further critical point could be made regarding this situating of socially transformative agency in higher education as opposed to in the political arena, where the power resides to make economically truly transformational decisions. There may be evidence that universities can bring about improvements to lives and communities, but it is not apparent that there are many examples of universities effecting root and branch social transformation in a literal sense. It is also hard to imagine how this might take place. A large proportion of individuals who attend universities are drawn from socioeconomically privileged backgrounds; for these people, a university degree is unlikely to be transformative, rather it allows them to maintain their position in that privileged social class. The situation is

admittedly different in the case of widening participation, where perhaps claims of transformation of individual lives can be more justified. However, the claim does not seem to hold up more broadly.

It might be countered that the word is largely used as a rhetorical flourish by university marketing departments to create an attractive brand in a marketized and neoliberal system, and that, if pressed, it seems unlikely that university leaders seriously desire to effect change in this fundamental manner or believe that this is really within the gift of higher education. Prospective students and any reader of a university mission statement are perhaps understood to be sophisticated consumers of this type of marketing of education as a 'product', and it might be assumed that they do not take the claim literally, but rather understanding it as a slogan. However, universities, I would contend, have a particular duty towards precision, criticality and truth and should therefore consider carefully the words deployed to describe their mission. However, it is understandable in the 'arms race' to attract students and well-qualified staff, universities may feel the need to reach for hyperbole. It would be a brave senior team who deployed an accurate but modest strapline, such as 'Improving prospects for some, doing some useful research, and helping the local area'.

However, leaving aside the effects of marketization, it is worth considering why it is that higher education leaders, and indeed politicians and other commentators, are drawn to the idea that education should be a driver of profound change, as opposed to regarding it as a means to equip predominantly younger people with the capabilities and knowledge to take their places in society in terms of their professional lives, in a manner that focuses more on maintenance and development of the professions and academic disciplines. The purpose of higher education is a complex philosophical topic with a large literature which spans centuries and, as such, lies outside of the scope of this book. However, I would like to focus on this specific point, this pervasive discourse and underlying belief that universities are and should be transformative and transformed in a manner which would bring about radical changes to people's lives, would entirely solve large-scale socioeconomic problems and in a manner which would lead to education's own transformation.

To analyse this tendency, more than one approach might be adopted. One could examine the history of higher education and society, perhaps tracing the roots of this tendency to post-enlightenment visions of progress or to romantic notions of individual self-fulfilment. More recently, the post-war settlement in Western Europe may be identified as a force that influenced the expansion of higher education, with this accelerated in the UK in the 1990s under the aegis

of New Labour. Historians of education have made a range of contributions to our understanding of how and why the contemporary university has emerged in its present form. For the purposes of this book, I would like to analyse this phenomenon drawing on concepts from Science and Technology Studies (STS), surveillance studies and phenomenology. I consider the extent to which the concept of the *sociotechnical imaginary* may provide theoretical purchase. I will suggest that the notion of transformation by higher education is underpinned by utopian beliefs and discourses about the potentials of digital technology, which are ultimately related, even founded, on *transhumanist* fantasies regarding transcendence of human biological limitations. Throughout the rest of the book, I will seek to substantiate this thesis with an examination of a range of practices in higher education concerning the influence of algorithmic cultures, surveillance technologies and cultures of audit and performativity. I will contend that these practices, while stopping short of achieving the goals of transhumanism, serve to occlude or work against *embodiment, ephemerality*, *seclusion, co-presence* and ultimately human subjecthood as it unfolds.

Sociotechnical imaginaries

Jasanoff and Kim proposed the now-influential term *sociotechnical imaginaries*, which they originally defined as 'collectively imagined forms of social life and social order reflected in the design and fulfilment of nation-specific scientific and/or technological projects' (Jasanoff and Kim 2009: 120). In a paper analysing the development and regulation of nuclear power in the United States and in South Korea, they advance the construct as a means by which to theorize the relationship between science and technology and political power, with a focus on 'the promotion and reception of science and technology (S&T) by non-scientific actors and institutions' (Jasanoff and Kim 2009). They pose the questions, 'what constitutes the public good, which publics should be served by investments in S&T, who should participate in steering science and by what means, and how should controversies be resolved about the pace or direction of research and development? . . . how do national S&T projects encode and reinforce particular conceptions of what a nation stands for?' (Jasanoff and Kim 2009). Imaginaries refer to 'attainable futures and prescribe futures that states believe ought to be attained' (Jasanoff and Kim 2009). Their analysis is historical and longitudinal and focuses on recurrent discursive elements in the two nations' policy narratives. For them, imagination is not a mere fantasy nor is it

something which resides only in the mind of the individual; it should be seen as a collective cultural resource. They link it to various strands of theory as follows:

> imagination helps produce systems of meaning that enable collective interpretations of social reality (Castoriadis 1987); it forms the basis for a shared sense of belonging and attachment to a political community (Anderson 1991); it provides the gaze through which 'the Other' is constructed and represented (Said 1978); and it guides the simplification and standardisation of human subjects so as to govern them more efficiently (Foucault 1977; Bowker and Star 1999; Scott 1998). In short, imagination, viewed as 'an organized field of social practices' serves as a key ingredient in making social order (Appadurai 1996; Taylor 2004). (Jasanoff and Kim 2009: 122)

As they point out, imaginaries 'are almost always imbued with implicit understandings of what is good or desirable in the social world writ large' (Jasanoff and Kim 2009). As such, they are also 'social imaginaries'. They differentiate imaginaries from policy agendas, as they are 'less explicit, less issue-specific, less goal-directed, less politically accountable, and less instrumental; they reside in the reservoir of norms and discourses, metaphors and cultural meanings out of which actors build their policy preferences' (Jasanoff and Kim 2009: 123).

They also draw a distinction between imaginaries and 'master narratives', such as the contemporary narrative that science equals progress: 'Unlike master narratives, which are often extrapolated from past events and serve explanatory or justificatory purposes, imaginaries are instrumental and futuristic: they project visions of what is good, desirable, and worth attaining for a political community; they articulate feasible futures' (Jasanoff and Kim 2009: 123).

Continuing their definition by clarifying what imaginaries are *not*, they also differentiate them from discursive frames guiding media representations of science and technology, referring to what Gamson and Modigliani called 'media packages', 'interpretive packages that give meaning to an issue' (1989: 3), with the example given of a 'runaway' nuclear accident. Unlike media packages, which consist of repeated words and images used to communicate with the public, imaginaries are 'active exercises of state power, such as the selection of development priorities, the allocation of funds, the investment in material infrastructures, and the acceptance or suppression of political dissent' (Jasanoff and Kim 2009: 123). 'In short, imaginaries operate for us in the understudied regions of between imagination and action[,] between discourse and decision, and between inchoate public opinion and instrumental state policy'

(Jasanoff and Kim 2009). Importantly, they do not regard entities such as the nation state to be black-boxed or immutable; instead, they are theorized as being 'reimagined, or re-performed, in the projection, production, implementation, and uptake of sociotechnical imaginaries: in short, how technoscientific and political orders are co-produced' (Jasanoff and Kim 2009: 124). Jasanoff (2015) elaborates on the concept in her discussion of the 'Dreamscapes of Modernity' in an edited collection (Jasanoff and Kim 2015). Here, Jasanoff considers the 2009 definition and sets out the need for it to be 'refined and extended in order to do justice to the myriad ways in which scientific and technical visions enter into the assemblages of materiality, meaning, and morality that constitute robust forms of social life' (Jasanoff 2015: 4). Importantly, she proposes that the construct need not be limited to an analysis at the level of a nation state but can also be applied to other organizations and bodies. A 'vanguard vision' (Hilgartner 2015) may originate in an individual, but for Jasanoff, it can only be regarded as an imaginary if communally adopted. There may also be multiple imaginaries co-existing in a society and in tension with each other, they are not monolithic. Importantly, imaginaries express 'not only visions of what is attainable through science and technology but also of how life ought, or ought not, to be lived; in this respect they express a society's shared understanding of good and evil' (Jasanoff 2015: 4). She provides the redefinition as follows: 'Taking these complexities into account, we redefine sociotechnical imaginaries in this book as collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology' (Jasanoff 2015: 4).

She points out the importance of the idea of 'desirable' futures and how this relates to either the tacit or explicit obverse of feared negative imagined outcomes which may constitute harm or may simply be a fear of a lack of progress; here utopian and dystopian thinking are in complex interplay. She points out that the concept of the imaginary is already well established in interpretive social theory, but there has been scant attention to linking this to what she calls 'modernity's grand aspirations and adventures with science and technology' (Jasanoff 2015: 5). She proposes the contributions to the 2015 volume as occupying a 'blank space' between two literatures, 'the construction of imaginaries in political and culture theory and of sociotechnical systems in STS' (Jasanoff 2015). She proposes a series of problems on which the concept of sociotechnical imaginaries might provide theoretical insight. It is worth listing these in full to consider whether the themes and questions this book seeks to address fall under their ambit:

> The concept helps explain a number of otherwise troublesome problems: why do technical trajectories diverge across polities and periods; what makes some sociotechnical arrangements more durable than others; how do facts and technologies transcend and reconstruct time and space; and what roles do science and technology play in connecting the individual's subjective self-understanding to a shared social or moral order? (Jasanoff 2015: 5)

She sets out the genealogy of the concept, referring to the work of Durkheim and Weber, whose seminal work highlighted the importance of common social narratives about 'who they are, where they have come from, and where they are headed' (Jasanoff 2015: 6). She provides a range of examples from social anthropology of research into collective imagined realities. Anderson's seminal work 'Imagined Communities', as Jasanoff puts it, 'sliced through the divide between ethnography and political science with his now famous definition of a nation as "an imagined political community – and imagined as both inherently limited and sovereign"' (Anderson 1991 [1983]: 6, in Jasanoff 2015: 6–7). Anderson sees nationalism as construct made by the collective, 'through shared practices of narrating, recollecting, and forgetting' (Jasanoff 2015: 7). Taylor (2004) goes on to expand the concept, in addressing how modernity came about:

> By social imaginary, I mean something much broader and deeper than the intellectual schemes people may entertain when they think about reality in a disengaged mode. I am thinking, rather, of the ways people imagine their social existence, how they fit together with others, how things go on between them and their fellows, the expectations that are normally met, and the deeper normative notions and images that underlie these expectations. (Taylor 2004: 23)

Jasanoff sets out that Taylor's definition constitutes in STS terms, 'an incipiently coproductionist perspective that bridges, without explicitly saying so, the epistemic and the normative, the objective and subjective' (Jasanoff 2015: 7). However, she points out that imaginaries for Taylor do not encompass 'the material aspects of order' (Jasanoff 2015). She reminds us that the concept was also used by Appadurai (1996) to critique the notion of a universal globalization, but instead consisting of flows, or 'scapes' involving people, technologies, money, communications and ideas. Importantly, imagination here is no longer seen as an individual mental fantasy but as a set of social and material practices. However, these intellectual antecedents paid little attention to the roles of science and technology in the formation and maintenance of imaginaries, an omission which Jasanoff links to Latour's flagging up of the failure of the social sciences to see science and technology as part of 'the social' and of modernity itself.

She also draws attention to how performance and spectacle have been overlooked in theorizations about imaginaries, with historical reference to leaders and monarchs creating displays of power through processions and other rituals. She cites a popular YouTube video mocking up the UK's late Queen Elizabeth II apparently being parachuted into the London 2012 Olympic stadium with the actor Daniel Craig playing James Bond (YouTube 2022), which 'blended together memory, the monarchy, and popular culture in a performance designed to play to every register in Britain's happiest imaginations of itself' (Jasanoff 2015: 10). This concept of the sociotechnical imaginary has gone on to be highly influential in STS, as can be seen for example, in the themed special issue of *Social Studies of Science* (Sismondo 2020). In his editorial, Sismondo describes sociotechnical imaginaries as follows:

> Sociotechnical imaginaries are generally future-oriented visions of connected social and technological orders, with more or less determinism built into them. To be analytically useful in STS, these visions need to be stable enough that they are not just read into, but can be seen to have the possibility of shaping terrains of choices, and thereby of actions: they are infrastructures of imagining and planning futures . . . they are also typically contested, changeable, flexible and loose around the edges. (Sismondo 2020: 505)

So far in this Chapter 1 have suggested that educational discourse in general, and that concerning digital technology in particular, is dominated by notions of 'transformation' which implicitly or explicitly carry notions of universities, academic staff and their practices being fundamentally flawed and in need of wholesale renewal. I went on to set out Jasanoff and Kim's conception of sociotechnical imaginaries in detail, which I suggest might be applied to these discourses, policies and practices. I will develop the theoretical framing for the book in the next section, where I suggest that the historical, cultural and ideological roots of this imaginary are drawn implicitly from a philosophy of transhumanism. I provide a critique of this position and its effects, then move on to review relevant literature on surveillance and the notion of the data gaze. I then set out my use of postphenomenological methodology, which I think and write with for the rest of the book.

Transhumanism

In a fascinating work, Bostrom (2005) provides a history of the philosophy of transhumanism, tracing its roots back into the history of humanity's striving

to transcend the boundaries of our existence, discussing the various ways in which the ancients sought immortality. The notion of the 'well-rounded' person emerged via Renaissance humanism, along with a sense that 'man' (*sic*) could shape himself. Bostrom points out how the Enlightenment led to rational humanism, which he sees as the root of transhumanist thought. He highlights Nietzche's doctrine of the *Ubermensch* as a precursor: 'I teach you the overman. Man is something that shall be overcome. What have you done to overcome him? All beings so far have created something beyond themselves; and do you want to be the ebb of this great flood and even go back to the beasts rather than overcome man' (Nietzche 1908, in Bostrom 2005: 4). For Bostrom, Nietzche's doctrine has only superficial similarities with transhumanism, as Nietzche's focus was not on technological transformation rather on a vision of exceptional individuals achieving a high level of personal growth. However, it might be argued that the notion of technological enhancement of the human flows from a fantasy of human perfectibility. Bostrom traces the influence of science fiction in the twentieth century, in which notions of bionic implants and space travel were explored. Dystopias involving themes such as the use of mass biotechnology and surveillance were popularized, such as Huxley's (1932) *Brave New World* and Orwell's (1949) *Nineteen Eighty-Four*. Bostrom also refers to the atrocities committed via eugenics programmes, the Nazi Holocaust and the Rwandan genocide as outcomes of mass totalitarian political violence driven by a desire to rid the human race of members seen as 'unfit' or 'inferior'. In his reading, the post-war era saw hopes being placed in the potentials of science and technology for progress towards a better world. The word 'transhumanism' appears to have been coined by Julian Huxley (brother of the author Aldous), who proposed it as follows: 'The human species can, if it wishes, transcend itself – not just sporadically, an individual here in one way, an individual there in another way – but in its entirety, as humanity. We need a name for this belief. Perhaps *transhumanism* will serve: man remaining man, but transcending himself, by realising new possibilities of and for his human nature' (Huxley 1957 in Bostrom 2005: 7).

Looking at the development of artificial intelligence (AI), Bostrom reminds us of the 'Turing Test', based on Turing (1950), in which a computer is indistinguishable from a human when interviewed via a text interface. 'Moore's Law' (Moore 1965) states that computing capacity doubles every eighteen months to two years, and this exponential growth in technological capacity has led to widespread commentary and a large academic and lay literature anticipating a fundamental change in the nature of human existence. This singularity, the point

where this change is expected to be reached, is predicted to be when AI becomes self-improving (Good 1965; Vinge 1993). Bostrom discusses hypothetical technologies such as molecular nanotechnology and the uploading of a human mind onto a computer in order for it to live in a virtual world or robot body. He points out, however, that many technologies which could be regarded as having the potential to transform the human condition already existed (writing in 2005), such as virtual reality, pharmaceuticals to improve memory, concentration, wakefulness and mood, performance-enhancing drugs and prosthetics.

In the (1989) book *Are You Transhuman?*, the professor of Future Studies FM Esfandiary proposed the notion of the transhuman, who he described as a 'transitional human'. The features which Esfandiary associated with being transhuman included prostheses and intensive use of communications, along with holding certain social values, such as 'rejection of family values' (Bostrom 2005: 14). A later exponent of transhumanism, Max O'Connor, changed his name to Max More, which he explained as follows: 'It seemed to encapsulate the essence of what my goal is: always to improve, never to be static. I was going to get better at everything, become smarter, fitter, and healthier. It would be a constant reminder to keep moving forward' (Regis 1994 in Bostrom 2005: 14). Nick Bostrom and David Pearce formed the World Transhumanist Association in 1998, founded on the 'Transhumanist Declaration' and the 'Transhumanist FAQs (frequently asked questions)'. The former is composed of eight statements, the first of which are:

> (1) Humanity stands to be profoundly affected by science and technology in the future. We envision the possibility of broadening human potential by overcoming aging, cognitive shortcomings, involuntary suffering, and our confinement to planet Earth.
> (2) We believe that humanity's potential is still mostly unrealized. There are possible scenarios that lead to wonderful and exceedingly worthwhile enhanced human conditions. (The Transhumanist Declaration 2009)

Fuller (2014) quotes his entry on 'transhumanism' for an encyclopaedia of science and technology (Holbrook and Mitcham 2015), contrasting it with posthumanism:

> In most general terms, 'transhumanism' says that the indefinite projection of those qualities that most clearly distinguish humans from other natural beings is worth pursuing as a value in its own right – even if it means radically altering our material nature. . . . Whereas posthumanism may be seen in the broad sweep of Western intellectual history as 'counter-enlightenment', transhumanism is

> better seen as 'ultra-Enlightenment': the one sees the Enlightenment as having gone too far the latter not far enough. (Fuller 2014: 25)

Fuller makes a case for religious precedents for transhumanism, specifically the Pelagian and Arian beliefs that humans may achieve godhood, based on the notion that the death of Jesus absolved Adam's sin, 'putting humans back on course to become embodied deities, very much like the very person of Jesus' (Fuller 2014: 26). He links these religious beliefs with contemporary visions of indefinite human longevity and biological enhancements as well as the potential colonization of the universe. He traces these ideas forward to Cosmism, arising from Russian communism, and Futurism, inspired by Italian Fascism. Fuller concludes his entry with the following statement:

> The power of faith to overcome material obstacles should never be underestimated, especially when the believers are armed with science. The ease with which Homo sapiens has managed to remake itself and the physical environment over a few thousand years – in many cases undoing the work of billions of years of evolution – has been a source of great fear, but also of great hope. The hope involves a vision of human history in which after emerging as distinct branch in the tree of life, our biology serves as a platform for launching a range of technologies that extend our natural capacities and with which we eventually merge to constitute the executive control centre of an ever expanding portion of the universe. (Fuller 2014: 28)

This is a striking set of claims which Fuller as a proponent of transhumanism and also 'intelligent design' (Fuller 2008) has elaborated on over several book-length works (Fuller 2011, 2012; Fuller and Lipinska 2014). I contend that these ideas have clear echoes in the public, media and academic discourses surrounding the contemporary influence of digital technology on society and human subjectivity, and I would suggest they are also present in the ways of thinking surrounding the use of technology in higher education. The persistent notion of transformation, or even revolution, I would contend, is reminiscent of this transhuman desire to transcend human biological limitations. These 'limitations' may be conceived as residing in the embodied and biological but may also be temporal, spatial and related to human-evolved biological modes of both relationality and solitude. They may also lead to human cultural universals being regarded as limitations, including those which form part of much-maligned 'traditional' education, such as ephemeral speech and ritual performance in lectures, hierarchies of expertise, collective co-presence and teacher–student/apprentice relationships. In the following sections, I will examine how I see these various aspects of human

subjectivity are placed under threat by implicit transhumanist ideology. The rest of the book will be structured to explore how this largely unacknowledged influence is being played out via what I term the *algorithmic gaze* in higher education, looking at the more obvious digital-based practices such as learning analytics but also via other surveillance practices of audit. These include the practices apparent in regimes of surveillance and quantification of academic work and epistemic practices such as the h-index and regimes of national audit such as the Research Excellence Framework in the UK and international university league tables. I will also consider the surveillance technologies of the physical campus and the digital documentation of the student and will argue in conclusion that these technologies and practices are linked by an ideology that regards the human as flawed and a utopian belief in the desirability to enhance and modify the human through gazes that may focus on audit or performativity. The book will conclude with a call for a return to a recognition of the evolved nature of the human, with an emphasis on what I call *fugitive practices*.

Bayne (2015) addresses the perspectives of transhumanism and posthumanism with respect to digital technologies in higher education in her critical discussion of the terminology and concepts underlying 'technology enhanced learning' (TEL). Her charge is that this and related terms are often seen as a 'useful, inoffensive and descriptive shorthand for what is in fact a complex and often problematic constellation of social, technological and educational change' (Bayne 2015: 5). She sets out that the use of term 'enhanced' creates a 'discursive link' with transhumanism and its goals of human enhancement. These resonances, in her view, should be made more explicit. She clarifies how transhumanism and critical posthumanism are diametrically opposed here:

> Where posthumanism is concerned with the interrogation and critique of humanism, transhumanism is deeply committed to its core values seeing itself as in essence an extension of the humanist project (Wolf 2010). The primary concerns of the transhumanist worldview are with the perpetuation of the humanistic values of rationality, autonomy, dominance over 'nature' and human perfectibility via technological enhancement and the power of scientific progress. (Bostrom 2005)

Bayne also refers to the transhumanist FAQs (1999), describing its projected need for technological enhancement of the human as 'a violent historical moment' (Bayne 2015: 12). She links this to TEL:

> The cryogenic, brain-download and bio-technical enhancement dreams of transhumanism may seem rather far from the core concerns of education,

> but in fact they come rather close to some of the ways in which we think and write about TEL. Most notably, by clustering our discussions of digital education around the notion of learning enhancement we forge a discursive link – deliberately or not – to the transhumanist project of human cognitive enhancement. (Bayne 2015: 13)

With reference to the literature on cognitive enhancement (Bostrom and Sandberg 2009), she argues that the discourse surrounding TEL also focuses on enhancement, with technology regarded as a tool for human improvement. She argues that TEL, unlike transhumanism, does not engage in debates surrounding the ethics of 'enhancement' technologies in education and how it affects the human subject. She points out the irony of the transhumanist conception of technology as ontologically separate from the human, while also entertaining notions of human/machine fusion and advocates for a critical posthumanist position in terms of how we conceive of human/technological entanglement in which we neither dominate nor are dominated by technology.

Despite being regarded as something of a 'fringe' philosophy commonly associated with visions for future transcendence of human capacities with reference to desired outcomes such as the extension of human longevity, literal cyborg implants and technological interventions relating to fertility, my contention in this book is that an unacknowledged ideology of transhumanism has also influenced how we think about education, technology, universities, students, academic staff and knowledge itself. This, I propose, leads to a set of beliefs about education which may, on the face of it, appear to be 'cutting edge', 'transformative', 'disruptive' or even 'revolutionary'. This is justified by the proposition that there is a need to sweep away existing educational practices, which are frequently framed as old fashioned, obsolete, hierarchical, unfit for the contemporary age and generally in need of urgent remediation. As discussed above, the trope that education requires transformation or disruption is a particularly pervasive one, expressed not only from the critical or radical fringes of educational thought and commentary but also in the mission statements of mainstream educational bodies, an example being my own institution, University College London (UCL), whose website strapline at the time of writing is 'Disruptive thinking since 1826'.

The influence of transhumanist thought on digital education can also be discerned in the prevalence of the figure of the cyborg or robot in illustrations of themes relating to digital technologies and, in particular, AI in education. As discussed in Gourlay (2023), an online image search for the term 'AI in Education'

results in multiple science fiction-inflected images of humanoid robots in classrooms, often juxtaposed with 'traditional' artefacts of the classroom such as a blackboard, pointer, books or alongside pupils or students. It is worth noting that many of these are images of technologies not yet in existence or at least not in regular use. There is a pervasive trope of a cyborg head, often coloured blue, consisting of a human face with computer components or wires shown streaming out of the back, in what seems to be a very literal fantasy of the replacement of the human teacher with a robot.

Although these are clearly journalistic conventions, the sheer prevalence of this type of image is noteworthy, and I would suggest is related to transhumanist fantasies of transcendence of human biological and intellectual capacities via digital technologies in education. Relating this to more mundane technologies currently in existence, the effects of video-conferencing technologies such as Zoom and Teams might be considered with respect to the embodied human body, head and face. These technologies allow the user to opt out of the video element, therefore showing only a black box instead of their image, or if they choose to, a static photograph to represent themselves (which may or may not show their face). If video is used, options to choose a 'fake' background are available, ranging from the conventional (such as an image of an office or room) to settings not normally associated with an educational context, such as a tropical beach or even outer space. The head is conventionally displayed in the style of a portrait. In our study of UK academics during the Covid-19 lockdowns, I and my colleagues heard accounts of careful staging of the backgrounds in academic staff's homes, in order to project a particular professional or academic image (Gourlay et al. 2021; Littlejohn et al. 2021). As I suggested in Gourlay (2022a), this could be viewed as a form of symbolic hygiene, with the embodied human interlocutor using the screen as a form of digital mask. In place of the human body being rendered a literal cyborg via implants, the human is partially or wholly concealed, framed or represented as an image. The material location is similarly obscured. It might be countered that this is similar to the effects of long-established communications technologies such as the telephone. However, a difference exists with video conferencing, there has been an accompanying discourse of equivalence applied in which claims have been made by EdTech enthusiasts and universities that Zoom and other video-conferencing platforms can serve as an acceptable or even desirable replacement for face-to-face co-present teaching on campus, attendance at meetings or presentation at a face-to-face conference. The embodied, material, spatial and temporal elements

of being together in the same place with others have arguably come to be seen as optional, inconvenient or exclusionary. The reverberations of the presence of digital technologies in the contemporary university are clearly manifold and complex, but one element which I propose unites them is the repercussions for embodied and material practices and experiences of being at university. Before moving on to that analysis, however, I will turn to an examination of a related emergent concept that is gaining currency in the field of digital higher education, that of the *postdigital*, arguing that it offers the field some theoretical purchase but also needs greater precision with respect to these embodied and material practices and experiences. I will also propose that the concept is founded on an unacknowledged transhumanist ethos.

The 'postdigital'

In Gourlay (2023), I explored the origin and genealogy of the term 'postdigital', drawing on Jandrić et al. (2022), who trace the concept back to Negroponte's (1998) short essay 'Beyond Digital', in the popular technology magazine *Wired*. It is worth examining Negroponte's essay in detail, as arguably the tenets of this persist in the present-day and growing use of the term in digital education. He sets out the following: 'Its literal form, the technology, is already beginning to be taken for granted, and its connotation will become tomorrow's commercial and cultural compost for new ideas. Like air and drinking water, being digital will be noticed only by its absence, not its presence' (Negroponte 1998). The central point made by Negroponte is that the digital fully permeates our lives. He compares it to air, which does indeed permeate all human environments (although it is worth pointing out that drinking water is rather different, not being a naturally occurring and ubiquitous resource in all settings). His contention is that the digital is a fully permeating entity which in time will be taken for granted and only noticed if absent. Flowing from this, Negroponte centres his piece on some technology-related predictions:

> The decades ahead will be a period of comprehending biotech, mastering nature, and realizing extraterrestrial travel, with DNA computers, microrobots, and nanotechnologies the main characters on the technological stage. Computers as we know them today will a) be boring, and b) disappear into things that are first and foremost something else: smart nails, self-cleaning shirts, driverless cars, therapeutic Barbie dolls, intelligent doorknobs that let the Federal Express man in and Fido out, but not 10 other dogs back in. Computers will be a sweeping yet

> invisible part of our everyday lives: We'll live in them, wear them, even eat them. A computer a day will keep the doctor away. (Negroponte 1998)

I discern echoes of transhumanism in these visions for the future as set out here, which are interesting to view from the standpoint of twenty-five years on, noting that some of his predictions seem to have at least partially come to pass, others less so. It is striking that nature is regarded as something to be 'mastered'. He goes on to set out five 'forces of change' coming out of the digital age. He predicts that the nation state will no longer exist, stating that a 'united planet is certain'. He proposes that digital technology will lead to huge corporations and an increase in small-scale local entities such 'homespun inns', with middle-sized entities becoming scarce. His next prediction is for 'being prime'; a radical asynchronicity with the idea of large numbers of people watching a TV show at the same time, for example, being 'nothing less than goofy'. He also envisages the demise of cities and 'a complete renaissance in rural living'. He also expects that digital technology will bring about equality: 'Childhood and old age will be redefined. Children will become more active players, learning by doing and teaching, not just being seen and not heard. Retirement will disappear as a concept, and productive lives will be increased by all measures, most important those of self. Your achievements and contributions will come from their own value' (Negroponte 1998). Leaving aside the utopian nature of these predictions, once again a transhumanist ideology can be discerned here, with an emphasis on an optimized self, associated with a discourse of redefinition of biological categories. His final prediction relates to territory:

> Being unterritorial. Sovereignty is about land. A lot of killing goes on for reasons that do not make sense in a world where landlords will be far less important than webmasters. We'll be drawing our lines in cyberspace, not in the sand. Already today, belonging to a digital culture binds people more strongly than the territorial adhesives of geography – if all parties are truly digital. (Negroponte 1998)

Here we are presented with a vision in which future humans will no longer be concerned with physical land or territory. The notion that 'we'll be drawing our lines in cyberspace, not in the sand' is a striking one, as it carries with it the notion that evolved human culture itself will no longer exist, being replaced by 'digital culture'. It is easy to critique what is a somewhat polemical popular article, written in the early days of widespread internet use, during which time the future potentials of the digital were commonly speculated on in a somewhat utopian or radical manner. However, what is of relevance to my analysis is

the transhumanist ethos he espouses, with an underlying notion that human-evolved bodies, stages of life, human characteristics, longstanding educational approaches and cultures based on territory are all undesirable, or at least limiting aspects of being human; problems that can be solved by digital technology, which is proposed as some sort of liberating force. It is worth considering what exactly we would be liberated *from* in this imaginary; our human bodies, the features of ageing, our ways of making and passing on knowledge or our relationship with the earth and nature? This imaginary is all-encompassing and absolutist in its claims; like air, the digital will have the character of a haunting, permeating everything, bringing about a complete transformation of humans and their lives.

As the notion of the postdigital has found its way into educational thought, I would argue that the transhumanist fantasies at the root of the idea require some serious critical consideration in terms of the extent to which perhaps less dramatic, but nonetheless related, ideologies may be propagated in mainstream educational discourses and practices. The notion that the digital leads to some form of incorporeality is one idea which has already been identified and critiqued in educational research (e.g. Land 2005; Selwyn 2016; Gourlay et al. 2021). A further effect has been a pervasive focus on digital interaction and networks, exemplified by the notion of 'connectification' popularized in the world of EdTech in recent decades (e.g. Siemens 2005; Downes 2011). This apparently liberating focus on learning taking place in a seemingly emergent manner with people connecting online via platforms such as Massive Open Online Course's (MOOC) was welcomed as a 'disruptive' challenge to what was portrayed as the obsolete and hierarchical practices of formal education. However, the emphasis on connection may also be critiqued as anti-intellectual, anti-expertise and limited in its applicability outside the world of tech enthusiasts in education (see Gourlay 2020a for a full discussion).

Jandrić et al. (2022) provide a history of the term postdigital, which was first used by Cascone (2000) in the context of music, and also Pepperell and Punt (2000) working in the visual arts. The term was later adopted in humanities and social sciences as it was seen as a useful means by which to question the terms 'digital' and 'analogue' and the assumed hard binary between the two (Cramer and Jandrić 2021). There has been a resistance in critical studies of digital education to fix on a strong definition of the postdigital, with a preference for a more flexible and capacious concept (e.g. Jandrić et al. 2022; Jandrić and Ford 2022). However, for the purposes of my argument in this book, I would like to examine the term in detail, in particular, discussing what I regard to be some inconsistencies inherent in the concept. A central plank of the idea of the

postdigital is that the supposed clear distinction between analogue and digital is obsolete in the contemporary period, following Negroponte's argument as set out above, that the digital permeates throughout all aspects of life, like air. In this imaginary, this leads logically to a position in which there is nothing that exists as entirely analogue, outside of the realm or reach of the digital. Although it is undeniable that digital technologies are important and often central and necessary elements of our contemporary lives and experiences of higher education, I would argue that they do not equate to a totalized permeation as implied by Negroponte. I would make the point that the relationships between digital and analogue are considerably more complex than a 'flat' model of total permeation, that a range of entanglements exist, and that there still remain elements of lived experience of higher education which are primarily or wholly analogue. I will propose that these share several characteristics, which are *embodiment*, *ephemerality*, *seclusion* and *co-presence*. I will return to these later in the book, but first I want to turn my attention to a further theoretical strand pertinent to this book – the notion of surveillance and the gaze.

2

The Algorithmic Gaze

Introduction

The previous chapter set out the first element of the theoretical framing of this work and also undertook some 'ground clearing' in terms of definitions and scope. In this chapter, I will draw on relevant concepts from research into digital education, digital sociology and surveillance studies and will combine some of these to propose an analytical framework. The chapter will focus on the rapidly increasing role of algorithms in society more broadly, drawing on recent work in this area of digital sociology, alongside related work in STS. It will consider questions of agency in the context of *algorithmic cultures*, narrowing the focus to higher education to consider the co-constitutive relationships between these technologies, knowledge practices and human/non-human subjectivities in the contexts of audit and surveillance. It will conclude that contemporary higher education is saturated with various types of partially acknowledged *algorithmic gaze*.

Datafication

Williamson (2017a) sets out the (then) landscape of 'big data in education' in a book-length piece. Although the technology has moved on considerably since that time, this is a landmark critical work, and so I will review the relevant section here, before looking at more recent developments. In this and a series of subsequent publications, Williamson focuses in particular on the infiltration of educational technology companies into the school sector in the UK and beyond. He defines big data as follows:

> 'Big Data' has become a contested terms that is used diversely by different groups. The simple technical definition is that big data consists of information

> collected in huge volume, of highly diverse variety, which is collected as extreme velocity . . . Big data . . . is simultaneously technical and social. Technical in that it is the product of software programs and processes; social because it is produced and used by human operatives working in specific organizational settings, and is generated from the everyday lives of people around the globe. (Williamson 2017a: x–xi)

In the realm of education, he points out how a range of organizations and businesses have identified big data as a potential source of insights into 'how education systems and institutions function, how teachers perform, and how learners achieve' (Williamson 2017a: xi), with a view to inform the design of courses, resources, policies and practices. Williamson also uses Jasanoff and Kim's concept of the sociotechnical imaginary, concluding his preface by stating: 'Big data in education is as much an imaginative resource to be mined for future possibilities as it is an emerging technical reality. As this book demonstrates, however, imagining the future of education with big data is catalyzing real development that are set of impact on educational processes worldwide' (Williamson 2017a: xi). Williamson discusses HackingEDU, a 'hackathon' event which took place in 2015 in San Francisco. Of interest is his observation that HackingEDU 'locates education as it currently exists as a problematically broken system which is in need of revolutionizing. It proposes that the solution is in the hands of software developers and hackers who can write code' (Williamson 2017a: 3). This is envisaged to be based on large amounts of educational data, with private sector start-ups taking the lead; he refers to the ride-hailing app Uber as the comparator. As he puts it, in this imaginary 'All it takes to revolutionize education for the future is a few million lines of software code and big piles of digital data' (Williamson 2017a: 3).

Williamson goes on to explore the nature of digitizing and datafying education. He points out that measurement in education has a long history with reference to Lawn (2013), but that the nature of this measurement has changed in terms of scope, fidelity and pace due to the advent of big data. Additionally, the nature of established e-learning systems has changed via big data and learning analytics, allowing the systems to 'talk back' to users (Mayer-Schonberger and Cukier 2013). He defines datafication as 'the transformation of different aspects of education (such as test scores, school inspection reports or clickstream data from an online course) into digital data' (Williamson 2017a: 5). Digitation 'refers to the translation of diverse educational practices into software code, and is most obvious in the ways that aspects of teaching

and learning are digitized as e-learning software products' (Williamson 2017a). These two processes are mutually entwined. He sketches out the effects of these twin processes, characterizing schools as 'data-production centres, responsible for constantly recording and auditing every aspect of their performance' (Williamson 2017a: 6), while universities upload student assignments to global plagiarism detection databases, and nursery schools collect data in order to benchmark children's progress against national and international databases. This effect can also be seen in the use of school inspection data, school comparison websites and teacher recruitment. The curriculum, teaching and assessment are also changing through the use of technologies such as adaptive learning software, 'teacher bots' and 'cognitive tutors', while real-time assessment analytics is altering the previously fixed nature of testing. Williamson points out that the world's richest and most influential companies are pumping vast resources into these developments, in service of an imagined future education in which: 'While economic fantasies of human capital development persist, they are being supplemented and extended by dreams of new forms of governance and citizenship, new scientific aspirations of psychological optimization and cognitive enhancement, and new commercial objectives to insert private sector technologies into public education' (Williamson 2017a: 8). He sees this as a large-scale sociotechnical imaginary which 'envisages education as a massively data-driven and software-supported social institution' (Williamson 2017a: 9), which shapes real-life material practices. In the next section, I would like to turn to a consideration of the relevance for my conceptual framework of the adjacent field of digital sociology.

