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INNOVATIONS AND CHALLENGES IN APPLIED LINGUISTICS

Innovations and Challenges in Digital Literacies

Literacies of Repair

RODNEY H. JONES

INNOVATIONS AND CHALLENGES IN DIGITAL LITERACIES

Innovations and Challenges in Digital Literacies questions whether the current theoretical frameworks and pedagogical practices around digital literacies are sufficient to confront the technological, social, and political crises around digital media that we are experiencing today.

Drawing on extensive research in digital literacies, discourse analysis, and sociotechnical systems, Jones reimagines digital literacies not simply as skills for making meaning and navigating information but as a more holistic project of figuring out how to 'fix' what is 'broken' about the internet and our broader societies. The book focuses on seven key 'sites of repair'—action, attention, affect, affinity, visibility, truth, and humanity—each site offering insights into how agency, emotions, relationships, knowledge, and 'intelligence' emerge through our entanglements with digital technologies. The text aims to provoke debate about how we define digital literacies in an age of political polarisation and rapid technological change. It provides powerful tools for teaching, learning, and living more ethically with digital media.

With this book, Jones invites readers to see themselves not just as users of digital technology, but as fixers of broken systems—and caretakers of our increasingly fragile world. This approach provides a framework for educators, students, and researchers to collaboratively develop practical strategies to challenge the logics of technological and social systems, cultivating new literacies for an age of online misinformation, algorithmic governance, and generative AI.

Rodney H. Jones is Professor of Sociolinguistics and Digital Media in the Department of English Language and Applied Linguistics at the University of Reading, UK. He has published widely in the fields of digital literacies, health communication, and language and creativity.

INNOVATIONS AND CHALLENGES IN APPLIED LINGUISTICS

Series Editor:

Ken Hyland is Professor of Applied Linguistics in Education at the University of East Anglia and Visiting Professor in the School of Foreign Language Education, Jilin University, China.

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Rodney H. Jones

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1

LITERACIES OF REPAIR

The internet is broken

The internet is broken. At least that's what they say. Everywhere we turn, people are railing about how it has poisoned our communication, atrophied our brains, undermined our politics, and distorted our collective grip on reality. There are few aspects of modern life that the internet has *not* been blamed for ruining. It has ruined our ability to get along with one another, polluting the well of public discourse with hate speech and 'shitposting'. It has inundated us with propaganda and disinformation, fanning the flames of unprecedented political polarisation and pushing people to embrace authoritarian leaders. It has ruined our ability to tell true from false and right from wrong, amplified our biases, undermined our motivation to learn new things, and warped critical thinking into conspiracy theorising. It has ruined our attention spans, our memories, and our ability to think straight and made us nervous, moody, and just plain sad. And it has stolen our agency, usurping decision-making power from humans and turning us into mindless automatons. Rather than the open, adventurous space of cooperation, creativity, and unlimited potential imagined by early web pioneers like Tim Berners-Lee and John Perry Barlow, the internet today seems fragmented, frightening, divisive, and downright dangerous.

Indeed, it is those early pioneers that are most adamant in their pronouncements of the internet's brokenness. Tim Berners-Lee, the founder of the World Wide Web, for instance, has argued that the increasing centralisation of power in the hands of a few internet companies has 'ended up producing … a large-scale emergent phenomenon which is *anti-human*' (Brooker, 2018: para 6, emphasis mine), and Jaron Lanier, a pioneer in the field of virtual reality, has warned that the internet is poised to 'engulf us all', destroying political discourse, economic stability, and the dignity of personhood, eventually leading to

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'social catastrophe' (Rosenbaum, 2013). In June of 2021, hundreds of prominent media experts signed a manifesto declaring conclusively that '[t]he internet and the media landscape are broken' (Fuchs & Unterberger, 2021: 10).

The view that the internet is broken is not limited to contrarian journalists, elderly tech gurus, and middle-aged professors. Even young people are increasingly expressing misgivings. 'I don't like the direction that technology is going in', said one young participant in a study on student experiences with the internet conducted by Alison Head and her colleagues (Head et al., 2020: 16), 'A lot of it can be used for evil, and even though it's really smart, and it's like really well implemented and effective for the people who it's serving, it's not serving the general population. And that freaks me out.' A study conducted by behavioural economists (Bursztyn et al., 2023) found not only that young people felt 'trapped' into using social media because most of their friends did, but that a majority of them were actually *willing to pay* to have their own and their friends' social media accounts deactivated.

And, if things seem bad now, many believe they will only get worse. Despite the hype from tech companies about the coming benefits of artificial intelligence (AI), virtual reality (VR) and the 'metaverse', many experts warn that with these advances will come increasing inequality, social isolation, a loss of human agency, and a further loosening of our grip on reality (Bridle, 2018; Pew Research Center, 2023). Many prominent industry leaders are making even more dire predictions, cautioning us that '[m]itigating the risk of extinction from AI should be a global priority alongside other societal-scale risks such as pandemics and nuclear war' (Center for AI Safety, 2023).

People disagree on who or what is to blame for breaking the internet. Some blame it on 'bad actors': trolls and bots and opportunistic politicians who are ruining the internet for the rest of us. Others focus on the tech companies and their business models of distraction and extraction, or on technology itself, in particular the AI agents and algorithms which worm their way into every corner of our lives and sometimes seem take on lives of their own. Still others blame it on us, on our laziness, our narcissism, and our addiction to convenience. Some suggest that the ills brought on by technologies can be addressed by even better technologies, an improved, more decentralised infrastructure for the web, smarter AI that will automatically filter out hate speech and alert us when something that we read online is not true, or better apps that block companies from tracking us online or block us from accessing certain platforms and services at times when we need to focus on something else. Others advocate for political solutions, whether in the form of regulations passed by governments (such as Europe's General Data Protection Regulation or the UK's Online Safety Act), or direct action by users, through, for instance, hashtag-fuelled campaigns to #DeleteUber or to #OwnYourData. Yet others argue that the problem can only be solved with education: equipping people with the proper 'digital literacies' that will enable them to evaluate information and ferret out fake news, protect their personal data,

cultivate a critical attitude towards algorithms and AI, and look after their 'digital well-being' (see e.g. European Commission, 2020).

Given the title of this book, it should be obvious which of the above solutions I will be advocating for. But what I mean by digital literacies is, in many important ways, different from what is often promoted in the policy documents of governments or in the curricula of many schools. The view of digital literacies that I am advocating for is not just about helping people understand and use digital media and the internet. It is also about helping them to understand (and use) human language, human psychology, human relationships and human social and political structures. It sees the 'brokenness' of the internet as not just an educational problem, or a technical problem, or a political problem, or an economic problem, or a psychological or sociological problem, but as a *systemic* problem, and argues that fixing the internet will require us working together to understand not just how technologies and societies and people work, but how the broader *sociotechnical system*s of which they are a part work. As Bridle writes:

> If we do not understand how complex technologies function, how systems of technologies interconnect, and how systems of systems interact, then we are powerless within them, and their potential is more easily captured by selfish elites and inhuman corporations. Precisely because these technologies interact with one another in unexpected and often-strange ways, and because we are completely entangled with them, this understanding cannot be limited to the practicalities of how things work: it must be extended to how things came to be, and how they continue to function in the world in ways that are often invisible and interwoven.
>
> *(Bridle, 2018: 3)*

Because of this more systemic orientation, another important difference between my view of digital literacies and the view enshrined in many educational policies is that my target is not just students in educational contexts. Indeed, to assume that children and teenagers are the only ones who need to develop digital literacies is not just illogical, it is also unfair. And this unfairness highlights the biggest problem of many arguments for the importance of digital literacies over other possible solutions—the fact that it places the burden for fixing the internet on *individuals*. The kinds of literacies that I'm interested in here are not individual; they're *societal*, and they require the input and involvement all stakeholders. And so, while the suggested interventions in this book are designed with students in mind, they could just as easily be used in seminars and training sessions for parents, journalists, policy makers, engineers, and even the CEOs of tech companies.

It should be clear by now that when I speak of 'the internet', I'm not just talking about the system of servers and protocols through which information circulates, not just the physical devices that are connected through this system,

not just the platforms and apps through which we interact with the system, not just the algorithms and 'intelligent' agents that seem to have taken control of our daily lives. I'm also talking about the way *we* participate in the system as nodes in the network, as actants and interactants, as consumers and data sources, and as the workforce whose physical, intellectual, creative, and affective labour keep this system going. When I speak of the internet, I'm talking about us.

Digital literacies

So, what do we mean when we talk about 'digital literacies'? First of all, digital literacies need to be distinguished from what has come to be called 'technology-enhanced learning' and the utopian discourses that often accompany this term. Such discourses often uncritically position technology as inherently beneficial to learning, neglecting crucial questions of competencies and ideologies (Darvin, 2019; Golden, 2017; Williamson, 2017). Meanwhile, evidence that technology itself enhances learning is scarce; a 2019 study by the Organisation for Economic Co-operation and Development (OECD), for instance, found no significant improvement in learning outcomes in countries heavily investing in digital technologies in schools and only a weak correlation between students' in-school internet use and their 'real world' digital literacies. The introduction of digital technologies in schools has reinforced neoliberal ideologies, widened digital divides, and subjected students to algorithmic biases and the data extraction agendas of tech companies (Darvin, 2018; de Roock, 2021). In other words, bringing digital technologies into classrooms has inevitably entailed importing what is broken about them.

It is also important to distinguish 'digital literacies' from 'digital literacy' or 'computer literacy', which usually focus on teaching students the skills needed to operate computers, evaluate online information, and protect their data. Sometimes these approaches also include efforts to teach computer programming, based on the well-worn slogan that people who cannot program computers are at risk of 'being programmed' by them (Rushkoff, 2010). While such skills are important for digital literacies, they alone don't prepare students to address the broader psychological and social challenges associated with the internet that I mentioned above. Moreover, they are often taught in ways that are disconnected from real-world contexts, as 'a floating set of skills that is recommended to everyone but owned by no one' (Darvin, 2019: 223).

What distinguishes 'digital literacies' from 'digital literacy' is the insistence that digital skills cannot be meaningfully separated from their social contexts. This insistence can be traced back to a paradigm shift in literacy studies in the 1980s inspired by scholars like Brian Street (1984) and Shirley Brice Heath (1983), who argued that seeing reading and writing as individual cognitive skills ignores the social and cultural dimensions of literacy. Reading and writing, they posited, are always embedded in social practices through which

people enact their identities and their membership in groups. Meanwhile, other scholars, such as Bill Cope, Mary Kalantzis, and Gunther Kress, inspired by the work of British linguist Michael Halliday (1978), advocated for a view of literacy which didn't just acknowledge the situated nature of reading and writing but also recognised other 'literacies' needed for communicating in a world increasingly dominated by multimodal and multimedia communication. This 'multiliteracies approach (Cope & Kalantzis, 2000; New London Group, 1996), which focuses on helping students exploit a diverse range of 'semiotic resources in the service of 'meaning-making', has been extremely influential in the field of digital literacies. From this perspective, 'digital literacies' are understood broadly as '*semiotic* activit[ies] mediated by electronic media' (Thorne, 2013:192, emphasis mine).

One drawback to this approach, however, is its focus on what Lithgow (2021) calls the 'application layer' of digital media, primarily the multimodal interfaces through which users interact with digital tools, without looking deeper into the 'sub-screenic' dimensions of digital technologies (algorithms and protocols) or wider to the political economies that drive the design of interfaces and the kinds of interactions they make possible (Golden, 2017; Lynch, 2017). Another drawback is its privileging of 'meaning-making' as the core activity of literacy. As Leander and Boldt (2012) argue, if we are to take the notion that literacies are inseparable from social practices seriously, we need to confront those aspects of social practices that are not 'meaningful', but rather emotional, embodied, unpredictable and emergent.

Some scholars in this tradition have focused less on classrooms and more on the everyday digital literacies that young people develop outside of school in online forums and chatrooms (Lam, 2000), in digital games (Gee, 2003, Steinkuehler, 2010), on fanfiction sites (Black, 2009), and on video and image sharing platforms such as YouTube, Instagram, Snapchat and TikTok (Albawardi & Jones, 2020; Boffone, 2022). As with other work in 'multiliteracies', however, this work also has limitations, sometimes focusing too narrowly on situated practices of learning while overlooking the broader economic and political forces that have come to shape digital communication. Moreover, in their desire to valorise the vernacular practices of young people, such approaches often fail to engage with the more problematic aspects digital media use that I mentioned at the beginning of this chapter.

In the past ten years, however, spurred on by concerns about online misinformation, digital surveillance, and the outsized power of platforms like Google and Facebook (Meta), digital literacies scholarship has taken a decidedly more critical turn (Darvin, 2017, Garcia et al., 2018). Early versions of 'critical digital literacies' took their inspiration from critical media literacy (Buckingham, 2003) and critical discourse analysis (Fairclough, 2016; Luke, 2012), approaches which are chiefly concerned with detecting the hidden ideologies and workings of power in media texts. As the contingent nature of power and meaning in the complex information ecosystems of digital media

(KhosraviNik & Unger, 2015) have become clearer, however, so have the inadequacies of such approaches. Indeed, as media scholar danah boyd (2017a) has pointed out, efforts to get students to try to 'uncover' the hidden workings of power in online texts can in some ways make them more susceptible to the culture of conspiracy theorising that has come to dominate the internet (see Chapter 7).

More recent approaches, therefore, have begun focusing not just on how ideologies and the workings of power are 'hidden' in texts, but how they are also hidden within complex 'sociotechnical structures and algorithmic processes (that) shape the distribution of knowledge in more invisible ways' (Darvin, 2019: 224), often in the service of powerful companies whose business models are based on exploiting users' labour and invading their privacy (Fuchs, 2021). As a result, digital literacies scholars began calling for the development of a range of new kinds of critical literacies, such as 'platform literacies' (Carrington, 2018; Nichols & LeBlanc, 2021), 'algorithmic literacies' (Jones, 2021a, 2021b; Leander & Burriss, 2020), and 'critical data literacies' (Pangrazio & Selwyn, 2019; Stornaiuolo, 2020).

What is missing from much of this work, however, is an understanding of critical literacies as more than just a matter of critical thinking and reflection, but also a matter of people's embodied, emotional and social ways of being in the world. Our ability to exercise criticality depends not just on what we read online, but also how we *experience* it in the context of our social lives, not just on what we think about it, but how we feel about it. And 'critiquing' is never just an individual exercise, but a social act with implications for our social identities and our place in the communities we belong to.

Another problem with much of this work is the fact that, despite its commitment to understanding the role of non-human agents (platforms, algorithms) in people's online actions, it often does not provide a clear enough account of how they are entangled with human agency. Because of this, the emphasis is usually on users (often portrayed as autonomous decision makers) 'taking back control' from digital media rather than on understanding the complex interaction of affordances and 'effective abilities' (Gee, 2014) that are part of their ongoing relationship with technologies.

Literacies of repair

The strands of research in literacy studies that most inform this book, while related to the traditions described above, stand apart from them in important ways. One of these is *mediated discourse analysis* (Norris & Jones, 2005; Scollon, 2001), an approach to discourse analysis that focuses not so much on discourse as on the situated *social actions* that discourse and other cultural tools are used to take. Literacy scholars using this approach (e.g. Wohlwend, 2020) have focused on how literacy events unfold through situated social actions where identities, power relations, and cultural tools intersect. This

approach offers an opportunity to shift our attention away from 'meaning-making' as the central focus of literacy studies and more towards *mediated actions* as the fundamental building blocks of social identities and social relationships.

This book also draws heavily on recent approaches to literacy that focus on its *material* dimensions: the way meanings and identities unfold through embodied interactions in and with the physical world (e.g. Pahl & Rowsell, 2010). Related to this is work on the *affective* dimensions of literacy which challenges the often-implicit privileging of rationality and cognition, especially in the teaching of 'critical literacies'. Approaches focusing on affect and materiality often converge within a broader perspective that has come to be known as 'posthuman literacies' (Gourlay, 2020; Kuby et al., 2018; Leander & Burriss, 2020), a view which urges us to move away from the idea of the autonomous human learner and towards a recognition of the ways learning, meaning, and agency materialise in the complex entanglements of human and non-human actors (Barad, 2007; Haraway, 1991).

My framework also draws on 'ecological' approaches to literacies (Barton, 2007; Nichols & LeBlanc, 2021), which emphasise the dynamic interrelationships between literacy practices and the wider social, cultural, and material environments in which they are situated, as well as more recent work in what has come to be known as 'transliteracies', which explores the way people, meanings and social practices change as they move across different media and modalities (Stornaiuolo et al., 2017). Such work anticipates the current 'post-digital' turn in literacy studies (Bhatt, 2023; Jandrić et al., 2023), which argues that digital technologies have become so embedded in our everyday lives that distinctions between the online and offline, the digital and the analogue, and the physical and the virtual are becoming less and less useful.

My overall approach is also informed by the traditions of 'maker literacies' and 'hacker literacies', which are concerned with engaging learners in designing, prototyping building and altering physical artefacts and digital technologies as a way of promoting creativity, criticality, and resilience (Potter & McDougall, 2017). 'Maker literacies', which have been heavily influenced by feminist pedagogies (Foster, 2017), are based on inviting people with different talents and technical skills to work together to solve problems (Wen & Castek, 2020). What distinguishes them from the individualistic 'program or be programmed' ethos of advocates of 'computer literacy' is that they are inherently social, not just concerned with teaching people how technologies fit together, but also 'how the world fits together and how we fit into it' (Cipolla, 2019: 262).

'Hacker literacies' can be traced back to the 'hacker culture' of the early days of the internet. Santo (2011: 2) defines them as 'empowered participatory practices, grounded in critical mindsets, that aim to resist, reconfigure, and/or reformulate the sociotechnical digital spaces and tools that mediate social, cultural, and political participation'. Like maker literacies, hacker

literacies sometimes involve skills like coding, but don't always. Consider, for instance, the ways social media users figure out how to 'hack' the algorithms that govern platforms in order to promote their posts with little or no 'technical' understanding of them (Jones, 2021b; see Chapter 2).

Rather than 'making' or 'hacking', however, the metaphor I will be using, following from the reflection on the 'brokenness' the internet with which I began this chapter, is the metaphor of 'repair', a metaphor which highlights the fact that to be a 'literate' citizen in today's societies involves being able to work together with other people to figure out how and why things don't work the way we want them to and to formulate ways to fix them. That goes not just for technologies, but also for human communication and relationships, for political and economic systems, and for our own habits of acting with and reacting to technologies.

Much of my understanding of repair comes from the work of Stephen Jackson (2014), a scholar in science and technology studies, who advances what he refers to as 'broken world theory. 'What happens', Jackson (2014: 221) asks, 'when we take erosion, breakdown, and decay, rather than novelty, growth, and progress, as our starting points in thinking through the nature, use, and effects of information technology and new media?' Or, to put it another way, what happens when we take the 'brokenness' of the internet (and of our societies more generally) not as a problem, but as an opportunity?

One of the things that happens is that we find new ways of 'looking into' not just our technologies, but also ourselves and our worlds that are often closed off by the future oriented discourses that are usually associated with digital media, discourses that continually orient us towards the 'update', the new version, the next item in our feeds. Breakdown brings with it, Jackson says, 'world disclosing properties' that make it the perfect starting point for exploration and education.

The introduction of the idea of repair into digital literacies encourages students to see the tools that they use not as 'givens', but as imperfect and unfinished, and to see themselves not just as users but as 'fixers'. Fixers, says Jackson (2014: 229), 'know and see different things—indeed, different worlds—than the better-known figures of "designer" or "user"'.

The notion of repair brings together many of the themes I have been discussing so far. It contributes to our formulation of *critical* digital literacies not just by challenging dominant ideas around technology, but by providing practical ways to 'troubleshoot' our encounters with technology and with one another through technology. It also promotes an *activist* orientation towards criticality in which students are involved not just in critiquing things but in actively trying to discover how to fix them, whether these efforts involve local interventions within their immediate social circle or interventions that attempt to harness wider social networks and engage with political or economic institutions. Finally, because of its roots in science and technology studies with its long commitment to 'more than human' perspectives on action and agency

(see e.g. Latour, 2007), broken world theory encourages us to adopt a more *systemic* view of the world and our place in it, to think of things in terms of assemblages rather than objects. In particular, it draws our attention to the 'ongoing forms of labour, power and interest…that underpin the survival of things', and in so doing, makes visible to us 'relations of value and order that are sometimes made invisible under the smooth functioning of complex sociotechnical systems' (Jackson, 2014: 230).

The most important thing repair thinking brings to digital literacies, however, is a healthy appreciation of how fragile our tools, our relationships, our institutions, and our environments are, encouraging us to work together to learn how to care for them. Fisher and Tronto (1990: 40) define caring as 'a species activity that includes everything we do to maintain, continue, and repair our "world" so that we can live in it as well as possible'. Caring is not just a matter of acknowledging our shared stewardship of the world or having a sense of 'shared responsibility'. It is an active process of engaging with the world around us and with other people to figure out how we 'fit in' and what sorts of actions and values are necessary to sustain healthy relationships and a healthy world. An ethos of repair does not just compel us to care—it asks us to discover what it is we really care about and why.

Sites of repair

This book is organised around what I call 'sites of repair', which, rather than physical sites, can be thought of dimensions of our engagement with digital media which don't just seem 'broken', but also seem to offer opportunities for repair-based interventions. These are: (1) action, (2) attention, (3) affect, (4) affinity, (5) visibility (6) truth, and (7) humanity. While the forms of 'brokenness' found at these sites of repair echo the problems with digital technologies articulated by journalists, educators, technologists and social scientists which I talked about at the beginning of this chapter, my treatment of these problems aims to move beyond the technological determinism and implicit moralising that characterise these accounts and offer a more hopeful perspective, regarding 'brokenness' not as a reason to despair but as an opportunity for learning.

I take the notion of 'sites of repair' from a range of disciplines, including human centred design and engineering studies (e.g. Houston et al., 2016), discard studies (e.g. Lepawsky et al., 2017), and studies of restorative justice (e.g. Aslam, 2023; Reyes, 2020). In all of these disciplines, sites of repair are seen not just sites of knowledge creation, learning and collaborative technological practice, but also as 'sites where key discussions around current cultural and political issues can be confronted in an embedded manner' (Graziano & Trogal, 2017: 636). They are both 'sites of struggle' and sites of 'reparative sociality' (Aslam, 2023: 6), where *value* is created, and *values* are debated.

In the following chapters I will provide a theoretical discussion of the issues associated with each of these 'sites of repair', drawing on my own and others'

research in digital literacies, as well as on insights from other fields, including anthropology, computer science, design, psychology, and sociology. Based on this theoretical discussion, I will attempt to identify what is 'broken' about each these aspects of our digitally mediated lives and what we can do to collectively formulate practices of repair. I will end each chapter with a discussion of specific interventions that teachers and learners can engage in together, most of them based on work that is already taking place in classrooms or in communities in different national contexts, as well as on activities that I have developed with my own students over the past two decades.

First, I will explore the issue of *action*, focusing on what people are *doing* when they engage with digital technologies and the degree of *agency* they have over their actions. As more and more of our actions are mediated through digital technologies, and more and more of those actions and the decisions behind them are automated by algorithms and artificial intelligence, some have started to question whether we are *using* our technologies or *being used* by them. Frischmann and Selinger (2018: xi), for instance, warn us that 'smart' technologies (and those who design them) are increasingly treating human beings as 'instruments to be engineered, optimised and programmed'. One problem with such warnings is that they ignore the fact that we have never really been autonomous agents; we have always been entangled with our tools and with the material environments that we inhabit. From this perspective, the best way to avoid being 'controlled' by our technologies is to examine how agency *emerges* from assemblages of humans, machines and the material world through processes of what I call 'agencing' (Ingold, 2017a).

Understanding agencing must begin with a focus on the 'small actions' people take with technologies (such as clicking and 'liking' and sharing), how these actions arise from the entangled agencies of humans and machines, and how, over time, they 'crystallise' into particular *relationships* with technologies and *dispositions* to act in certain ways with them. Sensitising our students to these processes can be achieved through examining: (1) the *interfaces* that we use to interact (or to '*intra-act*', in the words of Barad, 2007) with technologies and with other people and how they work to enable or constrain certain actions; (2) the *inferences* that we make about the hidden workings of algorithms and 'intelligent' agents that take place beneath the surface of interfaces; and (3) the ways particular patterns or 'habits' of action develop over time as we 'use' technologies and technologies 'learn' how to 'use' us, including our habitual ways of *imagining* what kinds of agents technologies are and what kinds of agents we are.

Next, I will consider *attention* as a site of repair. Many have argued that the constant battle waged for our attention by tech companies, advertisers and content creators has compromised our ability to focus, think deeply, and engage meaningfully with others. Technology ethicist James Williams (2018: xii) has gone so far as to call 'liberating human attention' from the forces of technology 'the defining moral and political struggle of our time'. In this

chapter I will argue that the first step in engaging in this struggle is 'liberating' ourselves from the idea that attention is a finite resource stored in the brains of autonomous social actors—a perspective which not only is inconsistent with much recent research on attention but also plays into the agendas of those who wish to commodify our attention.

I propose instead the notion of *attention structures* (Jones, 2005, 2009a, 2010), a way of seeing attention not as a resource, but as a social practice accomplished at the intersection of technologies, human relationships and 'historical bodies' (Scollon, 2001). This model provides a way for students to explore how attention is *practised* in digitally mediated contexts and to seek out opportunities to repair the structures that support or undermine these practices. It also offers them opportunities to discover how practices of attention can function as strategies for mutual care and for political action (Arendt, 1981; Murdoch, 1970; Weil, 1952).