The data gaze

The sociologist David Beer has made extensive and critical contributions to our understanding of data in contemporary society. In his (2019) book *The Data Gaze*, he poses the question, 'with all these amassing data about people, places, organizations, and nation states, who has the power to speak with these data? Or, perhaps more fittingly, who has the power to speak with *our* data?' (Beer 2019: 1). He proposes that in order to answer this question, we must understand how new types of knowledge 'achieves authority, credibility and legitimacy' (Beer 2019). He refers to foundational work by Kitchin (2014a), who defines data as being 'commonly understood to be the raw materials produced by abstracting the world into categories, measures and other representational forms – numbers,

characters, symbols, images, sounds, electro-magnetic waves, bits – that constitute the building blocks from which information and knowledge are created' (Kitchin 2014a: 1, in Beer 2019: 2). Beer focuses on the ways in which the term 'data' is used, arguing that 'The way data is spoken of and defined reveals something of its materiality and the agendas that at play' (Beer 2019: 2). He elaborates this agenda:

> Understanding our data-rich environment requires an understanding of the visions, infrastructures and practices that facilitate what is said with our data. We need to understand how those data are deployed and what is enunciated with and through them. We need to understand how data-rich processes spread, how they take root, what systems unfold and how they demarcate new practices and forms of knowledge. (Beer 2019: 2)

Beer proposes the concept of the *data gaze* with reference to Thrift's (2005) *Knowing Capitalism*, arguing that since its publication, the advent of smartphones, social media and a range of surveillance technologies has caused capitalism to become more aware. He also refers to Srnicek's (2017) book *Platform Capitalism*, in which he proposes data as central to capitalism and emphasizes the importance of understanding how platforms work in order to extract and circulate data. For Beer, the claims being made for data represent a kind of boundary work that is concerned with 'crossing thresholds and pushing back frontiers' (Beer 2019: 4). He proposes that 'these claims are wrapped up with a *veneer of knowing* that aims to draw people into a data rationality . . . aimed at intensifying and expanding the reach of data analytics' in what he calls 'an industry of intervention' (Beer 2019). He sets out how the expansion of the ordering nature of data has led to 'new ways of knowing' (2019: 5). This raises questions about how knowledge is used, by whom, for what purpose and how it interacts with power and social structures. As he puts it:

> Overall, data are seen to provide powerful forms of knowledge and insight into the social world. Seeing into this power and understanding its machinations requires us to think about how this knowledge is framed, how it is presented, what type of expertise it evokes and authenticates, and what notions of truth and worth are bund up in these forms of knowledge. We need to see how these data are understood as well as what they can do, because it is here that the outcomes are being pre-set, where agendas are being articulated and embedded and where claims to know-how and expertise and being made. (Beer 2019: 2)

The goal of his book is to address the questions, 'What is the underlying mode of thinking that resides in data use? What rationalities and ways of thinking are part of how data-led processes find their way into our lives?' In particular, he aims to

explore what notions of value and ideals of living are coded into ways in which data are used and to investigate how the data are imagined and how what he calls the data gaze emerges (Beer 2019: 6). Beer proposes the notion of data capitalism 'a form of capitalism that operates through, is informed by and relies upon data' (Beer 2019: 7). The book seeks to explore 'the type of prosthetic vision that is said to be provided by data analytics packages of various kinds' (Beer 2019). Beer theorizes his concept of the data gaze with reference to Foucault's (2003) *The Birth of the Clinic*, which was first published in 1963. Foucault was concerned with the history of the emergence of clinical medicine; the point of relevance for Beer is Foucault's attention to the nature of the expert gaze and the accompanying rationalizing discourse. Beer also uses Foucault's scholarly approach by looking at documentary traces and archives to understand data analytics. Also, echoing Jasanoff and Kim's work, he uses the concept of *data imaginary* to describe the way that data analytics and its underpinning rationalities are envisaged, referring to 'dreamwork' underpinning data analytics. He points out the ways in which data is envisaged to carry power:

> It is often quite staggering. A new faith in data appears to have taken hold. It is by no means universal, but it is a powerful and prevalent current. The answers we need, the solutions to come problem we might not even know that we had, are often thought to be somewhere in the data. It would seem that if only we had more data and more analytics we would know more and waste less. (Beer 2019: 2)

Surveillance cultures

In parallel with work on data, the area of surveillance studies has grown in recent years in response to the increase in digital surveillance technologies in society. Leading theorist David Lyon has explored the phenomenon in an influential series of publications (e.g. Lyon 2007, 2022). In his (2018) book *The Culture of Surveillance*, he also uses the concept of the *imaginary* to investigate how we interact with surveillance as a society and as individuals. Lyon begins by questioning the appropriacy of the Orwellian 'big brother' metaphor as adequate to describe the ways in which surveillance operates in the contemporary period. He argues that this notion implies a totalitarian regime of oppression, in which citizens are unwillingly subjected to surveillance by an oppressive state. Instead, he argues that the contemporary situation is more complex:

> What is experienced in the twenty-first century now depends deeply on the participation of those being surveilled . . . not only being watched but watching

> itself has become a way of life. Orwell's characters lived in gnawingly fearful uncertainty about when and why they were watched. Today's surveillance is made possible by our own clicks on websites, our texting messages and exchanging photos. Ordinary people contribute to surveillance as never before. User-generated content engenders the data by which daily doings are monitored. This is how surveillance culture takes shape. (Lyon 2018: 2)

He suggests that social media surveillance may seem harmless but it in fact contributes to profound social change, in which 'Watching has become a way of life' (Lyon 2018). He points out that our use of online activities for our own leisure and entertainment generates data which is of great value and interest for powerful governmental and commercial actors. As he puts it: 'There is thus a tension between the digital lives of people routinely and innocently immersed in social media, game-like – or 'gamified' – online contexts and self-tracking, and those whose opportunities, life-chances and choices are affected, sometimes negatively, by how others collect, store, classify and analyze those data' (Lyon 2018: 4). This tension is reflected in surveillance studies, with some commentators framing surveillance as playful and empowering, while others emphasize the dehumanizing threat that it represents. Lyons highlights that the contemporary situation differs from geographically localized surveillance cultures of the past; in that now data are now more likely to be 'easily quantified, highly traceable, likely to have an economic – monetized – dimension, and to be garnered at a distance – they are deterritorialized' (Lyon 2018: 5). He characterizes data as 'liquid', an analysis which he explored in dialogue with the theorist of 'liquidity' Zygmunt Bauman, in a previous publication (Bauman and Lyon 2013). Lyon's focus is on how everyday citizens interact with and respond to surveillance, how they comply with it, resist it or engage with it in creative ways in their everyday practices. This is an important area for scholars of surveillance to focus on. However, it could be argued that the context of the university adds a further layer of complexity to how we understand surveillance and its effects. Students, academic staff and professional services staff all have a formal relationship to the university, and the technology used within it, in a somewhat different manner than an individual citizen relates to a social media platform.

The *algorithmic gaze*

In addition to burgeoning digitization and datafication, education is experiencing a rapid expansion in the use of algorithms for a range of functions. Finn (2017)

addresses the question 'what is an algorithm?', setting out that in the late 2000s 'our relationship with computers changed' (Finn 2017: 15), with the advent of smartphones and apps. His project in his book is to explore 'how algorithms function as culture machines that we need to learn how to read and understand' (Finn 2017: 15). He points out that, despite the fact that even senior executives of large tech corporations like Google and Netflix do not fully understand all the behaviours of their systems, there is still a prevalent rhetoric surrounding algorithms which is 'transcendent and emancipatory, striking many of the same techno-utopian notes as the mythos of code as magic when they equate computation with transformational justice and freedom' (2017: 16), citing Bogost's notion of the 'theology of computation'. Finn refers to algorithms as 'pieces of quotidian magic' (2017: 16), which we trust to undertake everyday tasks for us. He provides the following definition:

> the word algorithm frequently encompasses a range of computational processes including close surveillance of user behaviours, 'big data' aggregation of the resulting information, analytics engines that combine multiple forms of statistical calculations to parse that data, and finally a set of human-facing actions, recommendations, and interfaces that that generally only reflect only a small part of the cultural processing going on behind the scenes. (Finn 2017: 16)

He characterizes computation as coming to have a kind of presence in the world, a 'thingness', of varying degrees of discreteness, contrasting the clearly defined button on a smartphone screen with entities which are harder to disaggregate, asking as an example 'to what extent are spell-check programs changing diction and grammatical choices through their billions of subtle corrections, and how do we disentangle the assemblage of code, dictionaries and grammars that underlie them?' (Finn 2017: 16). Finn takes us back to the etymology of the word, which derives from the work of the ninth-century mathematician Abū 'Abdallāh Muḥammad ibn Mūsā al-Khwārizmī, pointing out that *algorithmus* originally referred to the concepts of positional notation, the decimal point and zero (Finn 2017: 17). In subsequent centuries, the term algorithm was used 'to describe any set of mathematical instructions for manipulating data or reasoning through a problem' (Finn 2017: 17). Finn identifies what he sees as one of the defining features of an algorithm; it works, in that it will deliver the result in a finite period of time. However, he goes on to point out that the implementation of an algorithm 'is never just code' (2017: 18), giving the example of an algorithm developed for the routing of travelling salespeople, pointing out that the algorithmic model must also co-exist with the autonomy of individual drivers

and other interventions from complex human systems. He gives an example of how the algorithm also affects human behaviour; in the case of the delivery drivers, they have been known to leave a tag saying the resident is not at home, so save a few seconds it would take to knock and wait for the reply, an action which is 'invisible' to the algorithmic system. Interestingly, Finn refers to major corporations, such as Google and Facebook, as 'essentially cultural wrappers for sophisticated algorithms' (2017: 20). He goes on to point out however that human biases are built into them at every stage of development, with reference to the legal ethicist Pasquale (2015) as Finn puts it:

> As algorithms move deeper into cultural space, the pragmatic definition gets scrutinized more closely accordingly to critical frames that reject the engineering rubric of problem and solution, as Pasquale, Golumbia, and a growing number of algorithmic ethics scholars have argued. The cathedral of abstractions and embedded systems that allow the pragmatic algorithms of the world to flourish can be followed down to its foundations in symbolic logic, computational theory, and cybernetics, where we find a curious thing among that collection of rational ideas: desire. (Finn 2017: 21)

He poses the question 'What are the truth claims underlying the engineer's problems and solutions, or the philosophy undergirding the technological magic of sorcery?' (2017: 21). This, he argues, depends on 'the protected space for computation, the logical, procedural, immaterial space where memory and process work according to very different rules form material culture' (2017: 21). He refers to the seminal work of N. Katherine Hayles, in her (2005) book *My Mother Was a Computer*, in which she proposes the concept of the 'regime of computation'. Finn likens this to his concept of the age of the algorithm, 'the era dominated by the figure of the algorithm as an ontological structure for understanding the universe' (Finn 2017: 21). He makes the point that even under a rationalist 'softer' version of computationalism, algorithms have a profound effect on everyday life. Hayles refers to a 'hard claim' for computationalism, which regards algorithms not as descriptions of processes, instead the processes themselves are computational machines. He refers to Wolfram's (2002) principle of computational equivalence, in which he claims that 'all complex systems are fundamentally computational' (Finn 2017: 22), and that computation as a metaphor could bring about understanding of other scientific and social systems in what Finn calls 'an ideology of transcendence for those who seek to use computational systems to model and understand the universe' (Finn 2017: 22), whose essence is the notion of abstraction. Drawing on Berlinski's (2000)

history of the algorithm, he discusses the nature of the universal Turing machine and the church's work on mathematical logic, setting out that proofs of effective computability all point towards universality. However, as he points out, 'every abstraction has a shadow, a puddled remainder of context and specificity left behind in the act of lifting some idea to a higher plane of thought' (Finn 2017: 24). He argues that what is encoded by algorithms as 'the abstraction of the desire for an answer' (Finn 2017: 25), on the basis of the notion of what is 'effective', lies at the heart of the concept of universal computation. With reference to the concept of *mathesis universalis*, the language of science as set out by Leibniz and Descartes, as he puts it, 'This perfect language would exactly describe the university through its grammar and vocabulary, becoming a new kind of rational magic for scientists that would effectively *describe and be the world*' (Finn 2017: 25, my emphasis). This ontological claim made by the computationalist definition of algorithms, as he puts it, springs from 'a desire to make the world effectively calculable' (Finn 2017: 26), a conception which will be an important point throughout this book.

Kitchin and Dodge (2011) propose categories of entity in what they call 'code space' coded objects and coded infrastructures, which support coded processes and combine to constitute coded assemblages. In his introduction to Williamson (2015a), Kitchin defines software as follows:

> software is not simply lines of code that perform a set of instructions but rather needs to be understood as a social product that emerges in contingent, relational and contextual ways, the outcome of many minds situated with diverse social, political and economic relations. Software is a complex, multifaceted, mutable set of relations created through discursive, economic and material practices. (Kitchin in Williamson 2015a: 1)

He proposes that much of education takes place in code/spaces, which he defines as 'spaces dependent on code to function' (Kitchin in Williamson 2015a: 2), in teaching, assessment, classroom technology, administration, oversight of key performance indicators, research and publishing. Later in the same collection, Williamson explores the theme of 'software code/social code', stating: 'As the hybrid progeny of a variety of social, human and technical elements, code is increasingly understood to be invested in a kind of performative social power that gives software the capacity to enact tasks, make decisions, and, in part, mediate how people see, know and do things' (Williamson 2015b: 17).

Williamson cites Gillespie et al. (2014) who make the point that 'digital providers are not just providing information to users, they are also providing users to their algorithms' (Williamson 2015b: 20). He also references

Ruppert's (2012) point that a database renders people 'knowable' (2015b.) and amenable to classification and also intervention and quotes Bowker (2013), 'if you are not data, you do not exist' (2013). He goes on to conclude that researchers must investigate what 'social codes of conduct are written into the code', stating that 'The issue is how being known and seen, characterized and classified in code might become the basis of being governed and educated' (Williamson 2015b: 21).

The collection continues with Edwards (2014), who explores the concept of 'knowledge infrastructures' with respect to climate science. He quotes Edwards et al.'s definition: 'ecologies, or complex adaptive systems; they consist of numerous systems, each with unique origins and goals, which are made to interoperate by means of standards, socket layers, social practices, norms, and individual behaviours that smooth out the connections among them' (Edwards et al. 2013: 5, in Edwards 2014). With reference to Manović's (2013) work on software, code and algorithms and also Lampland and Star's (2009) work on knowledge infrastructures, for Edwards: 'It is the ontologies, codes, algorithms and linking of data, the applications of technical standards, and the ways in which decision-making and reasoning are articulated in digital technologies that make things perform in ways and become specific actors in particular educational practices' (Edwards 2014: 24). He raises some of the problems that digital databases may face, pointing out that through classification and making things 'known', other things may be obscured, with reference to Halford et al. (2012). He discusses 'ontology building', which he defines as 'the naming and structuring of digital data in the enactment of knowledge infrastructures' (Edwards 2014: 24).

Algorithmic cultures

In the preceding sections, I have looked at the effects of digitization and datafication on higher education, drawing on the work of Williamson (2017a). I then reviewed Beer's (2019) concept of the data gaze and connected it to Lyon's work in surveillance studies, in particular his notion of surveillance cultures (2018). I then went on to look at the effects of algorithms on higher education and proposed the combination of digitization, datafication and algorithmic practices in the contemporary university. In this section, I will take a further theoretical step, arguing that this gaze has given rise to algorithmic cultures in higher education, which generate various types of gaze at the level of institutions, groups and individual.

As discussed above, Lyon (2018) made a distinction between a form of surveillance which involves an oppressive power subjecting an unwilling populace to its gaze, as in the classic fictional work *Nineteen Eighty-Four*. He proposes instead the notion of surveillance cultures, in which the public engage in various ways with surveillance, to benefit or gain. Here, the relationship is more complex. I would like to suggest that contemporary university may also be regarded as subject to not only a data gaze in Beer's terms, but an *algorithmic gaze*. It is worth then considering how the algorithmic gaze might differ from the data gaze. The algorithmic gaze, I would propose, extends Beer's concept further. Where the data gaze surveils, records and documents, arguably the algorithmic gaze does more; it is more agentive and constitutive, in that it positions people, has far-reaching effects on lives and leads to various forms of response and performance.

Seyfert and Roberge (2016) pose the question 'what are algorithmic cultures?', highlighting their opacity, but also that 'each and every algorithm can only exist in rich and dense, if not tense, environments' (Seyfert and Roberge 2016: 2). They quote Introna and Hayes' point regarding the co-constitutive nature of algorithms, in that 'it is only us that make them, *they also make us*' (Introna and Hayes 2011: 108, my emphasis). They discuss the ways in which algorithms unfold, considering their agency and their performativity. As MacKenzie (2006) puts it, an algorithm is 'an engine, not a camera'. They characterize the agency of an algorithm as distinct from purposeful action; instead, it is fractal (Introna 2016: 24) and intertwined and unfolding in human and non-human networks. They review the literature on algorithms in humanities and social sciences, which includes the concept of 'the algorithmic turn' (Uricchio 2011), 'algorithmic ideology' (Mager 2012), 'algorithmic identity' (Cheney-Lippold 2011) and 'algorithmic life' (Amoore and Piotukh 2016). They also cite work in 'the sociology of algorithms' which had begun to emerge in STS and the Social Studies of Finance (MacKenzie 2019) and Critical Algorithm Studies (The Social Media Collective 2015). They point out the conceptual challenges of enquiry in this complex area and propose the use of Galloway's (2006) *Algorithmic Culture*. In their view, this allows for an understanding of meaning 'not as a series of intangible of untethered significations, but as something deeply rooted in reality, agency, and performativity' leading to the possibility of 'thicker, deeper, and more complex analyses of the kind of culture that algorithms are currently shaping' (Seyfert and Roberge 2016: 4). They seek to build on subsequent work (e.g. Striphas 2009, 2015; Hallinan and Striphas 2014), drawing attention to what they see as a drawback in Striphas that he tends to depict algorithmic culture as

singular, which they view as failing to depict 'its inherent performativity and messiness' (Seyfert and Roberge 2016: 5). They reach back to the writings of de Certeau and his conception of culture as multiple (1979), therefore they propose algorithmic *cultures*, plural. They describe algorithms as having 'a symbolic life of their own which, like texts, only makes sense in a particular context' (Seyfert and Roberge 2016: 5). Importantly, they set out that 'instead of treating algorithms as mere utilitarian devices, the study of algorithmic cultures rather identifies the meaningfully performative effects that accompany algorithmic access to the world: What is it that they do, culturally speaking? How do they make sense of their surroundings and the different categories people use to interpret them?' (Seyfert and Roberge 2016: 6). They elaborate on the concept: 'For algorithmic cultures can of course cut across various social, economic, and political spheres: for instance, when a particular usage of predictive algorithms in the stock market borrows its probabilistic methods from games of chance, transporting them into another field, and thereby transforming them for its own practical needs' (Seyfert and Roberge 2016: 7). They argue that what gives algorithms legitimacy in society is that they project 'objectivity', what Lash has called 'legitimation through performance' (Lash 2007: 67). However, they also point out that the 'reception' element of the equation is 'inherently cultural and constituted by interpretation, expectation, affect, speculation, and the like' (Seyfert and Roberge 2016: 7) and therefore unstable. As they put it: 'Performance and reception interweave in such a way as to constitute specific routines and cultures in which the trust afforded to algorithms cannot foreclose the possibility of contestation. The hopes and desires of some could very well be the fears and dislikes of others' (Seyfert and Roberge 2016: 7). Their central point is that algorithmic cultures are inherently messy, in their practical unfolding in the world, as opposed to abstracted and procedural entities.

> As users, when we operate in algorithmic cultures, we operate algorithms. For instance, the handling of software menus is a practice (interaction and operations with others; human and non-human alike) in which we manage algorithmic devices: we schedule meetings on our online calendar, set up notifications on emails, program our navigational devices to lead us home, etc. We activate and deactivate algorithms to govern our daily life. Thus, algorithms are not so much codes as they are realizations of social relations between various actors and actants. (Seyfert and Roberge 2016: 8)

They critique 'the tale of algorithmic objectivity' (Seyfert and Roberge 2016: 8) and the associated 'quest for a higher rationality, where algorithms act

autonomously and supersede human routines. They characterize these notions as imaginaries, which need to be distinguished from algorithms in practice. They give the example of personalized audio provided by noise-cancelling headphones and how this changes the listening experience from a social one to an individual in a 'closed algorithmic culture' (Seyfert and Roberge 2016: 14). They go on to argue that the messiness of the reality of algorithmic cultures is related to the imaginary in which 'the fulfillment of this dream is *always one step away* from its completion. There is always one more algorithm yet to be implemented' (Seyfert and Roberge 2016: 17). They propose that analyses of algorithms which portray them as all-powerful and sinister, in fact reinscribe the imaginaries of rationality, autonomy and objectivity, when in fact the reality of algorithmic cultures is more messy, mundane and error prone. They suggest the black-boxed nature of algorithmic practice may lead to an impression of uncanny non-human intentionality.

However, the concept of algorithmic cultures has been critiqued. In response to Striphas, Bogost in his (2015) essay 'The Cathedral of Computation' states that 'We are not living in an algorithmic culture so much as a computational theocracy'. He challenges the reader to replace the word algorithm with 'God', proposing that algorithmic culture is less a material phenomenon, more a 'devotional' one. His contention is that science and technology have become a new theology. He quotes Carr (2008), who points out that there is a long historical tradition of assigning metaphors to technology in terms of the human, such as the introduction of the mechanical clock leading people notions about brains working 'like clockwork'. Bogost critiques the notion that computation can simulate cognition and 'achieve the singularity'. For Bogost, the algorithmic metaphor is just another machine metaphor. Crucially, 'when left unseen, we are able to invent a transcendental ideal for the algorithm', with the algorithm being imagined as some sort of divine entity, leading to a 'theological view of computational action'. He punctures this idea with examples of the messiness, complexity and materiality of an entity such as Google Maps:

> Once you adopt skepticism toward the algorithmic – and the data-divine, you can no longer construe any computational system as merely algorithmic. Think about Google Maps, for example. It's not just mapping software running via computer – it also involves geographical information systems, geolocation satellites and transponders, human-driven automobiles, roof-mounted panoramic optical recording systems, international recording and privacy law,

> physical- and data-network routing systems, and web/mobile presentational apparatuses. That's not algorithmic culture – it's just, well, culture. (Bogost 2015)

Bogost's scepticism towards the term is a useful corrective and reminder of the material entangled nature of all computational and algorithmic operations and practices. However, for the purposes of this book, I will retain the term 'algorithmic cultures', not due to a disagreement with Bogost's analysis but as a means by which to analyse and understand not only practices but also the ideologies that elevate these practices to the status of cultures.

Conclusions

This chapter has focused on building a theoretical framework for the book. I first explored how increased digitization and datafication have had a range of effects on higher education. I went on to consider the notion of the data gaze, before drawing on work in surveillance studies, in particular Lyon's concept of surveillance cultures. I then built on Beer's concept of the data gaze to propose a more agentive algorithmic gaze. I then linked this to work in cultural sociology on algorithmic cultures. In Chapters 4 and 5, I will look in turn at a range of practices and experiences in higher education in terms of the proposed construct of the algorithmic gaze and its effects. Algorithmic cultures, I suggest, play a role across higher education in terms of administrative procedures, teaching, student learning practices and assessment. They are present in the material campus in surveillance technologies and are used in various ways to surveil and audit various forms of institutional and individual academic performance. The increased use of regimes of audit and the use of rankings in higher education have given rise to substantial critical literature which explores its effects. These practices too, I propose, enable and are driven by what is in essence an algorithmic gaze, leading to game-like algorithmic cultures with far-reaching effects. In Chapter 4, I will look at how the audit gaze is trained on the academic staff and universities at individual, departmental, national and international levels, looking at examples of self-surveillance of authoring outputs, national research audit and international university league tables. A Google Scholar search for the phrase 'algorithms in higher education' reveals a strong focus on learning analytics, in particular predictive analytics. Aside from the recent advent of generative AI, this is perhaps one of the most well-known use of algorithms in university teaching, with a large body of development work underway, private

commercial interest and burgeoning research. I will consider learning analytics as a surveilling and also performative gaze technology in Chapter 5. However, in addition to this analysis, I will also consider video-conferencing software and library-based infrared sensor technologies. In my conclusions, I pursue the argument started in Chapter 1 that these are ultimately underpinned by an implicit transhumanist vision of education and society, while acting against the human in terms of embodiment, ephemerality, seclusion and co-presence. These gazes and the underpinning cultures, I will argue, inculcate particular forms of performativity at the level of academic staff, students, institutions and the sector itself. Before I consider the effects of this algorithmic gaze, I will outline the approach that will be analysed in the next chapter.

3

Postphenomenology of Practice

Introduction

My intention in this book is to explore and hopefully shed light on a range of phenomena relating to the algorithmic gaze in higher education, not from the perspective of large empirical data sets showing sector-wide trends. There is already a valuable research literature on each of the phenomena I consider, providing findings at various levels of scale. My interest is instead in looking at the effects of the gaze in terms of *how it is experienced* in the day-to-day life of students and academic staff at the university and what it *feels like* on a granular level as it unfolds. This type of question can be addressed by qualitative research methodology, using methods such as interviews, observations, journaling, visual methodologies and so on – approaches I have used in previous studies. However, for the purposes of this book, I have chosen to use as a starting point the approach I took in my last book (Gourlay 2020a) where I adopted Adams and Thompson's (2016) approach of 'interviewing objects', using their heuristics to investigate what I proposed to be the posthuman nature of the contemporary university. Adams and Thompson's use of the word 'interview' relates to the etymology of the word, which comes from the old French verb *s'entrevoir*, a word composed of two elements: '*entre*' which means *between* or *mutual*, and '*voir*', meaning *to see*. As they put it, 'To inter-view an object or thing is therefore to catch insightful glimpses of it in action, as it performs and mediates the gestures and understandings of its human employer, and as it associates with others' (Adams and Thompson 2016: 17–18). They suggest eight heuristics: (1) gathering anecdotes, (2) following the actors, (3) listening for the invitational quality of things, (4) studying breakdowns, accidents and anomalies, (5) discerning the spectrum of human–technology–world relations, (6) applying the laws of media, (7) unravelling translations and (8) tracing responses and passages. These are derived from a range of theoretical perspectives such as Actor-Network Theory (ANT) and Ihde's (1990) postphenomenology of technics. I found this to be

generative, in particular the phenomenological elements. For this reason, in this book, I will draw on phenomenology to approach this enquiry, particularly the work of Max van Manen (2014).

Phenomenology of practice

Van Manen (2014), in the second edition of *Researching Lived Experience*, sets out what he calls a 'hermeneutic phenomenological approach to the human science of research and writing' (2014: ix). His approach centres on 'everyday lived experience', using a form of semiotic enquiry based on writing. His focus is 'pedagogic' in a broad sense, involving 'an investigation of the meanings of teaching, parenting, and related pedagogic vocations' (2014: 1). For him, phenomenological research always begins in the *lifeworld*, which he describes as 'the natural attitude of everyday life' (2014: 7), with reference to the philosopher of phenomenology Husserl's (1970) notion of the pre-reflective, pre-theoretical attitude. He describes the goal of this type of enquiry:

> The end of human science research for educators is a critical pedagogical competence: knowing how to act tactfully in pedagogic situations on the basis of carefully edified thoughtfulness. To that end hermeneutic phenomenological research reintegrates part and whole, the contingent and the essential, value and desire. It encourages certain attentive awareness to the details and seemingly trivial dimensions of our everyday educational lives. It makes us thoughtfully aware of the consequential in the inconsequential, the significant in the taken-for granted.(van Manen 1997: 8)

The core question of phenomenological enquiry for van Manen is, 'What is this or that kind of experience like?' (1997: 9), aiming for an understanding which is pre-reflective as opposed to taxonomizing or classifying elements of an experience. It is a search for the *essence* of an experience (Husserl 1982; Merleau-Ponty 1962). For him, 'The essence or nature of an experience has been adequately described in language if the description reawakens or shows us the lived quality and significance of the experience in a fuller or deeper manner' (van Manen 1997: 10). Strikingly, van Manen describes phenomenological research as 'a poetizing activity', which resists conclusions. As he puts it:

> To summarize a poem in order to present the result would destroy the result as the poem itself is the result. The poem is the thing. So phenomenology, not

> unlike poetry, is a poetizing project; it tries an incantative, evocative speaking, a primal telling, wherein we aim to involve the voice in an original singing of the world (Merleau-Ponty 1973). (van Manen 2014: 13)

The key notion here is of language that *speaks the world* as opposed to speaking of it (van Manen 2014). As he puts it, 'We must engage language in primal incantation or poetizing which hearkens back to the silence from which the words emanate. What we must do is discover what lies at the ontological core of our being' (van Manen 2014: 13). He refers to Heidegger's (1950) notion of phenomenological reflection following 'woodpaths' or *Holzwege* towards a 'clearing' 'where something could be shown, revealed, or clarified in its essential nature' (van Manen 2014: 29).

Van Manen sets out his methodological structure for such an enquiry, identifying six research activities. These are:

(1) Turning to a phenomenon that seriously interests us and commits us to the world.
(2) Investigating experience as we live it rather than as we conceptualize it.
(3) Reflecting on the essential themes that characterize the phenomenon.
(4) Describing the phenomenon through the art of writing and rewriting.
(5) Maintaining a strong and oriented pedagogical relationship to the phenomenon.
(6) Balancing the research context by considering parts and the whole.

(Van Manen 2014: 30–1)

He sets out a series of approaches in order to conduct this type of work:

(1) Using personal experience as a starting point.
(2) Tracing etymological sources.
(3) Searching idiomatic phrases.
(4) Obtaining experiential descriptions from others.
(5) Protocol writing (lived-experience descriptions).
(6) Interviewing (the personal life story).
(7) Observing (the experiential anecdote).
(8) Biography as a resource for experiential material.
(9) Diaries, journals and logs as sources of lived experiences.
(10) Art as a source of lived experience.
(11) Consulting phenomenological literature.

He goes on to explore a range of approaches to phenomenological reflection, one of which he calls 'lifeworld existentials as guides to reflection' (van Manen 2014: 101). In this, he identifies what he regards as 'four such fundamental existential themes which probably pervade the lifeworlds of all human beings, regardless of their historical, cultural or social situatedness' (van Manen 2014: 101). These existentials are lived space (spatiality), lived body (corporeality), lived time (temporality) and lived human relation (relationality or communality) (van Manen 2014). These have been regarded in the phenomenological literature as part of the fundamental structure of the lifeworld (e.g. Merleau-Ponty 1962). In order to investigate these four themes, for each of the gaze phenomena I consider, I focus on van Manen's four lifeworld existentials, probing into the nature of the gaze in each case. These lifeworld existentials, as set out by van Manen, will form the core of the anecdotes and reflections presented in this book and are therefore worthy of close attention here. As he puts it, 'The four fundamental existentials of spatiality, corporeality, temporality, and relationality may be seen to belong to the existential ground by way of which all human beings experience the world' (van Manen 2014: 102).

Lived space

Van Manen describes this as 'felt space', the experience of lived space which is largely pre-verbal and pre-reflective. He describes it as follows (my emphasis):

> And yet we know that the space in which we find ourselves affects the way we feel. The huge spaces of a modern bank building may make us feel small, the wide-open space of a landscape may make us feel exposed but also possibly free, and just the opposite from the feeling we get in a crowded elevator. As we walk into a cathedral we may be overcome by a silent sense of the transcendental, even if we ordinarily are not particularly religious or churchgoing. Walking alone in a foreign and busy city may render a sense of lostness, strangeness, vulnerability, and possibly excitement or stimulation. In general, *we may say that we become the space we are in.*(van Manen 2014: 102)

For van Manen, lived space is 'a category for inquiring into the ways we experience the affairs of our day-to-day existence; in addition, it helps us uncover more fundamental meaning dimensions of lived life' (van Manen 2014: 103). He provides examples of activities such as reading, writing and the types of spaces where they might take place. Throughout my enquiry, I will consider

the question of lived space in each example in order to situate the effects of these various forms of the gaze in lived spaces of higher education.

Lived body

The second lifeworld existential proposed by van Manen is the lived body, which 'refers to the phenomenological fact that we are always bodily in the world'. Importantly for the theme of this study, he states that 'In our physical or bodily presence we both reveal something about ourselves and we always conceal something at the same time – not necessarily consciously or deliberately, but rather in spite of ourselves. When the body is the object of someone else's gaze, it may lose its naturalness' (van Manen 2014: 104). This lifeworld existential is particularly important in this enquiry into the lived experiences of the algorithmic gaze in the university, as the bodies of the students and academic staff may be under direct observation or, as we will see, traces of their bodily activities may be recorded by the gaze.

Lived time

van Manen describes lived time as distinct from clock time or objective time. This relates to how we experience events, such as time appearing to go faster when we are enjoying ourselves or to drag when we are bored. He also sets out the importance of lived time to the present, in terms of our own histories and orientation towards the future, 'out temporal way of being in the world' (van Manen 2014). Questions surrounding temporality are also of great importance to my enquiry, in terms of ways in which lived time is affected by the algorithmic gaze, appearing to slow down in some situations, but more commonly leading to a speeding up or a staccato, punctuating effect, as discussed in the examples in later chapters.

Lived other

The final lifeworld existential identified by van Manen is lived others, which he defines as 'the lived relation we maintain with others in the interpersonal space that we share with them' (van Manen 2014). He emphasizes corporeal relationality, such as the act of shaking hands, commenting that 'Even if we learn about another person only indirectly (by letter, telephone or book) we have often already formed a physical impression of the person which later may

get confirmed, or negated when we find out, to our surprise, that the person looks very different from the way we expected' (van Manen 2014: 105). He also highlights the importance of our relations to the other in the human experience. Again, this lifeworld existential is central to the question of this book, in terms of considering how the gaze alters our relationality to others. van Manen does not refer to the internet above, but his point about relationality when not physically present together is a crucial one. This and other aspects of relationality under the gaze will be explored in the subsequent chapters.

Postphenomenology of practice

In undertaking a study into the nature of the digital in higher education drawing on phenomenology, it is important to acknowledge the emergence of a related set of ideas in the philosophy of technology, *postphenomenology*, developed in large part by the philosopher of science and technology Don Ihde, in a series of influential works (e.g. 1979, 1986, 1990, 2009). In these works, Ihde and subsequent literature by scholars such as Verbeek (2001, 2005, 2011, 2015, 2016) and Rosenberger and Verbeek (2015) have drawn on the concepts of phenomenology to analyse human–technology relations in the contemporary period. In this section, I will consider this strand of work, discussing its contributions and associated critiques.

Ihde's establishment of postphenomenology was founded on his critical stance towards 'classical' phenomenology. His claim centres on the need to examine the relations between humans and technologies as applied to 'real life' contexts of practice (Ihde 1990). For Ihde, classical phenomenology lacked 'a materially sensitive post-phenomenology' (Ihde 2018: viii). On his website, Verbeek defines postphenomenology as follows: 'The approach is called "post-phenomenological" to express its ambivalent relation to the phenomenological tradition; on the one hand, it is inspired by the phenomenological focus on experience and concreteness, but on the other hand it distances itself from its romanticism regarding technology and takes its starting point in empirical analyses of actual technologies' (Verbeek 2023). Ihde's proposals are also based on his view that phenomenology falls short of understanding the social and cultural roles of technology in the contemporary period of digital and knowledge technologies, as opposed to those of the industrial age. Both of these objections centre particularly on what he regards as deficiencies in Heidegger's phenomenology in particular, which he sets out in his book-length piece *Heidegger's Technologies* (Ihde 2010).

With reference to Ihde (2010), Glazebrook (2020) explicates how Ihde differs from Heidegger: 'the primary difference between Ihde and Heidegger lies in their treatment of the reductive nature of technology. Heidegger universalizes "technology" by examining its "essence" as *Gestell*, i.e. a singular logic of domination. Ihde's treatment is a non-totalising assessment of technology's praxical multiplicity' (Glazebrook 2020: 24–5). Ihde's stance, as she puts it, allows for 'phenomenological analysis of a lifeworld in the midst of technologies where the interrelations between people, technologies, and science reveal messier but richer account' (Glazebrook 2020: 25). Ihde's (2010) critique of Heidegger argues against what he sees as Heidegger's casting of technology as monolithic and characterized throughout as in a relationship of human over nature, with nature cast as a 'resource'. Ihde points out the increasing electronic and diverse nature of contemporary technologies and argues that the philosophy of technology must adapt. For Ihde, unlike Heidegger, technoscience is not necessarily dystopic in and of itself. Instead, he locates the political problem in the epistemological privilege granted to the *visual* over the other senses and a resultant reduction of seeing to objectification (Glazebrook 2020). Ihde is concerned that visual metaphors are inadequate in terms of understanding phenomena. What distinguishes visualization, he argues, is its amenability to transform and repeat, such as Galileo's telescope (Ihde 1998: 164). 'Similarly, X-rays, magnetic resonance imagery, computerized or positron emissions tomography, and sonograms generate stop-time visualizations of interiors' (Glazebrook 2020: 31). These visualizations, along with readable inscriptions such as linguistic written texts, are not isomorphic with the 'things themselves', which become referent objects (Ihde 1998: 160–1). As Glazebrook puts it:

> Reducing experience to the visual extracts what is experienced from the lifeworld of experience. The physical image, e.g. a photograph of a baby, remains in the quotidian of the lifeworld and wears and ages, as does the baby, but what is depicted is displaced from the lifeworld to quasi-immortality – the baby is frozen in time in the photograph in the time it was taken. (Glazebrook 2020: 32)

Glazebrook goes on to discuss the implications of Ihde's call for a 'whole body' knowledge (Ihde 1998). However, in the same edited collection, some critical commentaries on Ihde are offered. For example, Scharff (2006) adopts a more critical stance on Ihde's orientation towards Heidegger, pointing out his admiration of Heidegger's phenomenology, in which Ihde describes as 'his most brilliant insights into what was to become his philosophy of technology took shape' (Ihde 2010: 15). However, Scharff reminds us of Ihde's objections

to Heidegger on metaphysical grounds, where 'reactionary modernism . . . hybridizes industrially styled technologies to a *volkisch* romanticism [that] is no longer a viable position for philosophy of technology' (Ihde 2010: 4). The plank of Ihde's argument is that Heidegger's stance towards technology does not pertain to the contemporary period of digital and nanotechnologies but refers more to the industrial age. Scharff argues that Ihde is objecting to a supposedly all-encompassing notion of Heidegger's *Bestand*, or 'standing reserve' being characterized by an 'essence' which is unchanging and monolithic. However, Scharff points out that Heidegger uses the word *Wesen* in the verbal sense of 'essencing', 'that is, of constituting the continuing occurrence of a predominant way that meaning is disclosed' (Scharff 2020: 64). Ihde accuses Heidegger of generating abstractions about technology in general in an earlier 'rust belt' period, as opposed to considering empirically particular cases, or the possibility of subsequent technological development which might render the analysis obsolete. Scharff digs further to understand Ihde's apparent animus towards Heidegger, in particular looking at Ihde's portrayal of Heidegger's concept of *techne* as an expression of old-fashioned nostalgia for obsolete, pre-industrial technologies, such as workshop tools and peasants' shoes, while expressing dislike for 'modern' technologies such as large steel bridges or writing technologies after the pen. Interestingly, Scharff points out that Heidegger has a clear preference for technologies that involve embodiment relations, for example, his dislike of the typewriter as 'it takes the hand out of writing' (Scharff 2020: 65), therefore dehumanizing us by a subject–object dualism, which distances us further from the device. Scharff poses the following question in his critique of Ihde: 'What sort of postphenomenologist can simultaneously oppose one-size-fits-all accounts, accept fairly high-level generalizations of their own, and yet insist that "concrete" consideration of "actual technologies" is what really matters?' (Scharff 2020: 66). He points out that Ihde grants Husserl the benefit of the doubt concerning the degree to which his terminology should be read literally, claiming it should be taken in a heuristic spirit, while in his view Heidegger must be read literally. As he puts it:

> Why must a postphenomenologist interpret Husserl and Heidegger in such radically uneven ways? Why, for example, does Ihde think Husserl's few obviously non-philosophical mentions of a couple of household technologies and scientific instruments of his day deserve a whole chapter – where we are urged to consider these casual references as signs that Husserl may well have been 'on the way to an inversion of the natural attitude' – while Heidegger's detailed analyses of

> old vs. newer technologies are simply dismissed as peasantish, romantic, and merely more evidence of his essentialist 'blindness . . . to the differing contexts and multidimensionalities of technologies that a pragmatic-phenomenological account can better bring forth'? (Scharff 2020: 67)

Scharff calls into question Ihde's stance regarding treating technologies as tools 'with shelf lives'. He then contrasts Heidegger's and Ihde's criticism of Husserl's transcendentalism and resistance to appeals to lived experience, pointing out that although they overlap in substance, their conclusions are different. Thompson (2020), in the same volume, offers a critique of Ihde's engagement with philosophical pragmatism and its resultant effects; this complex piece is beyond the scope of this book, but also calls into question some of the theoretical foundations of Ihde's work. What is apparent in these detailed and scholarly critiques of Ihde is that there are tensions and inconsistencies in the claims underpinning his concept of postphenomenology, which must be acknowledged. His critique of Heidegger may be regarded as disproportionate in relation to his stance towards Husserl and could even be viewed as 'straw-manning' in places, as implied above. His engagement with pragmatism might be regarded as a theoretical move that serves to undermine the coherence of the concept. However, noting these objections, I would like to move on to the next section to review how postphenomenology has been taken up in educational research.

The contribution of postphenomenological research to educational technology in particular is reviewed by Aagaard (2017), in which he covers descriptive phenomenology (Giorgi 2009), hermeneutic phenomenology (van Manen 1990) (as discussed above) and also discusses how Ihde's (2009) postphenomenology differs from these orientations, as he suggests in three ways:

> First, it is not concerned with immaterial subjectivity, but with bodily relations to technologies. Embodiment thus replaces Husserlian consciousness and its 'disembodied view-from-nowhere' (Ihde 2008: 3). Second, it is committed to the notion of multistability, which ontologically replaces the essences of Husserlian phenomenology and refers to a technology's various partially determined trajectories in different contexts (Ihde 2009). A lighter, for instance, is usually used to light things like candles or cigarettes, but can also be used to open bottles. There is thus no 'essential' use of the lighter. New technologies like laptops, tablets, and smartphones are even designed to incorporate such multistability (Ihde 2012). Finally, Ihde (2009: 63) holds that hermeneutic phenomenology remains under the influence of a linguistic turn in twentieth-

> century continental philosophy in which 'the silent privilege of the linguistic continued to hold sway'. Ihde replaces this postmodern world-as-text metaphor with a perceptual-bodily referentiality. The anchor in postphenomenology, in other words, is embodiment. This bodily focus owes a great debt to Maurice Merleau-Ponty. (Aagaard 2017: 525–6)

The emphasis is on how technologies mediate our being in the world, a view in which technologies are not regarded as neutral but are, in fact, transformative of our experiences.

Aagaard refers to Verbeek's (2011) linkage of postphenomenology to Actor-Network Theory:

> Against the modern image of the autonomous subject, postphenomenology emphasizes an amodern, heteronomous subject whose comportment is always closely interwoven with the material environment in which it plays out (Verbeek 2011). This technological mediation of intentionality, however, does not imply an elimination of human freedom. Technologies do not determine what we do: They set up spaces of possibilities that enable and constrain certain actions and perceptions, but the room for maneuver within these spaces is what constitutes human freedom. Human freedom is not an absence of technological influences, but the practice of coping with such influences. 'Rather than clinging to a view of human freedom as absolute autonomy and sovereignty from technology, it seems wise to reinterpret freedom as a person's ability to relate to what determines and influences him or her' (Verbeek, 2011: 156). (Aagaard 2017: 527)

Aagaard suggests two possible approaches to empirical research: (1) in-depth exploration of the typical use of a particular technology, and (2) critical comparison of multiple versions of a technology. He draws, as I have previously done, on Adams and Thompson's (2016) interviewing objects, which deploys a series of heuristics drawing on postphenomenology, ANT, media ecology and hermeneutic phenomenology. The second approach is illustrated in terms of Rosenberger's (2014) variation cross-examination, which examines the 'multiple stabilities' of a technology, such as its contextual embedment, material make-up and relation to embodied users. Using the example of a public bench, Aagaard points out that benches may be used for sitting or sleeping, but a bench could be designed in such a way as to discourage homeless people from sleeping on it. This type of contrasting, he points out, has been used in educational research by Mangen's analyses of digital versus analogue books (Mangen and Balsvik 2016; Mangen and Kuiken 2014).

It is clear from Aagaard's review and also from looking at burgeoning current work in the field of postphenomenology in education, such as an edited collection currently in preparation (Bohlmann and Breil: 2024), that despite criticisms of Ihde as set out above, the concept is in the ascendant in educational research and continues to evolve and develop, with postphenomenology proving to be a generative approach in deepening our understanding of technologies as they are in the world and how they relate to us. The work of Adams and Thompson (2016) and Adams and Turville (2018) among others has also shown the potential of this perspective and associated approaches to the study of digital technologies in education in particular. In a recent edited collection with a foreword by Ihde (Aagaard et al. 2018), Adams and Turville provide an overview and proposal for working with van Manen's phenomenology of practice informed by the insights of Ihde's and Verbeek's postphenomenology. They point to several education scholars who are already publishing their work explicitly as postphenomenology, including Aagaard (2015a, 2015b, 2017), Hasse (2008, 2015a, 2015b), Jubien (2014, 2015) and Röhl (2012a, 2012b, 2015).

Importantly for this study, Adams and Turville's proposed approach is 'strictly informed' by van Manen's phenomenology of practice, whose aim they describe as 'to describe and reflect on a phenomenon of professional or personal interest by attending to the prereflective or everyday lifeworld' (Adams and Turville 2018: 11–12). In this regard, they appear to 'build a bridge' from postphenomenology back to van Manen. They make the point that van Manen's phenomenology of practice was already pragmatic and empirical, and 'situated in the prereflective, concrete everydayness of things' (Adams and Turville 2018: 12), therefore meaning that researchers looking at technology did not have to make a major adjustment towards postphenomenology. They propose that postphenomenology signals 'a nuanced change from classical phenomenology by thematising of materiality, particularly in the form of instruments and devices in which we make "worlds" available to us which were previously unexperienced and unperceived' (Idhe 2003: 20, in Adams and Turville 2018: 12), a focus which fits well with van Manen's work, also echoing Verbeek's (2015) ambition for postphenomenology to combine philosophical analysis with empirical analysis.

In their postphenomenology of practice (henceforth PpoP), Adams and Turville make a distinction between the prereflective, which they call 'the natural attitude', and the reflective, which they characterize as 'the phenomenological attitude', comparing these to the distinction between data collection and analysis in qualitative research. In PpoP, the first step is to gather prereflective data, such as interviews, observations and journals, in order to craft '*anecdotes* that describe a

particular technology or thing as occurrent in everyday life' (Adams and Turville 2018: 12). For them: 'A finished (post)phenomenological research text is a weave of both prereflective material and reflective insights intending to (1) emulate human-technology-world entwinements through textual description, and (2) explore and shed light on particular technology – texturings of pedagogical lifeworlds – relational, corporeal, spatial, temporal, material, and medial' (Adams and Turville 2018: 12). They describe how the things in our everyday world 'speak to us prereflectively', such as the chair inviting us to sit. We respond to 'the call' of things, which take us into a world that the thing opens for us. In this way, we dwell in a primordial 'rapport with things' (Heidegger 1951/1971: 157). They propose that 'These silent, ongoing corporeal conversations with our sociomaterial surround may be glimpsed by attending to the vocative or invitational quality of a given technology' (Adams and Turville 2018:13).

They go on to set out approaches to gathering prereflective data; I will review this in detail as I draw on some of these approaches throughout this book while thinking through van Manen's lifeworld existentials, as set out above. The first is composing anecdotes through self-observation or phenomenological protocol writing. This involves careful attention to one's own lifeworld, in a non-intrusive manner 'so as not to disturb the moment or event in its unfolding 'in the wild' (Adams and Turville 2018: 13), applying what they call a 'writerly attention to what appears in its prereflective lived-throughness' (Adams and Turville 2018), with attention to the sensuous, gestural and situated detail of the moment. They quote Ihde using such a technique:

> I pick up . . . a piece of chalk and begin to trace it across the . . . blackboard. Upon a careful examination of this experience I suddenly discover that I experience the roughness of the board at the end of the chalk. This is, of course, also Merleau-Ponty's blind man who experiences the 'world' at the end of his cane. If I begin to be descriptively rigorous, I find I must say that what I feel is felt locally at the end of the chalk, or better, at the chalk-blackboard junction. The 'terminus' of my intentional extension into the world is on the blackboard, and I have discovered (contrary to empiricism) that touch is also a distant sense. (Ihde 1979: 7, in Adams and Turville 2018: 13–14)

Adams has used this approach in her description of a moment of typing on a keyboard, as part of a study of writing in schools:

> My hand, or rather hands at the desktop computer (or laptop or iPad) keyboard want to write, and too, they want to write together. Rhythmic taps and clustered

> bursts of understanding live effortlessly between them. They have long since established a unique corpus of keystroke dances and jigs, as singular as my handwritten signature. Together my two hands' fingers patter out letters, words, and sentences, dividing their choreographic work seamlessly among themselves. The right hand, in command of the drop-down menus, tabs, toolbar and scroll, moves fluidly back and forth between mouse and keyboard. There is no question of encroaching on one another's space: my fingers and hands are the space. (Adams, 2016: 483 in Adams and Turville 2018: 14)

The next approach they describe is using interviews, eliciting lived-experience descriptions focused on the interviewee's everyday experience with the technology, and focused on detailed descriptions of specific moments. Prompts are used to help the participant recall what happened in lived-through detail. This approach has been used by Aagaard (2015a), also described in Adams and Thompson's section on gathering anecdotes (2017: 24–33). I draw on one research interview of this kind in my analysis. A third approach they describe is composing anecdotes through observation of others in their technologized surroundings, an approach also used in ANT and new materialist ethnographies. This was also used by Aagaard (2015b) as part of an observational study of classroom device use. This allows the researcher to notice aspects of practice which are not visible in their own experience. Röhl describes how they used this approach:

> When I visited the science classes, I usually sat on a chair at one of the desks, listened to classroom discourse, observed experiments and copied what was written on the blackboard into my notebook – much like the students I observed. Thus, I was similarly affected by the material objects used in the classroom and can use that perspective to describe how demonstration experiments and the blackboard invite us to use them in a specific way. (Röhl, 2012b: 54 in Adams and Turville 2018: 16)

They then go on to discuss how these accounts can be reflected on. They refer to Merleau-Ponty, who sees the goal of phenomenological reflection as follows:

> Reflection does not withdraw from the world toward the unity of consciousness as the world's basis; it steps back to watch the forms of transcendence fly up like sparks from a fire; it slackens the intentional threads which attach us to the world and thus brings them to notice; it alone is consciousness of the world because it reveals that world as strange and paradoxical. (Merleau-Ponty 1945/2012: xv in Adams and Turville 2018: 16)

They set out how this process involved the epoché-reduction couplet, which they describe as a 'twofold methodological gesture that intends to at once suspect one's preconceptions (i.e. the epoché) in order to discover the experiential surge of the lifeworld (i.e. the reduction proper)' (van Manen 2014). They emphasize this does not require an attempt to reduce a phenomenon to a single essence; they point out the etymology of reduction is 'to bring back or restore'. The goal is to lead us to the prereflective wholeness of the phenomenon (see van Manen 2014: 218). They link this to Ihde's work, where he refers to this as 'phenomenological looking':

> The first steps of phenomenological looking are usually called an epoché, which means to suspend or step back from our ordinary ways of looking, to set aside our usual assumptions regarding things. Within this general stance, particular levels of stepping back are then determined; these levels are termed phenomenological reductions. I shall interpret these specifications as working rules or directions for the way the investigation may proceed. Thus, epoché and phenomenological reductions may also be called hermeneutic rules, since they provide the shape or focus of the inquiry. Hermeneutic in its broadest sense means interpretation, and rules give shape to an interpretation. (Ihde, 2012b: 17 in Adams and Turville 2018: 18)

In van Manen (2014) the eidetic reduction is a process which reveals a phenomenon through examining its difference with others, by looking at what it is not, an approach used extensively by Ihde to uncover the multistabilities of a given technology (Ihde 2009; Rosenberger 2014; Verbeek 2005). A further approach to perform eidetic reduction in reflective analysis is by studying breakdowns, also used in ANT (e.g. Latour 1996), ethnomethodology (e.g. Garfinkel 1967) and media ecology (e.g. McLuhan, Hutcheon, and McLuhan 1977). Analysis of a breakdown 'provides a reliable way of surfacing our otherwise taken-for-granted, constitute relations with technologies and thus make them available for inquiry' (Adams and Turville 2018: 19). Adams (2016) used a consideration of her broken hand in her analysis of scholastic writing instruments to perform an eidetic reduction. With reference to Merleau-Ponty's (1962) discussion of an organist adjusting to a new organ, she writes:

> A similar gestural rehearsal, resizing, and resettling unfolded as I tried keyboarding with my injured hand. My writing instruments – keyboard, mouse, screen, and word processor – had not changed, but one of my hands had. As a 'subject who [had already learned] to type,' I had 'literally incorporate[d] the space of the keyboard into [my] bodily space' (Merleau-Ponty, 1945/2012: 146).

> Trying to keyboard and mouse in this somewhat modified material landscape, 'new knot[s] of significations' began to form as my writerly body adjusted, returned, and reorganized. With a little practice, my new hand and finger situation were quickly inducted into and absorbed in the new arrangement. An adjusted, but nonetheless wholly familiar, writing templum once again convened. (Adams, 2016: 484 in Adams and Turville 2018: 19–20)

They refer to Ash and Simpson (2014), who emphasize the importance of attention to lived corporeal engagements with things in PpoP research, alongside 'an emphasis on the ways in which the body-subject undergoes constant processes of 'affectual composition; in and through its relations with a material-agential world' (Ash and Simpson 2014:8 in Adams and Turville 2018: 20).

In the following two chapters, I will use van Manen's four lifeworld existentials, combined with some of the approaches suggested by Adams and Turville, in an attempt to use a postphenomenological approach to my enquiry into the algorithmic gaze. I structure my analysis in two ways: thematically and in terms of scale of focus. My first division is to propose two broad categories of the algorithmic gaze. Chapter 4 focuses on phenomena I suggest might be characterized as examples of *the audit gaze*, drawing on Strathern's (2000) concept of *audit cultures*. These, I propose, are gaze phenomena that focus on recording, quantification, measurement, comparison and judgement of academic scholarly performance. In turn, I consider this in terms of the individual scholar looking at engagement with the h-index, the academic department entangled with the UK Government Research Excellence Framework and the institution in its involvement with the QS international university league tables. In Chapter 5, I turn my attention to instances of what I propose as the *performative gaze*, drawing on Macfarlane (2017), one which I suggest more strongly requires a particular type of embodied, active response or compliance in the here and now, or in the future. Here I consider three gaze phenomena in the university. The first is a video-conferencing platform such as Zoom, the second is the use of learning analytics dashboards (LADs) embedded in a learning management system (LMS) such as Moodle and the third is infrared sensor technology used in university libraries to detect seat occupancy.

4

The Audit Gaze

Introduction

The cliché of the academic sitting and reading in a study in their 'ivory tower' campus is a pervasive one, suggesting a life of quiet scholarship and contemplation. The early university was, in many respects, a protected space where scholars could pursue their studies to some extent away from the rest of society. Clearly, in the absence of digital technologies, all engagement in terms of teaching and scholarly conversation was embodied and ephemeral in the sense that it would not be recorded, with the exception of notetaking. The physical campus, it might be argued, was a secluded place, which was not easily observed from outside. Another feature was that its members were required to be co-present. Without technologies allowing for distant communication and with a scarcity of printed materials, teaching took place with people together in lecture rooms and studies. Clearly, the university changed its practices and uses of media gradually over history, as explored by Friesen (2017). However, it could be argued that the features of embodiment, ephemerality, seclusion and co-presence were still predominant until recently in universities around the world. My thesis is that these have been radically disrupted and displaced by transhumanist ideologies of datafication, digitization and the algorithmic gaze. Over two chapters, I will explore what I consider to be different forms of gaze and their effects. In this first of two analysis chapters, I turn my attention to what I call the 'audit gaze' in contemporary universities and the effects it has on academic faculty, the academic department and the university more broadly.

The *audit gaze*

The study of audit cultures in universities is not a new subfield but was recognized and explored by Strathern and colleagues over twenty years ago (Strathern 2000). Strathern considers the nature of these cultures:

> They determine the allocation of resources and can seem crucial to the credibility of enterprises; people become devoted to their implementation; they evoke a common language of aspiration. They also evoke anxiety and small resistances, are held to be deleterious to certain goals, and as overdemanding if not outright damaging. An old name is used for the new phenomenon: accountability. Its dual credentials in moral reasoning and in the methods and precepts of financial accounting go back a long way. But over the last two decades, and in numerous contexts, it has acquired a social presence of a new kind. (Strathern 2000: 1)

She identifies a 'ubiquitous consensus . . . which endorses government through the twin passage points of economic efficiency and good practice' (Strathern 2000), reminding us that the roots of audit lie in the protocols of financial accountability. Strathern argues that audit does not simply consist of a set of mundane practices but is, in fact, a 'distinct cultural artefact' (Strathern 2000: 2). She touches on one of the key features of the nature of audit, its apparent unassailability, as she puts it 'audit is almost impossible to criticize in principle – after all, it advances values that academics generally hold dear, such as responsibility, openness about outcomes and widening of access' (Strathern 2000: 3). These 'rituals of verification' (Power 1997) impinge on the work of academics in a range of ways. She suggests that we view audit as a non-human agent or an actant in terms of Actor-Network Theory (e.g. Law 1999), to which powers are attributed. The edited volume focuses on ethnographic studies of academics' lived experiences of audit cultures. In their chapter, Shore and Wright (2000) examine what they call 'the rapid and relentless spread of coercive technologies of accountability into higher education' (Shore and Wright 2000: 57). With reference to Foucault, they point out the effect these processes can have, worth quoting in full:

> Our analysis underlines the fact that audit technologies being introduced into higher education and elsewhere are not simply innocuously neutral, legal-rational practices: rather, they are instruments for new forms of governance and power. They embody a new rationality and morality and are designed to engender among academic staff new norms of conduct and professional behaviour. In short, they are agents for the creation of new kinds of subjectivity: self-managing individuals who render themselves auditable. (Shore and Wright 2000: 57)

They examine the etymological roots of the word *audit*, which stems from the Latin *audire*, meaning *to hear*. It is defined as follows by the *Oxford English Dictionary*:

(1) Statement of account, balance sheet.
(2) (From late Medieval English) Periodic settlement of accounts between landlord and tenants.
(3) Official examination of verification.
(4) Hearing, enquiry, judicial examination.
(5) (Figurative) Reckoning, settlement, especially Day of Judgement.

((Shore and Wright 2000: 59)

As they point out, audit is 'essentially an exercise of power between scrutinizer and observed: the latter are rendered into objects of information, never subjects in communication (Foucault 1977)' (Shore and Wright 2000: 59). They trace how in the 1980s in UK universities, the term 'audit' became unmoored from its original financial meaning to be associated with terms such as 'performance', 'quality assurance', 'good practice' and so on. This, as they set out, led to (following Foucault 1991) a 'neo-liberal governmentality' (Shore and Wright 2000: 61), which 'inculcates new norms and values by which external regulatory mechanisms transform the conduct of organizations and individuals in their capacity as "self-actualizing" agents, so as to achieve political objectives through "action at a distance"' (Miller and Rose 1990: 1) (ibid.). Shore and Wright point out that these political technologies function by recasting a political impetrative in an apparently neutral discourse of science (Dreyfus and Rabinow 1982). The effect is to construct systems in which institutions and individuals are ranked against one another:

> The supposed 'self-empowerment' of this system rests on a simultaneous imposition of external control from above and internalization of new norms so that individuals can continuously improve themselves. In short, external subjection and internal subjectification are combined so that individuals conduct themselves in terms of the norms through which they are governed. Audit thus becomes a political technology of the self: a means through which individuals actively and freely regulate their own conduct and thereby contribute to the government's model of social order. (Shore and Wright 2000: 61–2)

In this system, the individual professional is converted into an economic unit of resource, to be monitored and enhanced. Shore and Wright go on to trace the rise of 'New Public Management' under the Conservative Party in the UK in the 1980s and the resultant effect on the university sector. At that time, the Universities Funding Council began to reward or penalize institutions financially

in relation to how many students they recruited, and the Higher Education Funding Council began to exert greater control. There was a stronger emphasis on the rhetoric of 'quality', despite, as Shore and Wright point out, the centrality of economic imperatives to the government of the day. The authors provide a detailed historical overview of the development of audits in the UK higher education system through the 1990s, tracing the rise and frequency of audits such as the Research Assessment Exercise and the Teaching Quality Assessment. These exercises, they argue, came with a high burden of costs and time for the universities, set departments against one another, and damaged collegiality. 'Thus, academic peers found themselves in a policing role in a punitive and divisive system' (Shore and Wright 2000: 70). The Dearing Report (Dearing 1997) led to the creation of two new agencies, The Institute for Learning and Teaching and the Quality Assurance Agency. Shore and Wright sum up the effects:

> All the elements of new managerialism are evident in these new bodies. First, they set up pseudo-markets and reorganize institutions into quasi-businesses. Second, they police organizations' own systems of control, through intermediary bodies and 'action at a distance'. Third, they create new, ostensibly independent experts whose knowledge is used as the basis for systems of audit and is also accessible to individuals who wish to improve themselves. Fourth, they rely on techniques of the self which render political subjects governable by requiring that individuals behave as responsible, self-activating, free agents who have internalized the new normative frameworks. Fifth, through requiring disciplines to formulate Subject Benchmarks they encourage disciplines to re-organize themselves and, paradoxically, to act more collectively. Sixth, when successful, 'they bring persons, organizations and [political] objectives into alignment' (Miller and Rose 1990: 1), thus squaring the circle of efficiency, economy and arms-length control. (Shore and Wright 2000: 71)

The authors conclude with a discussion about how the panopticon-like nature of audit cultures in universities are designed to create a climate of insecurity, lead to overwork, result in the erosion of collegiate trust and the loss of academic autonomy, in a scenario in which the individual is required to 'self-actualize'. They finish with a discussion of how a discipline (in their case, Social Anthropology) and an individual might resist audit cultures in a range of ways.

The extent to which university life is regulated, watched over and subjected to various regimes of audit is a theme that has been extensively discussed and critiqued in the higher education literature. The marketization and neoliberalization of universities in the UK have been identified as key drivers in the increase in the importance of university rankings and other forms of

government audit, such as the Research Excellence Framework (discussed in more detail later in this chapter). These sociopolitical changes have clearly led to a range of effects in terms of how universities are run, how they position themselves and how their members are positioned as a result. This has resulted in practices whose purpose is to record and measure the 'performance' of the university and its members in various ways, in order, it is claimed, to allow students as 'clients' to judge the 'quality' of the university or course under consideration or to allow for government funds to be allocated for research. Academic staff are also required to account for their activities via the UK-based Transparent Approach to Costing (TRAC), 'a methodology developed with the higher education sector to help them cost their activities' (TRAC 2023), internal workload management systems, performance reviews and student feedback. Universities are required to take part in 'mock' audit exercises internally in preparation for external audit. Increasingly, they are expected to submit to and demonstrate metrics regarding their publications on websites that can be viewed publicly. In all of these cases, practices must be seen; they must be visible, recordable and measurable.

I will consider three examples of technologies of the audit gaze on academic life. My focus will be first at the level of the individual opting in to self-surveil by means of the h-index. The second section will look at the UK REF and its effects, focusing particularly on an internal department-level 'mock REF' exercise. The third section will turn attention to the international context with a focus on international QS university rankings. I will look at these with reference to the four lifeworld existentials as set out by van Manen.

Self-surveillance: The h-index

In the contemporary higher education sector, there are several mechanisms by which academic publications are monitored and quantified. One such metric is the 'h-index', which was introduced by Hirsch (2005) in order to provide a profile of an individual scholar in terms of the number of papers published, in relation to the number of times each paper has been cited in other academic publications. The index then generates a score 'h', which is the largest number h, such that h articles each have h citations. For example, an author who has published twenty papers of which eighteen have been cited eighteen times would have an h-index score of eighteen. The use of the h-index is presented in some quarters as unproblematically helpful to scholars, for example, with one major academic publisher setting out that 'At the end of the day, the h-index is used

as a sign of self-worth for scholars in almost every field of research' (Elsevier Author Services 2023). On the same website resource, Elsevier points out that the h-index is commonly referred to in academic recruitment, and they also suggest that authors should analyse their citation profile to inform the design and implementation of future projects. However, the h-index has also been critiqued within the field of evaluative bibliometrics, specifically that the measurement of performance at the level of the individual is problematic due to the small scale of the output. Glanzel (2006) and Bornmann and Daniel (2005) point out that research productivity, number of publications and citation impact are not necessarily correlated variables.

As I discussed in Gourlay (2022b), the assumptions of certainty surrounding the h-index may be critiqued with reference to Williamson's (2017b) application of Jasanoff's (2015) sociotechnical imaginary, in particular the assumption of 'the inherent truthfulness and unbiased, impartial agnosticism of numbers' (Williamson 2017b: 109). However, as I argued in that paper, a range of points may be raised regarding the relationship between the apparently straightforward 'score' produced by such a metric and the unfolded reality of a publication career, taking into account variables such as the conventions of a particular discipline, and the lived trajectory of an individual. The metric favours a particular type of career in which a large number of papers are published and cited, outcomes which may seem 'neutral' and equally available to all. However, it can be argued that the exercise occludes inequalities and barriers faced by scholars who may not have had privileged access to academic progression, such as via what Macfarlane and Jefferson call 'guild power' in 'the closed academy' (Macfarlane and Jefferson 2022). Academic staff may, for example have taken periods of maternity leave or may not have had access to the networks of influence which might allow them opportunities to co-author papers. They may not have had access to the same resources or they may be excluded due to discrimination.

Accordingly, I argued in Gourlay (2022b) that the h-index cannot be regarded as a value-neutral measuring tool; instead, it carries an implicit ideology and imaginary of a putative 'ideal scholar', maximally well connected and highly 'productive' and 'impactful'. The sheer numbers of papers and citations are taken as a proxy for intellectual achievement, reifying the notion that a 'good' scholar always produces more. As Prinsloo (2017) set out in his discussion of 'algorithmic decision-making in higher education' with reference to Aneesh (2006, 2009), it can be argued that the h-index is an example of a tendency where 'code appears to have . . . taken over the managerial function of supervision and guidance' (Aneesh 2009: 355), being used as a metric for appointments and promotions.

This incentive could have a normative effect and may lead to scholars adopting particular publication tactics to boost their score. I reflect on my own lived experience of using the h-index, focusing on the four lifeworld existentials.

Anecdotes

I provide two anecdotes based on self-observations below of recent lived experiences of the h-index. Below that, I reflect on my experience of the phenomenon in terms of van Manen's lifeworld essentials.

I receive an email from Google Scholar informing me that my work has been cited in four new publications. I feel a small rush of pleasure. I wonder if these citations have 'tipped' my score up, so I go directly to my Google Scholar page. I look immediately at my score and feel a small sense of disappointment that it has not changed. The citations are not for the papers placed just under the score in the list; if they were, the score would increase if they received one or two citations. I feel a stab of annoyance with myself that I care (given my critical views on this and other regimes of audit). I feel a pang of shame that I am possibly indulging in academic vanity or competitiveness. I close the website and go back to the email. I check who has cited my work. I recognize one of the authors, a scholar I respect. I feel gratified that they have cited me. I delete the email, feeling a sense of consternation.

On another occasion, I am writing an application for a discretionary incremental pay award. I am seeking to convince my Head of Department that my 'performance' has exceeded what might be expected for a member of the academic staff at my level. I feel my scholarship has deepened over the previous year, and I think perhaps I might deserve this reward. But it's hard to quantify. I update my CV, adding the papers I have published since my last appraisal. I also add the conference papers and a couple of keynotes. I don't want to refer to the h-index; I feel a strong sense of resistance against using it as some sort of 'proof' that I have performed in a particular way. I don't regard the number of citations to my papers as the most important measure of my work in terms of how I feel about it or whether I think it has been worthwhile in any way. My view on it is entirely qualitative, based on whether I wrote anything which I'm vaguely happy with. I don't read my work after I've published it, only if I need to check something. I stopped using academic Twitter/X and websites such as Academia.edu or ResearchGate several years ago. I never blog. But the pragmatist in me decided to keep the h-index. I know as I write my application that I will 'give in' and mention it (not that my score is particularly impressive). But I feel I need something I can point to, a number. The

existence of the h-index and the logic of 'evidencing' my performance to get a pay award become too hard to resist, so I include a mention of it in the application and immediately feel compromised.

Lived space

The h-index only exists for me as a website as part of Google Scholar. I experience it most often when sitting alone working at home on my laptop. When I receive the email, I click on my web browser if it is not already open, away from my email. I enter my name on Google. My Google Scholar page is always the second website shown by the search, after my UCL webpage. I click on it and see the screen with a small photo of myself taken quite a few years ago on holiday. My 'score' is on the right, above a bar chart that depicts the number of citations of my work each year since 2017. The centre of the webpage displays a list of titles in blue. The ones at the top are my most cited papers, most of which were written some years ago. The titles and chart represent texts which I do not own as paper printouts, although I may have done so in the past. I do not have a printer at home and have not used one at work for several years. I moved offices recently and in the 'clear out' I discarded all the papers I had in folders, partly due to space limitations. So, my current lived experience of all the papers I have written is solely of digital documents. I no longer use the digital storage space provided by my university as it was slightly more complex to access remotely during the pandemic, and I have been mostly working at home for four years. Instead, I store the PDFs as email attachments in a folder. They are mostly available on my UCL website. Once I have looked at the score, I close the Google Scholar page. As a space, it is always available and present for me to 'enter' very quickly.

Lived body

When I look at the h-index, I am sitting comfortably in my domestic setting. I am almost still; my only movements are my hands on the keyboard and my eyes looking at different parts of the screen. As a human, I am represented by the h-index by my name and a small photograph. Apart from that, it consists of titles and the chart, which represent my papers. Each of the titles refers to a paper that I wrote with my hands, eyes and mind. I wrote them in different houses and rooms, entangled with different devices and material objects. They involved handling a lot of physical books, which I bought and stuck post-it notes in. The papers also involved speech, as I listened to seminars, discussed ideas, talked

about the papers, complained to people I am close to when frustrated with a lack of progress or expressed pleasure if I felt one had turned out okay. Many of them involved the embodied actions of empirical research, including, in the case of one project, repeated interviews over a year. Each of those interviews took place in my old office, each time with me sitting together with my interviewee. All of this complex embodied action over twenty years is contained on this webpage.

I began using the h-index several years ago after being shown by a colleague. When I first set up my profile, my h-index was nine. I felt this number was rather low, and my initial reaction was to feel exposed and slightly ashamed that I did not have a more 'impressive' score. I also felt uncomfortable with the exposure in my publication list of a gap of a few years post PhD when I published very little, as I had been in a highly teaching-intensive role at a university that did not offer robust support for research in my department or funding to attend conferences. For several years I forgot about the h-index and only returned to it when I was applying for a promotion. The number had gone up, which I used as evidence for my academic standing in my application. When I started regarding it as evidence that I could use for professional advancement, I then also started looking up the h-indices of my academic associates. I realized I was now seeing it as a comparison or even a competition of some kind. I started to check it more often and to pay attention to which papers were on the border of pushing up the score. I did not 'game' the system by self-citing those papers in new writing, but I was aware that it was a possibility. All of this was concurrent with a critical stance towards this type of metric, so a further feeling was one of ambivalence and grubbiness. I had ceased my use of the websites Academia.edu, ResearchGate and also Facebook, Twitter and LinkedIn, as what I considered to be a minor act of resistance against voluntarily promoting and quantifying my academic work. However, I found I did not want to delete my Google Scholar profile, as I felt it might reduce my chances of promotion or reward at work, so I felt complicit and somewhat hypocritical.

Lived time

When I look at the h-index, it is a brief experience, a quick check, with the feeling of an 'update' that is focused on the past and the present. It is cumulative, and it also truncates long periods of time and extended complex sociomaterial events and relationships. Every paper that shows up on Google Scholar as a title is a text that came about over time, often extended, but this complex temporality is hidden and is not 'seen'. Each paper had a distinct beginning, which may have been a long-ago seminar or the reading of a paper. I look at one of the titles of

my early papers and remember how that paper started. I went to a seminar at Glasgow University and heard about a theoretical concept I had never come across before. The seminar took place in a room that I remember was full of autumn light. I didn't know anyone there. The presenter (whom I now know and have written with subsequently) gave her talk, and I was electrified by the ideas she used, as they seemed to offer a completely different way of looking at academic writing, which was the focus of my research at the time. I did not speak to anyone, but I have a vivid memory of walking down a steep downhill street near the university alone, looking at thick autumn leaves on the pavement and feeling an intense sense of purpose and excitement. This was an important turning point in my lived experience as a scholar, and from that point in time onwards for several years I adopted the perspective that the speaker referred to. I have had other similar epiphanies over the years, and for me, they mark the longer temporal 'journey' I have undergone. The h-index is a powerful reminder of some of those points in my research past. In terms of time, what is shown is the gap in my publication record due to working in a university that did not emphasize research over five years when I had an extremely heavy teaching load. I had done my PhD in Applied Linguistics but was isolated from my field in a job teaching English for Academic Purposes. The funding for conferences promised at my job interview was not forthcoming, and I had no support or contacts outside of my small department. This long period of frustration and isolation is experienced now as an 'absence' or gap in the list of papers over those years.

Lived other

When I look at my profile, I am alone, normally in the room where I work. I see my photo from a few years ago, realize I look younger in it and wonder about replacing it with a more recent one. A lot of my work is sole-authored, but I also see my name with my past co-authors, some of whom I have not seen for some time, one or two of whom I have spent a lot of time with. We are not co-present, and for me, the names together look like a trace. However, this h-index webpage is for me only, so it effectively separates me from others. It feels private, but also somewhat forlorn. I can see the profiles of others, and it feels like we each have a score sheet. Reflecting on this experience, I am aware of the tensions and contradictions inherent in the h-index in terms of lived others. As a critical scholar of digital surveillance in higher education, on an intellectual and political level, I wholeheartedly disagree with the h-index, for the reasons set out above. However, as an individual, I am also aware of a more complex

relationship with it as a technology. As a woman, and as someone from a non-privileged social background, I sometimes feel I don't 'fit in' at my highly ranked research university, where many senior academics are privately educated, and the majority of professors across the university are men. My route to my current role has been a long and circuitous one, involving a late part-time PhD, several years in roles focused on academic writing and development, then as a research fellow with an insecure contract. I entered my current institution on a professional services contract to run the Academic Writing Centre fourteen years ago. For these reasons, I have at times felt it has been challenging for me to be taken seriously as a scholar and to get promoted. The h-index, like double-blind peer review, doesn't 'see' these aspects of who I am. It focuses purely on the number of citations my papers have garnered. As discussed above, the h-index may serve to exclude individuals and reinscribe privilege. However, it also serves to elide aspects of an author's subjecthood like sex and social class, which may cause that person to be treated less favourably in academic settings. So, my feelings towards the h-index are complex and ambiguous.

I look at the paper at the top, which is my most cited paper. I remember I was encouraged to submit it to the journal by a senior professor after I gave a talk at a conference fifteen years ago. I was nervous; I didn't know anyone in that research community at the time. I was pleased to be asked to write the paper and saw it at the time as a sign of some sort of acceptance, or perhaps even the beginning of belonging to a community of scholars of higher education that I felt myself to be very much on the margins of. I remember handing it in as a paper copy for the editor. I had been given a deadline and had struggled to meet it at the time, as I was working as a researcher on a fixed-term contract in a university a couple of hours outside London. It was a challenging time in terms of work, job security and housing. I have a vivid recollection of finally printing it and taking it to the Institute of Education on a very hot day. At that time, I had only been there a few times to attend seminars and was somewhat in awe of the place. The reminder of that paper on the h-index page makes me remember how my relationality to others changed as a result of publishing it. It was the first step to joining an academic community, as it led to an invitation to present at a seminar, which involved meeting people and getting to know some well-known researchers. A year or so later, I applied for a job at the Institute of Education. I didn't know about the job, but one of the senior academics from another university I had met at another seminar where I presented on that paper emailed me to let me know about it. So, this modest paper was agentive in changing my career and life in quite a profound way, in terms of my relationship to lived others.

There are also more 'others' behind the title. I had done the empirical work for the paper at my previous university, interviewing students about their experiences of their first year. This was at a Scottish 'post-92' university, which had a high proportion of working-class students who were the first in their families to go to university. I found hearing their stories about 'becoming' students not only interesting from a research point of view but also very moving at times. I had relatable experiences as I was once a first-year philosophy undergraduate at a prestigious university, surrounded by confident, privately educated students in small-group tutorials. I look back now and remember one or two of my interviewees in particular. I saw one of my research participants from that time in a café in London a couple of years ago. I felt quite struck at how much she opened up to me about some of her struggles. I didn't approach her in the café, partly because I felt it would breach her privacy in a public place after the intimacy of the interview. All those human stories which were revealed to me via their voices in a small office many years ago formed the paper.

I use this as one example but could equally reflect on any paper on the list in a way that might reveal conversations, feelings, relationships and emotions with research participants and co-authors. I could describe travelling to seminars, sitting in rooms interviewing people, and remembering the sound of their voices. I recall feelings of excitement and discovery as I embarked on my research career: the thrill or satisfaction of receiving an email accepting a paper and the sting of harsh reviewer feedback. I think about all the papers I planned to write and didn't. A long time period of over twenty years is represented by this couple of screens. The h-index functions to tidy up, strip out and truncate. A research life, at a glance.

What is the nature of the gaze?

As described above, the h-index shows a brief list, with each paper having come into being via entanglements involving complex embodied action, material objects, devices, texts, private struggles, occasional joy and an evolving mesh of human relationality. All of this is unseen by the h-index. The texts themselves are unseen, even. The people I have published with are seen, a vertical strip of photos and names on the right. These photos represent a range of real-life and complex relationships stretching back for years. With the h-index, the gaze feels furtive. It is working quietly behind the scenes, watching you. It is also a scanning gaze that gathers up citations. It occasionally seems to mis-see, as in cases of papers that I did not write. It is a gaze that separates people from each other. It does not see

ephemeral, embodied practice. It is selective and only records a particular type of performance. It is a documenting gaze, which generates individual webpages. It is a gaze that is a silent reckoner, one which reduces a long, complex and messy set of human practices and experiences to a list.

Government surveillance: The UK Research Excellence Framework

The UK-based Research Excellence Framework is a performance-based research funding system (PRFS) which uses peer review to evaluate universities, in order to allocate state funding to support research. Pinar and Horne (2022) conduct an evaluation of the REF, beginning by referring to Hick's (2012) definition of a PRFS:

(1) Research must be evaluated, not the quality of teaching and degree programmes.
(2) The evaluation must be ex-post and must not be an ex-ante evaluation of a research project or project proposal.
(3) The outputs of research must be evaluated.
(4) The distribution of funding from the Government must depend on the evaluation results.
(5) The system must be national.

(Pinar and Horne 2022: 2022)

The REF evaluates three aspects of a university's research: *outputs* (in the form of individual faculty's publications), *impact* of research and *research environment*. The weighting of the evaluation is 65 per cent on the outputs (although at the time of writing, this weighting is under review for the next REF in 2029). Pinar and Horne (2022) point out that these three elements are strongly correlated. They conducted a detailed analysis of the effects of removing elements of the evaluation and found that this removal had little effect on the results. Given the very high cost and onerous nature of the exercise, they suggest that future cycles might opt to reduce these strongly correlated elements. As covered in the earlier section, Shore and Wright were writing twenty-four years ago, but their analysis, I would argue, is as relevant today as ever. Subsequent work has investigated the evolution of the Research Excellence Framework in the UK. The Science and Technology Studies scholar Juan Pablo Pardo-Guerra (2023) provides an

analysis of the effects of quantitative research evaluations on UK social sciences, deploying the concept in his book *The Quantified Scholar*. Pardo-Guerra opens his book with an account of his experience of a meeting held in his academic department in the UK in 2014. His account is as follows:

> Having ticked off all the items on the agenda, we had reached the apparent end of this organizational rite. Just then, in the twilight closing moment when one begins thinking ahead to the day's demands (office hours, a meeting here, and unattended inbox there) yet remains aware of the parting pleasantries, my mind snapped to attention. 'The school has requested us' began the head of department, 'to come up with a list of journals that we consider prestigious in our fields of expertise – that define us a department. They want to use this for our next evaluation, to have a better sense of our own standards of excellence.' The chatter vanished, replaced by this infinitely more intriguing gambit. Silence followed, heavy with a combination of both incredulity and resignation. 'This is an opportunity for us to decide how we are evaluated,' the head of department nudged. (Pardo-Guerra 2023: 2)

Pardo-Guerra goes on to describe how the meeting participants called out the names of journals they frequently published in. However, the head of the department encouraged them to 'think big', meaning to nominate more prestigious journals. As the head said, 'The list needs to be credible; it needs to convey we are ambitious and want to publish in the very top' (Pardo-Guerra 2023). This led to suggestions of journals that were highly prestigious, but not journals in which the scholars present at the meeting normally published. For Pardo-Guerra: 'This seemingly banal exercise, at precisely this moment, became for me the sight that eclipsed the sun. There we were, a room full of sociologists anxiously fashioning chimeras, lists that combined tradition with aspiration, practice with expectations, and, in doing so, forging the very chains that would bind our knowledge, link by link, word by word' (Pardo-Guerra 2023: 3). This anecdote is striking; in that it captures a key moment of lived experience, in which a group of academics were confronted with a regime of audit and invited to collude with it. Pardo-Guerra's description of the moment of silence is particularly telling. It was 'heaving with a combination of incredulity and resignation' (Pardo-Guerra 2023). For him, this moment 'eclipsed the sun'. This combination of disbelief and compliance seems to express an important aspect of what goes on when individual scholars experience this audit culture, try to negotiate with it and how it shapes them and their knowledge practices.