The third site of repair I will consider is *affect*. Most people agree that digital media have profoundly altered the emotional landscapes of our lives, offering new ways for us to experience and express emotions while at the same time increasing our feelings of anxiety, anger and depression. Much of the discourse around affect and digital media has focused on emotional manipulation, contagion and how digital media make young people more vulnerable to emotional distress and mental disorders. In this chapter I will propose a more positive understanding of 'affective literacies' which acknowledges the role of affect and emotions in motivating us to action, structuring our attention and helping us build and maintain social relationships.

The framework I propose to help students understand the affective dimensions of their media use centres on two fundamental concepts: *affordances for feeling* and *feelings of affordance*. Affordances for feeling encompass the technological features that enable the regulation, expression, and circulation of emotion in digital environments. They include mechanisms for managing emotional states, tools for communicating affect (such as emoji and reaction gifs), and infrastructures that facilitate the spread of affect through networks. The concept of feelings of affordance addresses how users' emotional dispositions and histories shape their engagement with these technological affordances, leading to the creation of 'affective niches' and the development of context-specific emotional styles.

Rather than simply teaching students to 'control their emotions' or 'resist' emotional manipulation, affective literacies involve exploring how different tools and platforms promote particular 'feeling rules' and 'affective logics', and how users come to develop affective habits around these tools. It also involves acknowledging the ways the affective economies of online spaces operate to (de)legitimate certain expressions of affect and the people and experiences associated with them.

In the next chapter, I will explore *affinity* as a site of repair, examining how digital media help shape the organisation and enactment of sociality. Despite

promises at the advent of the internet that digital media would result in a more connected, convivial and cooperative world, much online sociality today is characterised by conflict, incivility, and ideological polarisation; the more connected we are, the more divided and lonelier we seem to become. In this chapter I explore the ways digital technologies (networks, platforms, algorithms) encourage certain kinds of social interactions and social relationships and how to remake these conditions of sociality to create more open, generative, and reparative ways of being together.

In my discussion I draw heavily on Gee's (2004) notion of 'affinity spaces', online or offline paces where people are drawn together based on their shared interests or goals. When such spaces operate as they should, they provide the conditions for people to learn and grow through supportive interactions with others who share their passions. Many online affinity spaces, however, seem to have become sites of hostility and social exclusion rather than creativity and growth. Understanding why this is so, I argue, requires that we interrogate how the architectures of different platforms enable and constrain certain kinds of sociality. At the same time, it also requires that we interrogate our own *practices of affinity*, which emerge from genuine desires for connection and belonging but can often end up promoting polarisation and exclusion.

Literacies of affinity involve developing a critical awareness of the forces that shape our sociality and the ethical-political skills to navigate the different architectures for sociality that we find ourselves in. They also involve cultivating an ongoing commitment to challenging the constraints of these architectures and exploring ways to develop new practices of affinity—such as 'listening out' (Lacey, 2012) and 'calling in' (Trần, 2013)—which allow us to forge more meaningful connections within and across affinity spaces and facilitate the formation of what Ito et al. (2018) call 'high functioning affinity spaces'.

In Chapter 6, I explore *visibility* as a site of repair, focusing on how people control their online presence through the information they share and the platforms they use, and how visibility itself is used as a tool for managing social relationships and social identities. Concerns around visibility in the current (post)digital age cut two ways: on one hand we increasingly find ourselves the objects of surveillance by tech companies, governments, and even our friends and family members in ways that open us up to manipulation and threaten our personal autonomy. On the other hand, because of the rewards associated with attention seeking in online environments, we are also sometimes made to feel that we are *not visible enough* (Bucher, 2012). While visibility is often framed in terms of 'privacy' or online safety, it is also important to recognise the central role that disclosure plays in social life, and how digital media provide young people with ways of 'being seen' and 'being heard' that they might not otherwise have.

In this chapter I will argue that, along with literacies of visibility that train students in everyday tactics of managing privacy, there is also a need to explore how different possibilities for visibility give rise to feelings of intimacy,

autonomy, and the emergence of various forms of subjectivity (Cohen, 2012). One of the reasons attempts to get students to engage with issues of 'online privacy' are sometimes met with cynicism or apathy (Keen, 2022; van Ooijen et al., 2022) is our own failure to sufficiently engage with these emergent subjectivities and to invite learners to articulate how they experience the interplay of visibility and vulnerability in their lives. Rather than solely teaching students how to 'protect' their privacy, then, interventions in this chapter also focus on inviting them to reflect on the kinds of subjectivities different performances of privacy and disclosure make possible, and how different technologies enable or constrain these performances.

The penultimate chapter of the book takes up the topic of *truth* as a site of repair. The internet has been widely portrayed as an epistemic battlefield where 'truth' itself is under threat (Kakutani, 2018), and so it might seem strange that in a book on digital literacies, discussions of such issues as 'evaluating online information' and detecting 'fake news' come so late. The reason for this, I will argue, is that we can't address the apparent 'epistemic crisis' brought on by digital media (Benkler et al., 2018; Dahlgren, 2018) without understanding how epistemology functions at the *intersection* of *action, attention, affect, affinity*, and *visibility*, all of which play a role in how we experience and evaluate information and create knowledge.

Knowledge and belief are not just cognitive; they are also embodied, emotional, social and performative. Formulating epistemic literacies, then, requires a holistic and ecological approach to 'truth' (Jones, 2024a), one that goes beyond learning to evaluate the 'accuracy' or 'reliability' of information and explores *how* we know things, and how these processes of knowing are affected by the tools available to us, our social relationships, our attention structures and our desires, interests, and embodied experiences. True 'epistemic literacies' are less concerned with 'truth' and more concerned with 'truth-making', not just a matter of facts and evidence, but also a matter of values and commitments to different people, places and social practices. One of the most important tasks of literacy teaching is to equip students with the tools to engage civilly and productively with those with whom they disagree by understanding not just 'what they think is true' but 'how they *make* truth' and the factors that affect those processes of truth-making.

The final site of repair is *humanity*. By labelling it a site of repair, I don't mean to suggest that humanity itself is 'broken' (though some would argue that digital technologies have eroded 'human values' like empathy, trust and self-determination). Rather, what I mean is that much of what is 'broken' about the internet is not just about technologies and infrastructures and institutions, but also about *us*, and that fixing it will require not just 'digital literacies', but also 'literacies of humanity'. Such literacies become increasingly crucial as we confront the current 'AI moment' in which generative artificial intelligence tools are poised to transform every aspect of our lives. At a time when we seem to be outsourcing more and more of our 'humanity' to

machines (LaFrance, 2023), there is no better place than the literacy classroom to engage in conversations about what kind of people we want to be.

While media discourse oscillates between breathless pronouncements about AI's transformative potential and dire warnings about its risks, the reality is that AI has arrived on the scene *already broken*. The technology itself is inherently 'brittle' - unpredictable, prone to error, and overly dependent on the quality of its inputs (Choi, 2021; McQuillan, 2022). Trained on data extracted from our broken internet, it naturally amplifies the forms of brokenness I explore throughout this book. As AI researcher Daniel Griffin notes, 'It's not just a problem with AI … It's the web, it's the world' (Knight, 2024).

This brokenness, however, presents an opportunity. Rather than seeing AI as either salvation or threat, we can use this moment to reimagine what it means to be human in an increasingly technologically mediated world. What I will *not* be advocating for in this chapter is to return to a classical 'dignitarian' humanism (Viljoen, 2021) that puts people at the centre of the universe and blinds us to the complex ways we are entangled with technologies, other creatures, and our material environment. The key questions are not about how these new technologies 'work' or how to 'work them', but about how *we* work as parts of larger 'biosocial-technical systems' (Fox et al., 2020) of which AI is now part.

This entanglement becomes particularly visible when we consider how AI systems highlight questions of human worth - not just in dramatic scenarios of replacement or extinction, but in the everyday ways we measure ourselves against algorithmic assessments and automated metrics. Rather than trying to stake out human territory against machine encroachment, we need new kinds of 'human literacies' that acknowledge these entanglements and help us imagine new ways of being human with and through our technologies.

These new kinds of human literacies will empower students to ask the important *practical* questions about AI that they need to ask, questions about the way generative AI tools and 'intelligent' agents will affect how *agency* emerges in different situations and the way *responsibility* is assigned and exercised; the way these tools will affect how we are able to *attend* to the world and to other people and whose interests these new 'attention structures' will serve; the way they will inevitably become part of our *emotional* lives, introducing new ways of capturing and calculating affect and new opportunities for emotional bonding and manipulation; the way they will affect human *sociality*, further automating the sorting of people into different affinity spaces and incentivising particular forms of social interaction; the way they will enhance the already alarming *surveillance* capabilities of governments and corporations (Selwyn, 2022); and the way they will further complicate practices of individual and collective '*truth-making*' by proliferating misinformation and making us more susceptible to deception and persuasion. Most important, though, is that these new kinds of literacies will empower students to ask questions about humanity which, in contrast to the sci-fi fuelled speculations in the

media about the threats AI poses to the human race, focus on the more specific ways AI can harm *particular* humans (some more than others) (Hanna & Bender, 2024) and can distort our understanding of our place in the planetary ecosystem.

As Smith (2020) reminds us, the future is not a thing waiting for us just beyond the horizon. It is something that we and our students need to *do* by engaging with what is cracked and broken about our present technological moment. This engagement requires getting students to examine what kinds of values are programmed into our technologies, what kinds of values they are programming into us (Vallor, 2016), and what *new* values we need to develop for our shared future. As philosopher Theodore Scaltsas (2017: 2) suggests, designing new values 'will become an everyday necessity for all of us, on account of the dramatic rate of intrusive technological change taking place in society'.

This project of reimagining humanity must take place at the intersection of all the sites of repair explored in this volume: action, attention, affect, affinity, visibility, and truth. Through this systemic lens, we can see that this 'AI moment' is ultimately part of a larger challenge of mending our broken relationships not just with our technologies, but with ourselves, with one another, and with the planet we share.

2

ACTION

'What are you doing?'

The original question that Twitter (now X) asked its users when they logged on in 2006 was 'What are you doing?'. It was a question that not just helped launch a new form of social interaction in which sharing even the most mundane activities of our daily lives online became normal, but also one which reflected the *material* underpinnings of social media. As media critic Geert Lovink (2019: 29) points out, social media platforms 'have never asked what you are thinking', and, although there is no shortage of people expressing their 'thoughts' on social media, there has always been the sense that it is more about 'doing'—we 'tweet' and 'snap' and 'share' and 'pin', and even when we are 'expressing' ourselves, we often do so through actions such as 'liking', 'rating', 'reacting', and 'recommending'. We 'follow', 'tag', 'block' and 'ban'. We 'scroll' and 'swipe' and 'click' and 'tap'. We hit 'post', and sometimes step back and ask ourselves, 'What have I done?'

As literacy teachers, we often find ourselves focusing on 'meaning' at the expense of 'doing'. In this chapter I will be arguing that a more useful starting point for digital literacies is to provoke students to consider not the meanings that they are making with their digital devices, but the *actions* that they are taking. In other words, to ask them, 'What are you doing?'

A focus on action, of course, is not new in literacy studies. As I mentioned in the last chapter, one of the key messages of scholars associated with the 'New Literacy Studies' was that reading and writing are never exclusively about making and interpreting 'meaning'—they are also about engaging in 'social practices'. What I'm suggesting, however, takes this focus on action even further, calling attention not just to the broader 'practices' that people engage in with digital media, such as shopping, dating, and gaming, but also

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to the smaller *actions* such as clicking, tapping, and scrolling which form the building blocks of these practices. It is sometimes these small actions that can have the biggest consequences or, as the motto of the dating app Tinder puts it: 'Any swipe can change your life.'

But the question, 'What are you doing?' can't be asked without also asking another question, the one that Twitter replaced its original query with in 2009 and has used ever since: 'What's happening'. But here again I'm not just interested in the big events like wars and elections that people like to talk about on social media, but also the little things that are happening moment by moment as people use their digital devices, many of which they might not even be aware of, including the countless actions executed by *algorithms* that often end up shaping their experiences with other people and with the world around them. Asking 'What's happening?' is also a way of asking how things 'work' and why our machines respond to our actions the way they do. 'What's happening?' is also inevitably a political question, since it involves asking *why* things work the way they do and for whose benefit. When we ask, 'What's happening?', however, we are not asking what media are doing *to* us—a question people have often asked about digital media, just as they did about television, usually as a preface to arguments about how they are distracting us, addicting us, or making us stupid. Instead, asking 'What's happening?' is about trying to understand how media contribute to creating *fields of possibility* upon which our own actions and those of others unfold.

Students of digital literacies need to learn not just how to ask, 'What am I doing?' and 'What's happening?', but also how 'doing' and 'happening' *fit together* in every experience (Dewey, 1934; Ingold, 2015). Understanding this relationship is what we mean when we talk about *agency*, broadly defined as people's ability to make choices about what to do and exercise some degree of control over what's happening around them. Indeed, if we take a practice-based approach to literacy seriously, we might argue that the core mission of literacy teachers is to engage students in asking questions about agency—about what they are doing and what's happening, as well as about what is *worth doing* and why. Such questions are central to formulating literacies of repair, which depend on figuring out what's wrong with the way our technologies work and with the way we work them, and trying to fix these things, either through small 'tweaks' to how we use particular apps or through working for more systemic changes to how technologies are designed and deployed in our societies.

Questions about agency are particularly salient in current discussions of AI, algorithms, and automation. While some argue that digital technologies have increased human agency by augmenting our abilities and enhancing our decision-making (e.g. O'Reilly, 2017), others fear that digital media are *robbing* us of agency, taking away our ability to act independently. A 2023 study by the Pew Research Centre found that most of the experts they surveyed agreed with the statement: 'By 2035, smart machines, bots and systems will

not be designed to allow humans to be in control of most tech aided decisions' (Anderson & Rainie, 2023: 5). The concern is not just that machines are taking over many tasks we used to do, but that *we ourselves* are becoming more like machines, victims of sophisticated forms of behaviour modification designed into our devices (Frischmann & Selinger, 2018; Harris, 2016).

In this chapter, I will argue that whether digital technologies enhance or diminish our students' agency depends crucially on how they answer the questions: 'What am I doing?' and 'What's happening?', and ultimately, how they understand the *relationship* between doing and happening as it changes moment by moment through their interactions with technologies, other people, and their environments.

Action, 'affordances', and 'agencing'

For years scholars across disciplines have debated the nature of human agency. Psychologists have viewed agency as an individual's capacity for self-directed action, influenced by internal factors such as motivation and 'self-efficacy' (Bandura, 2006). Meanwhile, sociologists and anthropologists have focused on how external social or cultural factors—other people, institutions, economic and social 'structures' (Giddens, 1984)—enable, constrain or mediate our ability to act. Philosophers have framed discussions of agency in terms of free-will, rational decision-making and moral responsibility, while political scientists have seen it in terms of power, civic participation, and the ability to effect change within political systems. Despite their differences, what unites most mainstream treatments of agency in the humanities and social sciences is their view of agency as something that human beings exercise upon the world. This human-centred view of agency has deep roots in Enlightenment philosophy and the broader intellectual tradition of Western modernity, which emphasises human reason, individuality and autonomy.

In education, agency has long been seen as a central component of learning. Constructivists, influenced by the work of Piaget (1971), for instance, insist that learning depends on students' active efforts to build knowledge through their interactions with their environments rather than passively receiving it from teachers or texts. Similarly, advocates of experiential learning such as Dewey (1916, 1934) see the fostering of learner agency as the main goal of education, the way students become active citizens. Critical pedagogists such as Paulo Freire (1996) go even further, seeing agency as the basis for *activism* and arguing that the whole point of education is to help students *remake* their social worlds through challenging power structures. Like the perspectives discussed above, however, these approaches also promote an essentially humanistic view of agency, which envisions an individual, autonomous person acting upon the world.

There are, however, perspectives on learning that see agency as more distributed, dynamic and emergent. Sociocultural and ecological perspectives

(see e.g. Lantolf, 2013; van Lier, 2004), for instance, drawing on the work of Vygotsky (1962, 1978), challenge the view of the autonomous human actor, pointing out that all human actions are *mediated* through cultural tools that enable or constrain what we are able to do. Whatever we do, we always 'share' agency with the tools we use, and, since these tools come to us via our sociocultural environments, we also share agency with the societies that have provided the tools. Rather than figuring out how to do things *to* the world, learning comes about through figuring out how to do things *with* the world, using the tools provided by our sociocultural environments.

According to this framework, the way tools exert agency is through what are called *affordances*, a notion developed by evolutionary psychologist James Gibson (1986), who defines them as the opportunities that organisms perceive in their environments for taking action. The term affordance is usually used to refer to what tools 'allow us to do'—a knife *affords* cutting, and a smartphone *affords* communication (calling, texting, posting to social media sites), taking photos, monitoring one's steps, navigating through physical environments, and many other things. But this way of talking about affordances misses much of what Gibson meant when he coined the term (Chong & Proctor, 2020; Davis, 2020). First, it is too one-sided, locating affordances *in tools* themselves rather than, as Gibson did, in the *relationship* between organisms and their environments. A tool can *offer* all kinds of opportunities for action, but these are not 'affordances' unless the organism *perceives* them as opportunities and has the ability to use them to take action. As Gee (2014: 90) puts it, 'an affordance is something in the environment that you can use to accomplish a goal, but it is only an affordance if you have the skill to use it'. From this perspective, agency can be seen as a matter of being able to 'match' the affordances of tools with our own abilities to perceive and use them.

This interpretation of affordances, however, is also one-sided in taking the perspective of the organism rather than the environment. If we understand agency as emerging from the relationship between the organism and the environment, then we must consider how organisms also present affordances to the environment. This can be seen in the natural world where, just as environments present organisms opportunities to act—the soil presenting the earthworm the opportunity to burrow through it—organisms also present environments with opportunities to act—the earthworm's burrowing aerating the soil and enhancing its structure. A similar dynamic emerges between us and our digital tools when algorithms and AI agents 'learn' from us as we interact with them, taking advantage of human psychological traits such as curiosity, habit formation, and our need for social validation to get us to produce more data for them. Even physical devices and software interfaces 'train' their human users to use them in particular ways. Research in psychology (e.g. Norman & Shallice, 1986) has shown how perceived affordances of objects don't just create opportunities for people to act, but actually *incite* action. Perceiving the handle of a cup as graspable makes us want to grasp it,

and perceiving a smartphone interface as 'swipeable' makes us want to swipe it.

But even this 'two-way' view of affordances doesn't quite capture our actual *experience* with devices such as smartphones, which sometimes seem to become extensions of our own bodies (Marchant & O'Donohoe, 2019). This feeling was famously captured by Merleau-Ponty (1962) in his description of a blind man with a cane, an example which was later related by Gregory Bateson in his *Steps to an Ecology of Mind*:

> Consider a blind man with a stick. Where does the blind man's self begin? At the tip of the stick? At the handle of the stick? Or at some point halfway up the stick? These questions are nonsense, because the stick is a pathway along which differences are transmitted under transformation, so that to draw a delimiting line across this pathway is to cut off a part of the systemic circuit which determines the blind man's locomotion.
>
> *(Bateson, 1972: 318)*

Sociocultural approaches retain an insistence on the *separateness* of organisms (as actors) and tools (as *mediators* of action), but, for the blind man, seeing himself and his stick as separate makes little sense, since it makes a 'boundary' out of what is actually a 'pathway' (Malafouris, 2013: 6).

An alternative to this approach can be found in socio-material and post-humanist perspectives on agency advocated by scholars like Bruno Latour (2007), Karen Barad (2007) and Donna Haraway (1991), who propose a more 'flattened ontology', a view of the world that does not see organisms and environments, actors and tools as separate entities, but rather as always already *entangled* in relational networks or 'assemblages'. From this perspective, agency is not something that is exercised by one entity upon another, or even via 'systemic circuits' as Bateson imagines, but rather something that *emerges* as parts of these assemblages come together into different configurations.

Among the most compelling articulations of this flattened ontology comes from Karen Barad, who, influenced by her background in quantum physics, sees entities as fundamentally interconnected and mutually constitutive and phenomena as inseparable from the means we use to observe them. Rather than speaking of entities *interacting*, Barad speaks of them as *intra-acting*, emerging moment by moment through their ongoing relationship with other parts of *assemblages*.

Like Merleau-Ponty and Bateson, Barad also relates a story of a man and his stick, her version coming from the physicist Neils Bohr (1963), who notes that the status of a stick that a person uses to navigate a dark room changes depending on how he holds it; when he holds the stick loosely, he perceives it as a tool separate from himself, but when he holds it tightly, he loses the sense of the stick as a foreign body and comes to feel it as part of himself (Barad, 2007: 154–155). Barad's point is that the stick's 'affordances' depend on

where and how we temporarily draw the line between the man and the stick. She calls these temporary practices of 'drawing the line' *agential cuts*. We enact these cuts through what Barad calls *material-discursive practices* which include things like the way we hold sticks, the way we use scientific instruments to measure phenomena, and the way we deploy interfaces, avatars and algorithms to negotiate our relationships with digital technologies and one another. Agency is not something that resides in people or things, in avatars or algorithms, but is something that *emerges* through these practices of cutting up the world. The kinds of actions we are able to take— and the kinds of 'worlds' that result— depend on these practices of 'cutting'.

Central to this notion of the agential cut is our own *responsibility* for the world that *materialises* as a result of it. As Barad (2007: 178) puts it, 'We are responsible to the cuts that we help enact not because we do the choosing … but because we are an agential part of the material becoming of the universe'. The good news is that with this recognition of how our practices participate in the materialisation of reality comes the possibility of transformation—both on the level of situated real-time actions (Scollon, 2001), and on the level of the broader social relationships of inclusion and exclusion, power and exploitation that educationalists like Freire (1996) are concerned with.

Posthumanist and socio-materialist ideas have opened up new perspectives on the role of agency in learning, and on our relationship with technologies, perspectives which have been explored by scholars such as Kate Phal and Jennifer Rowsell in their 'artefactual' approaches to literacy (Phal & Rowsell, 2020), Cathy Burnett and Guy Merchant in their 'undoing the digital' in digital literacies (Burnett & Merchant, 2020), and Leslie Gourlay (2020) in her 'post-digital' perspective in which boundaries between the online and the offline, the digital and the analogue, and the human and the machine are blurred (see also Leander & Burriss, 2020; Potter & McDougall, 2017). In these approaches, the goal of literacy teaching is not simply helping students have 'more agency' but helping them to understand how agency is worked out 'within the action itself' (Ingold, 2017a: 24) though practices of drawing boundaries between themselves and the world—a process which as, Ingold argues, is better thought of as *agencing*.

These approaches also provide a fresh perspective on debates about our digital devices usurping our agency, and about internet 'addiction', 'digital distraction', and our supposed 'over-reliance' on digital tools, suggesting that the best way to help our students to 'fix' their relationship with technologies is not to teach them how to 'reclaim agency' or 'take back control' from their devices, but to help them explore how they *become* particular kinds of agents when they use technologies by drawing boundaries between themselves and their devices through particular material-discursive practices, and to notice how these practices reconfigure the world, sometimes *materialising* into seemingly 'solid' or 'habitual' relationships with these technologies.

In the next two sections I will discuss two material-discursive practices that are central to the way agency emerges though our intra-actions with

technologies: *interfacing*, the practices by which the boundaries between humans and machines are enacted; and *inferencing*, the processes though which humans attempt to understand how technologies work (and, increasingly, through which technologies attempt to understand how humans work).

Interfacing

The most obvious place to begin our exploration of how we intra-act with technologies is the *interfaces* through which we 'operate' them (and through which they 'operate' us). Traditionally, in the fields of human–computer interaction (HCI) and digital literacies studies, interfaces have been seen as the stable material-semiotic *surfaces* of technologies—things like keyboards, touchscreens and graphical user interfaces—which 'translate' the workings of the machine to the user and enable the user to 'communicate' with the machine in ways that make it 'usable'. This idea of 'usability', however, is predicated on a view of the machine and the user as separate entities with the interface joining them together and mediating their interaction.

Those holding this view analyse interfaces either as 'tools', focusing on their affordances (e.g. Kaptelinin & Nardi, 2012), or as 'texts', examining how they 'make meaning' though the combination of different semiotic modes (e.g. Smith et al., 2011) or structure 'dialogues' between users and technologies (e.g. Luff et al., 1990). Many have also sought to uncover the *ideological* workings of interfaces, the way they promote particular 'versions of reality' that include or exclude certain kinds of users. As far back as 1994, for instance, Selfe and Selfe described how the metaphor of the computer 'desktop' promotes the 'values of rationality, hierarchy and logocentrism' (Selfe & Selfe, 1994: 491), and more recently, Djonov and van Leeuwen (2013, 2017) have argued that digital interfaces don't just provide semiotic resources to users, but also impose on them *semiotic regimes* which lock them into particular normative ways of making meaning.

People within the technology industry itself have also offered compelling critiques of the design of digital interfaces, pointing out how social media feeds are deliberately designed to trigger psychological cravings in users by presenting them with 'intermittent variable rewards' (Eyal, 2014; Harris, 2016) and cataloguing the design tricks or 'dark patterns' used in websites and apps to get users to do things they wouldn't normally do (Brignull, 2013).