In his study, Pardo-Guerra examines how standardized research evaluation exercises in the UK have changed how scientific knowledge is produced, how

academic labour markets are disrupted, career structures are affected and more homogeneous institutions are produced within the social sciences. He also argues that these exercises affected how academics perceived their own worth as scholars. However, he makes an important point about complicity, to him, 'This is not story of algorithmic or organizational inevitability but of choice – of recognizing our role in deciding how we value peers and their various forms of work' (Pardo-Guerra 2023: 6). He points out that the field of bibliometrics is not new, but also makes the point that unlike measuring physical objects, 'quantifying productivity and quality of scholars is a particularly interventionist act' (Pardo-Guerra 2023: 8), as these acts of evaluation 'alter the qualities of the objects under assessment – be they scholars, institutions, disciplines, or knowledge at large' (Pardo-Guerra 2023), triggering reactivity and changing how scholars approach their work in response to the measurement practices. He argues that the operations of these audit exercises have led to what he calls 'epistemic sorting', in which 'the cultures of evaluation fostered by quantification create incentives for scholars to sort themselves out across the institutional space of British higher education in ways that funnel their disciplines towards homogeneity' (Pardo-Guerra 2023: 10), leading to the avoidance of risk and innovation.

Pardo-Guerra emphasizes that his interest is less on the existence of rankings and their performative effects, and more on the way in which they are readily accepted. As he puts it, 'The quantified scholar is not merely a professional demand but a way to fulfil our desire to truly belong within our rationalized, modern, scholarly vocations. It is as if the numbers demonstrate that we have earned our place' (Pardo-Guerra 2023: 19). As an example, he refers to the 'uncanny history' of the use of the h-index, whose uptake 'did not stem solely from some powerful autonomous assemblage . . . at least as much because, deep within our modern vocation, within our training, habituation, and disposition, scholars have clear affinities for measuring their own prestige' (Pardo-Guerra 2023: 19). He refers to what Max Weber calls our 'strange intoxication' of vocation which leads to a blurring of our perceptions of our successes and failures as scholars with our sense of ourselves. Pardo-Guerra concludes, 'Our identities and our careers, amplified, refracted, and modulated by quantification, alter what we see and think of as objects worthy of our individual passions or unjustifiably risky for our prestige' (Pardo-Guerra 2023: 20–1). Pardo-Guerra contextualizes his study in the conditions of economic austerity experienced in the UK over the last fifteen years, with dwindling state support for higher education, reduced physical space in universities for academics, increasing student numbers and precarious employment conditions. However, as he puts it:

In these meagre times, we nevertheless enjoy an abundance of metrics. Numbers are the environments of our managed minds. Our time is recorded in allocation models, rendering our busy-ness numerical. Our teaching is scored, weighed, plotted and compared. Our employment is tied to ever changing performance metrics. Our publishing is measured and ranked through indices of prestige, visibility, and use, while our funding records function as monetary proxies for our intellectual value. As in other professional workplaces, metrics and their implied morals of accountability, thriftiness, efficiency, and control have grown as fast as the forms of austerity that gave them credence in the first place. They may not be new, but they have never been so important to the operations of the academic workplace (Pardo-Guerra 2023: 27–8). Pardo-Guerra begins his description of the experience of his departmental 'mock REF' by pointing out that 'Mock exercises are fascinating examples of how the might of quantification ultimately depends on how it is practiced, organized, and policed on the ground' (Pardo-Guerra 2023: 145). He recounts receiving a 'seemingly harmless' email in 2011 from an external management consultant hired by his university, containing a survey asking for academics' understandings of terms like 'impact', whether they knew how the REF worked and how they understood their roles and responsibilities with respect to the REF. He also describes how his university set up REF committees in departments to 'collate, analyze, and give shape to their scholars' multiple submissions' (Pardo-Guerra 2023: 146). As he describes:

> Department meetings and away days dedicated increasing amounts of time and energy to discussions of 'REF strategies' – what they meant and how they would work. Research officers were hired to email staff, collect scholarly outputs, document evidence of impact, and support the departmental REF coordinators. In hallways, meeting rooms, staff assemblies, pubs, and coffee shops, intense discussions about the collective approach to the impending evaluations unfolded with palpable anxiety. (Pardo-Guerra 2023: 146)

He recounts that he and his colleagues were aware that they had limited agency in the situation, as they had been informed that the university would 'structure its submission in whatever way it thinks most appropriate and beneficial for the institution' (Pardo-Guerra 2023: 147). Only work deemed to be at three-star or four-star level would be submitted, with any scholar not achieving this left out. This, he describes, led to 'mobilizing a self-policing apparatus full of hand-wringing comparison and paranoia' (Pardo-Guerra 2023). This consequently required departments to internally gauge the potential submissions of their members. Pardo-Guerra and his colleagues were asked to nominate four of their

own publications to be assessed by the departmental REF committee, moderated by two external assessors. This nomination was required by means of a form.

Their work was then collected. They were able to access the feedback comments but were not privy to which outputs would be submitted to the REF. He points out that although this process may appear similar to normal academic peer review, it soon became contentious as the form, the internal review exercise, and its results led to repercussions that went well beyond the REF. Instead, the university began to refer to the results of the mock REF in decisions about staff review, promotion and reward. He quotes the code of conduct for the assessment exercise: 'Those staff who potentially may not be included in the schools' REF submission will first be notified by their Head of Department (or Research Centre Director). Heads of Department will monitor REF performance levels through 2012 and early 2013, and where necessary will initiate conversations with members of staff at risk of not being entered for REF 2014' (Pardo-Guerra 2023: 149). He refers to their understanding of these communications at the time as 'terrifying indicators of underperformance and, ultimately, dismissal' (Pardo-Guerra 2023), a tendency he found to be echoed in his interviews. On the basis of his own experience and those of his interviewees, Pardo-Guerra concludes that the REF functions as a disciplining regime not so much because of the power of the regime itself at a national level but due to the effects it has on local employment contexts. A further point relates to the fact that the form asks the individual scholars to explain how each publication falls 'broadly within the discipline'. He argues that by doing so, 'to advocate for being counted, justify our belonging, and stake our claims to disciplinary identity, my colleagues and I were actively constructing the boundaries of our field' (Pardo-Guerra 2023: 152). He goes on to describe: 'This modest, mundane, internal departmental form was a clear testament to the in-betweenness of bureaucracy and discipline in the research evaluations. It was not only a decidedly rationalizing instrument located within a larger apparatus of formal review and punishment but also a means for the epistemic (and embodied) implementation of both bureaucratic and disciplinary power' (Pardo-Guerra 2023: 152).

He points out that factors like the prestige of a department in the discipline as a whole would insulate it from a great deal of pressure regarding the REF, while departments in a more precarious position might find themselves the subject of more management scrutiny and intervention. Scholars were advised to focus on 'top' journals in their fields, thereby skewing their publication careers or even the type of work they produced, with the example of a list of preferred journals intended to refer to the REF eventually taking on a disciplining function with

regard to eligibility for promotion, with candidates expected to show they had published in the journals on that list. Pardo-Guerra also points out in his analysis the effect of the REF in terms of occluding knowledge and scholars situated in what he calls 'trading zones and interdisciplinary spaces' (Pardo-Guerra 2023: 161), serving to reinscribe and strengthen disciplinary boundaries, in direct contradiction to calls for interdisciplinary research.

Anecdote

It should be noted that the anecdote I provide here is a composite of many experiences I have had, drawn from multiple meetings I attended over the years as part of the 'mock REF', whose official title in our faculty is the Output Review Exercise (ORE). I am a member of the 'College of Reviewers', which is a group of senior staff who are responsible for reviewing publications by colleagues in the department and providing feedback. However, this reflection is not only based on meetings of that group but is composed of elements that I have witnessed on several occasions over a period of ten years in a range of wider meetings with a shifting membership of colleagues from my broader department and cross-faculty. The comments or rhetorical moves I report should not be attributed to any individuals or role holders, but remarks of this nature were made repeatedly by many colleagues across many meetings in what I consider to be a consistent pattern, and I would suggest echoing the account that Pardo-Guerra provides of his experience of the mock REF in his department. This is not in any way intended as a critique, more as a reflection on the type of discussion that was engendered by this mock REF exercise on many occasions. The second reflection is on my experience as a reviewer.

I arrive at the meeting, which is busy with around forty colleagues present in the classroom, sitting in groups around tables. It's late morning. There is a lot of noise as colleagues chat and greet each other. People are helping themselves to tea and coffee. I spot a colleague I am friendly with and make my way over to sit next to her. I feel a buzz of pleasure to be among so many of my colleagues. The meeting commences, and there a few points on the agenda. The main agenda point with the most time allocated to it is a calibration exercise associated with the ORE. We have been sent three journal articles in advance to read, along with a document setting out the REF criteria for one-star, two-star, three-star and four-star outputs against the three elements we need to consider, which are originality, significance and rigour. We have been instructed to read these and consider what score they

should receive and to be prepared to discuss this. The papers were distributed in published PDF format, so therefore not anonymized but were selected to ensure they were not authors from our faculty or closely associated with it. Some people have brought the papers as printouts, some have written on them. Others have laptops and iPads open. We reach that point of the agenda, and a member of senior academic staff with responsibility for the ORE stands up to chair this element, with input from a senior member of research administration responsible for the ORE and REF itself in the faculty. The senior academic gives a warm welcome. He then introduces the agenda item, setting out that although the REF is important, we should think of it as an exercise that is valuable beyond the REF, as it will help us to improve the quality of our work and support others against the criteria, which he says are relevant in other situations, such as when applying for funding or simply seeking to publish. He states that although the criteria are not formally part of the promotion framework, they are useful for colleagues to reflect on the quality of their work. He hands over to the senior member of research administration staff, who opens a slideshow that gives us an overview of numerous resources and activities that are available to support the ORE. She sets out the criteria but points out that at this time there is still uncertainty as to what the exact 'rules' will be for the next exercise, which is several years off. She explains which category of staff are eligible and the formula that will be used to calculate how many outputs the faculty should submit. We then move to a discussion of the three papers in our groups. I am in a group of six. The volume in the room shoots up as there are around six tables. We have grouped ourselves, so people have tended to sit with their immediate subject team or associates. Our department is very diverse in terms of the subjects covered, and therefore the topics researched, theoretical bases used and methodologies deployed. My group considers the first paper, which is a small-scale qualitative case study with a strong theoretical component. Two of the members of my group responded favourably to the paper, which was perhaps related to them being engaged in research that is similar to the research study under discussion. One colleague disagrees, stating that in their view, it is 'not real research'. The conversation remains very polite throughout and tentative. Eventually, someone says, 'I think may be it's a three-star, even almost a four-star. May be a three and a half'. Someone who has not yet spoken then such air says, 'Hmmm . . . I have to say I thought it was more like a two star, it's such a small sample size, it lacks rigour.' Then another colleague nods and says, 'Yes, well it is interesting, but yes I think you've got a point.' The colleague who suggested a three or four-star then says, 'well yes, I wasn't really suggesting a four.' I am unsure now what to say. I think the paper deserves a four, but I am

hesitant to say so as I am worried that my colleagues will think I am undiscerning and a poor judge of the quality of academic work. I am concerned that perhaps they will think less of me as a scholar, especially as my work is rather similar to the work we are discussing. I start to wonder if my colleague also thinks my own work 'is not real research'. I am reminded of a comment I received to that effect as a PhD student, which almost led me to drop out of my doctorate in the first year. I also start to doubt my judgement as the 'tide' seems to be turning against the paper in our group. The conversation moves on to the other two papers, and then the whole meeting is called out of group mode to report on the verdict from each table. A silence descends, with no one volunteering a suggestion for the first paper. The chair asks a particular group, and a senior male member of academic staff replies. He summarizes his group's discussion and suggests that overall, they thought it was probably worth a three star with one member thinking may be even a four star. Another senior member of staff in another group slowly shakes her head. The chair asks for her opinion, and she says she thought it was barely a two star and says, 'It may be a worthwhile as a think-piece, but I'm afraid I can't see how it was published as a research paper.' A colleague on another table puts his hand up and says, 'Well it's all very well, but how will it help teachers in practical terms?' A further colleague adds 'But it's a really good journal.' One of my 'teammates' (this now feels like a contest) mounts a defence of the paper, saying, 'Well, I must say I really liked it because it was so innovative and well-written.' The chair of the meeting steers us back to refer to the specific REF criteria, and the discussion proceeds more closely in terms of the three elements. The mood is polite, with quite a lot of laughter, but I feel some tension in the air, and I resolve not to give my view on the paper for the same reason I demurred in the group work. The overall pattern I notice in the discussion is that as it goes on, the score suggested for each paper seems to drop, as it appears to me some members of the group seem to be competing to show how high their personal standards are, although there are one or two outliers who stand up for the quality of papers despite this. These latter naysayers are all senior professors. Once the discussion is over, the chair wraps up the meeting with a few remarks. He points out that the REF panel members each have hundreds of outputs to review, and do not have much time to read papers in depth. He suggests we consider putting in explicit statements about originality, significance and rigour in the abstract or introduction, to help garner a better score. Another member of senior staff suggests we should informally seek feedback, especially if writing sole-authored work, which he describes as 'risky' in terms of the REF. Shortly afterwards the meeting ends and we disperse to our own offices, I leave feeling ambivalent and dissatisfied with the meeting and my lack

of a contribution. I worry about whether my own work is worthwhile, but I also baulk at being told to write towards the criteria. Overall, I feel compromised and feel the sense of pleasure at seeing all my colleagues together has dissipated, as it felt like people were 'fighting their corner' in various ways as individuals and as groups, some of which I could not discern.

A few weeks later, I receive an email from one of the research administrators in my capacity as a member of the College of Reviewers for my department. There is a secure link in the email. In the email, I read the instructions, which require me to go via the link to download several PDF files, which are journal articles published by three colleagues in my department. One of them is someone with whom I had an unpleasant experience a few months previously. I immediately feel stressed as I am afraid of what might happen if I review the paper and that colleague is not happy with the score. Although we have been given guarantees of anonymity, the membership of the College of Reviewers is small, and there is only a tiny subset of people on it working in that subfield. So it would not be hard to guess who might have conducted the review. I write to the research administrator and ask for a phone call. I talk to her on the phone and tell her I do not think I can review that paper as it is not close enough to my area. This is not the real reason, but I am nervous about divulging my worries. She readily agrees to substitute it for another paper.

I read the papers in one sitting. We have been given the REF criteria and advised to enter a score in a spreadsheet, along with a brief feedback comment. I know the people who wrote the papers, not as close friends or colleagues as it is a very large department, but I know them. One of them, in my view, should not have been entered for the exercise as it is more of a 'grey literature' website piece focused on educational practice, without empirical research results or theory development. I study the criteria for a one star again. It seems to fit the description. I think about the colleague who has put this in for the ORE and I imagine how they will feel about the one star. But I also feel I have to conduct my role, as I have agreed to it. I reluctantly mark it as one star and spend a long time crafting a feedback comment to praise the piece as a practice-focused work, as I am worried about offending the colleague. A few weeks later, I get another email, this time with the results for my own papers. I have two three stars and one two star. I am disappointed with the two, and when I read the comments, I feel that the reviewer just doesn't like the type of research I do, although I also try to take on board the feedback. I wonder who wrote it and scour the feedback comment for some kind of clue. I run into a colleague, and we chat about the results. He has got a couple of four stars, which

at that point I have never had. I don't say anything, but I wonder whether sexism has played a part as I had considered his work to be broadly similar to mine in quality. I lose some confidence as a result of this, in myself as a scholar and also in the integrity of the mock REF itself.

Lived body

The lived experience of these many meetings (taken as a whole) in terms of the body was to feel ambivalent about whether I 'belonged' to the wider group of colleagues, whether I fitted into the group. In terms of emotions, I felt tense and a little rebellious, although I did not express these feelings verbally. I remained rather quiet and felt like the exercise rendered me outwardly docile, but inwardly very doubtful. As I became more senior over the years, I spoke out more, but never against the exercise in principle openly in front of a meeting. In this regard, I felt Pablo-Guerra's description of the 'heavy silence' that descended on his department meeting echoed my own lived experience. Behind the scenes with one or two trusted colleagues whom I considered as friends was highly critical in our assessment of the REF. But we complied as we were asked to do in open forum and treated it 'as if it were real'. My feeling was that there was an unspoken agreement to 'go along with it'. I never considered the REF criteria when writing my (mostly solo-authored) work. In fact, if anything, my work became steadily more and more 'risky' in terms of the REF as I found my academic voice over time.

Lived space

The space of the meeting described above was a classroom. For many years, any meeting of this nature would take place in person, which on occasion might include refreshments, making the space feel more welcoming, convivial and social. Since the pandemic, most of the REF-related meetings I have been invited to have been fully online via video-conferencing software. The key artefacts which form the focus of the meeting described above are the three papers under discussion, which are present as printouts and also as digital texts on screens. The room is arranged for group work on tables. In addition to the lived space of the actual meeting, there is an awareness that this space for meeting is one of multiple similar spaces for 'mock REF' meetings across the university and all the other universities in the UK, as there are constant reminders of the largeness of it, the national scale of the exercise.

Lived time

As with the h-index, the ephemeral and embodied life of the academic faculty members as it was lived is not 'seen' by the REF. An extended time period of several years of work undertaken by a large number of people in a range of roles remains hidden, alongside all the myriad complexities involved in writing funding bids, conducting research and writing papers, as alluded to above in the discussion of the h-index. The REF gaze does not 'see' a host of elements of extended efforts over time in university life which make the research activity possible. These include the cycles of thousands of students whose fees support the salaries of the academic staff, the early-career academic staff and postdocs on precarious contracts whose time spent teaching allows senior academics to concentrate on research. The REF averts its gaze from the vast and time-consuming professional services infrastructure behind the exercise, a large proportion of whom are women on low salaries. It does not 'record' the time and labour of those 'unseen' workers who prop up the university, such as the cleaners and security guards, who in many universities in the UK are 'outsourced' and do not enjoy the benefits of direct employees. The same can be said for any professional audit exercise, but I would argue that it is particularly important to note these 'common-sense' omissions of the selective gaze of the REF in terms of hidden time in the case of the university sector, in which institutions state as their mission the achievement of 'social justice'.

Lived others

The experience of the mock REF involved a complex set of experiences in terms of lived others. In my experience, there was a sense of separation and erosion of togetherness within my department in the act of judging research outputs and having one's own work judged by one's colleagues. I felt that meetings like the one described above led to a sense of loss of trust and unity, despite the emphasis on collegiality and feedback. I also felt a sense of 'forced teaming', as we were being asked to throw our efforts collectively into working towards an outcome that was in fact for the whole faculty. We were being asked to conduct the mock exercise as a 'department', but we knew that we would not in fact be assessed and receive a departmental-level result, as for REF purposes our entire faculty was treated as one massive department. I felt like I was being asked to alter the one area of my work that I felt was truly 'mine', my own scholarship and writing, towards some kind of 'greater good', without understanding how

we would see any benefit as individuals, a department or a faculty. As a result, in terms of relationality, it felt and continues to feel very distant and abstract, not something that 'belongs' to us as academics, but more something which seems to belong to the management. Ultimately, we are all aware that the driver is financial, but it felt like we were all being asked to play along with the notion that it was for motives that were 'pure' and related to improving our scholarship.

What is the nature of the gaze?

As with the h-index, the processes by which the research was conducted and the papers written remain unseen. The identities of the reviewers are unseen. The results are distributed privately to individuals, although they are seen and recorded by the research leads and the administrative colleagues who record the results. They are not shared in aggregate form. What is not seen are also the publications that are not submitted, as deemed by their authors unsuitable. Another means by which papers are 'unseen' is via the allocation of one star, which indicates that a paper is not suitable for the REF exercise. Unlike the h-index, the REF gaze is directly evaluative and selective. It is a judging gaze, which looks through the lens of the criteria. It is totalizing, as despite there being numerous specialist panels to reflect disciplinarity, it uses the same criteria for everything it scrutinizes. It is a huge human/non-human assemblage, although ultimately its eyes are all human and are multiple and recursive. We scholars are surveilling ourselves and each other voluntarily. It is a gaze that criss-crosses departmental groups, faculties and institutions. It is a gaze that also documents individuals, who are informally classified as 'REF returnable' or not. It is a means by which universities look at each other vertically on a hierarchy of prestige. It is a valuing gaze in that it is linked to financial contributions from the government. It is a separating gaze that places universities in competition with each other. It is also a gaze that is constitutive. It not only records and evaluates what has taken place, but through the choices about what is measured, it carries ideological force, which is exemplified in the current controversy regarding the proposals to increase the weighting of the 'research environment' in the next exercise.

International surveillance: University QS rankings

The third example I will look at is the large-scale and complex phenomenon of international university rankings. In their introduction to the recent Research

Handbook on University Rankings, Hazelkorn and Mihut (2021) highlight how rankings shed light on the changing nature of universities as 'commodities' (2021: 1), and how the increased importance of rankings has shaped university policy worldwide, with the concepts of 'world-class' and 'excellence' coming to the fore. They point out that in this race towards elite status, the priorities of equity and the societal impact of universities have been neglected. Drawing on Hazelkorn (2018), they trace the rise of global rankings, identifying four phases. Phase 1 is 1900–50s, when early rankings focused on eminent male scientists in the United States, linked to aspects of eugenics, with a focus on family attributes of the 'starred' academics. In Phase 2, 1959–2000, the focus moved away from individuals to indicators of performance at the level of the institution, in response to increased participation in the 'baby boomer' post-war years. Phase 3 saw the advent of global rankings at the turn of the century, at a time of increased global mobility and emphasis on knowledge creation. Human capital theory called for higher levels of education in the population. They chart Phase 4 (2008 onwards) from the establishment of supranational rankings, which were perceived to meet a growing need for regulation and monitoring of quality, also spurred on by the establishment of the Programme for International Student Assessment (PISA) in 2000.

Hazelkorn and Mihurt discuss the role of the concept of 'accountability' in the rise of rankings, challenging claims in the literature that it is driven by neoliberal reform of public services (Lynch 2014; Silova and Brem 2015) as oversimplistic. They defend the need for a focus on educational 'quality' in terms of performance, learning outcomes and universities' contribution to society. However, they concede that 'There has been a pronounced shift from professional self-regulation to institutional processes to the involvement of the government assisted by or mediated through bilateral and/or multilateral frameworks. This has changed the conversation round performance and productivity, quality and value, and impact and benefit . . . taking it beyond nation-states and the academy itself' (Hazelkorn and Mihurt 2021: 8).

Wilbers and Branković (2021) provide a 'historical-sociological account' of their emergence. They challenge accounts of rankings that attribute their ascendence to the forces of marketization, managerialism or neoliberalism, offering an alternative account. For them, rankings represent 'a social operation whose legitimacy is rooted in a specific understanding of *organizational performance*' (Wilbers and Branković 2021: 2). This understanding relies on the idea that improvement is only possible in relation to the performance of competitors (Branković et al. 2018). They define university rankings as 'quantified

zero-sum comparisons of performances, visualized by means of hierarchical table and repeatedly published by a third party' (Wilbers and Branković 2021: 3), drawing on Werron and Ringel (2017). They point out that, unlike benchmarks and ratings, rankings generate a zero-sum hierarchy. Another feature of rankings is their temporal nature, in which performance is understood in a serial and continuous manner. They trace the emergence of rankings to the United States in the early part of the twentieth century, becoming more common in the interwar years. They identify three 'discursive enablers' which they argue ushered in rankings in the US system in the 1960s, alongside a new understanding of what it means for a university to 'perform'. The first of these is the performance of an institution being tied to the performance of the national 'system'. They see this as arising from post-war functionalism, which 'called for every aspect of society, culture and behaviour to be defined and examined in systemic terms. This meant, roughly put, seeing the social world as a complex, hierarchical structure, made of interrelated units and subunits, functions and processes, in which action was purposeful and behaviour adaptive' (Wilbers and Branković 2021: 7). This led to a belief that universities 'could *perform into* or *achieve* excellence by performing well in specific domains' (Wilbers and Branković 2021). This was accompanied by the belief that universities were capable of rising in terms of rankings. They trace in detail how the idea that the performances of universities could be quantified and rank-ordered for outside and inside audiences became mainstream in social science and education academic discussion in the 1970s. They conclude that 'rankings have become deeply embedded in the epistemic fabric of higher education and as such normalized' (Wilbers and Branković 2021), making the study of rankings as a phenomenon challenging but also critical as a project.

In a related paper, Branković (2021) points out the proliferation of rankings of all kinds internationally in recent decades, including of nation states by various measures, cities, restaurants and so on. This, she proposes, 'has further helped institutionalize the imaginary of the modern world as a stratified order, whose actors are imagined as *continuously striving* to overtake those they are compared with' (Branković 2021: 2). In this imaginary, all actors are competing for scarce prestige. Branković links the logic of rankings to other 'rationalizing myths' (Meyer and Rowan 1977), such as strategic management and performance indicators. She points out how quantification 'bestows an aura of objectivity and a kind of quasi-scientific legitimacy upon rankings' (Branković 2021: 4), giving rankings apparent legitimacy as a 'rational' phenomenon. Rankings are taken so seriously in some cases that they have shaped the timings of nation-state level

reform of education systems, such as the PISA rankings (Landahl 2020). She argues that

> The long-term perspective also pushes us to look beyond specific rankings and examine the historical trajectories of the phenomenon itself. One important development we can observe is that the more rankings proliferate, the more we are accustomed to their way of organizing social reality in an ever-increasing number of domains, and this less likely to question the assumptions undergirding them. In many ways, the story of rankings can be understood as a story of historical institutionalization. (Branković 2021: 4)

She concludes her paper by posing the question, 'What does it mean, at the bottom of it, to use a ranking as a way to frame the conversation on pandemic response, on happiness, or on supply chain management? What is gained and what is lost in doing so?' (Branković 2021). Locke (2020) points out that the majority of research work on the influence of rankings has focused on international policies. Instead, his chapter looks at the effects of rankings at the level of the institution. He notes how the 'logic' of ranking systems is internalized by people who work in universities and how 'this "logic" becomes embedded in organizational structures and procedures and established as the norm' (Locke 2020: 82). As a theoretical framework, he draws on Espeland and Sauder's concept of reactivity, in particular the 'self-fulfilling prophecy' and 'conmensuration' (Espeland and Sauder 2007; Sauder and Espeland 2009; Espeland and Sauder 2016). Locke's case study research revealed six different types of institutional responses:

(1) Strategic positioning and decision-making: the use of rankings in the strategic positioning of institutions, in branding and promoting themselves and in making decisions about strategic goals.
(2) Redefining activities and altering perceptions: how rankings can redefine activities, as institutional personnel focus on the indicators and measures used in rankings rather than the qualities they are designed to evaluate, privileging certain characteristics above others.
(3) Evolving responses: how responses to rankings evolve, for example, from initial dissonance and the invoking of alternative evaluations to attempts to understand and explain unexpected results, to efforts to produce desired ranking outcomes and the exploitation of ranking successes in institutional promotion activities.
(4) Affective responses: the influence of ranking results in the affective domain, including the impact on staff morale in institutions (and departments) ranked in different parts of the national tables, and

anxiety about what other institutions are doing to improve their ranking positions.

(5) Self-management: the use of ranking logics to leverage internal change, for example, tightening reporting procedures, rendering academic units accountable and promoting competition between departments.

(6) Degrees of control, in resisting, managing, exploiting and 'gaming' rankings: attempts to manage the influence of rankings, including negotiations with compilers and efforts to mitigate conflicts between ranking logics and the social missions of institutions.

(Locke 2020: 82–3)

Locke documents how the rankings, ostensibly introduced to provide information to prospective students, have morphed into a far more agentive force in which 'the interplay between marketisation and rankings, which has been mutually reinforcing, is the reason why rankings have gained so much influence. In effect, they have transformed, from simple guides into complex mechanisms in the appraisal and governance of institutional behaviour' (Locke 2020: 84). He goes on to point out the active involvement and complicity of universities in the rankings, with reference to Foucault's concept of discipline:

> A case study approach also illustrates the importance of recognizing that HEIs and their organizational members are active participants in the process of making sense of rankings and in responding to, and engaging with them. They do not simply react to rankings in a passive way; rankings do not simply impact on HEIs. Many critical studies of the 'impacts' of rankings have tended to draw heavily on Michel Foucault's ideas of discipline (Foucault 1977) and how rankings, through processes of surveillance and normalization, change members' understandings, perceptions, expectations and behaviour. This 'internalization' of the logic of rankings and, ultimately, their 'institutionalization' in the processes and systems of the university, can be seen as a form of self-management or self-discipline, such that, paradoxically, efforts to control rankings simply result in extending their power and influence. In this sense, rankings seduce as well as coerce. (Locke 2020: 86)

Locke analyses what he calls the 'reverberations' (2020: 87) of rankings in universities, with reactions ranging from resistance, through control, to a strategy of exploitation for reputational gain.

One of the most influential international rankings of universities is the annual QS World University Rankings. It is produced by the UK-based education and careers advice consultancy company Quacquarelli Symonds (previously in

partnership with Times Higher Education (THE), which now administers its own ranking system in collaboration with Thomson Reuters). The QS system comprises three parts: overall global ranking, subject-level rankings and regional tables. What a university must enact in terms of performance leading to a high score in the QS rankings is extremely complex. If 40 per cent of the weighting rests on reputation, expressed as opinions of individual academics, then the 'performance' that generates a high number of respondents electing an institution as 'top' in their field is not straightforward. Inevitably, the individual's opinion will be based partly on their own personal experience of that university, their relationship to it and particular experiences, including potential bias or rivalry. As such, their opinion might be derided as 'subjective'. However, it might also be proposed that, in a sense, a high reputation is both constitutive of performance and also an element of performance. In the prestige economy of the marketplace and in broader cultural understanding, being known to be a 'top' university is, in itself, an 'achievement'. Part of what makes a university 'top' is in fact that it is prestigious, and the prestige is produced by, but also produces, prestige, class-based privilege and advantage, in addition to access to powerful elite networks and opportunities on graduation and beyond, such as with Oxford and Cambridge Universities in the UK. In terms of the establishment of this level of prestige, it is built over long timeframes, rendering the annual ranking somewhat questionable. The results in the 'top ten' in QS international have, in fact, varied remarkably little over the last ten years, with the same universities frequently occupying the top positions. The other elements of the methodology are purportedly more 'objective', such as the staff–student ratio, which builds in the assumption that smaller group teaching is preferable.

What have been chosen as markers of 'quality' are reputation, a high proportion of faculty to students and a high number of citations of faculty publications. The remaining three measures relate to the extent to which the university is international. The nature of the performance is then a combination of a cumulative, long-term reputation which does not relate directly to 'outputs' that can be quantified. This combines with very specific quantifiable measures to create a kind of 'aura' that arguably surrounds universities at the top of the rankings, which is likely to contribute to their reputation, and is also sustained by it. Overall, a striking aspect of the QS ranking is the extent to which it relies on reputation, in particular academic reputation. Forty per cent of the weighting is derived from this survey, which belies the notion that this is a ranking based predominantly on the quantification of performance. The higher education literature has identified and discussed a 'prestige economy' at work at the level

of the individual (Blackmore and Kandiko 2011). However, it might also be argued that a larger prestige economy drives the reputational ranking.

Safon and Docampo (2020) analyse the effects of reputational bias with reference to the Shanghai Ranking (Academic Ranking of World Universities (ARWU)). They point out the effect of reputational bias, which may have little to do with quality (Bastedo and Bowman 2010; Safon 2019). They make the point that although this may be a result of introducing a reputational element to some rankings (US News, THE and QS), rankings based only on research performance data are also influenced by reputation, in the sense that reputation also influences research performance (Safon 2019). Numbers of publications and citations are used as proxies for research performance, which Safon and Docampo point out are influenced by a halo effect that affects the decisions of editors, authors and referees. This is an important point; the apparently 'objective' measures used in rankings cannot be separated from the complex entanglements of any given text or 'output'. A paper cannot be judged in isolation from the prestige of the author or their institution, leading to bias and unfairness. Safon and Docampo analyse the ARWU as it is the most influential international ranking, which does not use reputational surveys, looking specifically at two indicators: highly cited researchers and papers published in the journals *Nature* and *Science* and the question of whether reputational bias was affected by the nation of origin, the age of the university or its existing ranking. They found that some universities unfairly benefited from their previous reputations in bibliometric measures, while others suffered a disadvantage, stating that 'the ARWU is contaminated by reputational bias' as a result of the halo effect around peer review (Safon and Docampo 2020: 2223). As they put it: 'Ideally, success in publication and citations would be the sole result of the quality of the manuscript, but realistically, it is not possible to measure the intrinsic quality of a paper, which opens up opportunities for other factors to become relevant for research performance, such as the status of the first author's institution' (Safon and Docampo 2020: 2220). They conclude by recommending that in order to address reputational bias, journals do more to anonymize submissions before they are viewed and possibly desk-rejected by editors; that associate editors should be more diverse and that there should be a more frequent rotation of editors-in-chief. However, it seems unlikely that these recommendations will be taken up in a widespread manner across academic publishing, and therefore it is probable that this bias will remain in peer review. As Hazelkorn and Mihut set out, the global rankings only account for five per cent of the world's universities, with the top 100 listed by the ARWU representing 1.4 per cent of students worldwide. The

top twenty is US-dominated, with eleven of those being private universities 'with endowments that surpass the higher education budgets of many countries' (Hazelkorn and Mihut 2021: 11). They also point out the effects of the focus on citation and publication counts, leading to a focus on journals with high impact factors, which is 'distorting research practice, with accusations of over/misinterpretation, misconduct and manipulation' (Hazelkorn and Mihut 2021). Open-source publications and 'grey literature' may be more common in humanities and social sciences and may be of more relevance regionally. They also highlight the difficulties of accounting for teaching quality and learning environments.

Marginson (2020) argues that the reputational surveys used in the Times Higher Education and QS rankings are underpinned by the 'material base' of scientific knowledge, suggesting that 'Without data on comparative research performance, rankings would be primarily the recycling of university reputation by university reputation' (Marginson 2020: 19). He points out the central role of the global bibliometric collections Web of Science (Clarivate Analytics) and Scopus (Elsevier), which compose the publication set shaping the research-oriented data. However, despite the point made by Marginson that the reputational element of the QS ranking is derived from bibliometric data, it might be argued that the responses of individual academic faculty are not likely to be made with direct reference to these. Instead, I would suggest that the ranking's reputation-focused measures are derived, to a large extent, from what is *not* seen directly. How reputation and prestige operate is complex and involves both public discourses and personal opinion. The survey is completed by academics anonymously and individually, and most likely in private without discussion or consultation with others. Those who were approached but decided not to submit a response are not seen. Those who were not approached are also not seen. However, crucially, Marginson points out the bias inherent in using these collections, which do not include most papers published in languages other than English, most papers in social science and almost all work in humanities, which he characterizes as 'part of a more general pattern of exclusion' (Marginson 2020: 34). As he puts it:

> The dominant circles in science and other disciplines have so far shown little appetite for overhauling bibliometrics so as to establish a truly comprehensive global system, in which good ideas from anywhere are comprehended and recognized. After all, the dominant countries and universities do very well under the present arrangements, which also offer and additional, psychic, benefit: a comforting sense of cultural superiority. (Marginson 2020: 34)

This leads to the exclusion of non-Organisation for Economic Cooperation and Development (OECD) based work and also the exclusion of indigenous knowledge. He quotes Stein, who notes that 'systemic forms of domination are not just national and epistemic, but also ontological – that is, they sanction particular modes of existence and foreclose others' (Stein 2019: 9, in Marginson 2020). In addition to the ranking of institutions, QS also undertakes an international ranking by subject. In the next section, I will focus on the subject ranking in particular, with reference to my own faculty.

Anecdote

Where in the previous sections of this chapter I used personal anecdote and reflection to address these questions, in this part I will focus not only on my own experience but will also attempt to consider lived experience at the level of the university as an institution, specifically my own and my faculty's lived experience of being under the gaze of the international rankings in terms of our position in the QS subject ranking for education. I provide an anecdote based on a very vivid memory of an experience ten years ago:

I walk towards the entrance of the main building of my faculty, which was until recently a separate college of the University of London. It is a huge modernist structure that takes up a whole block of our area of central London. I walk past the familiar walls and windows until I reach the bottom of the steps that lead up to the entrance. On either side of the entrance at the top of the stairs, there are large floor-to-ceiling plate glass windows. I notice immediately that large signs have been put up on the windows, indicating that the faculty is 'World No.1 for Education in the QS Rankings'. I stand at the bottom of the stairs and look up at these signs, which are very large and prominent. I have already received several 'all staff' emails informing me that we have been given this accolade. I do not understand how this has been decided, as (at that time), I am not well-informed about international university rankings. I don't even know at that time what QS stands for. But I know this result is related to our recent merger with UCL; as our status has changed, we are now part of a multi-faculty university, and therefore we qualify to be considered in the ranking. The signs seem to me to represent something important, but something which feels distant to me. They also feel a lot like a new brand, a new identity and an attempt to project the faculty towards the street and those who walk past in a rather strong, bold manner. I wonder who the signs are intended for and whether they are aimed at the students. It occurs to me how odd that is, as they have already chosen to study here.

I then wonder if the intended audience is also academic staff like me. It has become common to see a banner at the bottom of emails from senior management carrying this 'badge', and it has appeared on the faculty PowerPoint template, the website and the stationery template. The branding seems to project outwards and inwards at the same time. As I enter the building, I see a TV screen with a video also featuring the ranking result. I feel a mixture of pride that the faculty is apparently so successful, combined with a sense of alienation and loss of the Institute before the merger.

This was the first time I saw this branding on the windows of my faculty building. I have subsequently got used to them, as they have been a feature in the ten years since and have been updated every year. In the next section, I will consider this phenomenon in terms of the four lifeworld existentials.

Lived space

The ranking has had a powerful effect on our lived space, as it is now physically 'branded' by the QS rankings in terms of the physical space of the building, and also digitally. My experience when seeing this branding is ambivalent, as I feel a sense of pride about being part of the institution that has been judged to be world number one, but I also feel a sense of distance from it, as it feels like an exercise that has nothing much to do with us year-to-year; it feels more like something that just 'happens'. I also feel a degree of discomfort about it, as I do not feel comfortable with the overall regime of the rankings. Overall, the effect of the ranking on space is, in some sense to make it feel as if it has been 'taken over'. It feels more brash, commercial, controlled and corporate than it did before. It also makes the space feel less secluded somehow and more 'seen' by an external agent of surveillance. There is a sense of an encroachment of external force.

Lived body

In this section, I take the faculty to be a 'body' but will also attempt to consider the question in terms of my own lived body experience. The faculty as a whole has been given this accolade due to its 'performance' in terms of the indicators set out above. It is assessed as a single named entity. However, it is worth reflecting on the nature of that entity. It has a name, but as with all complex institutions, its nature is highly complex. It exists as a 'body' in a range of ways. The physical estate is one way in which the faculty is a body. In that regard,

it has one large main building and a few smaller sites. However, the physical manifestation of the faculty is not what is assessed by QS. Education is part of social science, meaning that the faculty received the position in the ranking on the basis of weightings of 50 per cent academic reputation, 30 percent employer reputation, 7.5 per cent research citations per paper, 7.5 percent h-index and 5 per cent international research network, meaning that 80 per cent of the weighting rests on the findings of the surveys to academics and employers for the first two indicators. 'Reputation' is defined by Dictionary.com as 'The estimation in which a person or thing is held, especially by the community or the public generally'. In a sense, the 'body' in question does not exist as a single, tangible entity. Instead, it is an idea or an accumulation of thousands of ideas, opinions, impressions, perhaps in some cases memories which led people to name the faculty on the survey. However, it could also be argued that the faculty as a body in fact consists of the hundreds of staff, both academic and professional services. For me as a member of the academic staff, the QS ranking contributes to a sense of a disembodied force which brings about this award and feels disconnected from us as actual bodies coming to work, sitting at desks, teaching classes, writing papers and so on. I would venture to say that because of the level of abstraction, there is something about it which does not feel authentic or 'true'.