While valuable, these approaches' insistence on the ontological separateness between users and technologies risks creating a distorted view of agency in which either users are seen as doing things *to* machines, or machines are seen as doing things *to* users, which leads people to either blame designers and tech companies for creating 'deceptive' or 'addictive' interfaces or to blame users for not interacting with these interfaces in sufficiently 'responsible' or 'mindful' ways (Eyal, 2020). From a posthumanist perspective, interfaces are not static things, but rather *sets of material-discursive practices* through which

agential cuts between users and technologies are enacted, and from which particular configurations of affordances *emerge*. As Lipp and Dickel (2023: 426) put it, *interfacing* is the set of practices through which 'humans and machines are gradually rendered available for one another—by being held apart' (see also Black, 2020). Notably, the German word for interface is *Schnittstelle*, which literally means 'the location of the cut' (Draude, 2020:22).

This understanding of *interfacing* as a process positions users as acting together with hardware and software to (re)configure their relationship with technology and with the world. Interfaces extend beyond the screen of a smartphone or tablet, to include the fingers of the user as they touch it, the user's body, and even the material and social world that they inhabit. It is, in fact, through material-discursive practices of interfacing that this social and material world is made 'real'. Technologies and users are not the only participants in these practices—other actors (such as designers, data brokers and 'ghost workers' who train machine learning systems) are also entangled with users and their technologies, and it is through practices of interfacing that these other actors are rendered either visible or invisible.

Focusing on *interfacing* engages learners in identifying the material-discursive practices that are brought to the process by designers, by other users, and by themselves and how these practices create certain configurations of agency. Consider the most common design features of graphical user interfaces: the 'menus' and 'icons' through which users select particular operations or answer queries posed by the system. Critics of interfaces such as Lev Manovich (2001: 20) have pointed out that these menus and icons are organised around a 'logic of selection' which can make us *feel* as if we have 'choices' while at the same time narrowing the range of actions we can take. More importantly, such interfaces construct *ontologies* that reflect assumptions about how the world ought to be divided up and how the user ought to interact with it. The interface of Microsoft Word, for instance, creates a print-centric view of communication by dividing it into 'documents' with limited sets of formatting options, reinforcing norms of conformity and standardisation; social media sites divide people into categories like 'friends' and 'followers' and present communication as a matter the reciprocal exchange of semiotic tokens (such as 'likes'), reinforcing a transactional view of friendship; and dating apps like Tinder divide potential partners into those who are 'matches' and those who are not, promoting a vision of human relationships as a zero-sum game of acceptance or rejection.

The value of focusing on 'interfacing'—rather than the 'manipulative' or 'ideological' nature of interfaces—is that it emphasises the fact that whenever a user chooses different options from these menus, they *also* engage in dividing up the world, either actively *participating* in the ontology that the interface is promoting or challenging it. When a user selects 'male' or 'female' from a drop-down menu they participate in an ontology of gender binarism, and when they react to a social media post by choosing from a set of

predetermined tokens rather than crafting a comment, they participate in an ontology that reduces complex human relationships into the exchange of standardised gestures of esteem. However, users can also intra-act with interfaces to create alternate ontologies that subvert the categories built into the software. Georgalou (2016), for instance, describes how Facebook users employ strategies that subvert incentives to share designed into the platform's interface to maintain control over their self-presentation, and Fuchs (2018) explores how the gamification features that are designed into interfaces to keep users engaged can be repurposed for social and political activism. Artists and art critics such as Menkman (2011) have long advocated searching for and exploiting the 'glitches' in apps and their interfaces as a form of creative expression and critique.

This is not to suggest such acts of repurposing interfaces are easy or even always necessary. What matters is that seeing interfaces as dynamic processes rather than static texts gives users the opportunity to hold designers and platform owners accountable for the way they seek to 'cut up' the world, and also to hold *themselves* accountable for the way they take part in these exercises of 'cutting'. Such accountability stems from *making visible* the boundary-making practices that all actors engage in and the social actions and social identities that interfaces exclude or hide from view.

Interfacing as embodied practice

One thing that is often lost in critiques of interfaces that focus on their semiotic properties is that interfacing does not just enable 'communication' between humans and machines but also enacts *embodied* relationships between them. The critical literacies needed to understand how *agencing* emerges from intra-actions with technologies must include opportunities for students to explore these embodied relationships and how they affect what they can do and what's happening. As Barad (2007: 171–172) reminds us: 'human bodies, like all other bodies, are not entities with inherent boundaries and properties but phenomena that acquire specific boundaries and properties through the open-ended dynamics of intra-activity'.

These dynamics are evident in studies of digital literacies that take issues of space and embodiment seriously, such as Ehret and Hollett's (2014: 428) ethnography of students' use of mobile devices to compose stories in which they observed how 'the feeling of tools and semiotic material influenced the trajectories of students' bodies and [the] narratives' they composed, as well as studies showing how young people's interfacing practices with apps like Snapchat produce different 'phenomenological experiences' of their bodies and the world around them (Wargo, 2015: 47).

Engaging with these 'embodied digital literacies' (Mills et al., 2022) becomes increasingly crucial as designers of digital interfaces get better at deploying material-discursive strategies that turn users' bodies into interfaces

for machines, while simultaneously creating for them the *experience* of agency. One of the most important features of touchscreens, for example, is that they encourage users to communicate through physical *gestures*. By requiring us to communicate through binary gestures (e.g. swiping left or right), interfaces make our thoughts and intentions more *legible* to the algorithms. At the same time, they promote an embodied relationship with the technology in which we seem able to manipulate graphical objects on the screen in the same way we manipulate physical objects in the world (Bogard, 2007; Sundar et al., 2015).

The problem with this way of configuring our embodied relationship with technologies is that it can give us the illusion that we are in control of aspects of the experience that we are not. Madary (2022) calls this the 'illusion of agency' (see also Drucker, 2017) and points out two ways that interfaces can contribute to it. The first is *fluency*, the way interfaces reduce the 'friction' associated with taking certain actions, making them seem physically and cognitively effortless. A simple double-tap on an Instagram post sends an animated heart flying across the screen. Through material-discursive practices of interface design that reduce friction around certain courses of action, platform owners 'nudge' us into doing things they want us to do (Özdemir, 2020). Actually, it is usually those actions that require *more* effort (such as changing privacy setting or rejecting cookie consent) that really give users control.

The second feature Madary identifies as creating the experience of agency is *predictability*, where the consequences of our actions appear consistent and predictable through feedback mechanisms. When I 'swipe left' on Tinder the image of the unwanted partner always flies off to the left of the interface as if literally flicked away by my finger. This gives me the feeling that I am interacting directly with the image, but what is really happening with that discarded profile, and with other animations such as the heart that floats across the Instagram screen when I like someone's post, is more complicated, a kind of exteriorisation of my bodily action that cuts me off from what I am doing and makes me a spectator of my actions. The philosopher Slavoj Žižek (2003) uses the term 'inter-passivity' to describe this phenomenon, an example being the canned laughter of TV sitcoms, which he describes as a 'radical exteriorisation' of the viewer's most intimate feelings that not only robs them of the action of laughing, but also of the *choice* of not laughing, or of laughing in a different way. A similar dynamic occurs on social media platforms, argues Mozdeika (2023), where we no longer have to express emotions since our emojis do it for us. Meanwhile, as we delegate aspects of our embodiment to interfaces, we create traces of actions that are used to train the algorithms that select content likely to *elicit* similar embodied responses the next time we open an app.

Not all digital interfaces result in 'inter-passive' relations between bodies and technologies. Some intra-act with bodies in ways that promote experiences of *friction* and *unpredictability* which sensitise users to how agency emerges in their encounters with technology and give them opportunities to claim accountability for their actions. Many video games, as Gee (2013)

points out, are essentially lessons in *agencing*, engaging players in discovering the possibilities for action that arise as they intra-act with and in the game world. Games, argues Nguyen (2020: 33), constitute 'a library of agencies' that players can use to develop insight into how agency arises in different situations and 'how to be flexible with our agency' (p. 29). Taking a more socio-material perspective which sees players as 'not only playing games but also co-becoming with' them, Hao (2023: 2) contends that the friction and unpredictability inherent in gameplay serves to make agential cuts *visible* to players, raising their awareness of the ways subject-object distinctions emerge contingently and encouraging them to think relationally and take responsibility for their actions as part of larger systems of intra-actions.

This perspective on gaming offers some insights on how to approach embodied practices of interfacing in digital literacies teaching, suggesting that, whether our students are scrolling through Instagram or playing *World of Warcraft*, the key is helping them to understand how their bodies and their social relationships are being (re)configured moment by moment as they move between different agential states, and finding ways to make the material-discursive practices that bring about these (re)configurations more visible to them.

Language and interfacing

Recent advances in large language models (LLMs) like ChatGPT have transformed our understanding of interfacing in digital literacies. Unlike the graphical interfaces discussed above, conversational interfaces allow us to operate digital technologies through natural language and allow technologies to 'talk' back to us as if they were people. More importantly, AI powered chatbots adapt their outputs to fit different situations and different conversational partners and apparently 'learn' about us as we talk with them.

At first glance, the graphical interface of chatbots like ChatGPT appears deceptively simple, with an input box for users' 'prompts' and a space for the model's output. Some educationalists see this open-ended format as increasing student agency. Dai et al. (2023: 2), for instance, describe it as an interface 'centred around student inputs', which allows them to 'decide the topic, the path and the process of the conversation'. Such assessments, however, oversimplify the complex ways these conversations emerge as humans and machines intra-act. Natural language is more than just an interface that enables communication between 'interlocutors'. It is a material-discursive practice through which the world gets divided up and through which entities such as 'speakers' and 'listeners' materialise in social life.

The most fundamental 'cut' that conversational interfaces enact is their configuration of the inputs that users produce, and the outputs produced by the model as conversational contributions governed by the same expectations about adjacency and coherence that we bring to human conversations. This not only prompts users to treat these outputs as particular kinds of

'utterances' (answers, advice, opinions), but also prompts them to think of them as coming from an independent consciousness. As Lipp and Dickel (2023: 426) put it, the interfaces of chatbots and intelligent assistants create the impression of 'a symmetrical relation between humans and machines by rendering ontological differences invisible'.

This emergence of the model as an independent entity, however, is only possible through the human labour that users expend in 'prompting' it and in interpreting its outputs. In other words, users' prompts and interpretative practices are as much a part of the interfacing process as the chat box into which they type. At the same time, the ways users respond to these outputs create the conditions for the model's subsequent outputs. In other words, conversations between chatbots and their users are essentially dynamic processes of intra-action through which humans and machines 'talk each other into existence' (Jones, 2027).

While some have argued that interfacing with large language models though 'prompting' constitutes an important 'new literacy' (see e.g. Lo, 2023), such arguments, problematically construct 'prompts' as ways for humans to 'get machines to do things', ignoring the ways machines 'get humans to do things', further materialising the agential cut that treats humans and machines as separate and symmetrical. A better way to think about conversational interfaces is though the lens of Merrill Swain's (2006) notion of *languaging*, a process whereby meaning does not *precede* language, but meaning and language emerge together as humans and chatbots collaborate in trying to produce plausible simulations of human communication.

This perspective on human-chatbot intra-action can sensitise students not only to the ways their own labour contributes to the 'meanings' that these models are able to make, but also to broader ethical issues associated with the ways these models 'cut up' the world, making invisible the labour of others, including the humans who produced the language on which they were trained as well as the thousands of 'ghost workers' who engage in tedious processes of ranking and evaluating outputs, often for very little pay (Gray & Suri, 2019; Newlands, 2021).

Disappearing interfaces

Another significant challenge for helping students build awareness of how agency emerges through their practices of interfacing with digital technologies is the increasing 'invisibility' of these technologies. Today, practices of interfacing with digital media are more and more likely to occur through objects like automobiles, refrigerators, children's toys, and urban infrastructures, which users might not even consider digital interfaces. From the point of view of UX designers, the invisibility of technologies is the holy grail of interface design. The engineer Mark Weiser (1994), who coined the term 'ubiquitous computing', famously said, 'The most profound technologies are those that

disappear'. Although such sentiments are often presented as self-evident by technologists, we need to question their ideological assumptions. Why is it 'profound' or even desirable for technologies to disappear? What are the implications for human *agencing*? Some technologists have questioned this orthodoxy, including AI engineer Stuart Russell (2020), who argues that the most 'human-centred' technologies are those that do *not* disappear, but rather continually remind us of their presence.

When digital interfaces become less visible, the agential cuts that they help to enact also become less visible, and the consequences of these cuts come to seem inevitable or even desirable because they demand less effort from us. Under these conditions, it may become harder for people to understand how their experiences of the world are affected by technologies or to question these effects. Other dangers include the increased surveillance and behaviour modification that these disappearing interfaces facilitate, not to mention the sometimes-imperceptible ways they alter how people relate to others, to their environments and to their own bodies.

The challenge for digital literacies teachers is finding ways to help students navigate and critically engage with these invisible interfaces and understand the possibilities for action that emerge through their intra-actions with them. Nowadays, for example, students need to learn to 'read' their physical surroundings as potentially data-rich environments that shape and are shaped by human-machine activity. In formulating these new literacies, we can draw upon the materialist turn in literacy studies, particularly Phal and Rowsell's (2020) 'artefactual literacies', which emphasise how literacy practices are always entangled with material objects—from notebooks and pencils to computers and networks. In the context of ubiquitous computing, this perspective encourages us to see all objects in our environments as emerging from complex entanglements of the digital and material (Gourlay, 2020).

The problem of 'invisibility', however, is not unique to ubiquitous computing. As Friedrich Kittler argues, *all* digital technologies are based on 'systems of secrecy' in which each layer of a technological system, from the basic input-output system upward, *hides* the workings of the layer beneath it (Kittler, 1997: 151). The literacies needed to deal with the new 'invisibility' of digital interfaces are actually extensions of those we've always needed to engage critically with technological systems. Central to these literacies is the ability to make *inferences* about how technologies work by examining the configurations that arise from our intra-actions with them. These practices of *inferencing* are the focus of the next section.

Inferencing

When we talk about interfacing with technologies, we are mostly concerned with what Lithgow calls the 'application layer of technology where 'digital information emerges into the sensory experiences' (Lithgow, 2021: 49).

Beneath the surface of interfaces lies what might be referred to as the 'automation layer' (Williams, 2018), where technologies do things that are not always apparent or perceptible to us. As Williams puts it, 'the more that the vision of computing as intelligent, frictionless assistance becomes more of a reality, the more the logic and values of the system will be pushed below the surface of awareness to the automation layer and rendered obscure to users' (Williams, 2018: 90). The ability to make sense of and respond to what is happening below the surface of digital systems, then, is another important dimension of *agencing*. I call this dimension *inferencing*, by which I mean the material-discursive practices we deploy to try to figure out how the technology we are using 'works', in other words, to try to answer the question, 'What's happening?'. Critically, though, when I talk about inferencing, I'm not just referring to the ways humans make inferences about machines, but also (particularly in this age of AI and algorithms) the ways technologies make inferences about humans.

Many readers will be familiar with inferencing from the field of pragmatics, where it denotes the ways people try to figure out what others are 'doing with their words' (Austin, 1976) by paying attention to contextual factors like who they are and the circumstances in which they are speaking. Inferencing is a core component of human communication because people often don't say what they mean or mean what they say (Jones, 2016a), and so we must work to discern their true intentions. Importantly, inferencing is not just passive 'guessing' about what others are thinking, but an active process through which we determine what aspects of the situation matter for our interpretations and use our own utterances and behaviours to probe or test our initial inferences. Through this ongoing process, mutual understanding unfolds in communication.

Inferencing is not just central to the way we communicate with other people; it's also core to how we communicate with the world. Gee (2014: 8) argues that, just as we converse with other people, we also engage in 'conversations with the world' in which we 'probe', 'reflect on the world's response', and '(re) consider our further actions based on our reflections'. Human beings are essentially 'inferencing machines'. This ability to, as Silva (2021: para 1) puts it, 'connect the dots and infer information that supports problem solving in situations that are inherently uncertain' is one of our 'super-powers'.

Computers, however, are also inferencing machines, and increasingly, especially with the rise of machine learning, 'connecting the dots' about how users think and behave is becoming *their* 'super-power'. Through their own practices of inferencing, computer systems interpret our actions, discern our desires, predict what we might do in the future, and produce outputs designed to influence our thoughts and behaviours. Unlike our encounters with other humans however, the processes through which these systems make inferences about us are much more difficult to understand, based as they are on massive amounts of data about us and millions of other users processed by complex algorithms whose workings are invisible to us (Jones, 2020a).

People sometimes refer to digital technologies as 'black boxes' because their internal workings are often opaque to users, partly because much of the code they operate on is proprietary and partly because the scale and complexity of computational processes they engage in makes it almost impossible for non-experts to understand how they work. With machine learning and AI systems, it is difficult even for experts to fully understand how decisions are made or why certain outcomes are produced.

Some argue the best way to address these challenges is to 'open up the black box'—to force tech companies into 'algorithmic accountability' by getting them to reveal what's going on 'inside' their technologies. We might call this a 'representational' or 'reflective' approach to 'reading' technology (Haraway, 1997), one which assumes that if you can successfully represent or 'reflect' to people how technology works, they will naturally gain more control over it.

There are several problems with this approach, not least of which is the fact that the way many of our current technologies 'work' is essentially unrepresentable. Rather than the result of stable and predictable sets of operations, their behaviour is increasingly indeterminant and *emergent* (Center for AI Policy, 2024). Another problem is the assumption that the way technologies work is something that exists *inside* of them rather than in the complex *intra-action* among different internal and external components including data, algorithms, networks, hardware, material and social contexts, and users.

An alternative to this representational approach lies in trying to understand not so much how technologies work, but rather how their workings *unfold* through practices of *inferencing*. Actually, dealing with the 'black box' of technology is not that different from dealing with the 'black box' of other people's minds— a cycle of probing, forming hypotheses, and testing those hypotheses in the ongoing production of 'conversations'. How technological systems work is inseparable from how humans work them, the kinds of 'conversations' they have with them, and the kinds of 'conversational partners' they construct them to be (Jain, 2014; Jones, 2021b).

From a socio-material perspective, inferencing is, like interfacing, a set of material-discursive practices through which 'agential cuts' are enacted and the boundaries between humans and machines are (re)drawn. As different parts of assemblages intra-act and adapt to one another's behaviour, different possibilities for action emerge. But in inferencing we don't just draw boundaries between ourselves and technologies. We also 'cut up' the *contexts* that surround our encounters with technologies, separating out what seems to be relevant from what is not (Sperber & Wilson, 1996). In this respect, inferencing is a form of 'worldmaking' (Herman, 2009), a way of (re)configuring the field of possibilities upon which agency emerges.

In contrast to the 'reflective' approach to reading technologies, inferencing constitutes what socio-materialist and posthumanist scholars (Barad, 2007; Haraway, 1997) call a *diffractive* approach. The idea of diffraction comes

from Thomas Young's famous 'double-slit' experiment which demonstrated that light behaves like both a wave and particle. In the experiment, light passing through two parallel slits creates an 'interference pattern' on a screen—a series of light and dark bands that reveals light's wave-like nature. Barad uses this experiment to highlight the fact that our practices of observation are inseparable from the phenomena we are observing. Just as our understanding of light does not come through observing light directly, but from observing it through other phenomena and noting the interference patterns that result, our understanding of technologies comes from observing them *through* their entanglement with us and with the world and forming *inferences* based on the patterns of outputs we observe. And just as our attempts to observe the workings of light inevitably change how light works, our attempts to understand the workings of complex technological systems are not neutral observations but active *interventions* that shape the phenomena we're trying to understand.

'Algorithmic pragmatics'

Like the notion of interfacing, the idea of inferencing directs our attention away from binary debates which either blame people for the way they use technologies or blame technologies for the way they 'use' people, helping us focus instead on the how the workings of technologies are inseparable from our own practices of figuring out how to use them. For many, these practices are largely unconscious. Others, however, especially heavy users of digital media, develop what we might call an 'algorithmic pragmatics' (Jones, 2020a), actively forming inferences about how technologies work and consciously trying to influence how technologies make inferences about them—for example, trying to 'game' social media algorithms, 'hack' dating apps, or 'optimise' their websites for search engines. Numerous studies have documented how users gradually become attuned to 'the feel of algorithms' (Ruckenstein, 2023), construct 'imaginaries' around them (Bucher, 2018), and formulate 'folk theories' (Ytre-Arne & Moe, 2021) about how they work. My own explorations of students' experiences with digital systems have revealed they are often able to articulate sophisticated understandings of both their own inferential processes and those they attribute to algorithms, developing platform-specific pragmatic competencies for interpreting and influencing algorithmic behaviour (Jones, 2021b).

Alexander Galloway compares these everyday processes of guessing, testing, tricking and hacking algorithms to the way people play video games. 'To play the game', he writes, 'means to play the code of the game… to interpret a game means to interpret its algorithm' (Galloway, 2006: 90–91). And just as gamers regularly talk to one another about how to figure out the algorithmic secrets of games on gaming forums and Discord channels, users of other platforms also talk to one another about how to 'game' other kinds of algorithms in social media posts and YouTube videos, on message forums, and in blog posts.

Gamers call this 'theorycrafting'—the practice of working with others to 'analyse game mechanics in order to gain a better understanding of the inner workings of the game' (Karlsen, 2011: 1; see also Gee, 2014). In the context of social media, Bishop refers to these vernacular practices of collaborative sense-making as 'algorithmic gossip'—a term which should not distract from the seriousness with which people approach these practices and the practical consequences of the knowledge they co-create through them. At the same time, like other practices of gossip, these practices also help build communities of users based on shared understandings of agency and a shared adversarial relationship towards algorithms and the companies that deploy them.

This point underscores the fact that inferencing is at its core a *social* practice; we learn how to understand the world, including technologies, in collaboration with others, and the quality of our inferences depends on the composition and dynamics of the interpretative communities to which we belong. Diverse 'open source' 'maker' communities might encourage inferencing practices that lead to more robust understandings of software and code, whereas more siloed communities of users can sometimes reinforce narrower sets of inferencing practices that can lead to distorted understandings or even conspiracy theories about the workings of technologies.

There are also other risks associated with inferencing, especially when it comes to 'second guessing' the workings of algorithms that power large commercial platforms. 'Misrecognising' algorithms and being 'misrecognised' by them can affect people's lives in serious ways, influencing things like their credit scores, job opportunities, and personal freedom (Eubanks, 2017; Noble, 2018). Furthermore, technology companies have considerable experience detecting users trying to 'game' their algorithms, and they are increasingly designing algorithms which actively undermine users' ability to make inferences about them (de Laat, 2017).

The biggest limitation when it comes to inferencing with digital technologies is that no matter how good you are at 'gaming' the algorithm, you are still playing its game by its rules, constantly adapting yourself to its parameters. Moreover, the algorithm always has the advantage, since its processes of inferencing about you are more efficient than your processes of inferencing about it. In their exploration of how users attempt to 'hack' Tinder, Myles and Blais (2021) note that most users end up conforming to rather than subverting the algorithm. The irony, they point out, is that this is the *opposite* of 'hacking': users end up 'pandering to the algorithmic system, which is regarded as both inaccessible and irresistible', thus maximising rather than minimising the strength of the algorithm and those who deployed it (as cited in Romele, 2024: 124).

Habits and historical bodies

Concern about how people act with and through digital media often centre on how they seem to be making our behaviours more 'automatic'. These

concerns are sometimes framed in terms of 'habit' or 'addiction', language which promotes both behaviouralist understandings of human action and humanistic understandings of the separateness of humans and technologies. A socio-materialist approach, in contrast, does not locate 'habits' inside the minds or bodies of users, but rather sees them as *materialisations* that arise through countless iterative practices of interfacing and inferencing engaged in by humans and other non-human actors, resulting in persistent ways of materialising reality. Barad talks about how people's material-discursive practices are marked by their past practices of *agencing*, just as 'the rings of trees mark the sedimented history of their intra-actions within and as part of the world'. 'Matter', she says, always 'carries within itself the sedimented historialities of the practices through which it is produced as part of its ongoing becoming' (Barad, 2007: 180).

I use the term 'historical bodies', which Scollon (2001) borrows from the Japanese Zen philosopher Kitarō Nishida (1966), to refer to these materialisations of practice. For Nishida, the idea of the 'historical body' (*rekishiteki shintai*) emphasises how selves emerge out of the inherent unity of subject and object through the accumulation of *experiences of embodiment* over time. Historical bodies are not bodies in the conventional sense, but rather sets of *sedimented practices* that shape and are shaped by people's encounters with the world.

Scollon's (2001) idea of the 'historical body' as the embodied dispositions that humans bring to their actions with tools in some ways resonates with Bourdieu's (1977) notion of *habitus*, which he defines as the sets of dispositions, skills, and ways of acting we acquire through social experiences and which lead us to reproduce the preferred practices and social distinctions of the societies in which we live. Several scholars, in fact, have applied the notion of *habitus* to understanding how aspects of our media use become routinised. Sterne (2003), for instance, talks of 'technological habitus' as the ways socially organised actions 'crystallise' into our technologies, and Czaja (2011) uses the term 'cyborg habitus' to explore how the integration of mobile technologies into our everyday lives comes to shape our understanding of self and society. For Romele (2024: 6), digital technologies are essentially 'habitus machines that actively classify the world and lead to effects of habituation of human selves'.

Useful as it is, however, the notion of habitus still preserves the ontological distinction between individuals and society and between people and machines. Nishida's notion of the 'historical body', as an expression of the instability and ineffability of the self and its relationship with the world, more closely reflects my socio-materialist focus on intra-action and emergence. Historical bodies are about becoming rather than being. They represent a *movement*, as Nishida (1966: 163) says, 'from the formed to the forming'.

In considering the ways technologies seem to 'trap us' into habitual patterns of action from a socio-materialist perspective, we should consider the different materialities—or, to use Nishida's term, the different kinds of 'historical bodies'—that emerge as we intra-act with technologies and with our

environments. These include the 'body' of the user, the 'body' of the technology or technological system, and the 'data body' which emerges as users' actions are recorded and reconstituted by digital technologies. Each of these bodies emerges through the repeated practices of interfacing and inferencing that we engage in with technologies.

Historical bodies of users emerge through repeated practices of *interfacing* with devices or platforms in ways that affect their embodied experiences of spatiality, temporality, cognition, connectivity and presence (Calderón & Kuric, 2022). Regular use of navigation apps like Google Maps, for instance, can alter people's sense of space and direction; the endless scrolling feature on platforms like TikTok or Instagram can distort their sense of time; the habit of instantly looking up information on digital devices can affect their ability to recall information; and being constantly connected through smartphones can lead to embodied feelings of anxiousness. Digital devices can also contribute to gradual changes in users' *physical* bodies such as musculoskeletal disorders like 'text-neck' (Cuéllar & Lanman, 2017). Similarly, repeated practices of *inferencing* with technologies can affect people's trust in other people and in algorithmic systems, their attitudes towards privacy, their sense of self-confidence or self-efficacy, and their broader perspective on the world around them.

Just as users' practices with digital technologies materialise in their physical bodies, they also materialise as 'data bodies' as users' actions are 'entextualised' (Jones, 2009b) by technologies and converted into profiles that are used to determine the content they see on their social media feeds, the search results they are served, and the movies recommended to them on streaming platforms. This process of materialisation is facilitated by interfaces that incite certain kinds of actions from users (such as swiping left or right) that make their desires and intentions *legible* to algorithms, which use these data to form inferences about them. These inferences are then reflected back in the form of content or ads that end up further materialising these 'data bodies' by eliciting similar kinds of actions from the physical bodies of users. Data bodies are 'historical' insofar as they constitute the sedimentation of users' past actions, but they also always exist in the form of projected *future* selves, predictions about what the user will do next which nudge them towards certain decisions or selections (Hayles, 2022).

Finally, there are the ways technologies themselves materialise as objects in the world through their intra-action with human users and other non-human actors such as networks, power grids, raw materials like lithium and silicon, and broader social and environmental eco-systems. In one sense, we can see technological bodies in terms of what Airoldi (2022) calls 'machine habitus', the sedimentation of human practices into machines, including practices of mining, manufacturing and marketing, which reflect the values of particular political and economic systems, as well as the values and biases of the humans whose data was used to train them. But technological bodies also materialise through the *imaginaries* that humans build up around them which lead us to

see (and treat) them as certain kinds of social actors (see Chapter 8). Bucher's (2012: 115) notion of 'algorithmic imaginaries' helps us understand these not simply as mental models people construct about algorithms, but as productive forces that shape both how we perceive technological agency and how we experience our own agency in relation to technologies. Tech companies often encourage certain kinds of imaginaries through the interfaces they create such as the chat window that we use to interface with ChatGPT and the human-like voices given to voice assistants like Siri. Such imaginaries are also in some ways the inevitable by-product of our own practices of inferencing about the inner workings of machines, which typically involve assigning intentions to them. These imaginaries emerge not just through individual practices of inferencing, but through collective cultural practices where we share stories about our encounters with AI assistants or engage in 'gossip' about algorithms (Bishop, 2019). Crucially, these imaginaries then influence our *subsequent* practices of interfacing and inferencing with technologies, creating recursive cycles of materialisation that further sediment particular ways of understanding and experiencing technological agency.

None of these historical bodies function independently. They emerge together as we intra-act with technologies and with our environments, enabling and constraining our possibilities for action. We often think of these bodily materialisations as 'habits'. It is important to remember that habits can function just as much to enable action as to constrain it; much of our ability to function as 'competent' social actors depends on our cognitive and embodied habits of materialising the world in particular ways (Bargh & Chartrand, 1999). The goal of digital literacies, then, should not be to get students to 'break' the 'habits' that they have formed around their use of technologies, but to help them to understand how these different forms of materialisation emerge and their own responsibility for them as parts of 'the material becomings of the universe' (Barad, 2007: 178). It is also to help them to recognise that through these 'material becomings' certain kinds of power relations and social structures also materialise.

With this awareness, 'habit' does not have to result in what Romele (2024: 8) calls a 'flattened hermeneutics of the self' that traps us into certain kinds of relationships with our devices. Rather it can come to resemble the dynamic and transformative process that Dewey (1934: 104) envisioned it as, a 'process of acting upon the environment and being acted upon by it' with an understanding of the 'relations between what is done and what is undergone', a process through which we *in-habit* the world in a way that involves not just being responsible for *what we are doing* online, but also being able to respond to *what's happening* (Barad, 2007, 2010; Ingold, 2017a).

Interventions

At the beginning of this chapter, I argued that the best way to approach the issue of agency in digital literacies is to direct students' attention to the 'little

actions' they take with their devices like swiping, tapping and clicking. As students explore their moment-by-moment practices of interfacing and inferencing with technologies, however, their focus will naturally expand to the wider social practices that they participate in and the wider social structures and power relationships that sustain these practices. Ultimately, the goal of agential literacies is to develop more ethical, inclusive, and empowering forms of human–technology intra-action. A posthumanist perspective calls upon students to challenge their assumptions about the boundaries of human agency and to imagine new forms of social and political action 'one click at a time'.

One way for teachers to support the development of these literacies is to provide opportunities for students to experience their use of technologies from different perspectives. Students might, for instance, engage in various forms of 'mapping' their embodied encounters with technologies, recording the places and times and conditions under which they reach for their devices as well as the parts of their bodies that become active in such engagements. Screen recording apps can allow students to review the ways their past interactions with their smartphones or computers unfolded, and, after watching these recordings, they can be asked to describe the factors that affected these unfoldings. They might also try to describe the relationship between 'what they are doing' and 'what's happening' during particular encounters with technologies, trying to identify how *agencing* is negotiated between themselves and their devices.

Gough (2004) suggests having students write 'cyborg narratives' in which they detail the connections between different people and between people and non-human actors that go into the performance of simple everyday tasks. Students might then be asked to imagine how these tasks might occur differently if certain elements (e.g. certain technologies) were absent from the network. Finally, they might be asked to go for a certain period of time without using certain devices or applications and record the effect this has on their relationships with others and with their environments and on their sense of their own agency.

Interventions related to *interfacing* can involve students in examining the interfaces of social media sites, online games, and dating and productivity apps to identify how they enable and constrain different actions. They might, for example, analyse the interfaces of different digital games or social media sites, noting how things like fluency, friction, and (un)predictability affect their sense of agency. Those related to *inferencing* can involve students examining things like the songs recommended to them by Spotify, the kinds of videos they are served on their TikTok 'For You Page', or the kinds of sponsored links that appear in their Google search results *diffractively*, making inferences about the data driven algorithmic processes that created these outputs. They can also document how online communities of social media influencers and gamers engage in practices of 'theorycrafting' or 'algorithmic gossip', and perhaps make videos giving advice to others about how to 'game' the algorithms of a particular platform.

A similar approach can be taken to working with AI chatbots. A more *diffractive* approach to 'prompting' can be encouraged by having students work backwards from model outputs to discover how they echo elements of user input or the data that was likely used to train the model (see Chapter 8). Students can also compete in 'prompt jams' where they write prompts that result in certain kinds of outputs and they try to understand how different linguistic features of their prompts changed the outputs they got. Henrickson and Meroño-Peñuela (2023) argue that approaches to teaching students about 'prompting' should avoid focusing on the 'accuracy' of outputs and instead train students to focus on *how well they make them think*. In other words, prompting should not be approached as a matter of optimising the system's output, but of optimising students' own uses of these systems.

As I argued in the last chapter, one of the most important goals of 'literacies of repair' is to help students to move away from thinking of themselves as users to thinking of themselves 'fixers' though activities that help them 'learn about everyday objects not just in an intellectual sense, but in a generative, critical sense' (Cipolla, 2019: 262). Such activities could include having students redesign the interfaces for their favourite apps in order to overcome certain limitations (Nichols & LeBlanc, 2020) or alter the design features that give users the 'illusion of agency'. They can also prototype different kinds of digital devices they would like to see invented. If possible, they can try to set up of participatory design projects, (Costanza-Chock, 2020), cooperating with different communities (such as sports teams, fandom groups, or members of minoritised communities) to design interfaces and devices that meet needs community members have identified. In engaging students in these activities, it's important to push them to account for how their designs *materialise* certain kinds of relationships among people, technologies and the environment.

Students can also engage in more socially oriented forms of 'algorithmic resistance', actively trying to find ways to influence the way the internet 'cuts up the world'. Velkova and Kaun (2021) describe, for example, Swedish design student Johanna Burai's 'World White Web' project, which attempted to address racial bias in Google's image search results. When Burai discovered that searching for 'hands' returned only White hands, she set out to understand the 'logic' of the algorithm that was responsible for these results. Learning that Google's algorithm promotes content on pages that are heavily linked to by other pages, she launched a campaign to get prominent sites like the BBC, Buzzfeed, and Al Jazeera to publish images of Black hands. As these major outlets participated, the search results began to diversify. What students can learn from projects like Burai's is that it's often not enough to just engage with algorithms. Algorithms and search engines only work the way they do because they are entangled with institutions, commercial entities and individual users, and changing the way technologies work often requires figuring out ways to interface with and influence other people, institutions and commercial entities.

3

ATTENTION

'Attention deficits' and 'attentional literacies'

One of the most frequent things people bring up when they talk about the 'brokenness' of the internet is the effect digital media seem to be having on our attention (e.g. Carr, 2010; Wolf, 2018). It is said we are in living in an 'age of distraction' (Crawford, 2015) in which people suffer from ever shorter attention spans and technology designers and content creators are constantly conspiring to 'distract' us from what is 'important'. The consensus seems to be that our digital devices are chiefly to blame for fragmenting our attention by extending our attentional choices beyond our attentional capacities (Levy, 2016). forcing us to be, as Iris Murdoch (1993: 296) (writing before the invention of smartphones) poetically put it, 'both here and elsewhere, living at different levels in different modes of cognition … extended, layered, pulled apart'.

Much of the empirical research on the effects of digital media on attention suggests that there is reason for concern. Studies in psychology and neuroscience, for instance, have shown that heavy use of digital media is associated with shallow information processing and altered reward and self-control mechanisms (Loh & Kanai 2016), and that the increased multitasking associated with digital devices is linked to increased distractibility, poor executive control abilities (Misirlisoy, 2018; Ophir et al., 2009), and poor academic performance (Junco & Cotten, 2012). In one oft-cited study, Ward et al. (2017) found that the mere *presence* of a smartphone reduces concentration (see also Skowronek et al., 2023). Some suggest that digital interfaces, with their opportunities for scrolling and clicking on hyperlinks, are inherently more distracting than analogue ones (Mangen et al., 2013), and the frequent exposure to them has been linked to increased attentional disorders among children, including ADHD (Silva Santos et al., 2022).

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But concerns about the digital media's impact on attention are not just about cognition, but also about the social and political consequences of distraction. Zygmunt Bauman and Leonidas Donskis have argued that the increased use of digital technologies diminishes our ability to 'be present' to one another (Bauman & Donskis, 2014; see also Turkle, 2012). Others link our current political troubles to the power digital media give politicians and propagandists to hijack our attention with increasingly incendiary content (Bradshaw et al., 2021). Many blame the broader 'attention economy' (Wu, 2016), built on the sophisticated manipulation of our attention for profit by designers, marketers and the mass media. Even tech insiders have come forward to deride the industry's profit driven obsession with creating technologies whose main purpose is the commodification of people's attention (Harris, 2016; Lewis, 2017) and sometimes to give advice about how to 'reclaim attention' from devices they themselves helped design (Eyal, 2020). The Center for Humane Technology (Harris & Raskin, 2019) calls the 'digital attention crisis' the 'cultural equivalent of climate change'. Even Michael Goldhaber, who helped to popularise the term 'the attention economy' (Goldhaber, 1997), has expressed concerns about whether this kind of 'economy' can co-exist alongside a healthy democracy (Warzel, 2021). Solutions proposed to address this 'crisis' tend to be either regulatory (controlling the kinds of products tech companies can market), technological (using apps that 'keep us focused' or remind us how much time we have 'wasted'), or educational (teaching people how to 'unplug' from their devices and cultivate 'mindfulness' and 'concentration').

In educational circles, moral panics around attention predate smartphones and the internet. The classroom has long been seen as a 'battleground' for students' attention in which, as William James (1899: 10) put it, 'The mind of your own enemy, the pupil, is working away from you as keenly and eagerly as is the mind of the commander on the other side from the scientific general.' Such metaphors reflect a longstanding belief that 'monofocal' attention is a prerequisite for learning. Not surprisingly, with the rise of digital media, many teachers have felt like they were losing the battle. The problem is not just that students are bringing their smartphones into the classroom, but that they are also bringing what seem to be new ways of paying attention which undermine the kind of sustained, selective focus that most classroom activities depend on. As Bigum et al. (2003: 104) observe, 'the "quaint" rules that define the school attention economy appear to have little relevance in the external attention economy' of digital media. In my own studies of students' in-school and out-of-school use of digital media (Jones, 2010), I found a similar mismatch between the 'polyfocal' practices of distributing attention across multiple tasks and multiple people that students cultivate in their out-of-school use of digital media, and the 'monofocal' orientation that is enforced at school.

Much of the early work on attention in digital literacies studies celebrated the 'creative' ways that young people were participating in the new 'attention

economy' (Bigum et al. 2003; Lankshear & Knobel, 2002). More recent work, however, has been more sceptical of the attentional practices associated with digital devices and social media sites, and the pendulum has swung back towards training students to resist online distractions and cultivate a sustained focus on discrete tasks. Howard Rheingold (2012: 8–9), an early champion of online communities, for example, now bemoans the 'drift into distraction' that digital media promote and advocates educational interventions designed to instil in students the 'attentional discipline' they need to use digital media without losing focus. Most work coming out of this new turn towards 'attentional literacies' (Pegrum & Palalas, 2021) focuses primarily on cognitive dimensions of attention such as 'focus' and 'discipline'. Consequently, the solutions that are offered, such as 'mindfulness' exercises (Page, 2019; Palalas, 2019), emphasise the individual mind rather than the social and discursive world in which that mind is operating. Sometimes, however, problems with attention can't be solved simply by getting students to change their minds—they also require helping them change the 'world beyond their heads' (Crawford, 2015) by, for instance, managing their social relationships differently, changing or 'hacking' the tools they are using, or taking individual or collective action against the economic forces that are creating a world in which managing their attention has become so difficult.

In this chapter I argue that perspectives on attention that view it as a *cognitive resource* that is being depleted by technology or as an *economic resource* that tech companies are exploiting for profit, or even as a *resource for learning* that needs to be 'disciplined' are based on a limited understanding of what attention is, grounded in humanist ideas of the autonomous individual and Cartesian ideas about the separation of the mind from the body. Such approaches to attention are not conductive to having productive conversations about what's broken about our attention, or even to asking the right kinds of questions about it—including questions about what we are 'paying *for*' when we 'pay attention' and what we are being 'distracted *from*' when we are distracted. Worse, treating attention as a limited resource only serves to empower the 'attention merchants' by further conditioning us to see attention in terms of economic value while failing to get us to consider what might be *ethically* valuable about it (Bombaerts et al. 2023; Murdoch, 1970; Weil, 1959).

In contrast to this 'deficit model' of attention (Catton, 2019; Lewin, 2014), I propose a view that sees it instead as a *social practice* (see also Bombearts et al. 2023), a view which avoids the false dichotomies (e.g. mind versus body, compulsion versus choice, automaticity versus control) that dominate many psychological models of attention (White, 2024). The challenges with attention that we believe stem from our digital technologies and the attention economies they serve might better be addressed, not by teaching students to be more 'disciplined', but by helping them to understand how attention is *distributed* across minds, bodies, social relationships, and the material and discursive infrastructures of our social worlds. The kind of

'mindfulness' needed to develop this kind of attention is not a retreat into our own minds, but an active *engagement* with the 'fullness' of social and material life (Langer, 2016).

What is attention?

William James (1890: 403) famously said that 'everyone knows what attention is', but even a brief survey of the literature on attention in the social sciences reveals that, as Styles (2006: 1) writes, 'it would be closer to the truth to say that "Nobody knows what attention is"', or at least that different people have different opinions about it. While James's definition of attention as 'the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought' (James, 1890: 403) makes intuitive sense, this 'spotlight' metaphor of attention ignores the fact that attention can also function like a 'lantern' (Gopnik, 2009), an open, unfocused awareness of one's environment. Indeed, it seems that one kind of attention can't really function without the other—without first attending to our wider environment, how can we decide what to focus on? Others have distinguished even more kinds of attention, including alternating attention, divided attention, perceptual attention, intellectual attention, and emotional attention (Sohlberg & Mateer, 1989; Watzl, 2017). As psychologist Odmar Neumann (1996: 389) argues, 'the term attention does not refer to a unitary entity or mechanism' but rather 'describes the effects of a variety of mechanisms'. It goes without saying, then, that the particular 'mechanisms' we are interested in and the metaphors we use to talk about them (e.g. spotlight, lantern, filter, container) affect what we study when we say we are studying 'attention' (Fernandez-Duque & Johnson, 1999).

What most psychological studies on attention actually study is people's ability to perform specific kinds of tasks under specific kinds of conditions. Study participants might, for instance, be asked to press a button whenever a word or letter flashes on a screen, flip between verbal and mathematical tasks, memorise long lists of words while loud music plays, or count the number of times people wearing different coloured shirts pass a ball to each other while a person dressed in a gorilla suit walks among them (Chabris & Simons, 2010). Most of these tasks have little resemblance to things that people actually do in their real lives, and, while many such studies reveal important things about the nature of cognitive processes, it is difficult to translate their findings to real-world settings, especially when assessing the effects of digital media on attention (Lodge & Harrison, 2019).

Problems can particularly arise when the findings of such studies are over-interpreted and deployed to fuel 'moral panics' around attention. Chabris and Simons's (2010) famous 'invisible gorilla experiment'—in which about half of the participants who were asked to count how many times people playing basketball passed the ball to people in white shirts failed to notice a woman in

a gorilla costume walking through the scene—is often cited as a parable about the dangers of digital distraction and multitasking (e.g. ABC News, 2011), yet what the experiment actually demonstrates are the limits of *focused* attention, especially the kind of sustained focused attention on complex, abstract tasks that students are often asked to engage in. Subsequent studies, in fact, have shown that people who are better at multitasking are also *better* at spotting the unexpected gorilla in the experiment (Seegmiller et al., 2011), and also that the speed at which the gorilla is moving makes a difference: we are much more likely to notice quickly moving objects (Wallisch et al., 2023), a skill more suited to protecting us from real gorillas attacking us in the wild than from fake gorillas strolling across basketball courts. Perhaps the most important question the experiment raises, though, is the one that people hardly ever ask: what are the things that are *worth* paying attention to, and why?

One common view of attention in psychological studies is as a finite cognitive resource—to pay attention to something, you've got to take your attention away from something else. The roots of this view can be traced to Donald Broadbent's (1958) 'bottleneck model', which posits that the selectivity of attention is a function of the brain's limited capacity to process information. This view has been enormously influential in promoting the 'economic' metaphors that came to dominate our understanding of attention long before people started talking about the 'attention economy'. It is why we often talk about attention like money, speaking of 'paying' attention or 'investing' our attention in things or people. With the rise of the internet, with its ability to provide us with more information than we could possibly ever attend to and its business model based primarily on advertising, this view of attention as a limited resource has only become more pervasive. L. M. Sacasas (2021b) argues that talking about attention as a limited resource can actually foster its commodification: 'to think of attention as a resource', he writes, 'is already to invite the possibility that it may be extracted' (para. 19).

There have been some researchers, however, even within cognitive sciences, who have challenged the dominance of this model (e.g. Allport, 1993; Navon, 1984; Neumann, 1987), arguing that how we allocate attention has less to do with limits on processing capacity and more to do with what we are actually trying to *do* with our attention. Wu (2011) calls this the 'selection for action' model of attention. Such a view does not deny that our processing capabilities are limited. Rather, it suggests that focusing primarily on deficits in processing capacity causes us to miss the more important things that are going on when we're managing attention in the context of real-world tasks, much as focusing on counting the movements of the basketball caused participants in Chabris and Simons's experiment to miss the gorilla.

Others have argued that part of our failure to understand attention stems from the fact that we are focusing on the capacities of the *human being* and ignoring the capacities of the material and discursive *environment* in which the human operates. McClelland (2020), for instance, draws on Gibson's (1986)

notion of *affordances* which I discussed in Chapter 2 to argue that the external world provides not only affordances for physical actions, but also for *mental* actions such as *attending*. Such affordances can alert organisms to aspects of the environment that are 'focally attendable' (Gibson, 1986: 415) and supports them in directing or sustaining their attention in certain ways. As with agency, it might be better to see attention as a matter of matching the mind's capacity for attention with the affordances for attention offered by the environment. As Crawford (2015: 25) puts it, the 'attentive self' is always in a 'relation of fit' to the 'world it has apprehended'.

Still others have pointed out that *people* also play a role in how we pay attention: we don't just pay attention to other people, but also *with* them. Multiple studies have shown how people tend to attend to things that others are looking at (e.g. Langton et al., 2000), and others have gone beyond a focus on gaze to demonstrate how attention is a *fully embodied* social activity that emerges moment by moment in social interaction (Yoshida & Burling, 2011). Sharing attention with other people doesn't just make paying attention more efficient, allowing us to offload some of the cognitive burden of attention onto other people, but it is also one way people share their thoughts, intentions and desires with each other and maintain feelings of affinity and intimacy (Citton, 2017; Mundy & Newell, 2007).

The point here is that attention is never something that solely happens in the minds of individuals. It is always *situated* and *occasioned*, embedded in activities occurring in the real world, often with other people. The way you attend to a basketball game is different if you are a spectator and if you are a player, and attention is different when playing a friendly game with your mates and when playing in the county championship. One thing I can guarantee, though, is that in none of these situations will you ever be paying attention to counting how many times people pass the ball to players in white shirts. Instead, you will be paying attention to what *specific* people are passing the ball to what other *specific* people, and who from your own team or the other team is in your vicinity. I can also guarantee that, in this situation, if there is a gorilla in your vicinity, you would probably notice, especially if they were wearing the jersey of the opposing team.

The most important thing about playing basketball, though, is that *you don't have to pay attention alone*. You've got your whole team to help you pay attention to different people and different parts of the court that you can't attend to or to alert you if you don't notice that they want to pass the ball to you. You've also got the basketball court, with its sidelines and end-lines to remind you where you should and shouldn't go, along with the ref who will blow her whistle if a foul has occurred or the ball goes out of bounds. Even the spectators watching the game from the stands help you to pay attention, letting you know with their cheers or jeers whether things are going well. Finally, your ability to pay attention depends crucially on your goals which are based on the rules of the game that you have learned and internalised over many years of playing.

The reality of attention is that it is not an individual cognitive phenomenon but a complex psychosocial and material set of processes that involve not just perception, cognition, memory and self-regulation, but also interest, emotion, motivation, power, collaboration and competition. It is also always mediated through tools of various kinds, whether they be mental tools (such as the rules for playing basketball) or physical tools (such as basketball courts and smartphones). As Bakhtiar (2022: 34) puts it, 'attention is not a … skill that needs to be protected, but rather something that is composed and decomposed *with* the interaction with other entities, humans and non-humans'.

Seeing attention as a complex social practice also reminds us that attention has many uses. It functions not just as a way to *do* things (like winning a basketball game), but also as a way of relating to other people, and even a way of showing other people that you are a particular kind of person (like a skilful basketball player or a loyal fan). It can also take any of the many forms mentioned above: it can be wide, narrow, focused, sustained, selective, divided and even 'distracted'. None of these different ways of practising attention is inherently more valuable than another. What makes them valuable is how they help make different social actions, different social relationships, and different social identities possible.

Part of what is 'broken' about our attention when it comes to digital media is that we have lost touch with this sense of the 'composing and decomposing' of attention as we intra-act with technologies, other people, and our environments. One reason for this is that we have been so thoroughly taken in by the metaphor of the 'attention economy' and the attempts to standardise attention and extract wealth from it that constitute the internet's business model. Part of repairing this model will require repairing our understanding of attention to reflect this more contingent, collective and ontologically open perspective. 'Attending', like 'agencing', is a dynamic, constantly emerging process.

The philosopher David Lewin (2014: 356) reflects this ontological openness in his framing of attention as a form of 'beholding'. To 'behold' something, he says, is both 'giving regard to something or holding a thing in view' and allowing our attention 'to be held by something … to give ourselves to be held'. In this way, attention represents another form of the 'doing undergoing' that Dewey talked about (see Chapter 2). And just as focusing on the 'doing' and ignoring the 'undergoing' can get us into trouble when taking actions, focusing only on the 'holding' and ignoring the 'being held' can get us into trouble when we are attending. 'Being held' is a more productive way of thinking about how other people, our digital devices, and other aspects of our environments affect our attention than the language of 'distraction' and 'digital disarray' (Pegrum & Palalas, 2021) that dominates much of our discourse about attention.