Lived time

The annual nature of the award and the prominence it is given lead to a sense of punctuation and also the sense of a snapshot being taken. The survey process and other analysis conducted by QS is largely 'black boxed', therefore it is not a process which I and others witness, except when some of us receive the survey. I received the survey email a few days before writing this, which alerted me to the existence of the exercise again. However, in the time between, the QS ranking process is not something that is part of the everyday texture and practices of the faculty that I experience as a member of the academic staff. So, in terms of time, it feels like an annual ritual of some kind. In our case, the fact that we have held the world number one position for ten years also gives a sense of accumulation. Gaining this position is, in my mind, inextricably linked with our merger with UCL. The 'tally' every year, for me, also represents the length of time we have been a faculty of UCL rather than a separate institute, causing me to reflect on the changes that have come about as a result.

Lived others

The QS subject ranking is complex in terms of lived others. The survey is completed by anonymous others internationally, and so our relationality towards those people is ambiguous; we do not know who filled in the survey. They 'know' the faculty in terms of its reputation, some of them may know it directly as alumni or as scholars, but inevitably some only know it as a name with a particular reputation. They do not know us directly, although some of them may know some individuals who have worked here, past or present. Internally, as I have suggested above, the award feels disconnected from the staff, despite the fact that ultimately a great deal of the reputation and all of the citations were a result of that multiple, embodied large, shifting, complex and diverse group of people. In terms of relationality, the QS subject ranking groups all of us as an entity in opposition to other departments of education internationally; it enrolls us in a competition where we are part of our faculty 'team'. This is despite the fact that academic staff tend to have, in many cases, close working relationships and affinity with academics at other universities. For many of us, our sense of belonging is more with our discipline or subfield than our faculty or institution, but the QS ranking exercise pits us in opposition to those who are not in our own faculty, our 'competitors'. Each year when the award is announced, there are celebratory announcements from the senior management, quite understandably. However, I have never heard a member of the academic staff comment on it or express any celebratory sentiments. Instead, what I have noticed is broadly a silence, a lack of response from academic colleagues, an apparent indifference or sometimes a bit of eye-rolling about the fuss. Once or twice when there have been problems or difficulties for us as staff, colleagues have referred to the faculty as 'supposedly' world number one. The communications from senior management each year invariably include generous statements recognizing the work of the staff, but I find this somewhat discordant, as it feels like being thanked for something which was not done intentionally, as I can confidently state that academic staff do not deliberately dedicate themselves to their work in order to gain this ranking. I feel somehow enrolled in something I did not consent to. I cannot be sure of other peoples' views on this, but in terms of lived others, it feels to me like the award is not 'mine' or 'ours' as academics, but 'belongs' in a sense more to those working in management, marketing, branding and recruitment. Another group of others brought into relationality with us by the QS rankings is the general public, as the rankings are published prominently in the press and are of interest and relevance to schools, parents and prospective students, as well

as internationally. The prestige gained by the rankings translates into the degrees awarded by us carrying more prestige for students.

What is the nature of the gaze?

The object of the gaze with the QS subject rankings is complex and multiple. To a large extent degree, it is an imaginary, collectively held idea about our faculty. In that regard, it is indirect, it is qualitative, and as discussed above, it could be said to be self-reinforcing as the prestige conferred by the 'number one' status leads to more prestige, in a feedback loop, which might be seen as reproductive of power. It is a gaze that is constitutive, in the sense that it has changed the identity and image of the faculty and has become part of how it is defined. The 15 per cent weighting on academic publications, like the REF, relies on texts as a proxy for academic bodies, minds, ideas, research, discovery and ultimately these measures are used as a collective proxy for the slippery concept of 'excellence'. Like the REF, it is also stratifying and reproductive of established academic institutional hierarchies. As with the h-index and the REF, the QS rankings arguably also display an act of radical simplification, a stripping out, and with that, inevitably a series of occlusions. Before we merged with University College London, we were a single-subject higher education institution and therefore were not eligible for the rankings. So, until that point in 2014, in effect we remained 'unseen', then suddenly, we were seen and attained this status.

Sociotechnical imaginaries and the audit gaze

As set out in Pardo-Guerra's investigation of the REF and also by Branković and colleagues with respect to international rankings, there is clearly an underlying belief at work which regards the work of universities and scholars as measurable and amenable to quantification. This leads, as with any form of quantification of human activity, to a reduction of the complexity of holistic lived experience to a splintering of activities into measures and numbers to be counted. The h-index is ongoing and cumulative, and although flawed, is arguably relatively simple in its operation. However, the REF and QS rankings are periodic, highly complex and onerous in terms of what needs to take place for the measures to be produced. An element of the overall belief is, I propose, that higher education must be amenable to analysis, comparison and competition. Its activities should not be hidden but should be made available for public scrutiny. As discussed above, this can be traced at least in part to the marketization of higher education, plus the impulse for accountability for public funds. Although the latter point may be

laudable, it might also be argued that it reflects a lack of trust in higher education, a compulsion towards audit which might also carry a whiff of anti-intellectualism, tapping into a media discourse of out-of-touch inhabitants of so-called 'ivory towers'. A central aspect of the response to these audit gazes, I would suggest, is profound ambivalence. As Pardo-Guerra found in his interviews, there is a high degree of complexity surrounding academic attitudes towards the quantification of their work as individuals, groups and disciplines, with scepticism and resistance being combined at times with a desire to be recognized, to compete and to 'win' in some sense. This complexity is arguably present at the level of international rankings, which may be derided or downplayed while retaining a great deal of importance in terms of reputation and commercial success, for example in attracting lucrative international student fees, grant income or 'star' academics.

In the previous sections, I analysed three different elements of audit culture as they pertain to university life. In doing so, I took a reflective, anecdotal, 'close-up' postphenomenological approach, attempting to set out what this type of gaze *feels like* in day-to-day life. In this final part of the chapter, I will discuss this type of algorithmic gaze using a 'wide angle', returning to the concept of sociotechnical imaginaries discussed in Chapter 1. I consider the instances of the audit gaze in terms of this concept, in order to explore the extent to which it captures or illuminates the phenomenon on a larger scale. As a reminder, Jasanoff's (2015) re-defined sociotechnical imaginaries as 'collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology' (Jasanoff 2015: 4). I will consider each element of the definition in turn, but first, it is worth noting that Jasanoff's core idea here is of 'visions of desirable *futures*' (my emphasis). As discussed above, at the heart of all three instances of the audit gaze there is a retrospective aspect. All three measure, judge and rank what has already been written, or in the case of reputation, discussed or experienced. In that regard, it could be argued that these are practices concerned with the past, not the future or futures. However, it could equally be argued that the existence, persistence and widespread institutional uptake and deployment of these audit gazes express an orientation towards the future on the part of the higher education sector. It is worth considering here what is meant by the word *vision*. Dictionary.com provides several definitions of the noun:

(1) The act or power of sensing with the eyes; sight.
(2) The act or power of anticipating that which will or may come to be: prophetic vision; the vision of an entrepreneur.

(3) An experience in which a personage, thing or event appears vividly or credibly to the mind, although not actually present, often under the influence of a divine or other agency: a heavenly messenger appearing in a vision. Compare hallucination (Definition. 1).
(4) Something seen or otherwise perceived during such an experience: the vision revealed its message.
(5) A vivid, imaginative conception or anticipation: visions of wealth and glory.
(6) Something seen; an object of sight.
(7) A scene, person, etc., of extraordinary beauty: the sky was a vision of red and pink.

Definition 2 is perhaps the most suitable here, although it might be argued that five is also relevant. However, importantly, Jasanoff is not referring to neutral prediction, but vision of a *desired* future. These visions are defined using three qualifiers which I will examine in turn. The first is collectively held. This immediately uncovers a host of complexities. As discussed above, both demonstrated in the critical research literature and suggested in the phenomenological inquiry I set out, these practices are both very well established – in the case of the REF, introduced and supported by government. In that regard, they are collective in the sense that (except perhaps the h-index), they are compulsory, not optional. However, I would argue that they are a long way from being collectively *held*. The word 'held' is being used here in the sense of ownership, but it is also interesting to note that its core meaning is derived from the body, specifically a hand which voluntarily holds something. The high degree of ambivalence of academic staff towards all of these audit gazes indicates instead either hands unwillingly accepting something forced into them, or perhaps expressing a 'hands off' attitude which seeks to retain some distance from the operations of the gaze. So, in Jasanoff's terms, these practices do not clearly fit the definition.

We can also reflect on the extent to which they are institutionally stabilized. Again, their interpenetration of the entire UK sector might suggest that they meet this definition. However, in the case of the REF, the exercise itself has changed with each iteration, which does not imply full stability. There is still a provisionality to it, reflecting its political nature. Taking the final qualifier, we can consider whether these practices are publicly performed. They are public in the sense that each of them leads to an outcome which is made public, that is, in the public domain. However, the processes which underlie them are largely

black-boxed and not directly available or amenable to observation. The extent to which they are performed varies across the three. The h-index relates to one individual and, in that sense, it is rather low-key, although it could be argued that it 'performs' for the scholar by summing up their achievements in publication in a brief and punchy format. The REF, however, can certainly be described as a 'performance' in more than one sense. It is large-scale, extremely costly, ever-growing, elaborate, onerous and continuous. It may be largely unknown outside of academia, but within it, its presence is high-profile, and the results (if regarded as good) are presented as a cause for celebration. The QS rankings might be seen as even more performed, as they are published in newspapers and referred to by the general public.

Looking at the next part of Jasanoff's definition, we can consider whether they are 'animated by shared understandings of forms of social life and social order'. Again, as with collectively held, I would suggest that these are not precisely shared understandings, but more ideologies which operate and are imposed through the operation of structural power. Scholars may choose not to use the h-index, but in some national systems, author bibliometric scores are required for job applications, promotions and so on. The UK government runs the REF and disburses funding to a sector that cannot opt out. The university sector is in an 'arms race' in terms of prestige and so arguably must participate in the QS rankings. This analysis, I would suggest, raises questions about the concept of sociotechnical imaginaries in terms of how adequately or otherwise it theorizes power, ambivalence and coercion in a neoliberal marketized system such as UK higher education.

I would suggest that, taken together, the three audit gazes express an ideology rather than a vision. Several ideas are present. One is that the individual scholar, academic department, faculty and university cannot be trusted; all must be surveilled in some way in terms of their work. There is a profound lack of trust in the ability of academia to be left alone to do academic work (or teaching, as can be seen with the parallel UK Teaching Excellence Framework audit exercise). A further related element of the ideology, as recognized in the literature, is that each of those parties must self-surveil in order to self-optimize, and practices must adapt to fit the demands of the audit. This can be seen with the mock REF in particular, as discussed. Arguably, the individual, department or university is rendered into a type of product, with a stated value, to be 'sold'.

5

The Performative Gaze

Introduction

The previous chapter discussed three examples of what I termed the audit gaze in higher education, operating at different scales but sharing several features in common. In this chapter, I will move my focus to what could be recognized as a different type of gaze, one that might be seen to include an even stronger element of inducing a particular type of embodied performance or way of being. In doing so, I will explore how processes of surveillance not only record information concerning academic faculty and students, but also actively generate a co-constitutive set of relations and entanglements, which have ontological and material consequences.

The *performative gaze*

In his (2017) book *Freedom to Learn*, Bruce Macfarlane mounts an incisive critique of contemporary mores concerning expectations of what he calls 'the student engagement movement' at university, arguing that a range of approaches to 'teaching and learning' have led to a situation in which students are corralled into various forms of performativity. He critiques practices such as taking attendance registers as infantilizing, arguing that students should be treated as adult scholars who should be able to choose whether to attend or not and how to participate. Macfarlane also critiques the preponderance of activities such as group work and discussion as needlessly privileging or demanding talk and interaction over reticence and privacy. He takes aim at 'reflective' assessments and activities that demand self-disclosure and confession, arguing that these breach student freedoms. He proposes three forms of performativity which he argues are demanded of the students by what he calls a 'hidden curriculum' of student

engagement. These are *bodily performativity*, which demands that students be physically present when required; *participative performativity,* which requires that students must behave in a particular way in order to be seen to be 'engaged' and *emotional performativity*, which exacts demonstrations of particular feelings from the students (also see Macfarlane and Gourlay 2009). Macfarlane's analysis does not focus on digital technologies and was written before the Covid-19 pandemic, which has led to a greater role for the digital in higher education. However, I will argue in this chapter that his central point regarding performativity is highly relevant to the theme of the algorithmic gaze as I propose it. I will examine three examples of the use of the algorithmic gaze in the university, which I argue also demand particular types of performance from academic staff and students.

The first section focuses on the now-commonplace activity of video conferencing and teaching via online platforms such as Teams or Zoom, drawing on an extended anecdote by a member of the academic faculty taken from a research study conducted during the Covid-19 pandemic 'lockdown' period in the UK (Gourlay 2022a) and an anecdote based on my multiple experiences of conducting meetings via Zoom. The second part considers the practice of learning analytics in higher education and discusses its potential effects on students, focusing on a learning analytics dashboard. The third section moves the focus to the material campus itself, with an anecdote on the effects of infrared sensors to monitor seat occupancy in a campus library. In each case, I consider what I propose to be the performative effects of these different forms of gaze.

Self-surveillance: Video conferencing

Friesen (2014) conducts a phenomenological analysis of video conferencing, focusing on the commonly used platforms at the time: Skype, FaceTime and Google Hangouts, questioning the contemporary assertion that these technologies offered in some sense an 'equivalent' or close replacement experience as face-to-face conversation. As with the approach taken in this book, Friesen focuses on the 'existentials' of the experience: time, space, relation and the body, also focusing on 'intentionality', 'the way that our awareness and consciousness is directed purposefully in and to the world around us' (Friesen 2014: 20). He deploys 'hermeneutic interviews', where he asked instructors to recall and describe specific occasions of teaching using video conferencing, comparing them with face-to-face occasions, also analysing vernacular sources such as video clips. He describes his methodology as follows:

> The data used to study this intentionally structured experience of space, time, body and relation are presented in the form of short textual descriptions. A hermeneutic explication typically follows on such a description. This hermeneutic discussion or reflection allows for the explication of the description in terms of time, space, time, body, and relation, and for reference to phenomenological writings, including those of an explicitly philosophical nature. In particular, philosophical texts from phenomenologists Sartre, Merleau-Ponty and Waldenfels, who have written with insight on perception, the body and technology, are referenced in these hermeneutic reflections. (Friesen 2014: 20)

He analyses a comedy video made several years ago, named 'A Conference Call in Real Life' (YouTube 2024), which shows a group of actors playing businesspeople together in a conference room, otherwise acting as though they are on a video conference call. The humour of the sketch is derived from a series of communication breakdowns characteristic of video conference calls, such as being 'on mute', being physically locked out of the room, background sounds in participants' homes such as a barking dog and so on. He focuses in particular on the end of the call, when the chair of the meeting says, 'Oh, and one more thi . . .' only to realize that everyone has disappeared from view, highlighting the 'all or nothing' nature of their presence when on a video call. Comparing this to a real face-to-face meeting, Friesen points out that participants need to make their way physically to the room, passing through hallways and other pathways. He challenges the notion that these spaces are simply means of arriving at a destination. Instead, he characterizes them as 'spaces of habitual traversal through which participants physically – and also mentally and socially – "converge" on their eventual purpose' (Friesen 2014: 22), diverging after the meeting. Hallways, elevators and other 'transitional spaces' allow for informal, off-the-record communication. In contrast, virtual conferencing spaces do not have these 'transitional' or threshold spaces for indirection and improvisation' (Friesen 2014) as he points out, they also lack the possibility for the expression of the nuances of embodied presence, the body as 'expressive space'. Friesen goes on to point out the fact that one is likely to appear on the video as larger than life-size, and that there are visual distortions due to zooming in and so on. With reference to Sartre's description of 'the look' in 'Being and Nothingness' (1956), he highlights the objectifying effect of 'being seen' by the other. He quotes Merleau-Ponty:

> The other transforms me into an object and denies me . . . This is what happens, for instance, when I fall under the gaze of a stranger. However, this takes place not

> so much in combination with other acts of communication, as in their absence . . . [My] objectification . . . by the other's gaze is felt as bearable only because it takes the place of possible communication. (Merleau-Ponty 1962: 420)

He then considers the nature of the gaze and eye contact during video conferencing, pointing out that the mutual gaze we normally experience face-to-face is fractured in the video conference, as in order to look at an interlocutor's eyes, one must look at the screen rather than at the camera. He concludes with reference to the work of Merleau-Ponty's student Bernhard Waldenfels, who reflects on the body as not conforming to clear dualisms of subject/object or perceiver/perceived: 'our body does not fit into this dualistic scheme. On the one hand, our body is exactly both at once: seeing and seen, hearing and heard, touching, and touched, moving, and moved. This . . . characterizes the very being of our body, which refers to itself and at the same time evades itself' (Waldenfels 2011: 49). Waldenfels theorizes that which exceeds our own awareness and control, such as how others see and hear us, as 'alien' to us. Technical mediation serves to disrupt and distort this 'order of the self', as he puts it: 'Technology, which has for a very long time – despite all the contemporary lamentations about alienation through technology – been regarded as an extension of the sphere of ownness, now proves more and more to be a source of alienation of its own kind' (Waldenfels 2011: 6). Friesen concludes that the distortions of video conferencing discussed above exemplify this effect, as a 'multiplier' of the alien. Again, drawing on Waldenfels, he sets out that the technology of telepresence leads to a situation in which 'the means by which we are both present and absent to ourselves and to others are both augmented and distorted, amplified and attenuated' (Friesen 2014: 17), in what he calls a 'rudimentary hall of mirrors and echo chamber' (Friesen 2014).

In a more recent piece, Aagaard (2022) considers the phenomenon of 'Zoom fatigue', in the context of the Covid-19 pandemic. He calls into question optimistic claims that video conferencing unproblematically represents the future of business and education by highlighting the various difficulties it raises for communication. Crucially, he critiques 'brain-based' accounts of Zoom fatigue and proposes an embodied approach to understanding it, referring to Merleau-Ponty's (2002) phenomenology, in particular his concept of intercorporeality, which sees interaction as taking place via mutually interacting bodies. He also draws on Stern's (2010) concept of vitality, 'a dynamic unit that arises from a combination of movement and its "four daughters" of force, time, space and intentionality' (Aagaard 2022: 1881). He points out that video conferencing is not immediate

in the perceptual sense like face-to-face communication but instead can be characterized as a form of 'mediated immediacy' (Lindemann and Schünemann 2020). Aagaard points out that studies into mediated immediacy have tended to focus on the extent to which a mediating technology can recede or become invisible (Lee 2004; Lombard and Ditton 1999). His focus is not on investigating how technologies might be neutral means for human interactions but more on enquiring into the question of how technologies actively affect our interactions based on theories of technological mediation (e.g. Latour 2005; Verbeek 2005). He identifies five dynamics of Zoom fatigue: awkward turn-taking, inhibited spontaneity, restricted motility, lack of eye contact and increased self-awareness (Aagaard 2022: 1883). These aspects lead to the interaction consequently feeling erratic, formal, static, disconnected and objectifying.

In Gourlay (2021b), I considered video conferencing with reference to social topologies (Mol and Law 1994). The core idea is that 'the social' does not constitute one spatial type. Mol and Law contend that in regional space, objects are clustered together and demarcated by clear boundaries. In network space, distance is a function of the relationships between elements. However, Mol and Law suggest that in addition to these two kinds of space, 'sometimes, we suggest, neither boundaries nor relations mark the difference between one place and another. Instead, sometimes boundaries come and go, allow leakage, or disappear altogether, while relations transform themselves without fracture. Sometimes, then, social space behaves like a fluid' (Mol and Law 1994: 643). However, they also propose fluid space as a topology which is neither regional nor network-based:

> there are others too, and one of them is fluid. For there are social objects which exist in, draw upon and recursively form fluid spaces that are defined by liquid continuity. Sometimes fluid spaces perform sharp boundaries. But sometimes they do not – though one object gives way to another. So there are mixtures and gradients. And inside these mixtures everything informs everything else – the world doesn't collapse if some things suddenly fail to appear. (Mol and Law 1994: 659)

In a later work, Law and Mol (2001) draw on Bachelard's (1964) notion of fire space. Bachelard considers the nature of fire: 'The fascinated individual hears the call of the funeral pyre. For him destruction is more than a change, it is a renewal' (Bachelard 1964: 13). The experience of a person staring at a fire is described as follows: 'the reverie is entirely different from the dream by the very fact that it is always more or less centred upon one object. The dream proceeds

on its way in linear fashion, forgetting its original path as it hastens along. The reverie works in a star pattern. It returns to the centre to shoot out new beams' (Bachelard 1964: 14). They suggest that fire space might be seen as 'a flickering relation between absence and presence', referring to elements which rely on the absence, or alterity, of other parts. As I suggested in Gourlay (2021b), it is worth considering the concepts of fire space and the fire object with reference to video conferencing. One basic observation is that video calls, by their nature, are obviously used because we are absent physically from those we want to interact with. However, the unpredictable nature of video-conferencing software, as illustrated amusingly in the video Friesen refers to, may contribute to the disturbing and somewhat uncanny sudden 'flares' of presence, discontinuity and absence (see Gourlay 2021b for a fuller discussion).

I continued my consideration of the concept of social topologies and screens in a paper on 'digital masks' (Gourlay 2022a), with reference to a series of papers by Decuypere and Simons (2014a, 2014b, 2016a, 2016b). In 2014a, they use Actor-Network Theory in a small-scale interview study with faculty members about their day-to-day practices to challenge the notion that contemporary academic work can be clearly divided into human/non-human or material/digital binaries, instead proposing that academic practice is 'humandigital'. In Decuypere and Simons (2014b) they apply 'topological visualizations' in the interviews to create an 'explorative atlas', revealing how practices are relationally composed, focusing on the 'spatiotemporal constellations enacted in these practices and how the digital acts and operates' (2014a: 16). They analyse forms of academic practice, using five dimensions: regions, centres, density, interfaces and infrastructure to give 'topological accounts of the concrete compositions of different practices' (Decuypere and Simons 2014b: 121).

In Decuypere and Simons (2016a), they discuss another ethnographic study conducted at two research centres, focused on screens in particular. They pose the following questions: 'First, which positional relations do academics need to uphold with the screen in order to be able to operate? Second, in which forms do these digital devices come into being? Third, what sorts of (in)compatibility between activities are established because of the mutual interplay of between academics and screens?' (Decuypere and Simons 2016a: 132). They deploy Goffman's (1959) concept of choreography to 'analyse the social positionings of different actors, for instance the roles they perform in social life, and how they act differently in public ("on stage") as compared to more private ("backstage") settings' (Decuypere and Simons 2016a: 134), looking at three dimensions: the scenery of academic settings, asking 'which relations do other actors have

to uphold with the screen in order for both to be able to operate (a question pertaining to the positions of these actors)?'. They also consider roles, asking 'how does the screen come into being in these settings (a question pertaining to its different performances)?' They then analyse the script, asking 'how precisely do the screen and other actors act upon one another (a question pertaining to moments in which different activities are conducted in an (in)compatible manner)?' (Decuypere and Simons 2016a: 135), proposing that different ways of relating to the screen generate specific types of time and space.

In a further (2022) paper, I examined the possible relationships between face masks worn during pandemics and digital screens. Lynteris (2018) points out that although anti-epidemic face masks are not anthropomorphic, zoomorphic or theriomorphic in the sense they that do not seek to represent the features or properties of an entity other than the wearer, 'they are still implicated, like masks studied by anthropologists, in the invocation, embodiment, and manipulation of a force: in this case reason' (Lynteris 2018: 448). Lynteris suggests that the mask not only protects the wearer from infection, it also 'immersed them and their immediate social environment into a performance of medical reason and hygienic modernity' (Lynteris 2018). I argued in my paper that the digital screen can be compared to the anti-epidemic face mask; in that the screen also performs 'hygienic modernity'. In Gourlay (2022a), I analysed an anecdote from an interview I conducted as part of a study into the impact of the first UK Covid-19 'lockdown' on faculty and professional services staff at UCL (Gourlay 2022a). This anecdote describes an occasion in which David, a member of the academic staff, made a video to show students as part of online teaching provision. His account of asynchronous lecturing to the camera revealed a series of points. He mentions one of the differences he sees between lecturing face-to-face and recording it:

> *The temptation is, you know, you, you're recording a lecture. We had to do these asynchronous lectures, you record it, and you fluff your lines. Now in a lecture, you, you know, a proper lecture, you'd just carry on, wouldn't you? There's a temptation to say, oh, I've screwed that up, I'll stop and record it again. Lots of us are perfectionists. It eats the time.*

The recording of the lecture caused David to focus strongly on producing a slick performance without the type of small verbal errors that would be tolerated in a live lecture. He shot his video outdoors, as the subject matter related to the natural setting, then edited it together with a PowerPoint slideshow, adding an audio track:

> *And then I had to join it all together. And so, I did that, and then at the bit in the middle, which is me talking over a PowerPoint file. But of course, the problem with it, you didn't have the birdsong. So, I then downloaded a clip with birdsong, to put on it. And it's with iMovie. So now you get me outdoors with birdsong, and then me talking to the PowerPoint with birdsong. So, you know, it was hours of work. That's what I thought I would do. Because it's a bit of fun, It's enjoyable, but it's very time-consuming.*

He mentioned that he felt that the production of a well-made video reflected on him, showing that he was 'coping with all this stuff', with reference to the challenges of the pandemic:

> *And people . . . You know, you want it to look good, because it reflects on you, actually, you know? Um, and I think that's the, the danger. That people are, are going to get either obsessed with making sure it's correct and, and so you end up . . . You know, oh, you screwed your lines up, so you stop the recording. And then you end up with having to merge it all together if you, if you, if you know how to do that. Lots of my colleagues won't know how to do that. And then you, you know, you put the fun end on all this stuff, because it's, you know, it's your work and, and you're trying to say, actually, you know, I'm coping with all of this, and doing all this stuff.*

Although David was not using synchronous video conferencing, the recording was made to be broadcast via a video on the Learning Management System Moodle. In my (2021) paper, I analysed the features of David's lived experience in terms of the video's status as something closer to a broadcast than a live lecture, arguing that it took on the generic features of a TV presenter's performance. David's video was pre-recorded and used asynchronously. However, it is very common for video-conferencing software to be used synchronously, for teaching, meetings, and other conversations. In the next section, I will provide an anecdote based on multiple video calls I have engaged in, in order to consider the nature of the experience.

Anecdote

This anecdote is a composite of a large number of online meetings I have taken part in over the last four years. As such, the meeting I describe below does not, in fact, refer to interacting with one particular individual but is typical of my experiences using video conferencing.

I have arranged to have an online meeting with an academic colleague who has been in touch to discuss a paper we are writing together. I am looking forward to

the discussion, although I am also a little worried as I have been very busy recently and have not had much time to work on the paper. I am casually dressed as I am working at home but look around for a reasonably smart top. Around twenty minutes before the meeting is due to start at 8.00 am, I set up the assemblage I require. This consists of a comfortable chair in my living room and a small table in front of it with a laptop stand on it to raise the laptop. I place a blanket on the arm of the chair in case I want to place it (unseen) over my knees if the room feels chilly. It's winter in England, it's still dark outside so I put a side light on. I put another small table to one side, with a notepad and pencil. I put my phone there and then go to the kitchen and make a cup of coffee. I stand on the cold tiles waiting for the Italian stovetop coffee maker to start bubbling and giving off steam. I remember the shop in Rome where we bought it and wonder how long ago it was; certainly, five years ago, probably longer. I pour a black coffee which I also put on the side table. I then realize I have forgotten my noise-cancelling headphones, so go upstairs to look for them. I am aware that I need to wear them to avoid disturbing my husband who is also working at home, as our house is not large. I find the headphones but notice the battery is flat. I spend some time searching for a new battery in a drawer. I change it, then go back downstairs. I start to feel a little stressed as I've only got 10 minutes. I had a technical problem getting onto Zoom a couple of years ago during the lockdown when I was doing a keynote; I only just made it onto the call on time, and since then I have had the habit of 'arriving' on Zoom or Teams about ten minutes early and just waiting. I climb into the chair and set myself up. I click on the link to the Zoom meeting in the email I was sent and wait. I appear in the video. I feel like the lamp is too glaring next to me, so I angle myself slightly differently to improve the light, while making sure that only a blank wall can be seen behind me. I take a sip of coffee, which has gone a bit cold. I hear the 'ding-dong' doorbell-like sound which Zoom makes when someone 'arrives'. I quickly put down my coffee cup out of sight. Another square opens on the video. My colleague appears 'next to' the image of me. She is sitting in what looks like a domestic setting; she lives in London. Before the pandemic, we never had video calls; we would have always met in person. I notice a large plant in the background and think to myself I should get more house plants. I smile and say hello, she does too and we engage in small talk about having coffee and waking up, as it is relatively early. I smile a lot and try to project warmth and friendliness, while also being conscious of avoiding any accidental 'talking over', which is so easy to do on Zoom. As she speaks, I nod enthusiastically. Then suddenly her video disappears along with her voice. It looks like there is a problem with the connection. I'm not sure whether I should wait to see if she will reappear or end the call and start again. I wait for a bit, and nothing

happens. I look at my own image and think I should get my hair cut. I think may be I should end the call and try to reconnect; then I notice an email has arrived as my phone lights up. It's my colleague, letting me know her home internet has gone down, but she has reconnected the router. She then reappears on the screen. She apologizes, makes comments about 'typical Zoom' and laughs. I hear the loud beeping of a vehicle reversing in the street and put myself on mute to mask the noise. My associate asks me what I think about the idea she has been expressing. I make a few comments. Then she says, 'I think you're on mute'. I unmute myself and apologize. I get a bit flustered and I'm not sure what she missed but do my best to repeat it. We are talking about academic papers, and she is telling me about something she published recently that might be relevant. I haven't read it and ask for the title. She asks me to wait a minute while she puts a link in the chat. I see her eyes moving around as she looks for the webpage, copies the URL and pastes it in the chat box. A link appears on the right of my screen. I click on it and a webpage appears showing her paper in an online journal. I click to open the PDF and save it to my desktop. I hear footsteps outside and there is a sharp rapping of my door knocker. I look to the left and see a tall figure wearing a hi-viz jacket standing outside my door, through the frosted glass. He is talking on the phone. It's a delivery driver, and I realize that if I don't reach the door quickly, he might take the parcel away, meaning a trip to the local depot to pick it up. I apologize and extricate myself from my seat, taking off the headphones and pushing away the table. I rush to the door shouting 'Just a minute!' I open the door, realizing I am in my bare feet and feeling a bit embarrassed because of that. The driver smiles, gives me the parcel and take a picture of me holding it, which I feel a bit uncomfortable about. I thank him, and close the door, dump the parcel on the table (it's a book I ordered the day before) and got back to the chair where my colleague is patiently waiting on the screen. I realize I forgot to mute. I apologize as I spend a minute getting myself back into the right position, putting the headphones on again. We resume our discussion. After around an hour, we wrap up our meeting, which has been very positive, and agree to follow up with emails passing certain papers between us that we have been discussing. We bring the conversation to a close and, just before we switch off Zoom, we say goodbye and wave at each other. She disappears, and the room is silent. I hear crows cawing on the tree in my garden and notice it has started raining. I've tucked my legs under me, and I realize my foot has gone to sleep. I slap it to bring the feeling back and gradually extricate myself from my Zoom set-up. I stand up, stretch and think I'd better check my email. I notice I had forgotten my coffee and drink it cold. An email from my colleague arrives in my inbox.

Lived space

As I do not have a study in my home, I conduct video calls in the living room. I choose which chair to use depending on my relationship with the person I am talking to and my perceived level of formality of the meeting. If I am talking to a friend or close work associate with whom I have a friendly relationship, I will sit where I feel most comfortable, even if it means that the backdrop includes the room, including possibly personal items. I prefer not to use the automatic backdrops provided by Zoom as I don't like the effect of 'disappearing' into them if I move back a little. If the meeting is more formal, I position myself in the chair I used in the description, because it allows me to have a plain wall behind me. I need to position myself in the centre of this sociomaterial assemblage to project the right effect. I often have calls with people who seem to have a home office. I don't have one and feel a little self-conscious that I need to do my calls in my living room, so I choose the plain wall as it's not clear what kind of room I am sitting in, and it's not obvious that I don't have a proper desk. This description begins with me spending time 'staging' the call, in terms of the space and the material artefacts I need. This assemblage has a double aspect; it seems to point two ways, reflecting the dual nature of video conferencing. One side of the assemblage is focused on my bodily needs for comfort, warmth, a coffee and so on. The other side is about setting the scene for the interlocutor/viewer in terms of projecting a 'professional' or scholarly image. These two are in tension with each other, causing me to hide the blanket, for example, or the coffee. The domestic space of my house and its surroundings continues around the call, with the delivery driver arriving and interrupting.

Lived body

My efforts are focused on projecting a 'neutral' and professional image of myself as I appear on the video. Once the call started, I behaved and interacted in ways similarly to how I would in a face-to-face meeting, but with the added elements of muting, unmuting and the features identified by Friesen and others, such as above, with occasional accidental talking over each other, and so on. I was much more static than I would be face-to-face. I smiled and nodded a lot to convey enthusiasm and warmth, as I sensed that it was harder to communicate that attitude on a video call compared to in person. However, despite our efforts, the meeting felt a little stilted and formal compared to a face-to-face equivalent. As a result of the staging of my chair and other artefacts, the rest

of the room remained unseen. The blanket on my knees stayed out of sight, meaning what was seen was a video 'portrait' from the shoulders up. The wave at the end is interesting and always reminds me of the way that people wave at each other from boats. It seems to emphasize that we are separated in a similar way.

Lived time

The meeting was synchronous so, in that regard, I experienced time in a way that was similar to a face-to-face meeting once it had started. One difference, though, was the abrupt start and finish. Unlike a face-to-face meeting, there was no time taken to travel to get there, to converge on one physical location. As Friesen points out, there is no phase where we walked down a hallway afterwards and perhaps had a more informal conversation or a coffee in the canteen. In terms of time, the effect of the video-conferencing software is one of suddenness. One minute I am sitting alone in my house, unseen; the next minute I am also in the meeting. A further feature of the lived time of a video call is that the time is not protected from the tempo of other routines, such as the delivery of a parcel. If the meeting had been face-to-face, the parcel would not have been delivered as I would have been at the campus, meaning that I would have had to use time another day picking it up. In terms of time, the video software creates another double, in which the meeting is proceeding at its own tempo (which may in other meetings involve a formal agenda), while the world of my street, deliveries, reversing vehicles, birds in the trees, also proceeds. They occasionally intersect, such as when the delivery driver knocked on the door.

Lived others

As reflected in the literature discussed above, the video technology renders this question a complex one to respond to. I was physically with my husband in the house as he was also working at home. I was briefly 'with' the delivery driver. I was simultaneously, in a sense, 'with' my colleague, even though she was geographically distant. However, only the performance that I enacted was with her, my face and shoulders, the neutral background and so on. I was both present and absent, and was in a sense rendered multiple, in the room and projected into her room, and also portrayed on my own screen, rather like a mirror. I could flicker on and off by turning off my video camera, which I did to relate to the delivery driver and once to take a slug of coffee. The fire space of Zoom allowed

me to flicker as an image to be present with two sets of others simultaneously and intermittently.

What is the nature of the gaze?

The gaze of my camera required me to perform in a particular way, to project a particular identity and role. It also required my interlocutor to enact a particular type of performance. As with David's video discussed above, I used the screen to perform but also to selectively mask a range of elements, which included articles and furniture in my house that I did not consider appropriate to the meeting, as well as articles that were there for my comfort which I felt might appear too casual or personal. I recall in 2020 doing a keynote presentation for a conference that had moved online due to the pandemic and joking about doing the presentation wearing my slippers. The (bleak) 'comedy' in this was the contrast between the formal (and to my mind prestigious) occasion in another country for which I would have dressed smartly, the enjoyment we had anticipated of meeting with associates and the reality of lockdown that we were all confined to our homes, and I was forced to deliver the keynote alone under lockdown in my 'Zoom chair', where no one could see what I was wearing on my feet. At the end, after I turned off my PowerPoint slideshow and we moved to questions, I could see the audience as rows of tiny faces in squares, each of them also confined to their homes in various countries. Overall, I feel I am being gazed at by my interlocutors or listeners, and David's account gives a powerful impression of being viewed and potentially being judged by the future viewers of his video. In this regard, the gaze feels highly performative.

Pedagogic surveillance: Learning analytics

The previous section focused on the effects of using video-conferencing software, arguing that the mediatic conditions of recording a video asynchronously profoundly altered not only the process of 'delivering' the lecture and the experience of the lecturer but in a more fundamental way, changed the entire nature of the event, rendering it a performance rather than teaching in David's case. I propose that this also led to an ontological shift, in which the lecturer himself became akin to a broadcaster, as opposed to a lecturer. I compared the screen to a mask through which he was required to perform before reflecting on my own recent experience of having a meeting online. In this section, I will

consider a different case of surveillance in the university, turning my attention to the practice of learning analytics and considering the effect this technology has on students who are 'captured' by it. This section develops an initial analysis in Gourlay (forthcoming a).

The Society for Learning Analytics Research (SoLAR) defines learning analytics as 'The measurement, collection, analysis and reporting of data about learners and their contexts for purposes of understanding and optimising learning and the environments in which it occurs' (SoLAR 2024). For them, the purpose of learning analytics is to seek 'to exploit the new opportunities once we **capture new forms of digital data** from students' learning activity, and use **computational analysis techniques** from data science and AI' (SoLAR 2024, their emphasis). The 'most popular goals of learning analytics' are listed as follows:

(1) Supporting student development of lifelong learning skills and strategies
(2) Provision of personalized and timely feedback to students regarding their learning
(3) Supporting the development of important skills such as collaboration, critical thinking, communication and creativity
(4) Develop student awareness by supporting self-reflection
(5) Support quality learning and teaching by providing empirical evidence on the success of pedagogical innovations.