Literary critic and philosopher Yves Citton (2017) proposes a similar metaphorical shift when he urges us to move from thinking about an 'attention economy' to thinking about an 'attention ecology', the complex interplay

of cognitive, social, technical, and material factors that shapes our emergent modes of attending. Such a shift, Citton argues, has profound political implications, offering a way to challenge the unequal power relations that define our experience of digital media and foster more democratic forms of engagement that focus on creating value through collaboration and shared attention rather than economic transactions.

Attention structures

In my approach to attentional literacies, attention is not seen as a mental process (though mental processes are certainly involved) or as a limited resource (though there are clearly practical limitations on it). Rather, attention is treated as a dynamically *emerging* set of values, goals, experiences, skills, forms of discourse and social relationships that come together at what Ron and Suzanne Wong Scollon call 'sites of engagement' (Scollon & Scollon, 2004).

The concept of 'engagement' helps us to develop a richer understanding of attention. One meaning of engagement is 'attention to', 'involvement with', or 'interest in' something. To 'engage' someone is to hold their attention or to 'keep them busy'. For platform owners, 'engagement' has a specific meaning, namely the quantifiable ways that users interact with the platform (measured by things like clicks and 'likes'). The definition closest to the way the Scollons use the term in 'sites of engagement', however, is engagement as a *coming together*: a 'site of engagement' is 'a real time window that is opened through an intersection of social practices and meditational means (cultural tools) that make [an] action the focal point of attention of the relevant participants' (Scollon, 2001: 3–4). In other words, 'sites of engagement' involve the *engagement* of minds, bodies, texts, technologies, people, and practices in ways that *make attention possible*. Through the posthuman lens that I developed in Chapter 2, we might see sites of engagements not as things 'coming together' but as *already entangled* phenomena *materialising* into particular configurations of reality that temporarily structure how attention can emerge. What this posthuman perspective adds to the Scollons' concept of sites of engagement is a greater sense of the fluid and temporary nature of these sites and the 'attention structures' (Jones, 2005, 2009b, 2010) that arise from them.

Three kinds of phenomena are relevant to understanding how sites of engagement give rise to social actions. These are *discourses in place* (all the texts, tools and material aspects of the environment that are available to social actors), *interaction orders* (the roles and responsibilities that govern the interaction between actors), and *historical bodies* (actors' habits, skills and dispositions based on their past experiences) (see Chapter 2). Scollon and Scollon (2004) use the example of an urban traffic crossing to explain sites of engagement, noting that what makes the action of crossing the street possible is the coming together of particular *discourses in place* (street signs, traffic signals, zebra crossings), *interaction orders* (the relationships between

pedestrians, between pedestrians and drivers, and between citizens and crossing guards), and *historical bodies* (including pedestrians' knowledge of traffic regulations and their experiences crossing streets in different cities).

In my own discussion of this example (Jones, 2010) I focus on these intersections not just as sites of engagement which make certain actions possible, but as *attention structures* which determine the way attention emerges for pedestrians, drivers, and other actors. The fact that we need to 'pay attention' when crossing the street is something we learn from a young age; we learn to 'look both ways', to be aware of the speed and trajectory of oncoming traffic, and to attend to particular things in the environment. But 'paying attention' to crossing the street is not something that we do alone. It requires all these different elements—discourses in places, interaction orders and historical bodies—to materialise in particular ways. Street signs, traffic lights, and zebra crossings direct our attention to where and when we should walk. We also share the attentional work of crossing the street with other people; parents hold hands with their children to guide them across at the right time, and people in unfamiliar cities might observe other pedestrians, coordinating their crossing with theirs even if it occurs against the light. Finally, we depend upon our own sedimented experiences, including past mishaps while crossing the street, to remind us of what we need to attend to. Changes to any of these elements—a faulty crossing signal or loud noise that distracts us from what we are doing, rowdy kids playing 'chicken' with oncoming traffic, or some impairment to our historical body such as drunkenness—can affect the way attention emerges and make crossing the street more dangerous.

Other attention structures materialise around classrooms, basketball courts, and social media platforms, each representing configurations of bodies, tools and social relationships that shape how attention emerges. At each of these sites, any change to the bodies, tools or social relationships present can alter how the attention structure functions. Introducing mobile phones into a classroom can dramatically alter its attention structure, not just because a tool has been introduced that competes with the teacher for students' attention, but because this tool also alters the relationships between the teacher and students, students and other students in the class, and students and people *outside* the class. It also alters the historical bodies of students, activating certain practised ways of distributing their attention that are more aligned with the polyfocal attention structures of digital media than the monofocal attention structure of the classroom (Jones, 2010).

When considering the effects of digital media on attention, then, the most important thing is to realise that media alone are not causing the attentional behaviour. Media use always occurs in the context of wider attention structures involving other texts and tools, people and social relationships, and the historical bodies of users. These attention structures support different ways of attending, from various forms of distributed or partial attention (Hayles, 2007; Stone, 2007) to more focused or immersive attention. Whether these

different kinds of attention are good or bad depends on what the social actors are trying to do and how these forms of attention end up affecting their social relationships and their own physical and mental well-being. Moreover, some attention structures support the emergence of multiple forms of attention which work together to define our experience of a site of engagement. Paasonen (2021: 19) argues that in much digital media use 'distracted' attention and 'focused' attention do not function as opposing forces but rather arise in 'rhythmic patterns' as people use different platforms.

It is also possible to have multiple attention structures operating simultaneously in any given situation, which sometimes work to undermine each other (as when someone is focused on checking their phone while they are crossing the street) and sometimes work to support each other (as when the different windows in a computer operating system allow us to keep track of the different activities that we are involved in) (Jones & Hafner, 2012). The key to helping students gain awareness of the different forces that affect their attention is to help them figure out how the different attention structures that materialise around different social practices work, specifically, how discourses in place, interaction orders and historical bodies affect how attention emerges.

Discourses in place

When we think about the role of discourses in place in attention structures of digital media use, we are mostly thinking of things that we touched on in Chapter 2, such as interfaces, algorithms, networks, protocols and the physical design of devices. This aspect of attention structures is often talked about using architectural metaphors such as grids, filters and doors (Siegert, 2015) to capture how discourses in place affect flows of information into and out of a site of engagement. For social media platforms, for instance, interfaces can function as windows into the activities of other users, while algorithms function as filters that separate out posts that are 'relevant' for us from those that are not. Discourses in place can also operate through various semiotic processes of signalling which direct our attention to certain aspects of a situation by making them more salient (Citton, 2017) or requiring more or less 'semiotic effort' (Bezemer & Cowan, 2021) from users through the use of elements like colours, animation, notification badges, modal overlays and haptic feedback (Churchill, 2022). Finally, discourses in place support attending by enabling us to externalise or 'entextualise' (Jones, 2009b) information or practical knowledge into the tools we are using (Clark, 2003) by, for instance, creating bookmarks, playlists, calendar entries and reminders. Such forms of support, however, can be a double-edged sword: reminders and alerts can occupy our attention as much as they can free it up. Ultimately, discourses in place always have the effect of making it easier to direct or sustain our attention in certain ways, and harder to do so in other ways.

It has been widely observed that digital interfaces are often designed to 'enchant' (Gell, 1992), 'distract' (Ytre-Arne & Das, 2019) or 'trap' (Seaver, 2019) users into engaging in actions that benefit the companies that have deployed these interfaces. Boullier (2019) calls these different configurations of attention 'regimes of attention' and has identified four different kinds of attentional regimes that interfaces facilitate. First is *loyalty*—the configuration of attention created by familiarly and low amounts of semiotic effort. This can be promoted by interfaces which engage users in repetitive or ritualistic actions, creating a kind of 'hypnotic' state of attention (Boullier, 2019: 4). Automation can also play a role here, streamlining processes, creating predictable outcomes, and feeding users familiar content. Second is what Boullier calls *alert*, the configuration of attention that disrupts familiarly through frequent shifts in focus and the constant anticipation of potential changes in the environment, a regime often associated with 'multitasking'. Many social media apps, messaging apps and dating apps promote this pattern of attending. Third is *projection*, where the user projects their own plans, intentions and priorities onto the situation, giving them the illusion that they are in control of the way attention emerges. Many productivity and project planning apps promote this attentional regime. Fourth is *immersion*, a state of absorption often associated with interfaces such as video games with their engaging narratives, multi-sensory feedback mechanisms and goal-oriented challenges.

Boullier's catalogue of attentional regimes provides a useful heuristic for understanding how digital media and their discourses in place contribute to the configuration of attention. It is important to remember, however, that most apps and platforms don't just promote one regime, but might combine loyalty, alert, projection and immersion, each of which are affected by the interaction orders and historical bodies that also form part of the site of engagement. The framing of these configurations as 'regimes', reminiscent of Foucault's notion of the *dispositif* (Foucault, 1980) as a network of discourses, practices, sites and screens that enforce relations of power, serves as a reminder that discourses in place are often *put in place* to direct attention in ways that advance certain ideological or economic agendas.

The way discourses in place on digital platforms can simultaneously promote multiple regimes of attention is evident in massively multiplayer online games (MMOGs) such as *World of Warcraft* where the rich game world and embodied interactive storytelling encourage *immersion*, the proliferation of unexpected events favours *alert*, the rule-governed predictability and possibilities for progression encourages *loyalty*, and the system of organising quests and managing resources facilitates *projection*. The most important thing about the different attentional regimens promoted by these discourses in place is how they fit together to create an attentional scaffolding for players that supports engagement with the game and with other players. These discourses in place are also dynamic, changing in response to different players' historical bodies and to different interaction orders among players. The way these

discourses in place promote sustained, dynamic engagement is one reason Gee (2003, 2013) and others (e.g. Steinkuehler, 2010) look to video games for clues about how to more successfully engage students' attention in classrooms.

In contrast, the combination of attentional regimes promoted by many social media platforms often do not cultivate the same kind of attentional flexibility. Striano (2023), for instance, discusses how the TikTok interface is designed to keep users in a state of constant *alert* while at the same time encouraging immersion as they scroll through an infinite feed. Rather than complementing each other, as they do in video games, however, these two regimes undermine each other: the alertness promoted by the platform keeps users in a constant state of anticipation without encouraging cognitive flexibility, and the sense of immersion the platform promotes is not immersion in the *content* but in the platform itself. While discourses in place on social media sites also change in response to users' historical bodies and their interaction with other users, these changes often don't increase the amount of semiotic effort users have to expend, but rather decrease it by serving them content that fits with their own attentional projections, making them feel like they are in charge of what they are paying attention to while remaining in a state of attentional hypnosis.

Interaction orders

The term 'interaction order' comes from Goffman (1983), who used it to describe the patterns, norms and structures that govern social interaction in particular circumstances. Interaction orders help shape attention because the people we are interacting with direct our attention towards certain aspects of the situation and away from others. Conversation analysts like Goodwin (1994) have documented how the attention of interlocutors is jointly shaped moment-by-moment in social interaction, and social psychologists have shown how crowds can capture the attention of their members and inhibit individual possibilities for self-directed attention (Diener, 1980). Sometimes just the physical presence of another person can support a particular attentional regime. Studies on distracted driving, for instance, find that, while having mobile phone conversations impairs driving ability, having conversations with *co-present* passengers actually enhances it (Drews et al., 2004).

Another reason other people are important to the way we pay attention is that they themselves make demands on our attention. Interaction orders help to shape these demands, imposing different sets of attentional rights and responsibilities on social actors based on social conventions and power relations. In classrooms, for instance, teachers, have considerable power to direct students' attentional focus, whereas students' rights to make attentional demands of their teachers are limited. When thinking about the role of interaction orders in attention structures, then, we need to consider two dimensions of attention, the way we direct or distribute our attention with

the aid of other people, and the way we *perform* attention for others (Jones, 2005, 2009a).

Perhaps the biggest complaint about digital media when it comes to social interaction is that they seem to distract us from the physical world and the other people in it. Popular media circulate images of families eating dinner together, each member immersed in their screens, or tourists strolling through famous places with their faces pointed at their phones as proof that digital media are taking our attention away from 'real people' and 'real things' (Hari, 2022; Turkle 2012). The actual ways digital devices affect the ways we interact with people in the physical world, however, is usually more complicated. In a study of how my students in Hong Kong used their phones when eating together (Jones, 2013), I found that sometimes their devices actually functioned to *increase* opportunities for joint attention (as when they cooperated in taking pictures of dishes as they arrived at the table), and even when they were interacting with non-present others (such as posting pictures of the meal on social media), they were almost always doing it in ways that 'expanded' the social gathering rather than blocking it out.

Different devices and different digital platforms provide different opportunities for interaction orders to function in the structuring of attention, and users develop different social norms for managing their availability, responsiveness and other aspects of *performing* attention based on the affordances of these technologies. One feature of digital media is that they enable users to create what Goffman (1966) calls 'involvement shields' to conceal from others what they are doing in different online (and offline spaces), making it easier to *perform* focused attention to others while simultaneously being involved in multiple other activities (Jones, 2009b).

Just as MMOGs provide an example of the way discourses in place help to scaffold players' attention, they also demonstrate the importance of interaction orders. Attention in games emerges as people interact with other players and respond to the actions they have taken. Players also often work together in teams to coordinate their attention to reach certain goals. The social norms and expectations that develop within these groups through joint action and regular communication help to keep individuals focused in the moment, but also help to maintain players' long-term interest in and commitment to the game (O'Connor et al., 2015; Peterson, 2012). Additionally, players accumulate social capital through their skill in attending to different aspects of the game and in helping to shape the attentional practices of other players.

Most successful games provide discourses in place to support these social interactions. The narratives, rules, and mechanics of the virtual environment can all provide scaffolding for interaction orders by setting the context in which players operate, and design elements create opportunities for players to form teams, communicate, and work together towards shared goals. The social interactions that emerge within games can also influence the development of players' historical bodies. As players work together to overcome

challenges and achieve goals, they learn from each other and develop new skills and strategies. Players may also develop specific roles or specialisations within their social groups which require different sets of skills and attentional foci.

Interaction orders are also central to how attention structures function on social media platforms where, in many respects, 'the attention of others (forms) the basis of what we pay attention to' (Read, 2014: para. 11). On platforms such as TikTok and Instagram people work together to direct their collective attention to popular or trending content through 'liking', commenting on and resharing it. Many of these activities are supported by discourse in place such as metrics around 'likes', 'views' and 'followers', and one consequence of this is the development of hierarchal interaction orders where certain users ('influencers') have disproportionate power to influence what other users attend to. While in games, social capital emerges from players' skill at paying attention to others, on social media platforms, social capital comes from users' skill at getting others to pay attention to them. One consequence of this is what might be called the 'memification of attention' where objects of attention are shared around in such a way that they accumulate salience through repetition rather than through meaning and quickly fade from people's attention when the next object of attention begins to be circulated (Striano, 2023; Tolentino, 2019).

One of the advantages of social media platforms when it comes to attention is the way they can turn interaction orders into content filters. Rather than having to search the internet for things that are worth paying attention to, users rely on their friends and followers to recommend content based on their shared interests. But this can also have disadvantages, sometimes creating the narrow and distorted attention structures associated with 'filter bubbles' (Pariser, 2011). Related to this is the way the interaction orders associated with social media platforms are influenced by algorithms. On most platforms, while users may have a defined group of friends or followers, algorithms determine who they end up interacting with by selecting content for their feeds, and on some platforms such as TikTok, user 'communities' are entirely determined by algorithms based on the kinds of content users have paid the most attention to. In other words, these 'algorithmic interaction orders' (Shaikh & Vaast, 2018) or 'calculated publics' (Crawford, 2016) do not just support particular attentional practices but emerge out of the attentional practices users bring to the platform.

The interaction orders that develop on social media platforms can also affect people's attentional practices in the physical world. The desire to be part of an online interaction order or the fear of missing out on the latest trend can promote what Boullier calls an *alert* attentional regime or what Stone (2007) calls 'continuous partial attention', which compels people to constantly check their phones and ignore people in their physical environments. Interacting on some platforms can also make people feel that they are the ongoing objects of other people's attention, leading them to engage in a constant, self-conscious

effort to 'curate' their behaviour. There are also interaction orders that develop between users and platform owners which generate additional demands on users' attention in the form of cookie consent notices, advertisements and other intrusive discourses in place.

Historical bodies

In Chapter 2 I spoke of historical bodies as the way our embodied experiences with the world become sedimented into sets of habits, dispositions and skills, which include ways of interacting with tools and other people to structure our attention. We bring these practised ways of attending into different situations, and the attention structures that emerge help to further shape our attentional habits. Some of these attentional habits involve various cognitive and metacognitive skills such as self-regulation (Hannafin & Hannafin, 2010). Others are more related to somatic ways of perceiving and interacting with our physical environments (Csordas, 1993).

Often certain sets of attentional habits are associated with particular groups. 'Young people', for instance, are frequently characterised as having shorter attention spans because of their exposure to digital media (Carr, 2020). Anthropologists have also posited that members of different 'cultures' exhibit different attentional habits (Hall, 1959). There is also evidence that people who engage in different hobbies or professions (such as gamers or taxi drivers) develop particular attentional skills or habits. Frequent video game players, for example, have been found to be better at filtering out irrelevant information (Mishra et al., 2011) and at dividing their attention across different tasks (Green & Bavelier, 2003). Sometimes members of these same groups, however, are thought to be more susceptible to attentional disorders. Frequent gamers, for instance have been found to be more impulsive than non-gamers and more prone to attention deficit hyperactivity disorder (ADHD) (Gentile, 2011). Similarly, frequent users of social media may suffer from both 'existential distraction', which causes them to privilege short term rewards over long term goals, and 'epistemic distraction', a diminished capacity to concentrate and reflect deeply on information (Bermúdez, 2016; Bombaerts et al., 2023; Pettman, 2016).

These patterns are often framed as 'media effects' (Valkenburg et al., 2016), consequences of (over)exposure to particular devices or platforms. An approach which focuses on attention structures, however, allows for a more nuanced understanding of historical bodies, one which acknowledges the importance not just of people's exposure to technology but also of their positions within interaction orders and their past experiences. It also allows for a more nuanced understanding of attentional behaviours such as 'impulsiveness' which avoids pathologising them and attempts to understand how they might function at different sites of engagement to make different kinds of social action possible.

The most important insight a practice-oriented perspective on attention provides regarding historical bodies is that helping people to 'repair' attentional deficits sometimes requires that we look beyond individuals to the wider social and environmental systems that help structure their attention. What might at first be interpreted as a disorder of the individual might be instead the result of disordered discourses in place or interaction orders that make it more difficult for individuals to structure their attention in socially acceptable ways or ways that promote their psychological well-being or long-term goals.

Educating attention

It should be clear from the discussion above that educating attention is not just about teaching individuals to 'control' their attentional resources better through techniques like 'mindfulness' and 'digital detox' or about compelling tech companies to stop marketing 'addictive' technologies (Eyal, 2014). Rather, it requires understanding how individual minds and bodies, technologies and interfaces, social relationships and ways of interacting with others *collectively* shape the way attention emerges in different situations. This more holistic approach, focusing not on these individual elements in isolation but on how they work together, provides a more systemic way to diagnose what is 'broken' about our attention structures and to build better structures by adjusting the relationships between our own minds, the people around us, and the technologies that we use. It is an approach which focuses less on how we pay attention and more on how we *make* attention in collaboration with others and with our physical and semiotic environments (Citton, 2017).

In many ways this approach resonates with Gibson's (1986) notion of 'educating attention', as a matter of becoming more attentive to the affordances of our environments and learning to match them to our own capacities and proclivities. For Gibson, educating attention is the process through which we actively 'orient, explore, investigate, adjust, optimise, resonate, extract, and come to an equilibrium' with the environment in ways that are 'amenable to learning' (Gibson, 1986: 245). It also has some similarities with Ingold's (2011) notion of attention as *relational* and *responsive*, a process of 'being present' and 'going along' with the environment and other people, as well as with Lewin's (2014) notion of attention as 'beholding', which always involves the dual actions of 'holding' and 'being held'. 'The task of educators', Lewin says, is 'to call attention to the world, and thereby to attention itself', which, 'involves looking at—or better, being with—the other' (Lewin, 2014: 367). Attention is not just a matter of 'engaging' with the world, but of understanding how engagement itself is an extended form of presence (Berger, 2023) that emerges from the coming together of our texts and tools, our social relationships and social structures, and our own embodied experiences.

An essential component of this approach is interrogating not only *how* we attend to things, but also *why*, investigating where the attention structures

that order our lives come from and what they reveal about what we and our societies *value*. Such questions shift the emphasis away from the 'value' of attention as a commodity and towards an understanding of attention as a means by which 'we ascertain values and make judgments of worth' (Bombaerts et al., 2023: 25). Attention structures don't just promote particular ways of attending, but also particular *ideologies of attention*, which (re)enforce certain ways of using texts and tools, certain social relationships of power and marginalisation, and certain ideas about what constitutes a 'healthy' or 'productive' historical body.

It is said that what we pay attention to reveals what we care about—but this is only part of the story. The structures that we build around social situations for managing attention, and the way we are complicit in the structures that are built for us does not just reveal what we value but also *creates* value (Larkin, 2013): Most classrooms are structured, for instance, so that what the teacher says has more value than what students say, and most social media sites are structured so that posts that have attracted more 'likes' are valued more than those that have attracted fewer. In other words, while it is true that we tend to pay attention to the things we care about, it is also true that we learn to care about the things that our attention structures make relevant to us.

This perspective raises the stakes for educating attention, framing it not just as helping students to manage their time better, avoid 'distractions', and resist the incessant pull of their digital devices, but as helping them to consider what they care about and why. Attention is not just a social practice, but the foundation of our ethical engagement with the world and with other people (Murdoch, 1970), not just a form of 'worldmaking' (Citton, 2022) but a form of 'generosity' (Weil, 1942). This way of thinking enables us to focus not just on the consequences that discourse in place, interaction orders, and our own historical bodies have on the way we manage our attention, but also on the consequences the way we manage our attention have on them. Such a view also reminds us that attention structures always operate on two timescales: the timescale of 'the microdecisions' we make about 'how to deploy (our) attention in the moment' and the timescale of the 'macrodecisions' we make about how to 'spend (our) time' and live our lives (Rheingold, 2012: 8).

So how does this framework translate into a practical agenda for fixing what is 'broken' about our attention that goes beyond blaming either our technologies and the companies that peddle them or individuals who have not learned well enough how to cultivate 'self-discipline' or correctly adjust the notification settings on their phones? First, the framework helps us think differently about discourses in place, enabling us to interrogate interfaces and algorithms not just in terms of attention capturing mechanisms, but also in terms of how they work together with the interaction orders and historical bodies that users bring to them. This insight empowers us to reconceptualise 'ethical design' (Montalvo et al., 2021) by articulating what kinds of discourses in place would help us—*in our particular historical bodies and as parts*

of our particular interaction orders—to practise attention in ways that align with our long-term goals and values. This ability to (re)imagine and articulate the kinds of discourses in place we need is an important prerequisite for challenging the practices of tech companies and other 'attention merchants' (Wu, 2016), and also for being able to take advantage of the emerging range of AI tools and the new possibilities they offer for creating more customisable and dialogic ways to scaffold our attention (Schuster & Lazar, 2024).

This framework for analysing attention as a social practice also helps us to think differently about our social relationships and the role they play in our practices of attention, not just in how they help to support different regimes of attention, but also in how they help *create* these interaction orders. Through attention structures, we work with others to account for the world and what's happening in it, and in doing so we also become *accountable* to one another (Ingold, 2023). This accountability operates both on the level of individual situated interactions and on the level of our broader social and political projects. As Berger (2023: 4) argues, attention is 'the basis for the intersubjective bonds that lie at the heart of political realities'. This notion of attention as the glue that holds our social lives together is strongly reflected in the work of philosophers like Simone Weil (1952, 1959) and Iris Murdoch (1970, 1993), who argue that how we attend to others shapes the moral contours of our societies, and how our societies are constituted influences people's capacity for attention. Learning how to attend *with* and *to* others is not just a way of caring for them, but also a form of resistance against unjust social conditions and oppressive social structures (see also Arendt, 1981).

The 'attention economy', which is blamed for much of what is 'broken' about our attention, is not the inevitable result of our digital technologies or of some invisible hand guiding our behaviour, nor is it solely a plot perpetrated on us by tech companies. It is an *interaction order* that has resulted from the ways we collectively orient towards certain discourses in place and collectively invest in the regimes of attention they promote. It is though collectively investing in these discourses in place and collectively setting norms around their use that we participate in turning attention into a commodity. Escaping or 'resisting the attention economy' (Odell, 2019) then, is not a matter of abandoning our devices, but of changing our interaction orders through cultivating new ways of attending to one another. Some of these new ways might involve embracing the 'ethics of care' advocated by many feminist scholars (e.g. Puig de la Bellacasa, 2017), which orients our attention towards the vulnerability of others and our solidarity with and responsibility towards them. Or they might involve a more collective re-engineering of the role of attention in public life such as that suggested by Crawford (2015) in his concept of an 'attentional commons' where attention is treated 'not as a limited resource that we are competing for but as a common resource that we share' and work together to protect. What sorts of interaction orders,

economic arrangements and political solutions, we need to ask, would this kind of collective reconceptualisation require?

Finally, an approach which sees attention as a social practice invites us to think about our historical bodies differently—specifically, to move away from placing the burden on individuals to develop 'discipline' or 'mindfulness' and from pathologising certain forms of attention as psychological deficits rather than the result of the coming together of particular minds and bodies with particular discourses in place and interaction orders. This is not to say that discipline, or what psychologists call 'self-regulation' and 'mindfulness', or what meditators describe as a focused awareness, are not important for the management of attention. They are best seen, however, not as individual mental states, but as embodied *social practices*.

When we speak of attention as a 'practice', we recognise that it is not just something that we do, but also something that we can *get better at* by practising. It is a mistake, however, to assume that practising attention is necessarily a matter of reducing 'distractions' or blocking out the world, as valuable and restorative as silence and solitude can be. Being 'mindful' is not a matter of retreating into the self—or being 'full of one's mind'. Rather it is cultivating a mind that is able to embrace the *fullness of experience*. Indeed, Murdoch's (1970) definition of attention is our capacity to engage with the world *as it is* without getting lost in our fantasies and projections. It is a capacity which involves what she calls 'un-selfing', the ability to move beyond a preoccupation with one's own mind to connect more deeply with the world and other people.

Interventions

The concept of attention structures gives literacy teachers and their students a way to talk about attention that doesn't involve seeing their attention as a commodity that they need to protect or spend, but as a set of possibilities that they create together with other people and with their tools. It gives us a way to help them learn to manage attention that doesn't involve abandoning their devices or retreating into their own minds, but instead involves investigating how their devices, their minds, and their relationships with others interact with and affect one another in particular situations to make some forms of attention easier and others more difficult.

We might begin by offering students opportunities to document how attention emerges in different situations and to account for the way technologies, social relationships and their own habits shape attentional patterns. They could produce maps or diagrams in which they identify the discourses in place, interaction orders, and aspects of their historical bodies that shape their attention in different situations. Such investigations should include situations when they feel like attention manifested in positive or efficient ways (such as moments of focused collaboration when they are playing online games or

'flow' experiences associated with a certain sport or hobby) as well as those when they feel that they were distracted, unmindful, or that their attention had been 'hijacked'. They should also include situations involving 'multi-tasking', giving them the chance to observe how the different components of attention structures enable or constrain the switching from one task to another. Levy (2016) suggests other activities such as attention journaling in which students keep track of their attentional patterns over the course of a day, noting the different circumstances that affect how they direct their attention.

The next phase involves getting students to experiment with systematically altering these attention structures by 'tweaking' different elements in them, changing discourse in place, for instance, by altering the settings of the technologies they are using, or changing the interaction orders by involving different people, or by changing their own embodied or psychological approach to the situation. These experiments may form the basis for efforts to individually or collaboratively 'unlearn' habitual ways of paying attention (Davidson, 2011: 19) and develop new kinds of attention structures.

Hands-on activities for re-engineering attention structures might involve asking students to re-design discourses in place (devices or interfaces) in ways that better support attentional regimes that align with their goals and prioritise their values rather than their impulses (Harris, 2016). They might also involve getting them to design new tools or apps that can be used to better leverage social relationships in the service of attention or to 'train' their historical bodies to pay attention in different ways. These might include apps that allow friends to share focused study time and monitor one another's progress or ones that reward users for certain kinds of attentional behaviour. The capabilities that some large language models make available for users to create custom chatbots can be used to build interactive tools to help users reflect on their attentional practices or to create human-machine interaction orders to support attention (see Chapter 8). Re-engineering attention structures should also include considerations about how to encourage the kinds of social relationships that support attention. This might involve attempts to redesign the social norms that govern users' behaviours with devices or on platforms by, for example, formulating collective agreements about how people will act on a platform or working together with a group of friends or a family unit to redefine expectations around digital media use. Finally, students should be given the chance to reflect on the historical bodies that they bring to their digital media use through exercises that encourage them to use different apps or platforms with more awareness and intentionality (Levy, 2016) as well as experiments in digital disengagement in which they observe what happens to their attention when they forgo using a particular technology for a period of time.

The practical insights students obtain through these activities will prepare them for more socially engaged efforts to collectively confront the political and economic actors who are promoting and profiting from the 'attention

economy'. As Lovink (2019) argues, there is no way to satisfactorily address problems of attention in the digital age without seeking political solutions. Part of this political work will involve identifying practices engaged in by tech companies which are designed to turn peoples' attention into a commodity and to call attention to them. The Center for Humane Technology has a 'Ledger of Harms' website (https://ledger.humanetech.com) where people can document the attentional harms they have noticed on different platforms. Advocating for design changes might entail social media campaigns, boycotts, or the lobbying of political representatives. They might also entail efforts to leverage the machinery of the attention economy itself through creative meming, hashtagging, and online organising in ways that undermine the commodification of attention (boyd, 2017b). Lasting political solutions, however, will require that we collectively imagine *alternatives* to the attention economy. In this regard, students might be asked to work with others in their communities to establish an 'attentional commons', a physical or online space where people are not subject to the machinations of the 'attention merchants' and can work together to develop more sustainable and equitable practices of attention.

4

AFFECT

The 'anxious generation'

Many of the concerns people have about digital media focus on how they make us *feel*—how they are making us uncontrollably mad, inconsolably sad, or terminally anxious (Alexander, 2018; Lovink, 2019; Samuel, 2021). This is not surprising since so much of what we do online seems to revolve around emotions: we 'like' content, communicate with 'emojis', and circulate 'reaction videos' on TikTok and Snapchat. We get 'triggered' by what we see online and 'fear' missing out if we haven't seen it. We 'rage post'. We 'doom scroll'. We 'cringe'. And the internet circulates these expressions of affect with disarming speed, engendering further expressions of affect from others. Political scientist Jodi Dean (2015) argues that the main thing that keeps people clicking, swiping, and sharing is a drive for *affective engagement*. And this drive is something that is not lost on internet companies: Social media algorithms are designed to feed us content that is more likely to intensify our emotions since it is this emotional intensity that keeps us engaged (e.g. Munn, 2020; Merrill & Oremus, 2021).

Digital media can, of course, facilitate positive forms of emotional engagement, providing people opportunities to explore feelings they might never express offline and to forge surprisingly intimate relationships with others (Byron, 2020). But the prevailing narrative around affect and digital media is dark. Study after study links social media use to rising rates of depression, anxiety and suicidal ideation, particularly among young people (Nesi et al., 2022; Twenge & Campbell, 2019), as well as to increased impulsivity and aggression (Zych et al., 2023). Jonathan Haidt (2024), in fact, has dubbed the entire generation of young people who grew up with mobile phones and social media sites 'the anxious generation'. More ominously, we've witnessed

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how online affect can sometimes catalyse offline violence, from the Rohingya genocide in Myanmar (Fink, 2018) to the January 6, 2021 attack on the US Capitol (Reeve, 2024). We find ourselves, as Bösel (2020: 7) observes, in an era where technology 'seems much more to produce divisive affects and create sadness than the affects of joy or hope that were promised by cyber-utopians'. Meanwhile, a new wave of 'psychotechnologies', from immersive virtual reality (Bujić et al., 2023) to 'empathic' chatbots (McStay, 2018) are poised to impact our emotional lives in new and unpredictable ways (Angerer and Bösel, 2016).

The apparent 'brokenness' of our online emotional lives is intimately related to the other forms of 'brokenness' I explore in this book. Uncontrolled affect can lead to impulsive *actions* such as 'oversharing'. It can also hijack our *attention*, trapping us in cycles of scrolling through emotionally charged content. It can warp our *social relationships*, creating echo chambers of shared outrage or adoration and increasing our chances of becoming embroiled in online altercations. It can also make us more susceptible to emotionally resonant *misinformation*, compromising our ability to distinguish what is true from what is not.

At the same time, affect can also motivate us to take *positive* actions, help us structure our attention in constructive ways, facilitate the maintenance of supportive relationships and assist us in formulating the values that give meaning to our lives (Solomon, 1993). While it is important to recognise the emotional harms associated with digital media use, the prevailing *discourse of vulnerability* (Blackman, 2018), which portrays users—especially young people—as helpless victims of emotional manipulation by platforms or of their own addiction to their digital devices can obscure the ways people productively shape their affective experiences online. It can also blind us to the fact that vulnerability is not necessarily a bad thing, but in many ways a vital mode of epistemic and ethical engagement with the world (Butler, 2016).

This chapter develops an approach to digital affective literacies focused on understanding how affect emerges from everyday sociotechnical interactions, what it *does*, and how we might work with it productively. Central to this approach is recognising the *affective affordances* of digital tools—how they enable us to express how we feel, to respond to others' feelings, and to *experience* our bodies and our feelings in different ways. Equally crucial is developing awareness of our own 'feelings of affordance' (Brown & Reavey, 2015: 219) 'the felt sense of the possible' that arises from our engagement with digital media.

With this approach, I don't mean to downplay the ways technology companies attempt to 'engineer' affect (Thrift 2004: 57) and extract 'affective labour' (Hardt, 1999) from users. Nor do I mean to discount the ways digital media may be contributing to the increasing mental health problems among young people. Helping students understand how affordances for feeling and feelings of affordance interact to produce different kinds of emotional

experiences, I will argue, is what will equip them to both resist emotional manipulation and reflect on how their own habits of media use are affecting their well-being.

Affect, literacy, and media

Affect has long been among the most neglected dimensions of literacy education. As Phal and Rowsell (2020: 1) note, 'in the past, literacy has often been framed in terms of its performed, communicational, and informational dimensions at the expense of its more hidden, lived, and sometimes intensely affective dimensions'. James Paul Gee (2017a: 133) puts it more simply. 'Today', he says, 'education is all about the head brain. But educating the head brain does not work well unless we pay attention to guts, hearts, and bodies'. Where affect is addressed in, for instance, pedagogies that emphasise 'emotional intelligence' (Salovey & Mayer, 1990) or 'socio-emotional learning' (Elias et al., 1997), the assumption is often that young people need to be 'taught' how to properly experience their emotions. But as Bucholtz et al. (2018: 5) rightly point out, young people 'already know how they feel'. What they really need are ways to help them 'to build ethically and responsibly on those emotional experiences as a resource for socially transformative learning'.

Despite its relative absence in traditional literacy curricula, affect has always been of central relevance to literacy itself: Learning to read always (at least implicitly) involves being delighted, bored, moved or unmoved (Biberstine, 1977), and good writing frequently involves appealing to the reader's feelings. Lemke (2013: 58) goes so far as to argue that 'meaning and feeling are inextricable'. 'No meanings', he writes, 'are made devoid of feeling' and 'the experience of our feelings makes sense to us in terms of available meanings'. The case for affect's importance for digital literacies becomes even more compelling when we consider the profound role that texts and technologies have always played in structuring our experiences of affect. One of the mistakes we make when talking about media, argues Hagood (2020), is that we regard them as means for disseminating 'ideas' and changing the way people 'think', while their chief role has always been disseminating *emotions* and changing the way people *feel*. Media are, Hagood insists, 'tools for altering how the body feels and what it perceives, controlling our relationship to others and the world' (para. 5). Marshall McLuhan made a similar point, declaring 'the medium' not just to be the 'message', but also 'the massage' (McLuhan & Fiore, 1967). 'All media', he says, 'work us over completely … leav(ing) no part of us untouched, unaffected, unaltered' (McLuhan & Fiore, 1967: 26). Scholars like Susanna Paasonen (2011) have explored how digital media in particular create visceral connections that transcend simple visual or auditory processing, creating experiences that 'resonate' with users' embodied emotional states. Digital media also change the way affect circulates from person to person and even from people to non-human entities. '[O]nline

communications are not merely about storing and sharing data', writes Paasonen (2018: 283), 'but also about the spread, attachment, amplification and dissipation of affective intensities'.

Recently, literacy studies has witnessed an 'affective turn' (see e.g. Burnett & Merchant, 2021; Burgess & Rowsell, 2020; Leander & Boldt, 2012; Leander & Ehret, 2019), with digital literacies scholars in particular becoming increasingly interested not just in what we do with media, but in 'how our use of media *feels* to us as creators and interpreters' (Lemke, 2013:58) and how emotions are shaped by and represented in digital spaces (Wohlwend & Lewis, 2011). They have explored how digital technologies mediate students' affective encounters with others, with their communities, and, crucially, with their own bodies (e.g. Burnett, 2016; Ehret & Hollett, 2018; Wargo, 2015, 2017; Warfield, 2018). Attention to affect is particularly important for developing *critical* digital literacies. Traditional approaches to critical literacies have privileged rational analysis over emotional and aesthetic dimensions of criticality (Jones & Hafner, 2021; Wohlwend & Lewis, 2011). Yet as Butler (2020) argues, genuine criticality requires engaging with, rather than dismissing, our emotional connections to online content. An exclusively rational approach not only limits students' capacity to grapple with questions of truth and value, but also leaves them ill-equipped to navigate the ethical complexities of responding to emotionally charged political and social content (Zembylas, 2024).

This recent work on affect and digital literacies offers a vital reframing that takes us beyond the narrow, individualistic focus on media manipulation and mental health that dominates current debates, suggesting a broader understanding of affect as emerging from complex interactions among people, technologies, institutions and environments. This perspective owes much to scholars in *affect studies* who view affect not as an individual psychological phenomenon but as a relational, embodied and emergent play of 'intensities' through which bodies 'affect and are affected' by one another (Seigworth & Gregg, 2010: 2; see also Spinoza, 1985). At the same time, the insistence by some affect scholars on treating affect as purely non-representational and unmediated (see e.g. Massumi, 2002) can create tensions with literacy scholars concerned with language, mediation and meaning. The distinction affect scholars make between 'affect' and 'emotions', in which emotion is regarded as merely the 'narrativisation' of affect, is particularly problematic for literacy scholars, for whom the narrative and semiotic dimensions of affect are seen as central when it comes to teaching students how to understand the ways they 'move and are moved' by texts and technologies (Leander & Ehret, 2019). For my part, I will follow many recent scholars in both affect studies and literacy studies (S. Ahmed, 2014; Döveling et al., 2018; Wetherell, 2012; Zembylas, 2014a) in using the terms emotion and affect interchangeably, often compromising by using the word 'feelings', which has the advantage of capturing both the non-representational, embodied dimension of affect and the everyday language people use to narrativise their emotional experiences.

'Feeling' can also be used as a verb, emphasising that affect and emotion are not things people 'have' but emergent properties of their 'practical engagement with the world' (Scheer, 2012: 193).

Perhaps the most compelling case for using tools from linguistics and discourse analysis to understand affect comes from social psychologist Margaret Wetherell (2012), who argues that attempting to separate meaning-making from embodied affect is not only untenable but contradicts affect theory's own emphasis on relationality. Human embodied states are routinely entangled with texts, technologies, conversations and cultural routines. To understand how talk, texts, bodies, social relations and objects in the material world *assemble* to make affect possible, she proposes that we pay attention to what she calls *affective-discursive practices*: 'intertwined affective-discursive patterns evident in social life that operate rather like other social practices (such as cooking, sport, personal care, mothering and so on)' (Wetherell, 2012: 351). Such patterns associated with digital media might include taking and sharing selfies, circulating memes, and engaging in collective expressions of grief or outrage (see e.g. Giaxoglou, 2020; Varis & Blommaert, 2014; Warfield, 2018).

In the field of affect studies, Sarah Ahmed (2004, 2014) also advocates an approach which sees affect as inseparable from its linguistic and cultural context. Through analysing the discursive logics and genres associated with affect, she argues, we can better understand how affect 'sticks' to certain bodies and practices. Central to this framework is her notion of 'affective economies' (Ahmed, 2004), by which she means the ways signs/texts, objects and people *accumulate* affect as they circulate among one another, gradually being transformed into *objects of feeling* that are imbued with social value. Boler and Davis (2020: 27) apply this idea in their notion of 'digital affective economies' where certain objects (texts, images, memes) and people ('creators', 'influencers') become 'sticky' as they circulate through digital networks, generating the attachments and antagonisms that create *value* for users (and for platforms). Just as Ahmed's description of affective economies raises possibilities for resisting the cultural politics of affect, an approach to online affect that interrogates how value is created through rituals of sharing and algorithmic 'affective feedback loops' (Paasonen, 2015: 31) holds out possibilities for discovering alternate rituals and ways of creating value.

These theoretical insights lay the groundwork for an approach to affective literacies that helps students understand how affect emerges and circulates online through complex assemblages of texts, technologies, bodies, social relations, and political and economic forces. It is an approach which provokes them to discover the ways the technologies they use enable and constrain different affective-discursive practices, and the role of these practices in shaping their social worlds. It is also an approach that prompts critical examination of the role of affect in creating *value* for content that circulates online, as well as its role in erecting or dissolving *boundaries* between people and communities. Finally, it is an approach which invites students to reflect on their own

affective routines and the things that 'trigger' affective responses from them and to explore how these affective habits form through their intra-actions with technologies.

Affordances for feeling

Just as aspects of our environments help us to take action and distribute our attention, they also afford opportunities for us to 'amplify, suppress, extend and explore… our affective experiences', what Krueger and Colombetti (2018: 214) refer to as 'affective affordances, or, as I am calling them, *affordances for feeling*. Colombetti and her colleagues (Colombetti & Krueger, 2015; Colombetti & Roberts, 2015) have explored how a range of cultural artefacts, from musical instruments to rosaries, help to support the emergence and maintenance of different emotional states and experiences. Beyond simply enabling certain forms of emotional expression or connection, these artefacts become 'entrenched' into people's 'corporeal schema' (Colombetti & Krueger, 2015:1161), providing them new ways to 'feel' their emotions.

Traditional media like cinema and television have long provided audiences with ways to enhance and expand their emotional experiences (Hven, 2019), and digital technologies dramatically extend these possibilities. Scholars examining the affective affordances of social media platforms (Sturm Wilkerson et al., 2021), virtual worlds (Shin, 2017; van Vugt et al., 2006), educational technologies (Park & Lim, 2019), and AI systems (Krueger, 2024; Vallverdú & Trovato, 2016), have noted how digital media offer a range of unique opportunities for the regulation, expression and circulation of affect (Krueger & Osler, 2019), such as enabling users to easily share their feelings with large numbers of people and to join with others in collective expressions of joy or mourning (Döveling et al., 2018). At the same time, as the studies I cited at the beginning of this chapter make clear, they can also make them vulnerable to various forms of emotional dysregulation and distress.

Crucially, affordances for feeling, whether associated with rosaries or smartphones, are not *properties* of these tools, but rather emerge from the way tools, social relationships and historical bodies *intra-act* (see Chapter 2). The affective affordances of technologies manifest differently across contexts and user groups, contributing to the construction of what Slaby et al. (2019: 5) call 'affective arrangements': 'material-discursive formations' through which 'affect is patterned, channelled and modulated in recurrent and repeatable ways'. Within these affective arrangements, certain 'feeling rules' (Hochschild, 1983) and 'affective logics' arise which make certain expressions of affect seem more legitimate and 'intelligible' than others (Ruitenberg, 2020: 50).

It is also important to note that within these affective arrangements, technologies inevitably afford different kinds of opportunities for different participants. While the affective affordances of social media platforms enable users to express themselves and to build emotional bonds with others, these same

affective affordances enable platform owners to gather valuable data about users that can later be used to manipulate their emotions (though, for example, targeting content that is algorithmically curated to trigger certain affective responses).

Digital media offer three key kinds of affordances for feeling—affordances for the *regulation* of feelings, affordances for the *expression* of feelings, and affordances for the *circulation* of feelings. These affordance work in concert to support affective-discursive practices and enforce feeling rules and affective logics.

Affordances for the regulation of feelings are those features of technologies that affect people's ability to manage their emotional states (Krueger & Osler, 2019). While digital media are often associated with emotional dysregulation, research suggests they can also be used to enhance users' control over their affective states and help them to better cope with life's pressures and frustrations (Blumberg et al., 2016; Gilroy-Ware, 2017; Wadley et al., 2020). One way they do this is by enhancing users' ability to manage their physical and social environments. Personal music players embedded in smartphones, for instance, allow people to take advantage of the mood enhancing qualities of music while also blocking out aspects of the environment (noise, other people) that might threaten their feelings of well-being (Skånland 2013). The internet gives users access to various virtual environments, allowing them to move between offline and online contexts or blend physical and virtual spaces in ways that allow them to exercise more control over who has access to them and the kinds of interactions they engage in (Lyons & Tagg, 2019). Digital devices can also function as 'involvement shields' against unwanted physical encounters (Ayaß, 2014) while, at the same time, giving users easy and immediate online access to people who can provide emotional support when they need it.

Another affordance that digital media offer for the regulation of feelings is the ability they give users to record, document and track their emotional or bodily states in ways that can facilitate self-regulation, increase motivation, or help them reflect on their past behaviour (Jones, 2015a). Exercise and mood trackers are among the most obvious examples of this, but social media sites also provide persistent repositories of images, videos and text messages that users can review as a way of reflecting on their past emotional states. Digital media can also help people to develop and maintain social support systems which can encourage self-regulatory behaviours and facilitate self-reflection based on feedback from others (Blumberg et al., 2016). Even casual online interactions can contribute to affective management by engaging users in practices of impression and reputation management. The internet and social media can also give users opportunities to strengthen their 'mental health literacy' (Saha et al., 2019) through accessing information and interacting with people who are facing similar emotional challenges (Mordecai 2023).

These same features that enhance opportunities for emotional regulation, however, can also make users more susceptible to negative emotions and

dysregulatory behaviour. Constant social connectivity generates its own anxieties—the pressure of being 'always on' (Baron, 2010) and the 'fear of missing out' when one is offline. Design features of social media feeds, such as the 'endless scroll' I discussed in Chapter 2, can make it difficult to disengage from negative emotional stimuli and lead to feelings of guilt because of decreased productivity. Constant feedback from tracking apps and from friends and followers on social media can create an unhealthy attachment to external validation, and exposure to other people's posts can prompt unrealistic social comparisons, leading to increased feelings of inadequacy and low self-esteem (Vogel et al., 2014). Finally, people can become so reliant on the affordances of digital media for regulating their feelings that they might find it difficult to cope in situations in which their devices are not available to them such as classrooms.

At the same time, digital media also give internet companies and advertisers more opportunities to 'regulate' or control the affective experiences of their users. The very practices users employ for emotional regulation—self-tracking, playlist curation, social media engagement—generate the data that enable increasingly sophisticated forms of affective manipulation by platform owners.

Another important set of affective affordances are *affordances for the expression of feelings*. Digital technologies have dramatically expanded our repertoire for emotional expression, offering multiple semiotic modes—text, image, sound, video, touch—through which affect can be conveyed. It is important, however, not to fall into the trap of assuming that richer, more multimodal media necessarily afford more expressive displays of emotion. Studies of early text-based forms of computer-mediated communication, in fact, found that the absence of 'rich cues' actually *facilitated* emotional expression and feelings of intimacy, a phenomenon Walther (1996) dubbed 'hyper-personal' communication. This highlights the fact that expressive affordances emerge not just from semiotic resources but from the interplay of texts, social contexts, and interpretative practices within broader affective arrangements.

Digital platforms' most distinctive affordance for emotional expression may be how they *simplify* it through standardised mechanisms—'like' buttons, emoji menus, reaction gifs. This ease of affective display not only encourages more frequent emotional expression but tends to elicit reciprocal responses, creating cycles of affective exchange. These simplified emotional tokens serve platform owners as much as users, generating quantifiable data about users' emotional states and social ties while at the same time sustaining user engagement (Stark & Crawford, 2015).

One oft mentioned affordance of emojis and other semiotic tokens of affect is that they compensate for the absence of emotional cues normally associated with face-to-face communication, the face of the emoji or animated gif acting as a 'stand in' for the expressive face of the user. Critics have argued, however, that these symbols confine users to a narrow 'taxonomy of feeling' (Crawford, 2014: para. 11) which ends up standardising affect and discouraging the

expression of complex emotions. Neither of these positions does justice to ways emojis are actually used in practice as affective affordances. Research reveals that emojis rarely simply represent facial expressions or emotions, but rather serve as contextual cues that emphasise, modify, or complicate other forms of affective expression (Dresner & Herring, 2010). Indeed, the inherent ambiguity of emojis might be their most potent affordance, enabling certain forms of strategic emotional communication (such as 'flirting') while engaging readers in what Stark and Crawford (2015: 3) call a 'hermeneutic impulse' to decode intended meanings.

Another effect of this 'tokenisation' of affect on social media platforms, however, is that it fundamentally transforms the structure of emotional exchanges online, replacing interactivity with what we might call a *logic of reactivity* in which users are constantly prompted to *react* to content, sometimes getting caught up in 'virtuous or vicious cycles of highly emotional responses, quickly followed by highly emotional counter-responses' (Steinert & Dennis, 2022: 32). Under this logic, affective responses such as 'likes' and emojis can also come to function as a kind of 'currency' in reciprocal transactions of social capital. The logic of reactivity is further entrenched by the display of metrics quantifying the number of reactions different posts have received, rewarding posters for posting particularly 'reactionary' content.

The ease with which users of digital media can exchange concise, expressive semiotic tokens, not just in the form of 'likes' and emojis, but also in the form of short text messages, selfies and videos, supports a range of affective-discursive practices, the most common being *phatic communication* (Malinowski, 1923), the exchange of communicative tokens that functions primarily to maintain social connections rather than convey information. Such 'low-content intimacy signalling', as designers of human-computer interfaces call it (Stark & Crawford, 2015: 6), has become so central to the way social media platforms and messaging apps work that some scholars have come to refer to these platforms as 'phatic technologies' (Wang et al., 2011).