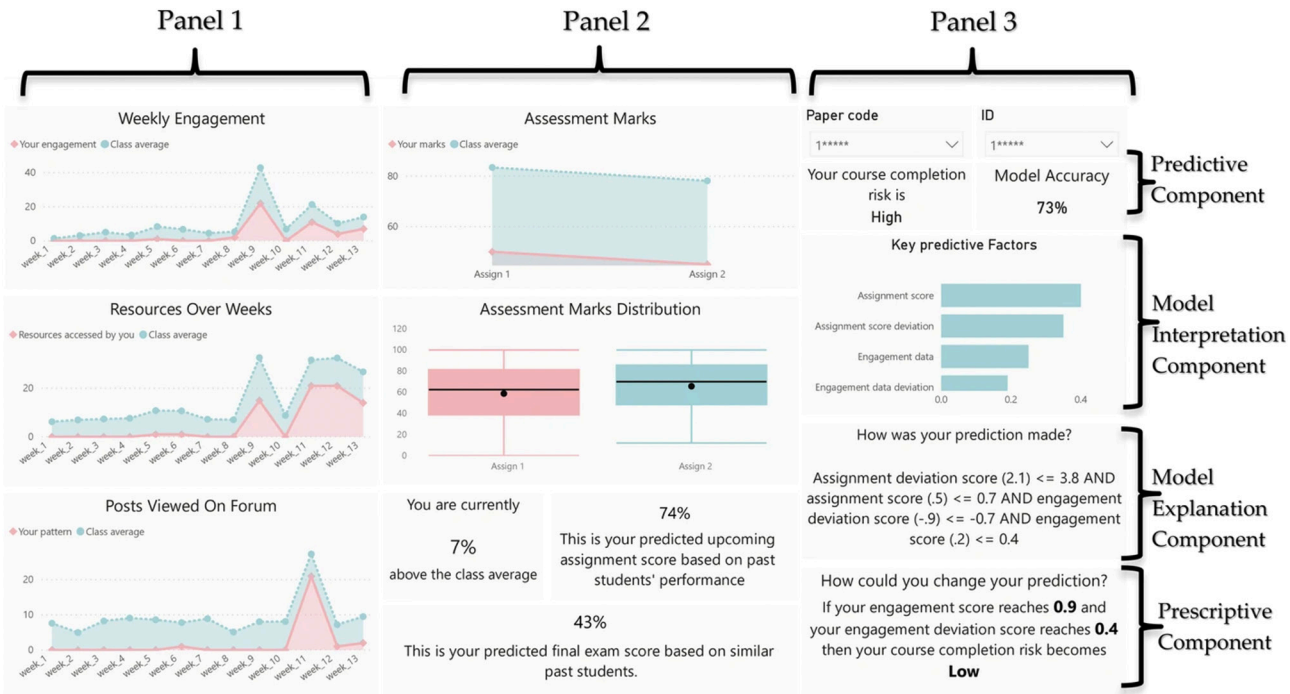
(SoLAR 2024)

Learning analytics is described as having three categories. Descriptive analytics is used to shed light on students' online behaviours but focused on past actions, focusing on trends over time, and drawing on data such as student feedback, admissions processes, study support, exams and graduation, among others. By contrast, SoLAR set out that diagnostic analytics seeks to understand the reasons driving student online activity in the past. Predictive analytics, in contrast, is oriented towards possible future behaviour and outcomes of students, 'recommending one or more choices using a combination of machine learning, algorithms, business rules and computational modelling' (SoLAR 2024). Predictive analytics makes use of 'Data visualisations via specific tools to provide program/degree level metrics on student enrolments, program stage, results and survey feedback to give teaching staff visual snapshots of students in their programs' (SoLAR 2024).

Masiello et al. (2024) give a summary analysis of how LADs are used in higher education on the basis of a review of the research literature, specifically systematic

reviews on the topic, finding that graphs and various charts were commonly used to represent student activity. They also found that these visualizations were not only representative of the activity of the students on the module or programme but, as they put it, the design of the visualization element was led by 'relevant frameworks of pedagogy and learning to facilitate educational practices' (Masiello et al. 2024), citing the notions of 'self-regulated learning' and 'game-based learning' as the most common in the literature. These LADs were designed to track a wide range of what they refer to as 'target outcomes' relating to students' activity and performance, which they classify as falling under cognitive, behavioural, contextual and affective domains' (Masiello et al. 2024: 4–5). They also point out that many of the LADs they reviewed in the literature were, in fact, prototypes and that relatively few appeared to be in widespread use in the university sector. This is of significance to my analysis here, as it reflects that there exists internationally a substantial body of professionals working in technology and 'learning design' who regard learning analytics as a *desired* technology to be worked towards, developed, prototyped and implemented. In another recent paper, Susnjak et al. (2022) propose an LAD, integrating three types of analytics, which they describe as the first to integrate descriptive, predictive and prescriptive analytics, in a slight variation on the terminology used by SoLAR. This dashboard can be seen in Figure 5.1 below and is designed to be viewed by the individual student (Susnjak et al. 2022: 16).

On the dashboard on the left, Panel 1 uses descriptive analytics to depict 'student engagement levels' (Susnjak et al. 2022: 16). This allows the student to compare themselves with the cohort average in terms of the number of times they have logged in to the learning management system and how many resources they accessed online using the LMS. Panel 1 also counts the number of posts that the student has contributed to the online discussion forum on the LMS, which the authors describe as 'as a measure of communication exchange levels' (Susnjak et al. 2022: 16). The proposed Panel 2 provides a representation of the student's academic performance, covering grades, tests and quizzes, also compared to the performance of the cohort mean. On the basis of similar student past performances, it presents the student viewing the LAD with an estimate regarding their probable performance in future assessment tasks. Finally, Panel 3 presents what the authors term the student's 'risk profile' in terms of how likely they are to meet the course-planned learning outcomes, including suggestions for the student for actions they might take to 'alter in their learning behaviour in order to alter their outcomes' (Susnjak et al. 2022: 17). They clarify that these prescriptive elements are what they term 'data-driven counterfactuals'



Learning analytics dashboard designed for students

Figure 5.1 Proposed learning analytics dashboard (Susnjak et al. 2022: 16).

drawing on Wachter et al. (2017): 'Such data-driven counterfactuals are based on correlation and do not guarantee causal links; however, in many cases when features are judiciously selected some degree of potential causality can safely be assumed' (Susnjak et al. 2022: 19). There are several aspects to this LAD which might be analysed in order to shed light more broadly on learning analytics as a performative gaze, which I will explore in the next section.

Anecdote

This anecdote is a composite based on numerous conversations I have had with mature postgraduate students over many years regarding their engagement with their academic postgraduate programmes and the various personal and domestic priorities they need to balance in order to progress with their studies. It does not refer to any one specific individual. We do not use LADs in the modules I have been involved in teaching, so the anecdote is a composition based on what I think would be a possible student experience if the technology were introduced. However, it is based on comments by students about their perception that they must or should take part in the LMS discussion forum. I have also been listening to many students express that they are not confident or comfortable with digital technologies, that they struggle to find the time to familiarize themselves with new platforms or that they do not have uninterrupted time or access. Therefore, I would suggest that the anecdote described below is a plausible one.

A postgraduate student logs on to the learning management system five weeks into a ten-week module. The module is run face-to-face, with the LMS being used to provide various resources such as texts, links to videos, PowerPoint slideshows, quizzes and a discussion forum. The student has attended the face-to-face taught sessions every week and has taken part in all the various activities featured in the taught classes. However, she has not accessed the LMS until now, except once at the beginning of the module to check the room number and time of the classes. She is aware of the LMS as the lecturer mentions it in class, but she thought it was more of an 'extra', and had not been required to engage with it much until now, so she had not opened it. Any announcements from the lecturer also come through via email. She has also not got around to looking at it in detail due to a busy schedule involving a part-time job, caring responsibilities and a long commute. She finds it difficult to find time outside of class, and she has been using what study time she can find to work on her assignment in the library before the face-to-face session. She feels she doesn't have time to learn how to use the LMS, which she

is not familiar with as this version was not in use when she did her undergraduate programme over fifteen years ago. However, tonight at the class, someone mentions to her that there is a facility within the LMS that monitors whether you are using it. When the classmate mentions this at the end of the class, the student feels a wave of anxiety. She doesn't know how to access the LMS on her phone while travelling, but when she gets home, she logs on and quickly searches the menus and screens, feeling her anxiety rise. After some time, she finds the dashboard above and opens it. She discovers the three panels, personalized to her. She realizes that her scores in Panel 1 for frequency of engagement with the LMS in terms of logins, accessing the resources and views of forum posts are almost zero. Panel 2 does not contain any information as the assignment is due next week. The student then looks at Panel 3 and sees that her course completion risk is 'high'. At this point, she becomes very worried, as she had thought she was doing well in this, the first term of her MA programme, as a returner to education after many years of work. She is not ***sure*** *what all of this means, and for a moment she wonders if she might fail the module as a result of not using the LMS enough. She messages her friend on the course, and they have an exchange of text messages about this. They consider contacting their tutor, but they are afraid of drawing attention to it. They recall that may be this system was mentioned at the induction, but there was so much information, they did not take it in. They spend some time looking through all the information on the LMS, and eventually find some written guidance about the dashboard, explaining how it works. They are not sure what to do, but decide they had better start using it, just in case. That evening, they both spend around an hour clicking on resources such as videos and opening them. The student thinks some of them look interesting, but she does not have time to watch the videos all the way through and she prefers reading material which she can read on her commute, where there is no wifi to connect with the LMS. She is not sure how to download videos to watch offline. She decides to leave the video on while making dinner for the children, so it looks like she has watched it. From this point onwards, for the rest of the module, she regularly opens resources and looks at forum posts without really looking in detail, in order to improve her score and risk level on the dashboard. Her classmate reckons it's all optional, but they are not sure and do not want to draw attention by asking the tutor.*

Lived space

Until the student discovered the dashboard, the lived space of the module consisted of her bus ride to central London where she would read printed papers

and books from the module reading list, the library where she would continue reading and drafting her assignment for a couple of hours before the class, the coffee area where she would meet her friends and others to discuss their progress, the classroom where the classes took place once a week and her tutor's office where she had had one face-to-face meeting to discuss her assignment draft. Her other lived space for the module was the bus ride home and a couple of hours at home on the weekend when her partner took the children to the park. Now she uses the LMS, which has become an additional digital lived space that she fits in around her activities, mostly in order to improve her profile on the dashboard. What is not seen by the gaze of the LAD is everything else that the student does in order to engage with her studies, which are all embodied actions outside of tapping at her keyboard while using the LMS. This gaze does not see the materiality of the lived experience of the student as she moves around the university. Instead, what is seen is narrowed and abstracted to her use of the LMS only.

Lived body

The student realizes that the dashboard only measures 'engagement' in terms of the students' engagement with the LMS, and that this is measured with reference to the frequency of logins, number of online resources accessed via the LMS and number of posts read in the forum. Due to uncertainty, anxiety and shame that her profile seems 'poor', she 'games' the system by logging on repeatedly, opening resources and posting on the forum in order to raise her 'score', even though this is not her preferred form of studying and does not suit her schedule. In terms of the lived body, it requires her to attend to her laptop repeatedly during her evenings while doing other activities, in order to boost her score on the dashboard. This makes her feel as if she is being watched and that she is required to stay tethered to her laptop to 'keep the LMS happy' as she jokes to her friend.

Lived time

Related to the point above, her use of the LMS is largely to avoid the risk she perceives that a poor profile might jeopardize her progress on the module or, at the very least, 'look bad'. She is not 100 per cent confident that the lecturer or tutor cannot see her individual profile, even though the information on the LMS states that only she can see it. So, her use of the LMS encroaches into time when she would not normally use the laptop. It has also changed her approach to study,

which she used to see as an escape from the world of social media, messages from family and work email. Her time in the library before was particularly precious to her as she would see it as time away from devices, family responsibilities and work. She would sit in silence, reading and taking notes by hand. She continues to do that for the rest of the module, but she has gotten into the habit of using the LMS and now has it open at the same time in case she misses something. This splits her attention, and she finds it harder to concentrate on her reading.

Lived others

The student was nervous and underconfident when she first joined the module. On the first night, she felt intimidated by some of the other participants, who seemed to know much more than she did about the topic and were seemingly confident about speaking in class. She kept quiet but over time got to know some people at the coffee breaks. She gradually said more in group work and occasionally in the open forum. It is a large class, bigger than she expected, and she has not learnt everyone's names. People tend to sit at the same tables, though, and she has got to know her own 'table mates' and feels comfortable with them. She has become friendly with the other student mentioned above as they go to the same bus stop after class. She enjoys the class; she feels her self-esteem rising as she meets new people and takes her place in scholarly discussions after many years away from education, including a career break when her kids were small. However, she can't seem to feel confident with the LMS. Part of the problems is she can't work out who has posted as she doesn't know all their names; it's just text, as no one has put their photo up. It looks as if people have spent a while preparing their comments, which are very polished, almost like mini essays. It always seems to be the same few people who comment a lot. She doesn't have time to prepare a comment like theirs, and she worries about writing something which might make her feel foolish or exposed. The classroom feels like a welcoming sort of place, where everyone is warm and friendly, while the LMS forum seems more formal and competitive. The presence of the dashboard makes it feel more like a kind of test than a discussion, so she does not post. In terms of relationality, it feels like a different module from the one in the room.

What is the nature of the gaze?

Clearly, this is a composed anecdote, and other students may experience the gaze of the LAD quite differently and find it very useful. But to this imagined

student, it feels like something that requires her to act differently. Although the information for the students states otherwise, she and her friend don't quite trust that the LMS work is optional. They feel watched, judged and anxious under its gaze, and perform in various ways to try to satisfy what they see it requires. However, due to her life circumstances and preferences, she does not engage deeply with it, rather she placates it by opening resources, all the while monitoring her profile. More broadly, the LMS subtly changes her approach to the module and her feelings towards it and towards others in her class.

The gaze of the LAD can be said to be performative, following Macfarlane's (2017) critique. It is founded on the same ideology: that observable and interactive activity, in this case online, is equivalent to 'student engagement', and the lack of it is to be regarded as risky. In this regard, the LAD gaze feels expectant and normative and acts to document the student and to encourage and reward certain behaviours. As with other forms of surveillant gaze, the LAD provides a 'snapshot' which represents an extended period of activity in the past. It also projects a putative future for the student, not on the basis of her own engagement but derived through correlations with the outcomes of other students in previous cohorts who have exhibited similar online behaviour. This is presented in terms of the 'risk' of becoming a particular person in the future, one who perhaps fails the module and the student is advised about what steps she can take to avoid that risk. The question of relationality is again a complex one in this case. The LAD is addressed to the individual student, but it is also 'populated' by the presence of others. It could be argued that there are three groups of people 'present' on the LAD. The current cohort of classmates, presumably known to the student but presented as an anonymized group by the visualization. There is also the 'presence' of previous cohorts, whose outcomes contribute to the prescriptive element of the display. And there is also a potential future self, conjured by the LAD, meaning that as a gaze it faces the past, the present and also towards the future.

Smart campus surveillance: OccupEye

The previous sections have considered forms of the algorithmic gaze with reference to the digital practices of video-conferencing technology and learning analytics. This final section of the chapter turns attention to surveillance technologies used on the physical campus, drawing on and extending an earlier initial analysis (Gourlay 2024b). Contemporary universities use a range of

surveillance technologies on the campus which are already well established in public places, such as CCTV cameras, and also those which are commonly utilized in accessing buildings that are not open to the general public, such as electronic turnstiles and ID access cards. More recent years, however, have seen the development of what is termed 'Smart Campus' technology. Polin et al. (2023) provide an overview of how the smart campus is described in the literature, pointing out the connection with the concept of the 'smart city', with the smart campus being conceived of as part of a larger smart city: 'Considered a small smart city that acts within the context of smart cities, which offer intelligent services and applications to their citizens to improve their quality of life' (Imbard et al. 2020: 6, in Polin et al. 2023: 2). They also identify literature that emphasizes the technology itself in defining a smart campus: 'A collaboration of technologies such as big data, cloud computing, IoT (internet of things), internet and high-performance computing, virtualisation, mobile network and social network, sensors and common communication interfaces' (Omatayo et al. 2021: 2, in Polin et al. 2023: 2). In contrast, other commentators make claims surrounding the potential for a smart campus to enhance education: 'An educational environment that is penetrated with enabling technologies for smart services to enhance educational performance while meeting stakeholders' interests, with broad interactions with other interdisciplinary domains in the smart city context' (Dong et al. 2020: 4, in Polin et al.2023: 2).

Similarly to the findings of the overview of learning analytics literature, their review reveals that most of the papers concerned with the theme of the smart campus were in fact 'conceptual' or aspirational, as opposed to reporting widespread instances of use. Companies offering campus surveillance technologies place a great deal of emphasis on safety. An example is the company Synectics (Synectics 2021), which on their website promotes the technology that would allow students and staff to 'use the campus facilities, trusting that their academic home from home is a safe, secure, and supportive environment for teaching and learning' (Synectics 2021). They offer a comprehensive range of integrated technologies:

> Today's open platform surveillance systems facilitate multiple levels of integration and data management, offering universities more than just a way to monitor cameras. From perimeter security, intruder alarms, fire detection, and access control to analytics, critical access tracking, communications, digital help points, and building management systems, smarter integration of the latest evolution of surveillance systems enable these technologies to be monitored and controlled through one platform. (Synectics 2021)

One example is what they term 'people mapping', using Radio Frequency Identification (RFID) tags incorporated into staff and student ID badges, in order that

> students, staff, and visitors can be monitored to provide a complete, real-time overview of who is in specific buildings or has passed through campus zone markers, prompting verification alerts with a live camera feed whenever human movement is detected without an associated ID. . . . Technologies such as thermal cameras, virtual perimeters, and integration with third-party persons-of-interest databases can also be used to rapidly detect human presence and identify access authorisation or threats to present a clear, uncompromised view of who is on campus. (Synectics 2021)

They propose 'a clear and unified view of events with a 'unified command and control solution, proactive detection and continued monitoring of events' (Synectics 2021), with the potential inclusion of visual information points or public address systems, with the possibility that 'External agencies such as the police can also be brought into the loop via an open-architecture surveillance command and control platform, using features such as secure evidence sharing, integrated communications, and task allocation' (Synectics 2021). What is noteworthy in this description is the suggestion that 'Universities have a prime opportunity to pioneer the convergence of technologies and systems to usher in a safer, smarter future – both in their own right and as part of broader Smart City strategies' (Synectics 2021). As suggested above, it appears that university campuses are being regarded as potential sites where these technologies might be introduced and trialled, with a view to the technology being implemented on the larger scale of a city.

The close relationship between smart city technologies and the military has been noted (e.g. Spencer 2020), and as I discussed in Gourlay (2024b), the campus is being portrayed here rather like a militarized zone, a compound or even a fortress that must be protected from potential hostile external forces. The RFID technology functions to ensure that only those who are appropriately credentialled can be present on campus. However, when universities have sought to implement campus surveillance technologies, there have been some instances of resistance from users. Gullard and Tan (2023) give an account of protests at Queen Mary University London (QMUL) in reaction to the introduction of infrared sensors in academic staff's offices. These were installed with the purpose of monitoring whether academic staff were present in their offices, justified as 'space is at a premium'. Staff were informed that the sensors are not capable

of identifying individuals, but there was disquiet from members of QMUL regarding what they felt was an intrusion on their privacy. Gullard and Tan give an overview of several other universities that have abandoned the use of sensor technology as a result of a backlash; examples include Northeastern University in Boston, Massachusetts, and the University of Leiden in the Netherlands. As with QMUL, at Leiden, the sensors were installed to ascertain 'whether rooms were being used to their full potential'. Gullard and Tan quote a member of the Leiden faculty, who said, 'If you install a surveillance camera inside a classroom, you immediately create a chilling effect, no matter what the university says the camera is supposed to do' (in Gullard and Tan 2023: 444). It is worth noting a mismatch between the discourse of protection and safety used by Synectics and the actual implementation of sensor technologies, which in these cases was motivated by a desire for 'efficiency' in terms of building use, likely related to commercial imperatives surrounding cost reduction.

However, sensor technology is in active use in some universities. One example is the company OccupEye, whose sensors utilize passive infrared technology to monitor room and desk utilization. The manufacturers describe the product as follows:

> OccupEye, an FM: SystemsCompany, is an advanced sensor-based workspace monitoring solution, designed to accurately and efficiently analyse all types of room and desk utilisation to a level of detail never before possible. OccupEye allows Facilities and Real Estate managers from both public and private sectors to make significant financial savings, while also enhancing staff experience. Through our state-of-the-art web-based dashboard, users enjoy complete control over data reporting and analysis. Various levels of detail can be applied to each sensor, allowing for quick and easy performance comparison in line with your project requirements. Our sensors are lightweight, non-intrusive and portable, allowing for flexible deployment in monitoring both room or individual workspace time after time in different buildings and offices; this makes OccupEye an excellent choice for any organisation. (OccupEye 2023)

OccupEye is used in libraries and student study areas at my own institution, University College London (Hammond 2018; Wu 2020). Hammond explains how this works in a UCL blog post:

> The first step in making this happen is the provision of OccupEye devices distributed by a company known as *Asure Software*. Each of these little white sensor boxes are attached to the base of each desk, and they have an active internet connection that sends event updates to the OccupEye Cloud. Every

> event packet contains, amongst other metadata: the sensor's ID, the timestamp of the event (i.e. when it happened) and whether the desk is now *absent* (i.e. free and available for somebody else to sit at) or *occupied* (i.e. in use). The sensor is also able to report other data such as its battery level so that failing sensors can be replaced or repaired in the field. (Hammond 2018)

Hammond provides an example of the dashboard, which can be viewed by relevant professional services staff monitoring the usage of seats in the library. Students are able to see how many desks are occupied remotely on different floors by using an app (UCL Assistant). In his blog, Hammond provides reassurance that individuals cannot be identified by the system; it can only sense whether there is someone sitting in the seat (with a thirty-minute lag to allow users to get up from their seat for a break without it showing as vacant).

Anecdote

In this section, I will use a composed anecdote (a version of which was analysed in Gourlay Forthcoming b) to explore the possible effect that the presence of OccupEye plus UCL Assistant might have on a student's lived experience of visiting the library.

A student walks down the street near the campus, planning to go to the library. He takes out his smartphone and checks the UCL Assistant app. The student is able to see a visual representation of the library seating plan, showing how many desks do not have a human body sitting at them on the different floors. Meanwhile, simultaneously, hundreds of students sit at desks in the library. They breathe, they hunch over, they shift in their seats, they touch their devices, they hold books, they look up, look around, see a friend, smile or chat in whispers. They have all separately arrived in the library, some using public transport, then walking, criss-crossing across London to converge on this large quiet room with rows of desks. Occasionally, someone gets up to use the bathroom or to get a drink. The OccupEye sensor under their desk will register the desk as 'absent', meaning unoccupied, after thirty minutes. The student in the street nearby looks at his phone and sees the library is almost full, but after some searching through various screens, he sees which floor still has a few empty desks. He immediately starts walking more quickly. He arrives at the entrance of the library, and reaches into his bag for his student card, which he uses to open the electronic turnstile, and then he puts the card around his neck with a lanyard. He walks quickly to the lifts, and then goes up to the floor where a few free desks are located. He comes out of the lift, looks

around and walks intently over to a free desk. He sighs with relief and immediately sits down, placing his body on the seat in the knowledge that his form will activate the sensor and 'claim' the desk. In a room used by library staff, on the dashboard used by staff members responsible for monitoring occupancy, the desk shows as occupied. Across the university, thousands of students have access to the app, and if they look at it, they will now see that there is one fewer desk available. The student's body, the desk, the sensor, the software and the app entangle at that moment and stay in this provisional and temporary entanglement until it is untied by the student leaving the library. The experience of the student would possibly be different if the technology were not present. In the alternative scenario, the student is walking down the street. He does not take out his smartphone as there is no way of knowing whether there are any free desks in the library. He enters the library at a leisurely pace, walking around various floors and areas looking for a desk. He sees a friend and waves, then go over to have a whispered chat. They arrange to go for coffee later. He continues to walk around and spots a book that interests him in the stacks. He takes it out, browses it and decides to take it out, even though it is not on the reading list. He looks out of the window, noticing the light on the trees outside. He hears the sound of another student packing their books and laptop, turns round and sees a student leaving their desk. They exchange a smile; the previous student leaves, and he sits down.

Lived space

OccupEye creates a complex assemblage in terms of what is seen or unseen. Technically, despite the name, the sensors do not 'see' the student but sense the heat of their bodies. The student remains unseen by the technology, although they may be seen by CCTV cameras in the building. The OccupEye system renders the space of the library multiple, as it creates a diagrammatic image on the dashboard for staff and another on the app for students. It is a shifting image that changes with the movements of the students as they arrive and leave. I would argue it does more ontologically, in that it also changes the nature of the library as a space, rendering it more strongly into a facility, resource or even product to be accessed. The emphasis is on the individual student seeking their own individual seat, creating a sense of competition for a scarce resource (a study space) with others. An ideology of efficiency arguably underlies the system, which may imply that the library is a place to use in order to extract information. The desk becomes a unit of resource for the student to access.

Lived body

While approaching the library, the App plus OccupEye sensors might encourage the student to hurry, to walk purposefully, as he becomes aware of the scarcity of seats. This is likely to cause the student to move quickly to the floor with free seats, as opposed to perhaps walking in a more leisurely fashion and taking detours, as he did in the second imagined anecdote. It might be argued that the App plus sensors position the student's body as that of a customer or client, one who expects good service and efficiency from the library. On arrival and sitting down, the student's body is placed in a complex ontological position by the sensor, as it becomes a biological means by which the system 'knows' someone is in the chair. The student's body becomes something more than just their body; it becomes a signal to be picked up by the OccupEye system, creating another signal on a screen.

Lived time

The presence of the OccupEye system plus app changes the lived experience of a visit to the library for the student. The student's ability to see the occupancy of the library may create a sense of urgency that may not be present to the same extent if he does not know whether the library is busy or not. As a result, the presence of the technology may cause the student to not see or experience certain things, such as slower walking, and detours that might have been taken without knowing whether or where there were free seats in the library. Echoing the point made above, the ideology of efficiency underpinning the OccupEye system might cause the student to focus on speed and efficiency, which may subtly alter the nature of the trip to the library. A university library might conventionally be seen as a 'slow' type of place where one might linger, allow one's mind to wander and take advantage of serendipity when browsing the stacks. The student might wander around looking for a seat, fail to find one easily and end up getting to know some of the more obscure corners and rooms before sitting perhaps in a new area with a different sort of view and shelves of books dealing with subjects they have never heard of. He might find himself in a different type of mode, more contemplative perhaps, may be different and memorable. Instead, arguably, the OccupEye system allows the logic of efficiency and speed to permeate the experience. The half-hour lag allows students to get up and take a break, but the student will be aware of the cut-off time at which they must return and 'clock in' again with their body.

Lived others

The students are physically 'together' in the library, but unlike being in a lecture theatre, each person is engaged with a different practice, a different book or online resource or piece of writing. In most cases, they arrive and leave individually at a time of their choosing. As the convention is to be quiet, there is little interaction, except for areas designated for group work. However, with the addition of OccupEye, the students are also all gathered together, in a sense, on the dashboard, and their bodily presence leads to them being amalgamated in the data displayed there. As suggested above, the OccupEye system might also encourage students to regard each other as competitors for space, possibly increasing the sense in which study is an individual pursuit. The half-hour time limit on leaving the desk is likely to discourage breaks with friends, as students may feel that they need to keep their desk and avoid the risk of losing it. The presence of the system emphasizes to all that the space is under pressure, that the student numbers are high, and that they should not 'waste time' whispering to others or going for coffee when they have managed to get a prized spot.

What is the nature of the gaze?

Despite students being aware of the presence of the OccupEye technology, there is arguably something apparently furtive, perhaps even 'creepy', about its gaze. Perhaps the position of the sensor under the desk and therefore near the student's legs/lower body is reminiscent of a voyeur. It is a biological, animal form of seeing, sensing the heat of the student as a mammal, and in that regard, it has a fundamentally different quality from some of the other gazes discussed in this book. An interesting detail is that the app was developed by a student project (UCL API). Hammond was a student involved in this project at the time of writing his blog in 2018, and he uses the title 'The Magic Behind UCL Seating: How UCL, and Our API, Seems to Know Everything'. His blog is clearly light-hearted, but it is noteworthy all the same that he refers to the technology as 'magic'. As suggested above, the overall nature of the gaze is performative, but subtly. It shifts the ontological status of the library and its users by rendering the library into something more like a facility, the books as resources to be accessed and the students as clients keen to maximize their time there.

Sociotechnical imaginaries and the performative gaze

In this chapter, I have considered three examples of technologies that I propose might be examples of the performative gaze in the university. As with the previous chapter, in this final section, I will consider the gaze in terms of whether and to what extent it can be analysed as a sociotechnical imaginary in Jasanoff's terms and whether these examples can be regarded as instances of: 'collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology' (Jasanoff 2015: 4).

Taking the first element of the definition, we can consider whether these technologies and the rationale for their use form part of a broader vision for a desirable future of education which is 'collectively held'. As discussed above, video-conferencing technology became a necessity during the pandemic 'lockdowns', when university campuses were closed, and the population was confined to their homes. Subsequently, the use of digital platforms such as Teams and Zoom has become mainstream in the university sector, and are still commonly used for meetings, in a context where academic staff now work in hybrid mode, with an element of working at home becoming the norm. In that regard, its use is certainly very widespread. But as with the examples discussed in the previous chapter, I would argue it is not the case that interacting remotely via video calls is a development that is regarded across the sector as an unambiguously positive development. This is what might be termed a 'discourse of inevitability' surrounding this shift, with the concept of 'the new normal' being commonly referred to in the media and in higher education after the Covid-19 pandemic period. The serious social and emotional damage brought about as a result of extended isolation during lockdowns is becoming apparent at the time of writing, and although we are no longer under lockdown, increased use of video technology is recognized as having caused a sense of isolation and disconnect from colleagues and teams, with deleterious results. In that respect, the use of the technology is replete with ambiguity. It is undeniably convenient, but it is also 'just not the same', reflecting what I would propose is the central tension between a neoliberal vision of education and human desires for contact and connection in person.

Learning analytics dashboards, in contrast, are in much less widespread use, and therefore are clearly not collectively held as a vision for the future of

higher education, although it can be said that the vision is held strongly by the community of learning analytics practitioners and researchers. However, they might be said to be a form of an 'edge case', or a vanguard vision for a broader and more pervasive ideology. That is one which, I suggest, consists of the performative ethos described by Macfarlane, in which more interaction and 'busy-ness' is seen to stand as a proxy for engagement and also for learning. This, I propose, also carries the idea of the student as a self-optimizing individual unit, seeking to maximize her efficiency via the online 'delivery system' of the LMS. The student is rendered in this imaginary as, in a sense, another cog in the wheel of a slick system, alongside the other cogs of previous and present students, plus imagined future ones.

Infrared sensors are controversial, particularly when used to monitor staff, and they are not 'collectively held' to form part of a vision for a future campus by the mainstream for that use. However, there are for-profit manufacturers keen to promote their use for commercial motives on campus, regarding the university as a site which could 'pioneer' systems that could be introduced on a larger scale in the form of the 'smart city'. Clearly, governments may have political motives for the use of such large-scale systems of surveillance. As discussed above, they have become accepted for use in student spaces such as libraries and study areas, working in service of an ideology of the client seeking good service and efficient, speedy progress to specified outcomes. We can consider whether these technologies represent a vision that is institutionally stabilized. Universities in the UK now include video-conferencing technologies in their suites of software, whereas several years ago before the pandemic, I recall the use of the then-mainstream video-conferencing software Skype being ruled out for PhD *viva voce* examinations in my faculty and being regarded as a somewhat fringe approach mostly used by 'tech' enthusiasts at that time. Now, at UCL, pre-pandemic large staff meetings which were conducted face-to-face are still conducted via Teams or Zoom, and many events I participate in are in hybrid mode, with video software being used alongside the face-to-face meeting. I have attended conferences recently which were still held in hybrid mode, despite the pandemic being over as an international public health emergency some years ago. One seminar series I am aware of is conducted in face-to-face mode only, and I noticed that the organizers felt it necessary to issue an email justifying this, as there had been objections that it was therefore excluding remote participants.

When accounting for the rise in the use of video, it might be argued to employ a cliché that 'necessity is the mother of invention', recalling that academic and professional services staff, if they were not already familiar with the technology,

were forced to learn how to use these platforms in a short space of time during the early stage of the Covid-19 pandemic in 2020, leading to a huge increase in the number of individuals and academic communities actively using the technology and becoming adept at utilizing its various features. The ability to conduct meetings remotely has allowed for the convenience of home working to continue, which is undoubtedly a major driver behind the ongoing use of the technology. However, although the institutional use is widespread, it is worth considering whether this equates to it being stabilized, or indeed stable. Although offering convenience and inclusion of distant participants, the technology still leads to a range of effects on communication set out by Friesen and described in my reflection on the online meeting. It causes conversation to be more formal, necessitating the use of the 'raised hand' feature, for example, even in small-group discussions. The ever-present interference of the mute button causes disfluency. Accidental 'talking over' is difficult to avoid. Overall, holding small interactive meetings on Zoom can feel rather tedious, and not particularly stable. The effect of video conferencing on large meetings is perhaps even more striking.

Turning to the case of learning analytics, despite the existence of a community of enthusiasts and a large body of development work in educational technology and learning design, it is much less well established in terms of active use in the sector. As we saw in the review presented above, many of the papers describe small prototype projects, as opposed to mainstream use. In contrast to the video-conferencing platforms, the use of learning analytics has not become a requirement across higher education but tends instead to be trialled and used by learning technologists and staff interested in its potential. As we saw with the infrared sensor case, this technology is not well established; in fact, it remains controversial, particularly if used with staff. However, as I suggested above, it may represent the 'extreme wing' of a broader set of ideas regarding student engagement, performance and efficiency.

Jasanoff's further element of her definition of a sociotechnical imaginary is that it is publicly performed as a desired vision for the future. Video conferencing was adopted across society during the pandemic and continues to be used in many professions. In that regard it is not confined to universities and is well known to the general public. The public also became aware of the use of online teaching during the lockdown period, as schools and universities used these technologies. However, the experience of remote schooling was very mixed in the UK, with a range of well-publicized difficulties for schools, parents and children. Similarly, the plight of university students stranded in student halls or forced to return home and engage remotely was covered extensively by the press.

In this regard, the use of video conferencing has been very public and may have been performed by schools and universities as indicative of a desirable future to some extent. However, I would suggest any performance by universities seeking to actively promote remote engagement as part of a desirable future for higher education was likely driven by a pragmatic need to avoid student complaints and requests for fee refunds. Within 'Ed Tech' circles, it is common to hear the move to online engagement during the pandemic described as proof that online is 'the future'. Learning analytics is not well-known as a technology outside of learning technology circles but, within that community, it can be seen to be performed as part of a desired future for education, as can be seen in the literature. The use of infrared sensors in universities is not well known; I was not even aware of the presence of the sensors in my university library until recently. However, the broader notion of the smart city is performed as a desired vision for the future by companies manufacturing the technology and by governments seeking to justify its use.

Overall, as with the previous chapter, the examples of the performative gaze analysed here do not fit neatly into the definition as part of a sociotechnical imaginary as strictly defined for the future of higher education. As with the audit gaze, the limitation of the concept here lies in the extent to which it succeeds in theorizing the complex, varied and highly ambiguous nature of these gaze practices and how they are entangled within the university and beyond. They are characterized by generating ambiguity, resistance and even controversy as opposed to being collectively held. Those seeking to promote their use have a range of motives, not all explicitly set out. The move to video at scale would not have happened without the pandemic and, in that regard, it is something of an outlier. The other two technologies are much more 'niche'. Learning analytics, alongside other technologies used in higher education, tend to be promoted by a community of enthusiasts but has not been enthusiastically embraced by the mainstream of higher education. The infrared sensor technology is promoted by companies with a commercial interest in selling their products and expanding their market and is purchased by universities to monitor the use of their estate in a context of high costs and also with the motive of satisfying students who are increasingly regarded as paying clients.

Again, it may be more productive to regard these gaze technologies as expressing an ideology, as opposed to a collective vision. In the case of video conferencing, its continued use is justified primarily in terms of efficiency. With the technology, there is no need to spend time and money on travel to campus for a meeting, which may in some respects benefit individuals, although

staff without home office space are disadvantaged. However, it also means that the university does not need to provide a suitably cleaned, heated and well-maintained room for this purpose, thus saving costs over time as online becomes the norm. The same logic is then applied to academic staff offices, which may be regarded as an unnecessary use of space (linked to the use of sensors in academic offices discussed above). This has already led to estate development in universities, which has reduced staff space, moved staff to shared or open-plan accommodation and removed staff social spaces to make way for classrooms and student facilities, allowing for increased student numbers and fee income. This leads to reduced space for books and papers, forcing academic staff to 'downsize' and clear out anything that is not deemed necessary for their current work. One-to-one meetings must be booked in designated rooms if offices are shared or arrangements must be made to alternate days, meaning further isolation from colleagues. All of these developments may be justified as supposedly making academic space more 'interactive', while bringing about the opposite effect. As with the video calls, academic life is forced to be more formalized, less serendipitous and profoundly less relational. The quirky, book-lined room full of the artefacts of a long career is deemed to be a waste of space. The books themselves may even be deemed obsolete in the age of ebooks. Put brutally, the bodies of the academics themselves may also come to be regarded as another element to be 'tidied up' and made more efficient by reducing them to tiny squares on a Zoom screen. These fundamental changes to how the academic staff and campus are conceived are driven by neoliberal ideology, which regards the academic staff as individual units of resource to be maximized at the lowest possible cost to the institution. The face-to-face relationality required for an academic community and individuals to flourish, as opposed to struggle, is regarded as dispensable. It might be argued that all of this has been accelerated due to the agency of the video-conferencing technology. This ideology, I argue, is also in evidence in the case of learning analytics. Although motivated by laudable intentions to improve student learning, inclusion and participation, LADs also arguably conjure the student as an atomized individual whose performance must be optimized. The logic of efficiency is also in evidence with the emphasis on finding strategies and gaming online systems to gain high marks, as opposed to focusing on learning as an intrinsic good, experienced in a face-to-face scholarly community. Finally, the ideology of the infrared sensors also conveys the ideology of the student as a lone individual seeking to maximize their visit to the library with a speedy location of a seat, while the university monitors the space to ensure there is no 'wastage' in the system.

In these two chapters, I have concluded with a discussion of the characteristics of these gazes in terms of Jasanoff's concept of the sociotechnical imaginary and have concluded, on the basis of the postphenomenological anecdotes I have written and my reflections on them against the lifeworld existentials, that the concept as defined by Jasanoff (2015), does not fully theorize the complexities, ambiguities, motivations and operations of power inherent in these instances of the algorithmic gaze. Instead, I have suggested that they are all, in related ways, indicative of a broader neoliberal ideology governed by the logics of efficiency and cost reduction. However, as I contended in Chapter 1, I additionally regard this shift to also being indicative of a related but implicit transhumanist ideology at work in the university and beyond. In the next and final chapter, I will return to that argument in relation to the cases I have analysed. I will conclude by proposing that despite this, space can be created and maintained for what I call *fugitive practices,* which can persist and even flourish in the interstices, outside of the algorithmic gaze of transhumanist neoliberalism.

6

Fugitive Practices

Introduction

In the previous two chapters, I examined various examples of algorithmic gaze in the university, proposing two main categories. Chapter 4 focused on what I called the audit gaze of author bibliometrics, the UK Research Assessment Framework, and the international QS university rankings. In my consideration of the lifeworld existentials of how these gazes are experienced, I suggested that these practices measure and record the complex embodied human practices, reducing their lived experiences to texts, numbers and scores. In Chapter 5, I moved on to look at practices which I proposed can be characterized as the performative gaze. I suggested that online teaching and video conferencing induced particular types of performance in a manner akin to a broadcast in the former case and behaving in a manner like a performative portal in the second. I then looked at the case of learning analytics, suggesting that it not only records and documents activity but also demands a particular type of performative display of 'engagement' from students, therefore approving of and encouraging a specific type of behaviour and subjectivity. I then considered the lived experience of being under the gaze of infrared sensors in a university library, suggesting that their presence may also alter the behaviour and experience of students. In this final chapter of the book, I will attempt to draw some broader conclusions from this analysis.

Lifeworld existentials and the algorithmic gaze

In each of my examples, I focus on van Manen's four lifeworld existentials in an attempt to draw out aspects of the pre-reflective experience of being under these

various gazes. I will return to these here to work towards a tentative holistic account of the algorithmic gaze.