Another important affective-discursive practice that social media platforms support is the sharing of what Georgakopoulou (2007) calls 'small stories', fragmented narratives of everyday experience told through short texts, images, emojis, short-form videos, etc. Small stories facilitate affective self-branding, where certain expressions of emotion support users' desired self-presentations. They also allow users to engage in performances of 'honesty' and 'authenticity' through telling confessional stories about things like 'coming out' (Johnson, 2020), illness (Giaxoglou, 2022), and mental health (Mordecai, 2023). Through these stories users can build affective communities around shared experiences of marginalisation or trauma, sometimes creating spaces where dominant feeling rules and affective logics can be challenged (Behm-Morawitz & Valerius, 2024; Lee & Lee, 2023). Giaxoglou (2020: 8) argues that online small stories are not just ways of expressing feelings but also of 'positioning' oneself in relation to prevailing social and cultural norms.

Another set of affective-discursive practices where users engage in 'affective-positioning' are those in which they express anger, hostility or moral outrage towards other people or groups. Expressions of anger and outrage can create feelings of emotional gratification for their authors, especially when others take them up and amplify them (Crockett, 2017), and they also, like small stories, serve as a means of affective self-branding, allowing users to signal their moral virtue *vis* à *vis* the targets of their outrage (Brady & Crockett, 2019).

These affective-discursive practices generate their own affective economies. While selfie culture, for instance, often privileges positive affect (Wahl-Jorgensen, 2018), confessional stories reward performances of authenticity and emotional vulnerability. Some digital spaces even incentivise expressions of negative emotion and romanticise emotional distress (India, 2024). Similarly, affective-discursive practices such as 'shitposting', 'trolling', and moral outrage have their own affective reward systems. Part of being a 'literate' participant in these different practices involves being able to make one's affect *intelligible* in various affective economies, and the pressure to enact certain affective performances may influence the way people experience their emotions and those of others. The overall effect of affordances for feeling, then, is not so much the standardisation of affect as it is the *valuation* of different kinds of emotional expressions depending on how easily the available semiotic affordances and the dominant affective logics can render them intelligible.

This *valuation* functions not just through affordances for the expression of feelings, but also through *affordances for the circulation of feelings*, which shape how affect 'sticks' to objects, ideas and people. A key affective affordance of digital media is the way they facilitate the spread and 'stickiness' (Ahmed, 2004) of affective expressions within and across online and offline social networks.

Among digital media's most obvious affordances for the circulation of feelings is the networked architecture of the internet itself, which enables distributed, non-linear and decentralised flows of information (Castells, 2000). This means that expressions of affect can spread beyond traditional social boundaries. Online networks' unique mixture of strong and weak ties creates new pathways for affective contagion, allowing expressions of emotion to reach diverse audiences and acquire novel meanings as they traverse different contexts. At the same time, the architectures of networks can also influence the kinds of emotions that get circulated through them. Lin et al. (2014) reveal how people in dense, close-knit networks often feel free to share both positive and negative affect, while those in larger, more diffuse networks tend toward positive emotional displays as part of strategic impression management.

Other affordances for circulation are related to the design features mentioned above such as 'like' buttons and notifications which act as 'affective triggers' (van Alphen & Jirsa, 2019) encouraging interaction and sharing. But the affordance of 'shareability' does not just support the circulation of affect; affect also encourages practices of sharing. Users are more inclined to share

content that includes expressions of affect (Brady et al., 2017), and, partly because of this, algorithms 'learn' to amplify emotionally charged content since it is more likely to drive engagement. Other design features such as hyperlinks, hashtags and shared profile pictures further promote the circulation of affect by helping to assemble people around common affective projects such as mass expressions of outrage about social injustice (e.g. #MeToo, #BlackLivesMatter) or collective expressions of mourning (#JeSuisCharlie, #PrayforParis) (Barbala, 2023; Giaxoglou, 2020; Papacharissi, 2014).

Affordances for the circulation of feelings support affective-discursive practices like online gossip, conspiracy theorising, collective storytelling and meming. Platform features like hashtags and threaded comments transform personal narratives into participatory emotional experiences (Page, 2018), and the remixing affordances of digital media facilitate the 'memification' of affect. As these memetic expressions of affect circulate, they can sometimes take on the status of 'sacred objects' in collective rituals of outrage, celebration or mourning (Osler, 2024).

These affective-discursive practices can give rise to what Papacharissi (2014) calls 'affective publics', ephemeral communities that come together around shared emotional experiences. Affective publics exhibit remarkable fluidity, evolving rapidly in response to technological and social trends, and generating feelings of belonging and collective identity across geographical and social boundaries. What holds these groups together is what affect scholars like Paasonen (2011, Hillis et al., 2015) refer to as 'resonance', the feeling people have of being collectively 'attuned' to particular emotional frequencies. When content 'strikes a chord' with users, it initiates what Paasonen (2015: 31) calls 'affective feedback loops' in which the more affect 'sticks' to content, the more people want to share it. Platform algorithms amplify these dynamics by boosting the circulation of emotionally 'resonant' content. Through these processes, affective publics become more than just communities of feeling—they provide infrastructures for what Krueger (2024) calls 'collective world-making', where shared emotional experiences can catalyse social and political change (either in a positive or a negative direction).

Affective publics have been instrumental in social and political movements which have challenged dominant narratives and created alternative social spaces where marginalised groups can express themselves freely. Papacharissi (2014: 118–119) argues that the online circulation of affect gives people the opportunity to 'feel their way into politics', and develop a 'sense of their own place within … particular structure[s] of feeling'. But affective publics can also be incubators of hatred where people can get swept up in collective displays of outrage at the expense of rational deliberation. In either case, the inevitable effect of the circulation of affect is that it attaches *social value* to people, groups, things and ideas. According to Ahmed (2004), one of the main consequences of this is the creation of *boundaries* between groups, defining who belongs and who doesn't. Affect, she says, is what creates 'the very effect of

the surfaces or boundaries of bodies and worlds' (p. 117) or, to use the language we used in Chapter 2, the 'agential cuts' (Barad, 2007) through which we distinguish this from that and us from them. This fact highlights how seemingly mundane practices of emotional sharing online are deeply implicated in broader structures of power and processes of political formation.

Affect and embodiment

So far I have focused mostly on the semiotic and infrastructural dimension of affect (i.e. emojis, hashtags, networks, and algorithms), but we can't really understand the way affect emerges and spreads through digital networks without considering the opportunities digital media provide, especially through advances in digital photography, video and streaming, for users to mobilise their *bodies* and material environments in the expression and circulation of affect. Although, as I said above, semiotically 'lean' media like text messaging can generate powerful affective resonance, platforms such as Instagram, Snapchat, YouTube and Zoom make possible much richer, multimodal displays of embodied affect, and producing these displays involves forms of *embodied affective labour* which purely semiotic expressions of affect do not.

One of the key affordances of these platforms is the ability they give people not just to use their bodies to *communicate* their feelings, but to *experience* their bodies and feelings differently. I have in previous work referred to this affordance as 'synthetic embodiment' (Jones, 2022b, 2023), the fabrication of new kinds of bodies by mixing and remixing different modes, media and materialities. Examples include avatars in virtual worlds, Animoji, selfies and videos that have been digitally enhanced with filters and special effects, and 'hybrid' bodies created when, for instance, the voice of one person is inserted into the body of another. These new forms of embodiment don't just make people look different; they also make them *feel* different. Yee and Bailenson (2007) found that giving people different avatars in virtual worlds affects their behaviour, with people with more attractive avatars more likely to self-disclose, and people with taller avatars more likely to behave aggressively, a phenomenon they refer to as 'the Proteus effect' (p. 271). Hougaard (2021) uses the term 'hypercorperality' to describe digitally-mediated bodily performances that transcend conventional corporeal limits, arguing that these performances open up increased possibilities for 'bodily resonances' (p. 140) and 'interaffectivity' (Fuchs, 2017: 194)—the emergence of affect within shared interpersonal space.

One of the main affordances of synthetic embodiment is the ability it gives users to *confront* their own bodies (or, different 'versions' of their bodies). Through digital media, we are constantly having our affective states reflected back to us as we take selfies, engage in video calls, or manipulate our facial expressions to animate Animoji characters. This does not just enable us to develop insights into and control over our affective displays, but also to

experiment with 'trying on' different feelings. At the same time, there are also myriad ways synthetic embodiment can interfere with emotional regulation. People, for instance, can become overly preoccupied with checking, adjusting and editing representations of their bodies, and the emotional labour of continually reflecting on one's appearance can be exhausting and increase feelings of vulnerability or shame.

The most obvious affective affordances of multimodal digital media are the opportunities they present for people to use their bodies (facial expressions, movements, gestures) and their physical environments (setting, lighting) as resources for the expression of affect. For example, people can use digital cameras not just to record embodied displays of affect, but also enhance these displays through various cinematic techniques. Facetime and other forms of real-time video communication also allow them to modulate their affective displays moment-by moment in response to others' reactions. Some applications allow them to layer different expressions of emotion on top of one another through combining bodily performances, photographic techniques, filters and editing effects, and texts and emojis in ways that create complex and sometimes ambiguous representations of affect (Albawardi & Jones, 2020; Hautea et al., 2021).

Embodied expressions of affect, however, don't always involve representations of users' bodies. Sometimes they involve displays of users' *perspective* on their environments, as with gaming livestreams where expressions of emotion are communicated both through the actions of avatars in the game world and through affect laden vocal commentary by players. Such expressions of affect don't just communicate users' feelings but invite viewers to *experience* these feelings along with them *as they arise*.

The spatio-temporal dimensions of embodied expressions of affect online also have the potential to alter the logic of reactivity that is promoted by many semiotic expressions of emotion. Unlike emojis and reaction gifs, which *represent* the reactions of users, reaction videos of people doing things like playing video games, listening to music (McDaniel, 2021), travelling, and watching porn (Bliss, 2022) reconfigure reaction as a form of embodied witnessing that allows both creators and viewers to inhabit multiple affective positions. In her examination of the reaction videos of K-pop fans, for example, Swan (2018) talks about how creators of such videos are able inhabit the bodies not just of consumers of the music, but also performers, producers and critics, creatively merging their own expressions of emotion with those of the singers they are listening to and their fellow fans who are watching them.

The online circulation of embodied expressions of feelings has important implications for the way affect 'sticks' to bodies and creates *value*. Part of this has to do with how embodied expressions of affect make individuals and groups visible in new ways. Cho (2018: 195), for instance, talks about the 'disruptive joy' that resulted from an organised effort by users of colour to post affirmative selfies on what was dubbed #BlackOutDay. But affective

economies of bodily visibility can also function to reproduce power relations and stereotypes, as they sometimes do in practices of sharing sexual images through WhatsApp and Snapchat. Here, embodied performances create complex circuits where excitement, desire, and shame 'stick' to bodies in ways that often reinforce gendered hierarchies of worth (Ringrose & Harvey, 2015). These affective economies are often exploited by cyberbullies and extortionists, sometimes with disastrous consequences (Nilsson et al., 2019). But they also highlight the important role that vulnerability can play in the creation of value in affective economies. In her exploration of teenage girls' Snapchat practices, for instance, Kofoed (2017) notes how intimacy between friends is often created through sharing potentially embarrassing pictures of each other's bodies, the affective value of such photos deriving from the risk that they might be shared with others.

Another way technologies of synthetic embodiment contribute to the circulation of affect is through facilitating its memification by allowing people to remix representations of others' bodies with their own, as when creators on TikTok appropriate the voices of other people in lip-synching performances in which the emotional tenor of the other's voice is performed through movements and facial expressions. One reason 'audio memes' like this are such powerful circulators of affect is because they make embodied expressions of emotion 'templatable' (Abidin & Kaye, 2021), producing chains of 'mutual modification of bodily and emotional states' (Fuchs, 2017: 2). Because users' bodies/voices are part of the meme, they also promote a form of *intercorporeality* where the performer and the source material are 'intertwined in a process of bodily resonance, coordinated interaction and "mutual incorporation"' (Fuchs, 2017: 7). When people perform other people's voices on TikTok, or mimic other people's dances, or perform embodied fictionalised conversations with them using the 'duets' feature (Herring & Dainas, 2025), they *attune* themselves to others' bodies and feelings, literally using their own bodies as the *media* through which affect is spread across the network.

Another example of the intercorporeal circulation of affect can be found in 'autonomous sensory meridian response'(ASMR) videos in which embodied actions such as whispering, tapping, and interacting with physical surfaces create embodied affective responses from audiences in the form of 'tingling' feelings and states of relaxation or euphoria (Klausen, 2021).

Affordances for intercorporeality and the memificaition of the body, however, can also reconfigure the *boundaries* between bodies in harmful ways. Losing control over the ways one's embodied expressions of affect are circulated and mixed with other bodies can not only create feelings of vulnerability for individuals but can also alter the power relations between groups. The frequent appropriation of the voices of people of colour by White creators on TikTok (Zwann, 2020) and the proliferation of animated gifs portraying exaggerated displays of Black affect (Kuo, 2019), for instance, can promote the fetishisation and commodification of the bodies and affective experiences of minoritised people.

Chatbots and other affective technologies

No treatment of digital affordances for feeling would be complete without a discussion of how artificial intelligence is changing the ways feelings are represented, reflected upon and circulated. While algorithms and automation have long played a role in regulating how affect circulates online, promoting and enforcing certain affective logics through the capture and quantification of users' emotions, advances in AI technologies mean that the measurement and management of affect no longer requires people to produce data (by, for example, reacting to social media posts) but can be performed directly on the human body. New forms of 'affective computing' such as fMRI scans, voice analysis, and facial recognition systems that purport to be able to 'read' people's emotions raise the spectre of what Angerer and Bösel (2016: 41) call 'total affect control', where the affective feedback loops that shape our online interactions intrude into every corner of our lives, increasing the potential for ever more subtle and pervasive forms emotional manipulation.

Another affordance of AI, especially generative AI, is its ability to simulate human feelings and engage users in apparently empathic interactions. The ability for human-like chatbots to trigger affective responses in humans does not necessarily require sophisticated AI technology, as Joseph Weizenbaum (1976) demonstrated with his primitive chatbot Eliza back in the 1960s. Weizenbaum was surprised that the chatbot, which was programmed to simulate simple conversations by asking questions based on what users typed, often elicited deeply emotional responses. Modern chatbots, trained on vast datasets that include rich emotional content, are not just able to simulate a range of emotional responses but also to recognise and respond to emotional cues from their users. They can also learn from their interactions with particular people and get better at tailoring their output to users' emotional dispositions. Nowadays, empathic chatbots are part of a wide range of digital interfaces providing customer service, mental health support, entertainment and romantic or sexual companionship. They are also integrated into many social media sites like Facebook and Snapchat where they sit alongside users' human friends.

There are obvious benefits to such technologies. Because they can provide always available, non-judgemental companions for people who suffer from loneliness or feel uncomfortable expressing emotions to other people, they have been widely used in therapy and counselling with some degree of success (Zhong et al., 2024). At the same time, these technologies can make people more vulnerable to emotional manipulation and reinforce unhealthy emotions or behaviours. There are already documented cases of people being encouraged by their virtual companions to commit crimes or attempt suicide (Walker, 2023; Weaver, 2023). They might also alter the way people *value* certain emotional experiences or certain people. AI girlfriends who always comply with commands and never disagree, for instance, can create harmful and unrealistic expectations about the nature of human relationships.

A final danger related to AI comes from the new forms of *affective labour* it requires, not just from users, who often find themselves taking cues from and attending to the emotional demands of their AI companions, but also from other people in the AI supply chain, including poorly paid 'ghost workers' (Gray & Suri, 2019) who are often tasked with moderating and refining the emotional outputs of AI models, which can sometimes impact their own emotional health and well-being.

Feelings of affordance

How affect emerges when people use digital media is not just a matter of the affordances for feeling that the media make available, but also depends on the 'feelings of affordance' that they bring to situations which enable them to take advantage of or even transform those affordances for feeling. As Colombetti and Krueger (2015: 1160) emphasise, 'affectivity is not just a matter of passively undergoing bodily and experiential changes, but also of actively modifying one's environment for the sake of one's affective life'. When people adapt to or modify the affordances for feeling made available in their environment to meet their affective needs, they create what Colombetti and Krueger call 'affective niches', a notion inspired by the concept in evolutionary biology of 'environmental niches': the ways animals make use of the affordances offered by their environments to enhance their chances of survival (Odling-Smee et al., 2003). The important thing about both environmental and affective niches is that when organisms make use of the affordances in the environment to transform it, they are also transformed—behaviourally, cognitively, and emotionally.

I take the term 'feelings of affordance' from Brown and Reavey (2015: 219), who define them as 'the felt sense of the possible (what we can do and what can be done to us) that arises from our engagement with assemblies of relations'. While feelings of affordance enable us to create affective niches, the affective niches we create also shape our feelings of affordance going forward. A young person who suffers from anxiety, for instance, might find that scrolling through TikTok brings relief. As they scroll, certain content may actually trigger feelings of anxiety, and they learn to recognise this quickly and scroll away from it so that the TikTok algorithm 'learns' not to feed them this kind of content. On TikTok, they may also discover how to use hashtags such as #anxiety (see Mordecai, 2023) to find videos which provide advice about anxiety, and they may then try their hand at making #anxiety content themselves, perhaps even becoming a participant in anxiety related 'affinity spaces' (Gee, 2004, see Chapter 5), receiving 'likes' and other positive expressions of affect from others. Their participation in the affective economies of such spaces might enable them to better regulate their anxiety, but it might also imbue online expressions of anxiety with a certain social capital, encouraging them to *re*-engage with anxiety inducing behaviours. This example shows how

users' experiences, interests, and affective dispositions can lead them to using the affective affordances of digital media in particular ways, creating affective niches that help them to bring about or maintain certain emotional experiences. It also shows us how affective affordances can change as they interact with users, TikTok's algorithm, for instance, altering the content it makes available as users scroll through it. Finally, it shows how the creation of affective niches also ends up changing the skills, routines and affective dispositions of those who have created them.

We all create affective niches with digital technologies based on the feelings of affordance we bring to them. We might think of them as 'comfort zones' when it comes to media use, but that doesn't necessarily mean they are emotionally 'healthy' or even particularly 'comfortable'. Only that they are 'familiar' and serve some affective ends. Some people, for instance, build affective niches by frequently checking social media for content that makes them angry. As they do this, the affective affordances of the social media sites they visit adapt, providing them with even more outrage inducing content. While this affective niche may not make them 'happy', it fulfils some emotional need such as making them feel like they are better than other people. As people inhabit these 'comfort zones', they also impact their feelings of affordance, for example, reinforcing their disposition to become angry at things they see on the internet.

The 'felt sense of what is possible' that people bring to their media use comes from their 'feeling-histories' (Ehret & Hollett, 2014:428), their past experiences with affect and the meanings they have assigned to it that have become sedimented into their historical bodies (see Chapters 2 and 3). Based on feeling-histories, people learn what kinds of affordances for feelings reliably give rise to certain emotional experiences (Krueger & Osler, 2019). They also develop particular 'affective styles' relevant to particular affective niches (Colembetti & Krueger, 2015: 1169). They might, for example, develop one style of regulating and expressing their emotions for Instagram and another for a massively multiplayer game they like to play. In adopting different affective styles, they contribute to the maintenance of these affective niches. In fact, one important aspect of affective literacies is the ability to adopt the appropriate affective styles for different contexts. Affective styles are partly about self-presentation or 'affective branding', but they are also about how affective niches 'trigger' or 'comfort' us and how we respond to these experiences.

As we become accustomed to associating certain affective niches with certain feelings, behaviours and social roles, we settle into 'affective routines', in the same way, as Wetherell (2012: 121) observes, 'as life continues, affective practice seems to become customised, becoming less diverse, more predictable and pre-figured'. We need only think of our own digital affective routines such as 'doom-scrolling', or checking how many 'likes' we've gotten on Instagram to understand how pervasive and persistent they can be, and how they can operate to limit or distort our affective experiences. It is also possible, though, to build affective routines that scaffold positive affective practices or

to use our feelings of affordance to *disrupt* unhealthy or counterproductive routines, either by altering the affective affordances of our tools (by, for example, changing the way our phone notifies us when people 'like' our content), or by cultivating new feelings of affordance that allow us to create different kinds of affective niches.

Feeling histories and the affective styles and routines associated with them are not just individual; they are also collective. People who have been collectively exposed to trauma or have had to develop the emotional tools to deal with group-based forms of discrimination, as well as members of groups that regularly engage in particular affective-discursive practices such as conspiracy theorising, develop *collective feelings of affordance*. In her research on the collective emotions experienced by the gay community in the US during the AIDS crisis, Gould (2009:10) coined the term 'emotional habitus' to describe these 'socially constituted, prevailing ways of feeling and emoting' that develop within groups (see also Döveling et al., 2018). What this reminds us is that feelings of affordance are very much shaped by social contexts, politics, power, and privilege. People of colour or sexual minorities, for instance, with their unique collective experiences online, bring to their digital media use their own collective sets of feelings of affordance. It also reminds us that collective feelings of affordance can be mobilised for political action, in the same way the gay community mobilised their collective emotional habitus in mass protests in the late 1990s and early 2000s (Gould, 2009).

In some respects, feelings of affordance can be seen as the ways that we make ourselves 'vulnerable' to the affective affordances of digital media. But I don't mean this in the same way psychologists and cultural critics worried about the effects of the internet and smartphones on young people's mental health do. While sometimes the affective niches that we create and the affective routines that we become ensnared in can be terribly damaging, the notion of feelings of affordance allows us to also see vulnerability in a more positive light as a way of exercising a form of 'affective agency' (Bucholtz et al., 2018; McManus, 2011) by choosing to operate outside of our 'comfort zones' in ways that open us up to new emotional experiences and connections and new possibilities for resilience and growth.

Affective literacies as 'affective agencing'

As should be clear from the discussion above, the approach to affective literacies I am advocating considers not just how we can protect young people from the emotional harms that have been associated with digital devices and the internet, but also how we can help them make their affective engagements with technology educationally and socially transformative. The aim is to develop 'emotionally literate' citizens who are open to the affective affordances of their material and social worlds and can navigate the affective boundaries that separate people from people and people from their environments (Keegan, 2021).

Mary Bucholtz and her colleagues, in their exploration of the role of affect in transformative learning among minoritised students, use the term 'affective agency' to mean 'the mobilisation of social action in and/or through embodied cognition, emotion, and perception' (Bucholtz et al., 2018: 4). Affective agency, they emphasise, 'is not a new kind of agency, or a new kind of affect', but rather, 'a conceptual tool for calling attention to the inseparability of agency and affect' (Ferrada et al., 2020: 80). This conceptual fusion of agency and affect in many ways captures the spirit of the term *agencing* which I introduced in Chapter 2, the notion that actions emerge as humans, machines and environments move and are moved by one another. *Affective agencing* entails understanding how affect arises and circulates through our intra-actions with the world, how the affordances for feeling in our environments can conspire to channel our feelings in particular ways, and how repeated engagement through embodied feelings of affordance can crystallise into affective habits or routines. It is not just about controlling or suppressing emotions, but about skilfully engaging with the world and with technologies to create the kinds of emotional experiences we want to have.

Developing affective agencing begins with recognising how different technological and social affordances shape our emotional experiences. But it also entails asking what kinds of *value* these affordances for feeling create and for whom. Affective agencing also involves being aware of and learning to develop one's own feelings of affordance—cultivating an intuitive, embodied sense of how different environmental elements can impact one's own and others' affective states. It is not just about being able to use feelings of affordance to construct affective niches that support and scaffold particular affective experiences, but also being able to move *across* affective niches—flexibly deploying different affective routines and styles, and to be critical of the niches we inhabit—our 'comfort zones'—and the kinds of styles and routines that grow up within them.

Both aspects of affective agencing—interrogating affordances for feeling and cultivating feelings of affordance—require that we engage with the *embodied* dimensions of affect, the way it is deeply rooted in bodily processes, sensations and experiences. Affective literacies especially require that we interrogate the affordances of digital tools that allow people to recruit their bodies into the regulation and expression of affect and the potential of these tools to dramatically alter our relationships with others. They also require that we attend to the *social* dimensions of affect, the ways affect creates 'publics' and draws 'boundaries' that amplify or limit possibilities for collective action. Indeed, much of our emotional lives (and our emotional health) depends on our ability to participate in shared affective-discursive practices, rituals, and meaning-making processes. The main promise of affective literacies is that they can help us to understand not just how affect shapes social relationships, but how it can be harnessed to transform them.

Bucholtz et al. (2018) take their idea of 'affective agency' from Susan McManus (2013), who emphasises the transformative, world-changing

potential of affect. According to McManus (2013: 137–138) affective agency 'facilitates a critical perspective that is attentive to the "micropolitical", quotidian bodily encounters that are constitutive of … structural or social agential formations'. What this means is that all moments of affective regulation, expression and circulation are inherently *political*, an idea that is implicit in Ahmed's (2004) framework of affective economies in which even the smallest affective encounter contributes to the ways affects 'sticks' to certain bodies and the ways boundaries between bodies get drawn.

A key goal of affective literacies, then, should not just be teaching students to interrogate the 'production and circulation of objects of emotion' in the politics of everyday life, but to help them to focus on the power of the 'performativity of emotions to achieve social justice' (A. Ahmed, 2015: 392–393). There are plenty examples of this to build upon, from the way women transformed their collective anger into a productive force for feminist 'techno-affective agency' though the hashtag #MeToo (Barbala, 2023), to the online activism of Latin American abortion rights campaigners documented by Macón (2022), where affect served as both a driver of action and as a means of creating intergenerational bonds between past atrocities and present injustices. It is evident in the embodied performances of affect and creative practices of intercorporeality that creators of colour use to counter everyday racism on TikTok (Jones, 2023), and the mobilisation of 'disruptive joy' in practices of mass visibility such as #BlackOutDay (Cho, 2018).