Body

The overall topic of this book is surveillance, and as such, one might expect a common theme regarding being seen, spied upon, watched and so on, as the word implies. However, after considering the various examples above, a common thread that I discern is almost the opposite point, in that, in various ways, all the gazes I have considered elide the body, render it invisible in one way or another or even seek to get rid of it. The whole bodies and the embodied experiences of students and academic faculty are never the direct objects of the algorithmic gaze here. Instead, the body and its activities are rendered into something else. With the h-index, long-term embodied action is represented by texts, represented at a remove by the proxy number indicating the number of further texts that have referred to those authored by the individual. In this regard, it might be argued that the living person's actions and self are doubly removed or hidden by the gaze; they are distilled to a number. The REF, with its massive scale and complexity, reduces the embodied research activities of thousands of people to scores. It is explicitly a competition, with winners and losers and cash prizes. Again, like the h-index, it is primarily conducted using texts as proxies, in the form of published papers. At a larger scale again, the international QS rankings reduce entire universities all over the world, with all of their thousands of constituent bodies, to a numerical rank. The performative gaze not only records, measures and judges, it also encourages or even demands particular types of embodied action and performance.

Space

In a related manner, it can be argued that the algorithmic gaze does not *see* certain material spaces in the university. The audit gaze wants to see numerical results, and those results, through the operations of the gaze, are largely reduced to digital texts or numbers, which represent hugely complex actions that took place in material spaces. Those spaces themselves are not required to be accounted for in the case of the h-index, which does not 'see' the rooms, the mess, the travel or the spaces of research and writing without which the texts could not be written. The REF is primarily also focused on texts, and although it concerns itself with the notion of a 'research environment', this is less the space

or material campus itself and more the structures and opportunities available to researchers. The QS university rankings are perhaps the most removed from the spaces of the university, in an even more extreme exercise in abstraction. In a different manner, the performative gaze is abstracted from the physical spaces of the campus and university life. Using video-conferencing technology, space is apparently rendered as a minor inconvenience, with the use of platforms such as Zoom and Teams being used 'as if' they were interchangeable with being together physically in the same space. Learning analytics elides the multiple spaces that students inhabit to study, with the only actions being 'counted' being the traces of their digital engagement on the LMS. Finally, the campus-based surveillance technology OccupEye positions the space of the library into a service facility that can be maximized in terms of its efficiency and convenience to users.

Time

The effects of the algorithmic gaze in terms of time can be argued to be similar; in that the gaze does not 'see' time as it passes but instead takes presents 'snapshots' of various kinds that come to stand for long periods of time in the past. The h-index, as discussed, is cumulative, but always summative and retrospective, representing an entire research career to date as a few screens of text and, of course, a number. The REF is punctual, occurring every few years, again requiring a long period of time to be summed up and presented in report form. The REF is also characterized by its shifting nature, with the exact focus of the gaze changing with different exercises. It is political, and arguably as such operates in concert with the priorities of the contemporary government of the day. With the preparations and 'mock' exercises undertaken by universities in between REF cycles, it has the quality of 'building up', with the suspense and then speed and drama of the results. The QS rankings share similar qualities, on a larger scale, with annual time cycles. The production of an asynchronous video for teaching has the potential to disguise time if a large amount of time and effort has gone into the production of the video. The 'blooper reel' of outtakes is not seen and does not form part of the official version. In contrast, the synchronous video meeting takes place 'in real time', but the affordances of the technology may lead to actions such as recording, which would not normally take place in a face-to-face meeting. Learning analytics may look both back to the past of the students' activities and also forward to possible outcomes. It arguably encourages frequency of engagement over quality. Finally, the OccupEye technology is founded on an ethos of speed and efficiency or the avoidance of wasted time.

Indeed, it might be argued that all of these instances of the algorithmic gaze exist in support of an ideology of speed, of production of outputs or engagement, with a minimization of anything which might be perceived to be a waste of time or space.

Others

A further dimension of the lifeworld existentials of the algorithmic gaze is the effect it has on the lived experience with others. The h-index is an individual metric, and arguably it encourages a relationality of comparison, or even competition, as opposed to a sense of community with others, although it does allow for the representation of co-authors. The REF, as discussed above, is complex in terms of relationality. The 'mock' exercises require judgement of colleagues' work and may create tensions, leading to favouritism or the reproduction of privilege. The REF arguably encourages an 'us and them' mentality between institutions, but at the level of the individual, may lead to divided loyalties between departments, disciplines and institutions. The QS rankings may influence how academic faculty regard their institution, peers and themselves as scholars. The performative gaze, I would suggest, is strongly focused on how one appears to others, via video and self-presentation or via the traces left on the LMS to be picked up and evaluated by the learning analytics dashboard. The OccupEye technology, when used in the library, merely registers the presence of someone sitting in a chair, but if used in academic workplaces to monitor attendance, it takes on a different dynamic which is focused on presenteeism and potential operations of management and power.

The nature of the algorithmic gaze

Finally, in this section I would like to try to capture any overall features of the algorithmic gaze. Although the types of gazes vary as seen above, perhaps the one unifying feature is that they elide, ignore and render invisible (and therefore less valued) a range of aspects of the lived experience of students and academic staff. These are primarily the complex, slow, subtle, unseen practices, textures, activities and interactions that unfold in the interstices of the gaze. These are, I propose, the lived experiences of the body, space, time and others. An argument might be made that it was ever thus, and that the small, private, intimate experiences of study and scholarship have always been largely that, unseen. However, my contention is that the acceleration of surveillance and increased

preponderance of the algorithmic gaze of various kinds via the increased use of digital technologies and cultures of audit have led to a shift not only in terms of what is measured and noticed but also what is valued.

One of the common threads across the different forms of gaze and their effects is, I would argue, an ambivalence towards surveillance. As Lyon proposes with his concept of surveillance cultures, in the contemporary period, surveillance may be characterized by a sense of acquiescence or exchange if those subject to surveillance also perceive some gain in being surveilled. In the examples of the audit gaze, individuals may choose to actively opt in to a technology in order to publicly quantify themselves in terms of research outputs, as with the h-index, with a view to using the results to personal advantage such as in the context of academic promotion or to enhance one's academic profile. The REF as it is experienced, as we saw in Pardo-Guerra's account and in the anecdotes, generates a great deal of ambivalence among academics, who may simultaneously resent it but also may on occasion find it personally advantageous. It may also be used in the context of 'mock' exercises as an opportunity for individuals and groups to perform particular identities in terms of their subfield or to signal their individual or group values in terms of what they regard to be 'good' academic work. The international rankings also appear to generate an ambivalent response, in which a high positioning in the ranking may lead to extensive branding while individuals may feel this is somewhat distant from the day-to-day experience of being at the university. In the examples of the performative gaze, a sense of ambivalence and tension can also be discerned in the case of video conferencing. The convenience it offers in terms of removing the need to travel to the campus (or a distant conference) is clearly attractive for a range of practical reasons. However, video conferencing may lead to isolation, and the features of communication that it engenders result in a more disjointed and stilted experience. The gaze of the video requires a particular form of performance of the self. The learning analytics dashboard similarly records, values and encourages forms of engagement online, which may not otherwise be preferred by students, and could lead to a performance that is more driven by compliance than genuine motivation. Finally, the smart campus technology of infrared sensors offers 'convenience' and efficiency to students using the library but may also change the overall experience in subtle yet significant ways. Each of the examples discussed, I would argue, fits with Lyon's notion of a surveillance culture in which various forms of gaze enrol students and academic staff in a series of entanglements that cannot be characterized in terms of a totalitarian 'big brother' oppressive power relationship. Instead,

the algorithmic gazes of various types form part of a wider (apparently benign) ideology of 'quality assurance', customer choice and value for money in the case of the audit gaze and convenience, efficiency, 'self-regulation' and speed in the case of the performative gaze. As I have argued, this ideology is not only that of a neoliberal, marketized sector. It is, I propose, also an ideology that seeks to use technologies of audit and surveillance to transcend the human, using techniques of quantification, abstraction, distance and speed. This has a range of effects, one of which is an occlusion of the lived human experiences of students and scholars in the embodied, spatial, temporal and relational unfolding of their being.

At the beginning of this book, I discussed the concept of the sociotechnical imaginary as a potentially relevant construct with which to analyse these phenomena, as it appears to offer theoretical purchase on technological developments at scale in society. It remains a powerful concept, but when I turned to a close-up postphenomenological consideration of how the phenomena 'feel' in the day-to-day alongside the critical literature, a much more complex picture emerged in terms of the idea of an imaginary being 'collectively held' and 'shared'. The power imbalances, governmental pressures, ambivalence, tensions and contradictions that these gazes generate among institutions, academic staff and students reveal a far more intricate web of agency. The algorithmic gazes of these regimes and technologies can be at once both seductive and alienating, impressive and disturbing, flattering and corrupting. For these reasons, I would argue that they can neither be seen as straightforwardly sinister in a dystopian framing nor can they be regarded as sociotechnical imaginaries which are unproblematically collectively held. Instead, they seem to sit in an indeterminate space of partial acceptance, ambivalence, doubt and resistance.

However, I would argue that this very indeterminacy reveals that these gazes, while powerful and increasing in their prevalence with, for example, the growth of AI in education, are not totalizing and are not fully permeating in the same sense that I argued that the digital is not fully permeating at the beginning of this book. There are doubts, acts of minor resistance and spaces away from the gaze, in the unseen, unobserved interstices of everyday life in the university. In the next section, I will make an argument for the valuing, preservation, maintenance and stewardship of these human-level experiences, what I have termed '*fugitive practices*' in the university (Gourlay 2023), which are unseen by the algorithmic gaze, but what I what contend remain, in fact at the heart of what it means to be at university.

Fugitive practices

In contrast to the objects of the algorithmic gaze discussed above, in this section, I will turn my attention to that which I argue is unseen, but valuable, in the lifeworld of the contemporary university. Echoing the lifeworld existentials of body, space, time and others, I will focus on four areas: embodiment, seclusion, ephemerality and co-presence.

Embodiment

This section centres on a point which I feel is both obvious to the point of banality but also despite that, remains in need of restatement. This is the fact that all activity in the university, including all digital activity, is ultimately embodied in the day-to-day microactivities of humans who make up the university. All research, reading, writing, discussion and digital work are undertaken or facilitated by human bodies, who are biological beings with human capacities and human limitations. However, the objects of the algorithmic gaze discussed above, with the exception of OccupEye, are not the embodied beings of students and staff, but artefacts produced by them or traces left. This, I argue, has real-life effects, for example, in the management's assumption that academic staff may not require a dedicated office space and ample bookshelves but can instead 'hot desk', or that catering facilities may be unimportant, or indeed that very large class sizes make no difference to the lived experiences of students, or that we do not need to travel to the campus anymore. The embodied reality of academic work requiring quiet, comfort and adequate room, or for students, a preference for group sizes of a welcoming and manageable scale, is elided in an ideology of efficiency that renders the student or academic body invisible or irrelevant. In this logic, arguably accelerated by the Covid-19 pandemic, the student or member of academic faculty is a 'unit' as opposed to an embodied person with human needs. This, as I argued in Chapter 1, is founded on an implicit transhuman ethos which seeks to disregard, if not exceed, the biological limitations of the human body and mind. The same ethos can be seen in the claims that remote digital engagement is somehow equivalent to embodied presence.

Seclusion

Relatedly, what is not seen by the algorithmic gaze is the lived experience of seclusion, in the sense of solitary work in private space, free of recording or

a surveillant gaze. This might include reading physical books, handwriting, conversation while face-to-face or walking and movement within the campus while not being surveilled. Working alone using a laptop is arguably qualitatively different; in that one's engagement is recorded by the device and other digital platforms, but it is still experienced as a solitary practice. These activities, in particular those centred on reading and writing, are central to the essence of the university and lie behind the vast majority of the 'outputs' and traces discussed above. But the secluded activities themselves are rendered invisible, and their invisibility may lead to their being devalued, particularly given the dominance of pedagogical approaches which prize interaction, and research cultures which favour ongoing, observable, performative displays of 'progress' and 'impact', such as on academic social media or blogs. Seclusion could also be used as a concept to theorize subtle forms of resistance against the performative gaze, such as muting one's voice or switching off one's camera in video calls, reticence and silence in group discussion tasks or avoidance of online discussions and engagement.

Ephemerality

These concepts are clearly interconnected, and another aspect of the lived experience of university is that which is ephemeral. By this, I refer to experiences that are not recorded but exist only in the moment and are fleeting. An example might be a lecture or talk which is not recorded using any digital recording technologies but is merely an event involving speaking and listening, perhaps notetaking. With the widespread use of 'lecture capture' technologies, learning management systems and hybrid teaching via platforms such as Zoom or Teams, this type of event is becoming less common. In the event of no recording technologies being present, the event is no longer multiple and distributed across time and digital media but is a one-off. This, I would suggest, may lead to a subtly but also profoundly different type of lived experience, one that is perhaps more concentrated in terms of attention and awareness, and as a result may be experienced as more memorable, more intense, requiring a different kind of presence and ontology.

Co-presence

Again, in close relation to the previous point, another aspect of the lived experience of university is relationality, specifically co-presence, which I use to

mean being together with others in the same physical space at the same time. This was, until recent times, regarded as standard practice on campus-based universities, but as discussed, the events of the Covid-19 pandemic and resultant 'lockdowns' led to a sudden pivot internationally to fully online university-level teaching and also other forms of interaction, such as meetings. Four years on, in the UK context, most teaching has returned to predominantly face-to-face, but other aspects of university life have been slower to return to co-present mode. Some academic conferences, in my recent experience, are persisting with hybrid mode which, while allowing for inclusion via remote participation, arguably changes the nature of the event and how it is experienced in far-reaching ways. Panels may consist of a mixture of face-to-face and remote speakers, even with a mixture of pre-recorded talks and live delivery. This can lead to a disjointed experience, which may be less absorbing, calm and intellectually rewarding for participants, but it appears to rest on a collective 'agreement' (or pretence) that there is no downside and that online remote participation via video is the equivalent of being present in the room. This is, I suggest, the latest in a sequence of claims that face-to-face engagement is not required in the university and may even be obsolete. However, it is worth noting that people gathering together in groups is universal throughout human culture and history and is part of our evolved being. The logic of the algorithmic gaze could, I suggest, lead to a stripping away of the ritual, the social, the serendipitous, the sense of group membership and possibly relationality itself, sacrificed on an altar of efficiency or discarded in favour of a sterile transhumanist fantasy of escape from the messy realities of being human.

We have never been virtual

Outside of the educational literature, there have been several voices in popular and academic literature expressing resistance to the seemingly inevitable 'creep' of digitization and algorithmic cultures. Smith (2022), in his book *The Internet Is Not What You Think It Is*, takes a long historical view. He highlights the work of Leibniz in particular, tracing a thread from his thought to the present regarding technology, a thread woven together from several ideas, which he sets out.

> the idea that natural language can be formalized; the idea that formal language can be processed by machines; the idea that human reason can be outsourced to these machines to make decisions for us; the idea that all things are interconnected,

> and that therefore a change in one thing in the world is able to bring about an instantaneous change in all others, no matter what the physical distance; the expectation that we might work collectively toward creating a publicly shared compendium of all knowledge for the betterment of the lot of humanity; the belief that knowledge is pursued and increased by individuals working within a much vaster network of other like-minded people; the conviction that collective, machine-aided labor toward the realization of reason as the governing principle of society will bring about a new era of enlightenment and lasting peace. (Smith 2022: 5)

However, Smith goes on to provide a devastating critique of the internet's influence on society, pointing out its addictive nature. He is scathing about the effect of algorithms in particular, advancing the point that human lives, when shaped algorithmically, 'are not enhanced, but rather warped and impoverished' (Smith 2022: 9), leading to a curtailment of our freedoms. He also expresses concerns about the infiltration of private 'tech' companies into daily life, the detrimental effect on democracy and the surveillant nature of digital technology. For Smith 'the internet is anti-human' (Smith 2022: 11). He goes on to propose that in the contemporary period, human beings are no longer exploited for their labour in order to extract natural resources, but instead, they themselves are the resource being extracted and exploited for their attention and data. This leads to a dopamine-fuelled 'crisis of attention' (Smith 2022: 16). He pays particular attention to the effects of the mobile internet and the resultant use of a single device that becomes a portal for work, leisure, for social bonds, shopping and so on, all condensed into a single point of passage. He also points out the contemporary tendency for individuals to market themselves as a 'brand' on social media. He concludes the result is that 'those individuals will thrive most, or believe themselves to thrive most, in the new system are those who are able to convincingly present themselves not as subjects at all, but as attention-grabbing sets of data points' (Smith 2022: 20). Strikingly, he characterizes this predicament as follows: 'For many, the only available adaptation to this new landscape is to transform our human identity into a sort of imitation of the decidedly non-human forces that sustain the internet, to trade a personality for an algorithmically plottable profile, in effect, to imitate a bot' (Smith 2022: 21).

In a book written for a non-academic readership, Sax (2016) calls for *The Revenge of the Analog,* dividing his analysis into analogue things and analogue ideas. He describes buying a vinyl record and playing it, which made him realize he had stopped listening to digital music, feeling overwhelmed with indecision

due to the massive choice available on his online app. He writes about buying records, enjoying

> the carnal pleasure of physically browsing and buying music. . . . In an age when I could have the exact same music for free, here I was paying good money for scratchy, heavy, cumbersome discs of melted plastic that I had to play on a machine as temperamental and costly to maintain as an old car. It was totally irrational. (Sax 2016: x)

He charts the resurgence in record stores and the growing popularity of vinyl among young people, characterizing it as part of a larger phenomenon of 'revenge' against the digital. He delves into the difference between playing a record and listening to a digital file. He points out that the experience is more cumbersome, less efficient and not necessarily 'better' in terms of sound quality, but for him, despite all of these apparent downsides in terms of efficiency, the experience was more 'involved' and more rewarding:

> the physical browsing of album spines on the shelf, the careful examination of the art on the sleeve, the diligent needle drop, and one-second pause between its contact with the record's vinyl surface and the first scratchy waves of sound emerging from the speakers. It involved more of our physical senses, requiring the use of our hands, feet, eyes, ears, and even mouth, as we blew dust for the record's surface. There was a richness to the vinyl record experience that transcended any quantifiable measurement. It was more fund precisely because it was less efficient. (Sax 2016: xiii)

Sax turns his attention to schools and the zeal with which the digital technology industry has expressed the desire to radically transform education (as discussed at the beginning of this book), which he characterizes as commercially 'a prized pig, ready to be roasted and devoured by digital disruption' (Sax 2016: 177). He points out how this profit-driven imperative combines with Silicon Valley utopianism underlying this urge to 'rethink' education entirely. He reminds us of how there is a long history of grandiose promises and hype cycles surrounding the supposed transformational potential of technologies in education, going back to pre-digital technologies such as correspondence courses, VCRs and TV, assuming technology to be an unquestionable good. He refers to the Silicon Valley tech sceptic Larry Cuban, who sets out the reasons policymakers persist in investing in new technology for schools: that they believe it will improve student outcomes, that it will move schools away from traditional teaching and that it will prepare students for the contemporary world of work. These points echo the justifications provided in the university setting. However, Sax argues

there is no evidence for the first two parts of the rationale and evidence to the contrary for the third.

Sax points out the importance of play for early years development and how the digital cannot substitute for the messy complexities of embodied, physical and relational engagement with material objects and other children. He cites examples of 'tech-centric educational utopianism' (Sax 2016: 184) in the form of failed projects in developing countries internationally in which iPads were provided to all children in the belief that children might somehow teach themselves in contexts where the educational systems were badly under-resourced and also in the United States where iPads were provided in an attempt to provide a solution for underperforming schools in poor neighbourhoods.

Another aspect of the phenomenon that Sax covers is what it says about the teacher, who he argues is portrayed as 'a problem to be overcome' (Sax 2016: 190), being characterized as 'dinosaurs', resistant to new technologies. He gives an example of smart board manufacturer PolyVision which encountered resistance from teachers, who wished to retain the ability to write on a traditional whiteboard. The director of business development assumed the solution to the barrier of teacher resistance was training, but over time he came to realize that the teachers, in fact had very good reasons for retaining the standard whiteboards; one of the advantages is that if information is left on the board over a period of time rather than just flashed up, it is more likely to be retained. The design was amended accordingly to combine a small smart board with a larger standard whiteboard space.

Sax goes on to describe a project at the University of Toronto's Rotman School of Management, in which third-year undergraduate students were asked to create 'disruptive' new models that might be applied to the MBA programme. The question was, 'What could the Rotman MBA look like in 2024 if there were no constraints?' (Sax 2016: 200). The students came up with prototype ideas and solicited feedback from the current MBA students; the ideas included dispensing with classrooms and academic staff, moving to online classes and internships only and a video game. All of the student proposals involved doing away with the traditional physical university to make way for a virtual school. However, the reaction from the contemporary MBA students was less-than-positive, pointing out the need for gathering together for motivation and camaraderie. Sax also reviews what he calls 'one of the greatest promises and failures of the educational technology movement' (Sax 2016: 201), the massive open online course or MOOC. He cites early MOOC creator Sebastian Thrun's prediction that MOOCs would be so 'disruptive' to formal education that within

fifty years, there would only be ten providers of higher education, including his company Udacity. In 2013, Udacity teamed up with San Jose State University in California to offer virtual degrees, with a plan to roll the model out across the state university system. As Sax puts it, the trial was 'a massive failure', showing low completion rates and mediocre levels of achievement for those who did complete their degree programmes. Sax concludes his chapter with an insistence that our awareness of the central importance of teachers and the relationality they engender should not be lost: 'Teachers are the key to analog education's past, present, and future, and no technology can or should replace them. Not because they have the most knowledge, but because without them, education is no more than facts passed back and forth. If you want facts, go read a book. If you want to learn, find a teacher' (Sax 2016: 202). He goes back to Larry Cuban, who witnessed the MOOC debacle, quoting him as saying:

> Teaching and learning is a relationship between teachers and students. Relationships are analog. For those who push on technology, they interpret teaching and learning not as a relationship, but as a delivery of information. Educational is not seen in relational terms at all. It is seen as a way of getting more access to information and having communication in ways not available before, and that isn't relational. . . . A teacher has a relationship with a group of students. It is those independent relationships that is the basis for learning. Period. (Cuban in Sax 2016: 203)

Sax was writing in 2016, before the Covid-19 pandemic. However, he followed up with a second book, *The Future is Analog: How to Create a More Human World* (2022). He returns to the topic of schools with reference to the experience of the pandemic, during which, he argues, 'Nowhere did the utopian ideal of the digital future crash harder on the rocks of analog reality than with school' (Sax 2022: 59), describing virtual homeschooling as 'purgatory', with bored and distressed children, plummeting motivation and skyrocketing stress levels among kids, parents and teachers. He points out the myriad ways in which virtual school 'got a failing grade' (Sax 2022: 63), in terms of academic achievements and engagement, but emphasizes that where it failed most spectacularly was in terms of the heavy emotional toll of disillusionment, anxiety and depression across all the phases of education, in addition to exacerbating inequality in terms of differential access to technology at home, causing a 'gulf' between the more and less privileged. Cuban gives his view of what he has learnt during the pandemic, stating that for him, 'remote instruction is a pale version of what schooling is when parents send their kids to schools . . . it's a very pale and superficial version

of teaching' (Cuban in Sax 2022: 68). Movingly, Sax talks about watching a four-year-old crying in distress on Zoom, with the teacher trying to soothe the child while unable to give them a hug. He writes about the physical space of the school, where children have conversations while walking there, where they play in the schoolyard, learning about relationality, identities and their bodies. He quotes the educationalist David Larabee:

> There's certain smells . . . I can smell the orange peel and egg salad by the lockers. The chalk. The rhythms of bells and hallways and classrooms and recess. The classroom itself, it can feel like a jail sometimes, but it can also feel like a nice little cocoon. There's just twenty-five of us, and we all know each other, and we're going to be doing it all year long. It's a space where you can relax a little bit, and feel part of a community that has some gratifying qualities to it. . . . I can start exploring or playing with an idea or story in a book. That's a powerful thing. The physicality is an important part of that. Trying to do that when you're sitting on someone's phone in your badly heated apartment doesn't even come close. (Larabee in Sax 2022: 71)

For Sax, remote virtual school stripped learning of relationality and reduced it to facts, leaving an emotional gap, with 'ghost children' disappearing from the system and widespread gaps in the development of self-awareness and social learning. He writes about the need for schools 'to care for students as humans' (Sax 2002: 80), integrating emotional learning into schooling instead of viewing it as an add-on. He concludes by calling for a move away from measuring outcomes towards an emphasis on human development and flourishing. Sax's focus across his two popular books was mostly on K-12 schooling, but much of his commentary is equally pertinent for higher education. His main critique of digital education is that it strips away relationality and fails to attend to our need for human connection and development. The human is elided in terms of a living, breathing body with complex evolved emotions and relational needs, in a 'pale' version of education as Cramer put it. In Sax's account of homeschooling his own kids, he expresses gratitude to the dedicated schoolteachers who taught online every day for months with great spirit and kindness, but also recognizes that despite their efforts, this was at best 'almost' school.

Turning back to higher education, it is worth noting that commentators writing in the critical education literature have acknowledged the misleading nature of the notion of incorporeality with respect to the digital, as mentioned earlier (e.g. Land 2005; Selwyn 2016), and educational research has gone on to draw on work in the 'new mobilities' paradigm (e.g. Sheller and Urry 2006;

Urry 2007), such as Bayne et al. (2014) in their work on how the campus might be conceptualized, contributing to a rich seam of work in education which draws on the theorization of space (e.g. Edwards et al. 2011; Enriquez 2011, 2013; Taylor 2009). More recently, in the wake of the Covid-19 crisis, Allen and McLaren (2022) call for the university to be protected as a physical place 'in the age of postdigitization'. Their paper critically examines the calls post-pandemic for universities to remain fully digital:

> EdTech startups, Silicon Valley, and other commercial enterprises are leading the drumbeat for the permanent digitization of curriculum that does not require learners to inhabit any particular physical location. Google and Facebook have been attempting to 'disrupt' higher education with online micro-credentials, efforts which long pre-date the pandemic (Ralston 2021). Times Higher Education even suggested that the 'bricks-and-mortar estates' of universities are merely expensive debt burdens and should be cast aside for digitalization like Artificial Intelligence (AI) student services (Baines 2021). (Allen and McLaren 2022: 347)

They reject these suggestions as 'absolutely the wrong takeaway from the pandemic' (Allen and McLaren 2022). They defend the importance of in-person learning 'in a campus community that has its own culture, characteristics, and history' (Allen and McLaren 2022). As they put it:

> Silicon Valley does not care what we debate amongst academics, and the dynamics of the societal shifts are actually leading to cleavage of digital from physical – e.g., all online meeting spaces, no physical books library, no common areas, only working from private spaces. The argument is not that any one of these developments is bad or detrimental, rather than the cumulative expansion and the underlying totality of the ideology will lead to the downfall of higher education. (Allen and McLaren 2022: 375)

They chart the rise of the self-styled 'disruptors' of higher education, pointing out the essentialist thinking, combined with what they call hypercapitalist notions of efficiency and markets, which underly these proposals. They single out the notion that university should, in some sense be a piecemeal offer, with students paying only for the facilities they use. As they put it, 'Those with this mindset cannot conceive that a university is a community, a social organism made up of disparate parts. Their view is of a factory model of education, producing products to be sold and monetized' (Allen and McLaren 2022: 376). They discuss the effect of what Welch (1998) termed the cult of efficiency, which they define as an 'unyielding devotion to measuring and counting systems for productivity

(which) forces standardizations that cut across every system' (Allen and McLaren 2022: 376). They refer to Hayes (2017), who writes about the 'McDonaldization' of higher education, based on Ritzer (2011), critiquing the resultant 'visions of efficiency, predictability, calculability, and control' (Allen and McLaren 2022: 376), and the related rise in students being regarded as customers. They refer to Malott (2019), who points out that the cliché that 'education is broken' is relied upon by tech corporations: 'The promise is that apps, algorithms, and artificial intelligence can cut costs and increase efficiency, with the same or better outcomes. The humans involved in the new innovations from the start-ups are mere customers, numbers, and dollar signs, including educators, students, and schools' (Allen and McLaren 2022: 380). They envisage a scenario in which the cult of efficiency is taken to its logical conclusion, with all teaching moved online, obviating the need for maintenance, heating and travel to the campus and with reduced faculty consisting only of low-paid adjuncts. As they joke, 'If there were just a way to rid the university of its students, the efficiency would reach its singularity!' (Allen and McLaren 2022) With reference to the High Modernist 'zoning' architecture of le Corbusier and its attendant effects in the city of Brasilia, they make the point that there is a need for 'third spaces' for people to meet and socialize. They argue that university campuses constitute such a space, and as such, they are like miniature cities, which are important to local communities and economies, arguing for the complexities of such places as opposed to the 'seamless and efficient future' offered by tech corporations. Allen and McLaren mount a case for 'protecting the educational place', making the point that screen-based interaction causes participants to miss incidental experiences on campus, which is 'not supposed to be sterile and efficient. It supposed to be a little messy' (Allen and McLaren 2022: 182). They compare the experience of a new student getting lost in the first week and being helped by a senior student, contrasted with searching Google calendar for a Zoom link while lying in bed. They also point out the opportunities the campus offers to students:

> In the physical world, we cannot just escape an in-person interaction with the click of a button. On campus and within the surrounding community, we are forced to interact with a host of different kinds of people. Sometimes, universities bring Ph.D. students to live in regions where graduating from high school is considered an impressive feat. Or sometimes, polyglot international students populate a place where most of the locals are monolingual. In a time of further political polarization and divisiveness, we should be craving more of these tensions rather than smoothing out every single interaction to the perfect 4K stream. (Allen and McLaren 2022: 384)

They caution against a future in which a few giant corporate online universities take over the sector, conjuring this vision:

> Then, years from now, when another student is enjoying their Zoom class and Googles the university, they will discover an obituary for a once traditional college. All that remains is a name branded for a specific region run by an umbrella organization headquartered at a PO Box in a tax haven. Everyone will have the same classes just accessed from a learning management system with different school colors. The credential will remain, but the space, the place, the people, the community, and the soul will be lost. It will be a university of nowhere. (Allen and McLaren 2022: 384)

In higher education, we most commonly see the word 'virtual' used with reference to 'virtual learning', but I would argue that the notion of virtuality is, in fact, central to the broader transhumanist influence on the university that I discern. To begin, it is worth considering the definition of the word. The Cambridge online dictionary provides two definitions: the first is that it denotes 'almost a particular thing or quality'. Their second definition is 'that which can be done or seen using computers or the internet instead of going to a place, meeting people *in person* etc.' (Cambridge Online Dictionary 2024, my emphases). I will consider the second definition first. On one level, it is a common-sense definition that makes a well-understood distinction. However, what is relevant to my argument is the idea that if something is done virtually, it is instead of being in person. Again, we use the term in person to refer to being together in the same physical place with others. But I would like to play with the term a little to try to draw out what it means to be virtual. The use of the term virtual as a contrast to in person, I would argue, not only implies a different location but a more fundamental difference, a different ontological state. The state of virtuality is implied to exist, in some sense detached, or even freed from the constraints of our embodied, material, spatial, temporal and relational lifeworld. Were this the case, it would follow that in a situation such as the Covid-19 lockdowns, individuals with access to the internet and appropriate devices would be operating virtually, and that those aspects of the lifeworld would not be salient, or at least they might fade into insignificance as the person enters the realm of the virtual. However, as we discovered in our study of academic and professional services staff homeworking during the UK 2020 lockdown (Gourlay 2020b; Gourlay et al. 2021; Littlejohn et al. 2021), these embodied and material aspects were of great importance, despite the fact that all the participants in the study were teaching, researching and communicating entirely online.

The body did not somehow fade away into the background for respondents. For example, one participant reported having to build a shaky temporary structure of a small table and box on his dining room table at home, in order to bring his laptop to the correct height, due to a painful neck. Another participant described having to give a seminar online with severe toothache. Materiality also really mattered, as did space. One participant recounted perching on a child's chair in the child's bedroom to teach online, as her partner was also working online in the living room of the house. Another described teaching in front of a curtain rigged up on the wall of her bedroom in a shared house. Temporality was also of great importance, as participants were forced to sequence and coordinate with others in their home. Some reported that working at home online had led to a blurring of the beginning and end of activities, where online engagement crept into the time during which they would normally be free from work, without the punctuating effect of commuting to and from the university. Finally, relationality was a prominent theme throughout the interviews. Participants reported tensions between caring responsibilities and work, with one interviewee recounting an occasion when she was giving an important presentation online and seeking to project a scholarly identity when her young son burst into the room and could be seen on the video running naked and screaming in the background. The sense that the virtual is nonmaterial is understandable, as instantaneous communication and access to the internet on smartphones and wireless devices can indeed appear rather like a form of 'magic', perhaps especially to those of us old enough to remember the time before the internet was available. However, these anecdotes, I suggest, underline the reality that there is no escape from the body and the material surround, and that contrary to the implication that the virtual is a separate realm, it is in fact always embodied and material.

Recalling the six examples discussed in Chapters 4 and 5, I would suggest a similar analysis could be proposed. In all three examples of the audit gaze, at every stage of the process, people exist within their embodied biological capacities, in material, spatial and temporal settings, in complex relationality with others. However, it might be argued that the audit gaze, in abstracting their lives and work to figures, scores and rankings, not only abstracts them but also attempts to render them virtual. I write 'attempts to', as of course this is an illusion; they continue to exist in their complex lifeworlds regardless. The same point can be made regarding those under the performative gaze. It also abstracts the living, breathing, embodied individuals into data points, attempting to render them virtual, while they continue in their embodied and material lifeworlds. Returning to the dictionary definition, we can consider the first meaning of virtual, being 'almost' something. I would

suggest that although it may not be the more obvious meaning in this case, it has a resonance here, in the sense of being rendered into a diminished form, not quite whole, not solid, not realized fully or partial as a result of the algorithmic gaze. But as I contend, we have never been and are never virtual, in the sense that the body and the material persist. Webb (2018: 98) sets out in robust terms what he considers to be the features of the 'corporate-imperial university', I quote him in full here as I feel it sums up many of the points I have made above:

> The notion of 'the corporate university' points to the academy as a marketized sphere in which the costs of education are shifted from the state onto students; students are positioned as consumers of an individual investment good even as they experience higher education as an extended period of underpaid labor preparing them for an even longer period of crippling debt; teaching is dominated by performance indicators linked to customer satisfaction and human capital formation; the workforce becomes increasingly casualized, insecure and exploited, a precariat operating within a censorious culture of audit, surveillance, and performance management; research is transformed into a high-stakes competition, framed by a regime of indicator fetishism, discouraging long-term research while encouraging research fraud; self-governance disappears as the administrator displaces the academic as the central figure of the university; a culture of organized mistrust permeates the institution, leading administrators to create an ever-more-elaborate bureaucratic cage within which the academic can safely be contained; an increasingly standardized and technically oriented curriculum undermines academic freedom and critical inquiry; universities enter into partnerships with business, subsidizing training costs while operating more like for-profit corporations themselves, developing and marketing their own commercial products; an obsession with corporate branding is accompanied by a dance in which universities track and mimic each other's moves, becoming almost indistinguishable from each other; the sector becomes awash with vision and mission statements, each identical and identically vacuous; capital investment projects escalate at the same time as academic staffing levels fall; cities are colonized, communities are dispossessed and displaced, to create new architectural monuments to grace the covers of overseas marketing brochures that could not be more at odds with the dismal realities of the under-resourced departments students actually encounter. (Webb 2018: 96)

Webb proposes that there is a need to create spaces, with reference to Zaslove's (2007) utopian pedagogy as 'an exiled form of education' searching for 'bolt-holes and breathing spaces in the system' (Zaslove 2007: 98 in Webb 2018: 102). He draws on the concept of 'the undercommons', with reference to Harney and

Moten (2013), Shukaitis (2009) and Undercommoning Collective (2016). He describes the undercommons as a form of resistance existing 'in institutional cracks outside the classroom: in stairwells, in alleys, in kitchens, in corridors, in smoking areas, in hiding' (Webb 2018: 102–3). Harney describes the undercommons as 'a militant arrhythmia' which unsettles the rhythm of the line, 'invites us to feel around us', and brings the utopic common underground into the open (Harney 2015: 177–8). Webb concedes, however, the difficulty of enacting resistance within the university and concludes that any 'fugitives' (also a term he uses) can only find 'breathing space' outside the university. Webb's prospectus reaches for radical responses. However, I would like to speculate that another potential site of more subtle resistance could, in fact, be the quiet interstices of scholarly practice, which have been denigrated as old fashioned or irrelevant, but which persist nonetheless outside of the algorithmic gaze. To be whole in the body, to be silent, to be fleeting, to be with others, to be human.

Conclusions: In the interstices

In this final section, I'd like to draw some tentative conclusions. I started this book with a critique of transhumanism as it shows up in ideas surrounding digital technologies in higher education. Building on that critique, I would suggest that the relationship between transhumanism and digital technologies more broadly in higher education is complex, profound and wide ranging. The notions of both enhancement and transformation are prevalent and explicit in terms of claims made for teaching, learning and, I would suggest, the human subject. As discussed above, enhancement implies a problem or deficit to be addressed or solved, and transformation goes further, suggesting that what will be transformed is fundamentally flawed or incomplete. Arguably, a parallel can be drawn with transhumanism in the manner by which the human subject or community is viewed as limited and/or insufficient; therefore, required to transcend their/its limitations. In the case of transhumanism, the perceived limitations to be addressed are biological. It is worth examining in detail the nature of the implied human deficit which education seeks to address via the use of digital technology.

I keep returning to the word *unfolding*. I use this term to refer to a certain uncertainty, looseness and openness to the unexpected, which I would suggest have been sacrificed by the dominance of future-focused ideologies based on transhumanist fantasies and monitored by the algorithmic gaze. Discourses

and policies concerning the digital and the algorithmic are inextricably linked to contemplation of futures in higher education and society more broadly. However, it would also be argued that day-to-day life 'on the ground' may be experienced by academic staff and students as far removed from these future-oriented fantasies. The day-to-day life of the university is messy, contingent, imperfect and idiosyncratic. It involves spontaneity and all the elements I have suggested are important for the continuity of evolved higher educational practices: embodiment, seclusion, ephemerality and co-presence. There is a sense in which this day-to-day practice feels fugitive, operating to some extent in the interstices of a highly digitized, algorithmic, surveilled, audited, scripted and recorded context of practice. It is this sense of looseness, an unscriptedness, and unfolding which I suggest may be encouraged to flourish.

A complicating factor in this transhumanist ideology of efficiency is the existence of pervasive tropes, such as the idea that face-to-face 'traditional' university is inherently outdated and obsolete, often expressed in the claim that the lecture is 'dead'. Another line of attack is that the lecture is 'teacher-centred'. A further related angle is to denigrate the university as an elitist 'ivory tower'. Yet another barb is that the university overly prioritizes research over teaching. This may be used to portray scholars as selfish, out of touch or over-privileged, in what I consider to be a profoundly anti-intellectual, anti-expertise discourse. Relatedly, academic disciplines may be portrayed as a problem to be solved, with derogatory talk of academic 'silos', and encouragement towards interdisciplinarity as a preferred and somehow more morally correct approach, despite the fact that the entire system works against interdisciplinary work in terms of careers, research audits such as the REF, journals and so on. 'Impact' is prized, with scholarship that does not lead to observable social or commercial impact being more difficult to fund and justify, as we see in the frequent attacks on the humanities in the UK. Turning to the students, as Macfarlane has argued (2017) silence, reticence, privacy and selective attendance are all regarded as problems to be solved through the encouragement or even imposition of various types of performativity. The algorithmic gaze, as I have sought to argue throughout this book, is a broad force that is justified by these views about the university, its scholars and its students all in need of urgent remediation or transformation.

I do not seek here to rehearse an uncritical 'golden age' discourse regarding higher education, but by the same token, I think it is worth considering what unites all these criticisms of higher education. What exactly is the main 'problem' to be solved? I propose that what unites all these attitudes towards the university is not solely a neoliberal worldview, but a transhumanist worldview working in

tandem. The scholarly practices of the university, as Friesen (2017) shows in his mediatic history, have very long historical roots rooted in human practices and techniques of inscription and in longstanding events such as lectures. Friesen demonstrates that the notion of a sudden and transformative mediatic rupture in the university is a fallacy, such as with the introduction of the printing press, which in fact had a very gradual effect on scholarship practices. Instead, his history shows the persistence of practices through the ages, practices that are human universals: gathering in a place designated for the purpose of education; the young or less expert learning from those who are older, have more experience, knowledge and expertise; individuals who have spent their lives specializing in a field of knowledge, for the sake of discovery, and to pass that knowledge on to the next generation. This is not to romanticize a past (and present in many contexts) where only the privileged few have access to higher education. The opening up of higher education beyond privileged groups is a vital and ongoing social priority. However, it is worth considering that there are aspects of so-called traditional education which may be worth preserving.

I have argued above, taking a postphenomenological lived experience perspective, that there are four important features which form part of face-to-face higher education away from the algorithmic gaze. These, I suggest, are embodiment, seclusion, ephemerality and co-presence. I have sought to argue above that these are in retreat, a retreat which has been accelerated by the Covid-19 pandemic, the digital response and its attendant ideologies. The common refrain is that there is no way to resist 'the new normal', in the same way that we cannot resist the steady march of the REF or other forms of gaze to which we are subject to. Over the last five years, there has been repeated industrial action by the UK University and College Union (UCU) in protest against the threatened erosion of pensions, low pay and predacity. However, to my knowledge, the UCU has not mounted a major challenge to the government regarding the existence of audit practices such as the REF or sought to end these practices. Although there may not be coordinated resistance by the union, I would argue that there are multiple sites of resistance that are largely fugitive, 'under the radar', individual and small-group actions, such as the acts of solidarity within departments during mock REF exercises mentioned by Pardo-Guerra. There may also be small acts of resistance in the form of avoidance or offering minimal basic compliance when asked to take part in practices such as the mock REF. There might be other ways in which staff and students seek to maintain practices that they value, such as meeting in person even if not required or finding alternative spaces away from campus when office spaces are no longer suitable or welcoming. Time and space

may be found for solitary study, the reading of paper books or so-called slow scholarship (e.g. Berg and Seeber 2016), which is not driven primarily by the impetus to publish more and more, faster and faster. Academic staff may resist or minimize the use of digital technologies where they can. They might also resist the expectations to be ever-more prolific and 'productive' by not participating in academic social media or other forms of public performance such as academic blogging. They might continue to teach using what might be termed 'old school' technologies such as 'chalk and talk'. Students might (and do) stay silent in group work, turn off their cameras on Zoom or decide not to attend some classes. All these actions tend to attract the criticism that the scholar is 'old fashioned' and out of touch and that the students are 'passive' and disengaged. However, viewed from another perspective, these actions might be seen to prioritize in various ways embodiment, seclusion, ephemerality and co-presence, and seek to evade the algorithmic gaze and the reductive logics of neoliberal transhumanism. In these small ways, in apparently minor and subtle acts of resistance and critique, we might find breathing space to find value and even joy in our embodied, spatial, temporal and relational scholarly lives, despite the ever-increasing and penetrating algorithmic gaze.

References

Aagaard, J. (2015a), Drawn to distraction: A qualitative study of off-task use of educational technology. *Computers and Education*, (87): 909–7.

Aagaard, J. (2015b), Media multitasking, attention, and distraction: A critical discussion. *Phenomenology and the Cognitive Sciences*, 14(4): 885–96.

Aagaard, J. (2017), Introducing postphenomenological research: A brief and selective sketch of phenomenological research methods. *International Journal of Qualitative Studies in Education*, 30(6): 519–33.

Aagaard, J. (2022), On the dynamics of Zoom fatigue. *Convergence: The International Journal of Research into New Media Technologies*, 28(6): 1878–91.

Aagaard, J., Berg Fris, J., Sorenson, J., Taftdrup, O. and Hasse, C. (2018), An introduction to postphenomenological methodologies. In *Postphenomenological Methodologies; New Ways in Mediating Techno-Human Relationships*. London: Lexington Books, xi–xxv.

Adams, C. and Thompson, T. (2016), *Researching a Posthuman World: Interviews with Digital Objects*. London: Palgrave Macmillan.

Adams, C. and Turville, J. (2018), Doing postphenomenology in education. In Aagaard, J., Berg Fris, J., Sorenson, J., Taftdrup, O. and Hasse, C. (eds), *Postphenomenological Methodologies; New Ways in Mediating Techno-Human Relationships*. London: Lexington Books, 3–26.

Allen, R. and McLaren, P. (2022), Protecting the University as a physical place in the age of postdigitization. *Postdigital Science and Education*, 4(2): 373–93.

Amoore, L. and Piotukh, V., eds. (2016), *Algorithmic Life: Calculative Devices in the Age of Big Data*. London: Routledge.

Anderson, B., ed. (1991), *Imagined Communities: Reflections on the Origin and Spread of Nationalism.* London: Verso.

Aneesh, A. (2006), *Virtual Migration: The Programme of Globalisation*. Chicago: Duke University Press.

Aneesh, A. (2009), Global labour: Algocratic modes of organization. *Sociological Theory,* 27(4): 347–70.

Appadurai, A. (1996), *Modernity at Large: Cultural Dimensions of Globalisation*. Minneapolis: University of Minnesota Press.

Ashwin, P. (2020), *Transforming University Education: A Manifesto*. London: Bloomsbury Academic.

Bachelard, G. (1964), *The Psychoanalysis of Fire*. Boston, MA: Beacon Press.

Baines, P. (2021), Universities must swap physical for digital estates – at warp speed. *Times Higher Education*, 29 January. https://www.timeshighereducation.com/

opinion/universities-must-swap-physical-digital-estates-warp-speed [Accessed 17 February 2024].

Bastedo, M. and Bowman, N. (2010), The U.S. News and World Report college rankings: Modelling institutional effects on organizational reputation. *American Journal of Education*, (116): 163–84.

Bauman, Z. and Lyon, D. (2013), *Liquid Surveillance*. Cambridge: Polity Press.

Bayne, S. (2015), What's the matter with 'technology-enhanced learning'? *Learning, Media and Technology*, 40(1): 5–20.

Bayne, S., Gallagher, M. and Lamb, J. (2014), Being 'at' university: the social topologies of distance students. *Higher Education, 67*(5): 569–583.

Bedingfield, W. (2020), Everything that went wrong with the botched A-levels algorithm. *Wired* https://www.wired.co.uk/article/alevel-exam-algorithm [Accessed 26 February 2024]

Beer, D. (2019), *The Data Gaze*. London: SAGE.

Berg, M. and Seeber, B. (2016), *The Slow Professor: Challenging the Culture of Speed in the Academy.* Toronto: University of Toronto Press.

Berlinski, D. (2000), *The Advent of the Algorithm: The Idea that Rules the World*. New York: Houghton Mifflin Harcourt.

Blackmore, P. and Kandiko, C. 2011. Motivation in academic life: A prestige economy. Research in Post-Compulsory Education 16(4), 399-411.

Bogost, I. (2015), *The Cathedral of Computation*. *Ian Bogost* (Blog). http://bogost.com/writing/the-cathedral-of-computation/ [Accessed 20 February 2024]

Bohlmann, M. and Briel, P., eds. (2024), *Postphenomenology and Technologies Within Educational Settings.* Lanham, MD: Lexington Books.

Bornmann, L. and Daniel, H. (2005), What do we know about the h-index? *Journal of the American Society for Information Science and Technology*, 58(9): 1381–5.

Bostrom, N. (2005), A history of transhumanist thought. *Journal of Evolution and Technology,* 14(1): 1–25.

Bostrom, N. and Sandberg, A. (2009), Cognitive enhancement: methods, ethics, regulatory challenges. *Science and Engineering Ethics*, 15(3): 311–41.

Bowker, G. (2013), Data flakes. An afterword to 'Raw Data' is an Oxymoron. In Gitelman, L. (ed.) *'Raw Data' is an Oxymoron*. London: MIT Press, 167–71.

Bowker, G. and Star, S. (1999), *Sorting Things Out: Classification and its Consequences*. Cambridge, MA: MIT Press.

Branković, J. (2021), Why rankings appear natural (but aren't). *Business and Society*, 61(4): 801–6.

Branković, J., Ringle, L. and Werron, T. (2018), How rankings produce competition: The case of university rankings. *Zeitschrift fur Soziologie*, 47(4): 270–88.

Carr, N. (2008), Is google making us stupid? What the internet is doing to our brains. *The Atlantic*, (July / August). https://www.theatlantic.com/magazine/archive/2008/07/is-google-making-us-stupid/306868/ [Accessed 26 February 2024]

Cascone, K. (2000), The aesthetics of failure: 'Post-digital' tendencies in contemporary computer music. *Computer Music Journal*, 24(4): 12–18.

Castoriadis, C. (1987), *The Imaginary Institution of Society*. Cambridge, MA: MIT Press.

Cheney-Lippold, J. (2011), A new algorithmic identity: Soft biopolitics and the modulation of control. *Theory, Culture and Society*, 28(6): 164–81.

Cramer, F. and Jandrić, P. (2021), Postdigital: A term that sucks but is useful. *Postdigital Science and Education*, (3): 966–89.

De Certeau, M. (1979), *Culture in the Plural*, trans. T. Conley. Minneapolis: University of Michigan Press.

Dearing, R. (1997) Higher Education in the Learning Society. The National Committee of Inquiry into Higher Education, London: HMSO.

Decuypere, M. and Simons, M. (2014a), On the composition of academic work in digital times. *European Educational Research Journal*, 13(1): 89–106.

Decuypere, M. and Simons, M. (2014b), An atlas of academic practice in digital times. *Open Review of Educational Research*, 1(1): 89–106.

Decuypere, M. and Simons, M. (2016a), What screens do: The roles(s) of the screen in academic work. *European Educational Research Journal*, 15(1): 132–51.

Decuypere, M. and Simons, M. (2016b), Relational thinking in education: Topology, sociomaterial studies, and figures. *Pedagogy, Culture and Society*, 24(3): 371–86.

Dong, Z., Zhang, Y., Yip, C., Swift, S. and Beswick, K. (2020), Smart campus: Definition, framework, technologies, and services. *IETJ IET Smart Cities*, 2: 1–12.

Downes, S. (2011), *Free Learning: Essays on Open Educational Resources and Copyright*. https://www.downes.ca/files/books/FreeLearning.pdf [Accessed 16 October 2024]

Dreyfus, H. and Rabinow, P. (1982), *Michel Foucault: Beyond Structuralism and Hermeneutics.* Brighton: Harvester Press.

Edwards, P. (2010), *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming.* Cambridge, MA: MIT Press.

Edwards, R. (2014), Software and the hidden curriculum in digital education. *Pedagogy, Culture and Society*, 23(2): 265–72.

Edwards, R., Tracy, F. and Jordan, K. (2011), Mobilities, moorings and boundary marking in developing semantic technologies in educational practices. *Research in Learning Technology*, 19(3): 219–32.

Enriquez, J. (2011), Tug-o-where: Situating mobilities learning (t)here. *Learning, Media and Technology*, 36(1): 39–53.

Enriquez, J. (2013), Being(t)here: Mobilising 'mediaspaces' of learning. *Learning, Media and Technology*, 38(3): 319–36.

Espeland, W. and Sauder, M. (2007), Rankings and reactivity: How public measures recreate social worlds. *American Journal of Sociology*, 113(1): 1–40.

Espeland, W. and Sauder, M. (2016), *Engines of Anxiety: Academic Rankings, Reputation and Accountability*. New York: Russell Sage Foundation.

Finn, E. (2017), *What Algorithms Want: Imagination in the Age of Computing*. Cambridge, MA: MIT Press.

Foucault, M. (1977), *Discipline and Punish: The Birth of the Prison*. London: Allen Lane.
Foucault, M. (1991), Governmentality. In Burchell, G., Gordon, C. and Miller, P. (eds), *The Foucault Effect: Studies in Governmental Rationality*. London: Harvester Wheatsheaf, 1–52.
Foucault, M. (2003), *The Birth of the Clinic: An Archaeology of Medical Perception*. London: Routledge.
Friesen, N. (2014), Telepresence and tele-absence: A phenomenology of the (in)visible alien online. *Phenomenology and Practice*, 8(1): 17–31.
Friesen, N. (2017), *The Textbook and the Lecture: Education in the Age of New Media*. Baltimore: Johns Hopkins.
Fuller, S. (2008), *Dissent over Descent: Intelligent Design's Challenge to Darwinism*. Cambridge: Icon.
Fuller, S. (2011), *Humanity. 2.0: What is Means to be Human Past, Present and Future*. Basingstoke: Palgrave Macmillan.
Fuller, S. (2012), *Preparing for Life in Humanity 2.0*. Basingstoke: Palgrave Macmillan.
Fuller, S. (2014), Transhumanism. *Social Epistemology Review and Reply Collective*, 3(11): 25–9.
Fuller, S. and Lipinska, V. (2014), *The Proactionary Imperative: A Foundation for Transhumanism*. Basingstoke: Palgrave Macmillan.
Galloway, A. (2006), *Gaming: Essays on Algorithmic Culture*. Minneapolis, MN: University of Minnesota Press.
Gamson, W. and Modigliani, A. (1989), Media discourse and public opinion on nuclear power: A constructionist approach. *American Journal of Sociology*, 95(1): 1–37.
Gillespie, T., Boczkowski, P. and Foot, K. (2014), *Media Technologies: Essays on Communication, Materiality and Society*. Cambridge, MA: MIT Press.
Giorgi, A. (2009), *The Descriptive Phenomenological Method in Psychology: A Modified Husserlian Approach*. Pittsburgh, PA: Duquesne University Press.
Glanzel, W. (2006), On the opportunities and limitations of the h-index. *Science Focus*, 1(1): 10–11.
Glazebrook, T. (2020), Ihde's revolutions: From Paris to science, rock, and radical architecture. In Miller, G. and Shew, A. (eds), *Reimagining Philosophy and Technology, Reinventing Ihde.* Switzerland: Springer Nature, 19–42.
Goffman, E. (1959), *The Presentation of Self in Everyday Life*. New York, NY: Anchor Books.
Good, I. (1965), Speculations concerning the first ultraintelligent machine. *Advances in Computers,* 6: 31–88.
Gourlay, L. (2020a), *Posthumanism and the Digital University: Texts, Bodies and Materialities*. London: Bloomsbury Academic.
Gourlay, L. (2020b), Quarantined, sequestered, closed: Theorising academic bodies under Covid-19 lockdown. *Postdigital Science and Education*, (2): 791–811.
Gourlay, L. (2021a), There is no virtual learning: The materiality of digital education. *Journal of New Approaches in Educational Research*, 10(1): 57–66.

Gourlay, L. (2021b), Presence, absence, and alterity: Fire space and Goffman's selves in postdigital education. *Postdigital Science and Education*, 4, 57–69.

Gourlay, L. (2022a), Digital masks: Screens, selves and symbolic hygiene in online higher education. *Learning, Media and Technology*, 47(3): 398–406.

Gourlay, L. (2022b), Surveillance and datafication in higher education: Documentation of the human. *Postdigital Science and Education*. https://doi.org/10.1007/s42438-022-00352-x

Gourlay, L. (2023), Postdigital / more-than-digital: Ephemerality, seclusion, and copresence in the university. In Jandrić, P., MacKenzie, A. and Knox, J. (eds), *Postdigital Research: Genealogies, Challenges and Future Perspectives*. London: Springer51-68.

Gourlay, L. (2024b), Fugitive pathways: Sensors, lines and knots in the academic library. In Bohlman, M. and Breil, P. (eds), Postphenomenology and Technologies in Educational Settings. Leiden, Netherlands: Brill.

Gourlay, L., Littlejohn, A., Oliver, M. and Potter, J. (2021), Lockdown literacies and semiotic assemblages: Academic boundary work in the Covid-19 crisis. *Learning, Media and Technology*, 46(4): 377–89.

Gullard, A. and Tan, F. (2023), Campus surveillance censors spark protests. *Nature*, (623): 444–5.

Halford, S., Pope, C. and Weal, M. (2012), Digital futures? Sociological challenges and opportunities in the emergent semantic web. *Sociology*, 47(1): 173–89.

Hallinan, B. and Striphas, T. (2014), Recommended for you: The Netflix prize and the production of algorithmic culture. *New Media and Society*, 18(1): 117–37.

Hammond, C. (2018), The magic behind UCL library seating: How UCL, and out API, seem to know everything. *Medium,* https://medium.com/ucl-api/the-magic-behind-ucl-library-seating-4fb1f494c789 [Accessed 26 February 2024]

Harney, S. (2015), Hapticality in the undercommons. In Martin, R. (ed.) *The Routledge Companion to Art and Politics*, London: Routledge, 173–7.

Harney, S. and Moten, F. (2013), *The Undercommons: Fugitive Planning and Black Study*. New York, NY: Autonomedia.

Harvey, L. and Knight, P. (1996), *Transforming Education*. London: Society for Research into Higher Education.

Hasse, C. (2008), Postphenomenology: Learning cultural perception in science. *Human Studies*, 31(1): 43–61.

Hasse, C. (2015a), *An Anthropology of Learning: On Nested Frictions in Cultural Ecologies.* New York, NY: Springer.

Hasse, C. (2015b), The material co-construction of hard science fiction and physics. *Cultural Studies of Science Education*, 10(4): 921–40.

Hayes, D. (2017), *Beyond McDonaldization: Visions of Higher Education*. New York: Routledge.

Hayles, K. (2002), *Writing Machines*. Cambridge MA: MIT University Press.

Hazelkorn, E. (2018). Reshaping the world order of higher education: the role and impact of rankings on national and global systems. Policy Reviews in Higher Education, 2(1), 4–31.

Hazelkorn, E. and Mihut, G., eds. (2021), *Research Handbook on University Rankings*. Cheltenham: Edward Elgar.

Heidegger, M. (1950), *Holzwege*. Vittorio Klostermann GmbH: Frankfurt am Main.

Heidegger, M. (1951/1971), *Poetry, Language, and Thought* trans. A. Hofstadter, New York, NY: Harper & Row.

Hicks, D. (2012) Performance-based university research funding systems. Research Policy, 41: 251–61.

Hilgartner, S. (2015), *Capturing the Imaginary: Vanguards, Visions and the Synthetic Biology Revolution*. London: Routledge.

Hirsch, J. (2005), An index to quantify an individual's scientific research output. *Proceedings of the National Academy of Sciences of the United States of America*, 102(46): 16569–72.

Holbrook, B. and Mitcham, C., eds) (2015), *Ethics, Science and Engineering: A Global Resource*, 2nd Edition. Farmington Mills, MI: Macmillan.

Husserl, E. (1970), *The Idea of Phenomenology*. The Hague: Martinus Nijhoff.

Husserl, E. (1931/82), *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy: General Introduction to a Pure Pre-Nomenology*. The Hague: Martinus Nijhoff.

Huxley, A. (1932), *Brave New World*. London: Chatto and Windus.

Huxley, J. (1957), *New Bottles for New Wine*. London: Chatto and Windus.

Ihde, D. (1979), *Technics and Praxis: A Philosophy of Technology*. Boston: Reidel.

Ihde, D. (1990), *Technology and the Lifeworld: From Garden to Earth*. Bloomington: Indiana University Press.

Ihde, D. (1986) *Consequences of Phenomenology*. New York, NY: Suny Press.

Ihde, D. (1998), *Expanding Hermeneutics: Visualism in Science*. Evanston, IL: Northwestern University Press.

Ihde, D. (2008), Introduction: Postphenomenological research. *Human Studies*, 31(1): 1–9.

Ihde, D. (2009), *Postphenomenology and Technoscience: The Peking University Lectures*. Albany, NY: State University of New York Press.

Ihde, D. (2010), *Heidegger's Technologies: Postphenomenological Perspectives*. New York: Fordham University Press.

Ihde, D. (2012), Can continental philosophy deal with new technologies? *Journal of Speculative Philosophy*, (26): 321–2.

Ihde, D. (2018), Foreword. In Aagaard, J., Berg Fris, J., Sorenson, J., Taftdrup, O. and Hasse, C. (eds), *Postphenomenological Methodologies; New Ways in Mediating Techno-Human Relationships*. London: Lexington Books.

Imbard, R., Supangkat, S. and Langi, A. (2020), Smart campus model: A literature review. In *Proceedings of the 2020 Conference on ICT for Smart Society* (ICISS) IEEE, New York, NY. 19–20 November: 1–7.

Introna, L. (2016), Algorithms, governance, and governmentality: On governing academic writing. *Science, Technology and Human Values*, 41(1): 17–49.

Introna, L. and Hayes, N. (2011), On sociomaterial imbrications: What plagiarism detection systems reveal and why it matters. *Information and Organisation*, (21): 107–22.

Jandrić, P. and Ford, D. (2022), Postdigital Ecopedagogies: Genealogies, Contradictions, and Possible Futures. *Postdigital Science and Education*, 4(3): 672–710.

Jasanoff, S. (2015), Future imperfect: Science, technology and the imaginations of modernity. In Jasanoff, S. and Kim, S. (eds), *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*. London: University of Chicago Press, 1–33.

Jasanoff, S. and Kim, S. (2009), Containing the atom: Sociotechnical imaginaries and nuclear power in the United States and South Korea. *Minerva*, 47(2): 119–46.

Jubien, P. (2014), Postphenomenology, smartphones, and learning: Students and teachers in higher education. *SAGE Research Methods Cases*. London: SAGE Publications.

Jubien, P. (2015), *A Postphenomenological Exploration of Mobility in Post-secondary Teaching and Learning*. Doctoral Dissertation. University of Alberta, Edmonton.

Kitchin, R. (2014b), The real-time city? Big data and smart urbanism. *GeoJournal*, 79(1): 1–14.

Kitchin, R. and Dodge, M. (2011), *Code/Space: Software and Everyday Life*. London: MIT Press.

Lampland, M. and Star, L., eds. (2009), *Standards and Their Stories: How Quantifying, Classifying, and Formalising Practices Shape Everyday Life*. Ithaca: Cornell University Press.

Land, R. (2005), Embodiment and risk in cyberspace education. In Land, R. and Bayne, S. (eds.) *Education in Cyberspace*. London: Routledge, 149–64.

Landahl, J. (2020), The PISA calendar: Temporal governance and international large-scale assessments. *Educational Philosophy and Theory*, (52): 625–39.

Lash, S. (2007), Power after hegemony: Cultural studies in mutation? *Theory, Culture and Society*, 24(3): 55–78.

Latour, B. (2005), *Reassembling the Social: An Introduction to Actor-Network Theory*. Oxford: Oxford University Press.

Law, J., ed. (1999), *Actor-Network Theory and After*. Oxford: Blackwell.

Law, J. and Mol, A. (2001), Situating technoscience: An inquiry into spatialities. *Environment and Planning D: Society and Space*, 19(5): 609–21.

Lawn, M. (2013), The rise of data in education. In Lawn, M. (ed.) *The Rise of Data in Education Systems: Collection, Visualisation and Use*. Oxford: Symposium, 7–10.

Lee, K. M. (2004), Presence, explicated. *Communication Theory*, 14(1): 27–50.

Lindemann, G. and Schünemann, D. (2020), Presence in digital spaces: A phenomenological concept of presence in mediatized communication. *Human Studies*, 43(4): 627–51.

Littlejohn, A., Gourlay, L., Kennedy, E., Logan, K., Neumann, T., Oliver, M., Potter, J. and Rode, J. (2021), Moving teaching online: Cultural barriers experienced by university teachers during Covid-19. *Journal of Interactive Media in Education*, 21(1): 1–15.

Locke, W. (2020) Researching and understanding the influence of rankings on higher education institutions: logics, methodologies and conceptualisations. In Hazelkorn, E. and Mihut, G. (Eds.) Research Handbook on University Rankings. Cheltenham: Edward Elgar, 80-92.

Lombard, M. and Ditton, T. (1999), At the heart of it all: The concept of presence. *Journal of Computer-Mediated Communication*, 3(2). https://doi.org/10.1111/j.1083-6101.1997.tb00072.x

Lynch, K. (2014), New managerialism: The impact on education. *Concept*, 5(3): 11.

Lynteris, C. (2018), Plague masks: the visual emergence of anti-epidemic personal protection equipment. *Medical Anthropology*, 37(6): 442–57.

Lyon, D. (2007), *Surveillance Studies: An Overview*. Cambridge: Polity.

Lyon, D. (2018), *The Culture of Surveillance: Watching as a Way of Life*. Cambridge: Polity Press.

Lyon, D. (2022), *Pandemic Surveillance*. Cambridge: Polity.

Macfarlane, B. (2017), *Freedom to Learn: The Threat to Academic Freedom and Why it Needs to be Reclaimed*. London: Routledge.

Macfarlane, B. and Gourlay, L. (2009), The reflection game: Enacting the penitent self. *Teaching in Higher Education*, 14(4): 455–9.

Macfarlane, B. and Jefferson, A. (2022), The closed academy? Guild power and academic social class. *Higher Education Quarterly*, 76(1): 36–47.

MacKenzie, D. (2006), *An Engine, Not a Camera: How Financial Models Shape the Markets*. Cambridge, MA: MIT Press.

MacKenzie, D. (2019), How algorithms interact: Goffman's 'interaction order' in automated trading. *Theory, Culture and Society*, 36(2): 39–59.

Mager, A. (2012), Algorithmic ideology: How capitalism society shapes search engines. *Information, Communication and Society,* 15(5): 769–87.

Malott, C. (2019), The sublation of digital education. *Postdigital Science and Education*, 2(2): 335–79.

Mangen, A. and Balsvik, L. (2016), Pen or keyboard in beginning writing instruction? Some perspectives from embodied cognition. *Trends in Neuroscience and Education,* 5(3): 99–106.

Mangen, A. and Kuiken, D. (2014), Lost in an iPad: Narrative engagement on paper and tablet. *Scientific Study of Literature*, (4): 150–77.

Manović, L. (2013), *Software Takes Command: Extending the Language of New Media*. London: Bloomsbury Academic.

Marginson, S. (2020), The reality underneath the rankings: Trends in global science. In Hazelkorn, E. and Mihurt, G. (eds), *Research Handbook on University Rankings*, Cheltenham, UK: Edward Elgar, 19–37.

Masiello, I., Mohseni, Z., Palma, F., Nordmark S., Augustsson, H. and Rundquist, R. (2024), A current overview of the use of learning analytics dashboards. *Education Sciences*, 14(1): 82.

Mayer-Schonberger, V. and Cukier, K. (2013), *Big Data: A Revolution That Will Change How We Live, Work and Think*. London: John Murray.

Merleau-Ponty, M. (1962), *The Phenomenology of Perception*. London: Routledge & Kegan-Paul.

Merleau-Ponty, M. (1973), *The Prose of the World*. Evanston: North-Western University Press.

Merleau-Ponty, M. (2002), *Phenomenology of Perception*. Abingdon: Routledge Classics.

Meyer, J. and Rowan, B. (1977), Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, (83): 340–63.

Miller, P. and Rose, N. (1990), Governing economic life. *Economy and Society*, 19(1): 1–31.

Mol, A. and Law, J. (1994), Regions, networks and fluids: Anaemia and social topology. *Social Studies of Science*, 24(4): 641–71.

Moore, G. (1965), Cramming more components onto integrated circuits. *Electronics*, 38(8) 114–118.

Negroponte, N. (1998), Beyond digital. *Wired*, 12. https://web.media.mit.edu/~nicholas/Wired/WIRED6-12.html. [Accessed 26 February 2024].

OccupEye. (2023), *FM Systems*. https://fmsystems.com/acq/occupeye-is-now-part-of-fmsystems/

Omatayo, T., Awuzie, B., Ajayi, S., Moghayedi, A. and Oyeyipo, O. (2021), A systems thinking model for transitioning smart campuses to cities. *Frontiers in Built Environment*, (7): 755424.

Orwell, G. (1949), *Nineteen Eighty-Four, A Novel*. New York: Harcourt.

Pardo-Guerra, J. P. (2023), *The Quantified Scholar: How Research Evaluations Transformed the British Social Sciences*. New York, NY: Columbia Press.

Pasquale, F. (2015), The algorithmic self. *The Hedgehog Revie*w, 17(1), 1–15.

Pepperell, R. and Punt, M. (2000), The *Postdigital Membrane: Imagination, Technology and Desire.* Bristol: Intellect.

Pinar, M. and Horne, T. (2022), Assessing research excellence: Evaluating the Research Excellence Framework. *Research Evaluation,* 31(2): 173–87.

Polin, K., Yigitcanlar, T., Limb, M. and Washington, T. (2023), The making of a Smart campus: A review and conceptual framework. *Buildings*, 13(4): 891.

Power, M. (1997) The Audit Society: Rituals of Verification. Oxford: Oxford University Press.

Prinsloo, P. (2017), Fleeing from Frankenstein's monster and meeting Kafka on the way: Algorithmic decision-making in higher education. *Elearning and Digital Media*, 14(3): 138–63.

Ralston, S. (2021), Higher Education's microcredentialling craze: A postdigital / Deweyan critique. *Postdigital Science and Education*, 3(1): 83–101.

Ritzer, G. (2011), *The McDonaldization of Society*. London: Pine Forge Press

Röhl, T. (2012a), Disassembling the classroom: An ethnographic approach to the materiality of education. *Ethnography and Education*, 7(1): 109–26.

Röhl, T. (2012b), From witnessing to recording: Material objects and the epistemic configuration of science classes. *Pedagogy, Culture and Society*, 20(1): 49–70.

Röhl, T. (2015), Transsituating education: Educational artefacts in the classroom and beyond. In Bollig, S., Honig, M.-S., Neumann, S. and Seele, C. (eds), *MultiPluriTrans in Educational Ethnography: Approaching the Multimodality, Plurality and Translocality of Educational Realities*. Beilefeld, Germany: Transcript, 143–61.

Rosenberger, R. and Verbeek, P. P. (2015), A field guide to postphenomenology. In Rosenberger, R. and Verbeek, P. P. (eds), *Postphenomenological Investigations: Essays on Human-Technology Relations*. Lanham, MD: Lexington Books, 9–41.

Ruppert, E. (2012) The governmental topologies of database devices. *Theory, Culture & Society,* 29(4–5): 116–36.

Safon, V. (2019), Inter-ranking reputational effects: An analysis of the Academic Ranking of World Universities (ARWU) and the Times Higher Education World University Rankings (THE) reputational relationship. *Scientometrics*, (121): 895–915.

Safon, V. and Docampo, D. (2020), Analysing the impact of reputational bias on global university rankings based on objective research performance data: The case of the Shanghai Ranking (ARWU). *Scientometrics*, (125): 2199–227.

Said, E. (1978), Imaginative geography and its representations: orientalising the oriental. In Said, E. (ed.) *Orientalism*. London: Routledge, 49–73.

Sartre, J. P. (1956), *Being and Nothingness*. New York: Washington Square Press.

Sauder, M. and Espeland, W. (2009), The discipline of rankings: Tight coupling and organisational change. *American Sociological Review*, 74(1): 63–82.

Sax, D. (2016), *The Revenge of the Analogue: Real Things and Why they Matter*. New York: PublicAffairs.

Sax, D. (2022), *The Future is Analogue: How to Create a More Human World*. New York: PublicAffairs.

Scharff, R. (2006), Ihde's albatross: Sticking to a "phenomenology" of technoscientific experience. In Selinger, E. (ed.) *Postphenomenology: A Critical Companion to Ihde*. New York, NY: SUNY Press, 131–44.

Scott, J. (1998), *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, Yale: Yale University Press.

Selwyn, N. (2016), *Is Technology Good for Education*? Cambridge: Polity Press.

Siemens, G. (2005), Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1): 3–10.

Seyfert, R. and Roberge, J., eds. (2016), *Algorithmic Cultures: Essays on Meaning, Performance and New Technologies*. Abingdon: Routledge.

Sheller, M. and Urry, J. (2006), The new mobilities paradigm. *Environment and Planning A: Economy and Space*, 38(2): 207–26.

Shore, C. and Wright, S. (2000), Coercive accountability: The rise of audit culture in higher education. In Strathern, M. (ed.) *Audit Cultures: Anthropological Studies in Accountability, Ethics and the Academy*. London: Routledge, 57–89.

Shukaitis, S. (2009), Infrapolitics and the nomadic educational machine. In Amster, R., Deleon, A., Fernandez, L., Nocella, A. and Shannon, D. (eds), *Contemporary Anarchist Studies*. London: Routledge, 166–174.

Silova I. and Brehm, W. (2015), From myths to models: The (re)production of world culture in comparative education. *Globalisation, Societies and Education*, 13(1): 8–33.

Sismondo, S. (2020), Sociotechnical imaginaries: An accidental themed issue. *Social Studies of Science*, 50(4): 505–7.

Smith, J. (2022), *The Internet Is Not What You Think It Is: A History, A Philosophy, A Warning.* Princeton: Princeton Press.

SoLAR. (2024), *Society for Learning Analytics Research*. https://www.solaresearch.org/

Spencer, J. (2020), *Smart Cities and the Military (podcast)*. Modern War Institute at West Point. https://mwi.westpoint.edu/smart-cities-and-the-military/

Srnicek, N. (2017), *Platform Capitalism*. Cambridge: Polity.

Stein, S. (2019), Critical internationalization studies at an impasse: Making space for complexity, uncertainty, and complicity in a time of global challenges. *Studies in Higher Education*, 46(9): 1771–84.

Stern, D. (2010), *Forms of Vitality: Exploring Dynamic Experience in Psychology, the Arts, Psychotherapy, and Development*. Oxford: Oxford University Press.

Strathern, M., ed. (2000), *Audit Cultures: Anthropological Studies in Accountability, Ethics and the Academy*. London: Routledge.

Striphas, T. (2009), *The Late Age of Print: Everyday Book Culture from Consumerism to Control*. New York: Columbia University Press.

Striphas, T. (2015), Algorithmic culture. *European Journal of Cultural Studies*, 18(4–5): 395–412.

Susnjak, T., Ramaswami, G. and Mathrani, A. (2022), Learning analytics dashboard: a tool for providing actionable insights to learners. *International Journal of Educational Technology in Higher Education*, 19(12): 1–23.

Synectics. (2021), *University Surveillance: Unlocking a Safer, Smarter Future.* https://synecticsglobal.com/resources/university-surveillance-unlocking-a-safer-smarter-future-blog [Accessed 20 February 2024].

Taylor, C. (2004), *Modern Social Imaginaries*. Durham: Duke University Press.

Taylor, C. (2009), Towards a geography of education. *Oxford Review of Education*, 5(5): 651–69.

The Social Media Collective. (2015), *Critical Algorithm Studies: A Reading List*. https://socialmediacollective.org/reading-lists/critical-algorithm-studies/ [Accessed 26 February 2024]

Thompson, P. (2020), Ihde's pragmatism. In Miller, G. and Shew, A. (eds), *Reimagining Philosophy and Technology, Reinventing Ihde.* Cham: Springer Nature, 43–61.

Thrift, N. (2005), *Knowing Capitalism*. London: Sage.

TRAC. 2023. Transparent Approach to Costing. UK Office for Students. https://www.trac.ac.uk/about/

Transhumanist Declaration. (2009), https://www.humanityplus.org/the-transhumanist-declaration [Accessed 20 February 2024].

Transhumanist FAQ. (1999), https://www.humanityplus.org/transhumanist-faq [Accessed 20 February 2024]

Turing, A. (1950), Computing machinery and intelligence. *Mind*, (59): 433–60.

Undercommoning Collective. (2016), Undercommoning within, against and beyond the university-as-such. *Roar*, 5 June. https://roarmag.org/essays/undercommoning-collective-university-education/ [Accessed 20 February 2024]

Uricchio, W. (2011), The algorithmic turn: Photosynth, augmented reality and the changing implications of the image. *Visual Studies*, 26(1): 25–35.

Urry, J. (2007), *Mobilities*. Cambridge: Polity Press.

van Manen, M. (1990). Researching lived experience: Human science for an action sensitive pedagogy. Albany, NY: SUNY Press.

van Manen, M. (1997) *Researching Lived Experience: Human Science for an Action-Sensitive Pedagogy*. London: Routledge.

van Manen, M. (2014), *Phenomenology of Practice: Meaning-Giving Methods in Phenomenological Research and Writing*. London: Routledge.

Verbeek, P. P. (2001), Don Ihde: The technological lifeworld. In Achterhuis, H. (ed.) *American Philosophy of Technology: The Empirical Turn*. Bloomington: Indiana University Press, 119–46.

Verbeek, P. P. (2005), *What Things Do: Philosophical Reflections on Technology, Agency, and Design.* Penn State: Penn State University Press.

Verbeek, P. P. (2011), *Moralizing Technology: Understanding and Designing the Morality of Things.* Chicago, IL: University of Chicago Press.

Verbeek, P. P. (2015), A Field Guide to Postphenomenology. In Rosenberger, R. and Verbeek, P. P. (eds), *Postphenomenological Investigations: Essays on Human-Technological Relations*. London: Lexington Books, 9-41.

Verbeek, P. P. (2016), Toward a theory of technological mediation; A program for postphenomenological research. In Berg, J., Fris, O. and Crease, R. (eds), *Technoscience and Phenomenology: The Manhattan Papers.* London: Lexington Books, 189–204.

Verbeek, P. P. (2023), *Peter-Paul Verbeek*. https://ppverbeek.org/

Vinge, V. (1993), The coming technological singularity. *Whole Earth Review*, Winter issue.

Wachter, S., Mittelstadt, B. and Russell, C. (2017), Counterfactual explanations without opening the black box: automated decisions and the GDPR. *Harvard Journal of Law and Technology*, 31(2): 842–61.

Waldenfels, B. (2011), *Phenomenology of the Alien: Basic Concepts*. Evanston, IL: Northwestern University Press.

Webb, D. (2018), Bolt-holes and breathing spaces in the system: On forms of academic resistance (or, can the university be a site of utopian resistance?) *Review of Education, Pedagogy, and Cultural Studies*, 40(2): 96–118.

Welch, A. (1998). The cult of efficiency in education: comparative reflections on the reality and the rhetoric. *Comparative Education,* 34(2): 157–75.

Werron, T. and Ringel, L. (2017), Rankings in a comparative perspective: Conceptual remarks. In Lessenich, S. (ed.) *Geschlossene Gesellschaften. Verhandlungen des 38. Kongresses de Deutschen Gesselschaftfur Soziologie in Bamberg 2016*. Essen: DGS, 1–10.

Wilbers, S. and Branković, J. (2021), The emergence of university rankings: a historical-sociological account. *Higher Education*, 86: 733–50.

Williamson, B., ed. (2015a), *Coding / Learning: Software and Digital Data in Education*. Stirling: University of Stirling.

Williamson, B. (2015b), Software code / social code. In Williamson, B. (ed.) *Coding / Learning: Software and Digital Data in Education*. Stirling: University of Stirling, 17–22.

Williamson, B. (2017a), *Big Data in Education: The Digital Future of Learning, Policy and Practice*. London: SAGE.

Williamson, B. (2017b), Who owns educational theory? Big data, algorithms and expert power of education data science. *Elearning and Digital Media*, 14(3), 105–22.

Wolf, C. (2010), *What is Posthumanism? Minneapolis: University of Minnesota Press.*

Wu, J. (2020), Using sensor data to explore library occupancy in smart campus. *UCL Connected Environments Blog*, 31 January. https://connected-environments.org/guest-post/using-sensor-data-to-explore-library-occupancy-in-smart-campus/

YouTube. (2022). James Bond and the Queen London 2012 Performance. https://www.youtube.com/watch?v=1AS-dCdYZbo

YouTube. (2024), A Conference Call in Real Life. https://www.youtube.com/watch?v=DYu_bGbZiiQ

Zaslove, J. (2007), Exiled pedagogy: From the 'guerrilla' classroom to the university of excess. In Coté, M., Day, R. and de Peuter, G. (eds), *Utopian Pedagogy*. Toronto, CA: University of Toronto Press, 93–107.

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