Part of the political project of affective literacies is also to help students to develop ways to affectively respond to the suffering of others, whether in their lives or in representations of 'distant suffering' (Chouliaraki, 2006) that cycle through their social media feeds. The objective of such efforts should not be to get them the 'feel sorry' for other people, but rather to encourage them to 'enter a relation of equivalence' with the suffering (Keegan, 2021: 20) which can open channels for the productive circulation of affect into practical possibilities for political action. Acknowledging and supporting the emotional experiences of all our students is the first step towards social justice in our classrooms. But it must be followed by equipping them with the tools of affective agencing that can serve as a basis for broader practices of transformative civic engagement (Zembylas 2024).

What lies at the heart of such interventions is not just the mobilisation of anger, righteousness, desire or joy, but also a commitment to confront our own vulnerability as entangled embodied social actors. In many ways, vulnerability is the underlying affective experience of the internet, especially for teenagers as they encounter the constant threat of judgement, harassment, and misrecognition. But vulnerability can also be transformative, creating opportunities for solidarity, collective action and resilience. A focus on affective agencing can move us towards a more nuanced understanding of vulnerability that transcends simple notions of risk and safety and create new possibilities for addressing the ways digital media impact our emotional lives.

Interventions

Interventions around affect should be approached with sensitivity, taking into account the vulnerabilities of particular learners and the inevitable discomfort that all learners feel when invited to reflect on their feelings. While teaching affective literacies, teachers may become aware of issues or behaviours in learners' lives that may require assistance from mental health professionals or other experts. The sharing of emotions should take place in the context of clear boundaries and unconditional support, and teachers and students should develop protocols for dealing with moments of emotional distress.

This is not to say that discomfort and vulnerability need to be avoided. As I argued above, vulnerability itself is an important mode of epistemic and ethical engagement with the world (Keegan, 2021), and opportunities to experience it in productive ways need to be folded into our pedagogies. Moreover, critical engagement with various forms of emotional hegemony and manipulation almost always involves what Boler (1999) has referred to as 'pedagogies of discomfort', pedagogies that compel learners (and teachers) to question their deeply held beliefs, assumptions, and emotional investments and sometime grapple with difficult emotions like fear, anger, and desire. Such pedagogies also challenge students to confront the heterogeneity of people's emotional experiences and to learn how to bear witness to others' expressions of vulnerability without resorting to passive displays of empathy or defensiveness. This is particularly relevant to interventions which aim to uncover the power dynamics and boundary drawing that arise from the circulation of affect or to highlight the ways our deep-seated habits of emotional response (our 'affective niches') often align with and serve to reinforce hegemonic feeling rules and social inequalities.

Finally, teachers of affective literacies need to attend to their own feelings of affordance, continuously engaging in what Zembylas (2014b: 211) calls 'critical emotional reflexivity', which he defines as a 'concept and praxis that not only acknowledges how reflexive processes are deeply emotional, but also interrogates how emotions are entangled with power relations and reflexive processes to legitimise or delegitimise certain teaching practices'.

Discussions of affect and digital literacies can begin with more general discussions of how technology affects the way we express emotions and manage relationships. A good first step is asking students to keep an emotional diary of their phone or computer use, recording how engaging with their devices affects their emotions, or even just keeping track of their moods just prior to and just after they use their phones or computers. They can then identify certain apps or platforms associated with particular emotions such as happiness, anxiety or shame, and conduct more detailed examinations of the affordances for feeling associated with these apps or platforms, the affective-discursive practices they make possible, and the feeling rules and affective logics they enforce. They might, for example describe how different platform

affordances such as 'likes' and 'reactions' shape emotional expression and facilitate the way affect 'sticks' to different kinds of content, the role algorithms play in the circulation of affect, and how platform norms influence acceptable emotional displays. As they participate with others on these platforms, they can be asked to notice how the micro-politics of emotion unfolds as they and others affectively position themselves using these different affordances.

The critical analysis of the affordances for feeling of particular apps and platforms creates a foundation for students to explore their own feelings of affordance, observing the affective niches they construct, identifying their 'affective triggers' and 'routines', and critically evaluating their 'comfort zones'. It is here that pedagogies of discomfort become relevant as students are asked to critically examine their emotional investments in digital environments and question their habitual patterns of emotional expression, as well as their unconscious acceptance of platform-mediated affective norms and the social hierarchies associated with them.

A good example of an approach which combines the experiential, reflective and analytical work described above with 'maker-pedagogies' is Robinson's (2023) use of game design to teach affective literacies. Designing video games, he argues, involves students in considering what kinds of affordances for feeling are likely to create different kinds of affective experiences for players and also gives them a chance to reflect on how their own feelings of affordance shape their design choices. It is also a good example of how providing students with affective experiences which are 'laden with joyful surprise and accidental discovery' (Robinson, 2023: 295) can be educationally transformative.

The fact that literacy teachers are increasingly integrating multimodal digital composing into their curricula provides opportunities for students to explore more multimodal and embodied expressions of affect. Researchers such as Ehret and Hollett (2014) have shown how students' embodied experiences of composing with mobile phones not only sensitises them to the body's role in meaning-making but also connects them to their own feeling histories (Lemke, 2013). Warfield (2018: 82) suggests designing learning resources around the production and consumption of selfies, a strategy which 'encourage[s] students to contemplate the material and affective dimensions of digital self-imaging' by reflecting on the feelings they associate with the different places where they take pictures, the different techniques and filters they use, and the social dynamics of the different platforms where they share their images. Students can also experiment with different forms of synthetic embodiment, creating avatars or lip-synching the affective expressions of others in video sharing apps and then reflecting on their experiences of intercorporeality and interaffectivity (Fuchs, 2017).

Finally, students can be invited to consider the more macro-political dimensions of affect, for instance, the ways the affective economies of social media sites reinforce systemic inequalities, how emotions are deployed in advertising and political manipulation and in the service of surveillance

capitalism, and the ways their own emotional labour is constantly exploited by internet companies. Anwar Ahmed and his colleagues define *critical* affective literacies as approaches that 'shed light on the affective construction of structures that align meanings, feelings, and actions in ways that can be oppressive or emancipatory' (Ahmed et al., 2021: 539). In this regard, students can be asked to investigate the ways the circulation and 'stickiness' of affect is engineered to reinforce certain social hierarchies by tracing the ways certain expressions of affect circulate through social media in the form of memes, catchphrases, and expressions of hate or outrage. They can also explore how digital affordances for the expression and circulation of affect can be recruited in the service of activist causes that disrupt hierarchies and construct new political subjectivities. Emotions are always in some way political, implicated in myriad processes of (de)valuing and (de)legitimation, boundary drawing, and regulating bodies and identities. Through equipping young people with the tools to critically confront digital media's potential for emotional manipulation and exploitation as well as their own affective habits and emotional 'comfort zones', we can build affective literacies that promote not just individual well-being but also possibilities for activism and social justice.

5

AFFINITY

(Anti)social media

Ever since its inception, the internet has come wrapped in rhetorics of connectivity, community, and conviviality. At the dawn of the millennium, scholars like Manuel Castells (2000) promised that the 'networked society' would replace old hierarchal models of social life with new, more egalitarian ones, while tech entrepreneurs like Mark Zuckerberg promised that social media would 'make the world more open and connected' (Facebook, 2004). From the discourse of that period, in fact, you might get the impression that computers and social media were responsible for *inventing* connectivity and collaboration (Pfeiffer, 2004, cited in Bouvier, 2015). And in the years since, people have enthusiastically embraced this 'new connectivity': Nearly half of the time we spend on our phones is spent on social media apps, and the total time we spend using such apps consumes more than a quarter of our waking hours (Economist, 2024). For many, online sociality has resulted in wider and more diverse networks of friends, greater opportunities for social support, and the chance to interact with people who share the same interests or have the same problems. Digital media have also served as important tools for community organising, political activism and the formation of 'cultures of care' (Byron, 2020) among marginalised populations.

At the same time, few would deny that there is something profoundly 'broken' about online sociality. Much of the internet seems to be dominated not by 'cultures of care' but by collective rituals of incivility, trolling, hate-speech and 'networked harassment' (Marwick & Caplan, 2018: 543). A 2023 survey commissioned by UNESCO of digital media use in 16 countries found that 77% of internet users surveyed had encountered hate speech online (UNESCO & Ipsos, 2023), and, according to the UN Special Rapporteur on

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Minority Issues, over 70% of those targeted by hate speech on social media are racial or sexual minorities (UN Human Rights Council, 2021). In their attempts to combat hate speech and online harassment, some online communities have adopted their own rituals of exclusion, involving the hypervigilant policing of discourse and the systematic 'cancelling' of people who violate community norms. Meanwhile, despite being more 'connected' than ever before, people report being lonelier, especially adolescents who spend more time on social media than anyone else (Twenge et al., 2021). While this may seem like a paradox, scholars have found that the experience of being 'at once connected and isolated' (Deuze et al., 2012: para 15) is a pervasive feature of mediated sociality.

Some argue that increased connectivity itself is the problem, that we are '*over*-connected' (Davidow, 2011) in ways that strain our cognitive capacity for human relationships and create distorted feedback loops that incentivise antisocial behaviour. Others argue that the problem is whom we are connected to, pointing out how social media algorithms sort users into relatively homogeneous groups of people who reinforce one another's biases and push them to pick sides on divisive topics (Haidt & Rose-Stockwell, 2019). More concerning is the fact that this is not entirely an accident, but the result of design choices made by tech companies to stoke outrage and perpetuate social fragmentation in order to advance their own economic agendas (Sacasas, 2021a). Much of what we experience as sociality in digital spaces is 'engineered' to encourage patterns of affinity that have, for one reason or another, been algorithmically determined to be the most profitable for platform owners. With the escalation of AI driven personalisation and the increased infiltration of social media by bots and other AI agents, human sociality will probably become even more entangled in complex webs of profit-driven automation.

When I speak of 'literacies of affinity' I don't just mean the ability to manage our connections online or to connect with the 'right people' or to 'get along' with others. I also mean the capacity to critically assess the ways platform designs, algorithmic systems, and human social practices *intra-act* to create different possibilities for connection and *dis*connection. At their core, such literacies require that we acknowledge that making connections inevitably involves drawing boundaries which potentially benefit some and harm others. Most importantly, they demand that we develop the ability to work with others to transform both the technological systems that mediate our social interactions and the 'practices of affinity' that emerge within these systems so that we can create opportunities not just to connect and get along with one another, but to learn from one another.

'Affinity spaces' and literacies

The word I will be using in this chapter to talk about digitally mediated practices of sociality is 'affinity'. I am using the word in its broadest sense to

refer to the forces that 'connect' us and 'bind' us into relations of 'affiliation', including both those that join us together in the pursuit of conviviality and community and those that join us together in the pursuit of hostility and conflict.

The notion of 'affinity' has gained considerable traction in educational circles, mostly due to James Paul Gee's (2004) concept of 'affinity spaces'—physical, virtual or hybrid spaces where people learn by interacting around shared interests. Behind this idea lies a long tradition in educational theory emphasising the centrality of social relationships in learning (Dewey, 1916; Lave & Wenger, 1991; Vygotsky, 1978) and a long tradition in psychological research demonstrating that thinking itself is, by its very nature, collaborative and distributed (Mercer, 2013; Salomon, 1993).

According to Gee, what makes 'affinity spaces' such good places for learning is that they attract people from diverse backgrounds with diverse levels of expertise who come together to share knowledge about a common interest or goal. Their 'porous' nature means that there are few barriers to entry, and they provide multiple ways for people to participate, depending on their skills and the strength of their commitment. When they operate as they should, affinity spaces engage people in interactions that combine creativity, learning and social support which help them develop critical thinking and problem-solving skills (Gee, 2017a).

The reason Gee focuses on 'spaces' where people gather rather than 'cultures' that they belong to or 'communities' that they 'join' is to avoid the rather static notion of 'membership' that is associated with these terms. The problem with the idea of membership, says Gee (2004: 70), is that questions about who is in or out and 'how far they are in or out' when it comes to affinity spaces are often unanswerable, especially for digitally mediated spaces where people from diverse locations and social backgrounds come together. But the idea of 'spaces' should not be interpreted as referring to distinct platforms, websites or physical spaces. Rather, affinity spaces typically comprise multiple connected and overlapping spaces (both online and off) across which people travel as they engage with one another and with their shared interests (Gee, 2017a, 2018). Gee calls these connected spaces 'portals', defined as 'anything that gives access to the content [of the affinity space] and ways of interacting with that content' (Gee, 2004: 74). These portals can also function as 'generators' where that 'content' (the artefacts, ideas, shared stories, identities and ideologies of the space) is created. These portals/generators are connected to one another in ways that allow participants to move around, taking advantage of the different semiotic resources and possibilities for interaction and content generation that different portals offer.

Gamers interested in a particular MMOG, for instance, will typically congregate not just in the space of the game, but also in other linked spaces such as online forums, fan sites, modding communities, social media platforms such as Discord and Twitch, and physical spaces such as gaming conventions and

esports tournaments (Gee, 2003; Lammers et al., 2012). These portals offer opportunities not just for players to play the game, but also to talk about it, learn to play better by watching others, and work together to *change* the game through practices of 'modding' and 'theorycrafting' (Gee, 2014; see Chapter 2). Similarly, writers of fanfiction use different online spaces such as social media platforms like Tumblr, private and group messaging channels on Discord, and collaborative writing tools like Google Docs to accomplish different things and cultivate different forms of sociality (Cheng & Frens, 2022). It might be better, then, to think of affinity spaces, as Ito et al. (2018) do, as *affinity networks*, or, as Rizvi (2023) does, as *affinityscapes*: ecologies of different environments for sociality across which shared practices and identities emerge. These connected portals also often provide access to other affinity spaces: spaces for gaming, for instance, might be linked to spaces associated with technology and computing, science fiction and fantasy, sports, or even history. Gee (2004: 81) describes learning in affinity spaces as a combination of an individual's 'unique trajectory through a complex space of opportunities (i.e. a person's own unique movement through various affinity spaces over time) and a social journey as one shares aspects of that trajectory with others (who may be very different from oneself and inhabit otherwise quite different spaces)'.

The concept of affinity spaces has been used to analyse learning associated with a wide range of different interests including video games (Hayes & Duncan, 2012), fandom (Cheng & Frens, 2022), reading (Rizvi, 2023), knitting (Pfister, 2016), environmentalism (Clegg et al., 2016), and guitar playing (Rodriguez, 2019). But there are some aspects of online affinity that the current literature on affinity spaces doesn't adequately address, one being the fact that, while most of the examples of affinity spaces mentioned above are associated with relatively prosocial activities, some online affinity spaces are organised around passions that are not so positive, such as conspiracy theories, White supremacy, eating disorders and self-harm, which operate through identical mechanisms—shared goals, joint action, low barriers to entry, and distributed expertise (see e.g. Blommaert, 2017a; Garcés-Conejos Blitvich, 2024; Garcés-Conejos Blitvich & Lorenzo-Dus, 2022). Even more benign spaces can take on toxic characteristics—one need only think of the violent sexism associated with the '#Gamergate' movement (Massanari, 2017) or the tribal othering found in many online 'stan' communities (Mercier, 2022) to see how shared hostility towards others can also arise from and promote a sense of 'affinity' (Walther, 2022), as well as how the open and porous nature of affinity spaces can help to facilitate the diffusion of 'moral or legal responsibility' for antisocial behaviour (Henry & Powell, 2015: 769). Research, in fact, suggests that people bound together by feelings of conviviality can easily be induced to engage in anti-social behaviour if they witness other participants engaging in it. As Cheng et al. (2017: 1217) put it, in the context of networked sociality, 'anyone can become a troll'. These observations raise questions about what structural and interactional features distinguish what Ito et al. (2018: 291) call

'high functioning affinity spaces' from more 'dysfunctional' ones where anti-social behaviour flourishes.

Other critiques challenge the key assertion by champions of affinity spaces that they allow people to be judged based on their knowledge and expertise rather than their race, gender or sexuality, an assertion that is belied by the numerous examples of affinity spaces (e.g. those associated with gaming) where practices of exclusion and aggression based on gender or race are common (Nakamura, 2009; Pellicone & Ahn, 2018). It is not just that ignoring these practices of exclusion (or indeed broader structural factors in society that create barriers to participation for certain kinds of people) is overly utopian (Jenkins in Gee, 2013), but also that it fails to account for the fact that features such as race, gender and sexuality and the shared experiences connected to them can *themselves* be important drivers of affinity. Online, many of the most robust affinity spaces are those that are built around racial, gender, and sexual identities and their associated political or cultural projects, and in some educational contexts, the language of affinity spaces has been co-opted by programmes in which learners are separated based on race or ethnicity with the aim of promoting 'safe spaces' for the flourishing of minoritised students (Johnson, 2023). This critique raises questions about the relationship between what Gee (2017b: 83) calls 'activity-based identities'—those based on what people do—and 'relational identities'—those based on who people 'are', and how these two kinds of identities interact in affinity spaces. It also raises questions about the way affinity spaces interact with broader 'matrices of domination' (Hill Collins, 2000: 18) in society and how participation in affinity spaces might serve as a training ground for participation (or 'citizenship') in larger, more diverse spaces.

Finally, there are those who argue that ideas about affinity spaces which were developed before the advent of social media platforms, fail to address many of the most important dimensions of online sociality nowadays, such as the ways algorithms have come to 'automate' affinity and the increasing role of corporate profit in driving patterns of social interaction online (Oliveri & Carpenter, 2024). They also don't address the broader dynamics of political polarisation, tribalism, and identity politics that seem to have woven their way into all of the spaces of our lives, often supported and amplified by these same algorithms. This critique raises questions about how, in the era of algorithms and AI, affinity is influenced not just by the *semiotic* dimensions of online portals, but also by their (often invisible) *technological* dimensions. It also raises questions about how affinity itself has come to be commodified and the effect of this on our social relationships and our opportunities for mutual learning.

Lammers and her colleagues see these new technological dimensions of online sociality as evidence that affinity spaces are not static networks of portals and people, but dynamic *phenomena* emerging through the interplay of 'learners, tools, technologies, environments and symbols' (Lammers et al., 2012: 48). This more posthumanist understanding of affinity spaces reminds

us that 'learning' in affinity spaces does not just occur among human actors, but also among non-human actors (algorithms, networks, interfaces), and that *affiliation* is not just a matter of the way *people* are joined together by a common goal, but of the way all of the components of the assemblage—the people, the portals, the generators and the contents—intra-act to make the realisation of that goal either more or less possible.

Below I will explore how the technical and semiotic features of online portals inter(intra)act with different practices of affinity to enable certain forms of sociality and the opportunities for learning associated with them. Rather than an exhaustive account of how affinity spaces are 'put together' or how people 'operate' within them, my analysis is meant to generate practical insights about how we and our students can become what (Gee, 2017a: 128) refers to as 'affinity space architects' who can create spaces for sociality that foster 'more equitable, smarter, more moral, and resilient people, groups, and societies'.

Architectures for sociality

As I said above, the advantage of talking about affinity spaces rather than 'affinity groups' or 'communities' is that it avoids notions of 'membership' and helps us to focus on how affinity emerges within and across physical, technological and semiotic *environments*. These spaces are comprised of networks of linked portals, each with particular 'internal grammars' (Gee 2004: 219) or 'architectural features' that serve to enable different forms of sociality, analogous to how physical environments such as classrooms, coffee shops and basketball courts promote distinct patterns of interaction. These portals also come with their own 'regulatory architectures', rules and norms about who is allowed into them and what they are allowed to do when they are there (just as classrooms, coffee shops and basketball courts do). Finally, there are the broader economic and political architectures that support the business models and agendas of those who operate these portals. Below I will focus on two broad dimensions of these architectures, those which facilitate practices of *inclusion and exclusion*, and those which facilitate different practices of *participation and communication*.

Boundaries and connections

One of the most important ways portals help to shape sociality is through their boundaries, access points and connections to other portals. A private Facebook group, for example, has relatively distinct boundaries, often requiring the approval of a moderator to join, whereas anyone can interact with content associated with a particular Twitter/X hashtag. As I mentioned above, one of the central features of affinity spaces is that they are 'porous', but there are different degrees of porousness which enable or constrain different kinds of sociality. Some portals, like the image boards 4chan and 8kun,

are 'radically porous': not only can anyone post on them, but there are few restrictions on the kind of content that can be generated. This openness and anonymity promotes the ethos of 'creativity, modification, dissent and free discourse' (Knuttila, 2011: para. 54) evident in the firehose of transgressive memes that flow from such sites. At the same time, these same architectural features also enable disruptive or abusive behaviour, both towards other participants in the portal and those outside of it.

Other portals are 'radically closed' such that not only are there high barriers to entry, but their very existence may not even be publicly known. Participants in fandom spaces, for instance, might set up closed WhatsApp groups to facilitate more intimate engagement with fellow fans (Liew, 2020), or participants in far-right extremist spaces might use closed Telegram groups as safe havens for exchanging transgressive ideas (Urman & Katz, 2022). Closed portals can facilitate close relationships among members, as well as accountability and adherence to group norms, but they sacrifice diversity (and the creativity that can result from it), and they can sometimes become 'echo-chambers' for extreme or anti-social views. Of course, most portals are somewhere in between, offering different degrees of moderation and different requirements for entry, and some platforms, such as Discord, offer a range of different environments, some of them open to the public and others more private.

But the porousness of a particular platform can only tell a partial story of the social organisation of the affinity spaces that use it, since most affinity spaces operate across multiple portals, some more open and others more closed. Critical to understanding how the architectures of portals influence affinity is exploring how participants in affinity spaces navigate *multiple* portals for different kinds of interactional and relational work. Gamers, for instance, use more public portals such as Twitch streams and YouTube channels to facilitate knowledge exchange and build social networks and more closed portals such as private Discord channels and in-game chats with 'clan' or 'guild' members for more goal-oriented collaboration. Similarly, participants in extremist affinity spaces use more public portals like YouTube as what Burston (2025: 146) calls 'radical milieus', to encourage curiosity in extremist ideas among the general public, and more private portals, what he calls 'hidden spaces of hate', to plan activities free from the scrutiny of outsiders.

In some instances, movements across portals are based on practical considerations: community guidelines and moderation practices, for instance, have pushed participants in hate-based affinity spaces from more mainstream social networks to those with more flexible moderation policies such as Gab and Rumble (Greenhalgh et al., 2021; Walther, 2025). Beyond practical necessity, movements across portals can also serve strategic or pedagogical aims. Such movements might occur in the context of particular group activities, such as when participants in hate-based affinity spaces conduct 'raids' on mainstream social media platforms and then return to more closed or 'fringe' portals to brag and share screenshots and other 'trophies' (Stringhini &

Blackburn, 2025). Movements from portal to portal can facilitate pathways for socialisation into an affinity space, with closed spaces offering participants different opportunities to indoctrinate newcomers into the space's ideology (Atran, 2021; Urman & Katz, 2022).

Online portals are often connected to one another through semiotic means such as hashtags and hyperlinks, which make them discoverable for people using other portals. Technologies such as search engines can also facilitate the movement from one portal to another, and sometimes platforms such as Skype, Zoom, or WhatsApp play an important role in connecting different portals and facilitating movement between them (Pellicone & Ahn, 2018). But an increasingly common way portals and the people who use them are connected to one another is through recommender algorithms, which promote particular portals to people based on their online activity. These algorithms have transformed affinity spaces, enabling people to discover portals and generators where like-minded people gather, facilitating content discovery and curation, and amplifying possibilities for the cross-pollination of ideas across spaces. Some affinity spaces such as those which congregate on TikTok (Boffone, 2022) rely almost exclusively on the 'automated affinity' made possible by the app's recommender engine. The maintenance of the coherence of such spaces, however, also requires that users work together with algorithms to promote specific content and maintain specific kinds of sociality. In fact, what drives the emergence of affinity in and across many online portals is the kind of human-machine *agencing* that I discussed in Chapter 2, where algorithms help users to 'find their community' (Simpson & Semaan, 2021: 17) and users leverage their understanding of algorithms to enhance their connections and amplify their social presence (Kang & Lou, 2022).

Algorithms also actively shape socialisation into affinity spaces by directing participants from more general to more specialised portals and from more peripheral to more focal modes of participation. Perhaps the best-known example of this is the role the YouTube recommendation algorithm has played in drawing people into extremist affinity spaces by recommending to them increasingly extreme content to keep them engaged (Ledwich & Zaitsev, 2020). Within affinity spaces, algorithms can influence the kind of content that is made prominent, potentially shifting the interests or ideologies of participants. The focus of diet or fitness related affinity spaces, for instance, can shift towards eating disorders due to algorithmic recommendations (Cobb, 2020). Algorithmic systems can also create unexpected bridges between communities by inferring latent user interests, resulting in surprising convergences such as yoga enthusiasts promoting anti-vax conspiracy theories (Guerin, 2021) or parenting affinity spaces harbouring QAnon activists (Araujo-Hawkins, 2022).

Another way that algorithms affect the way affinity spaces develop is through automated forms of moderation which filter out or suppress certain kinds of content, for example the algorithmic flagging of words, phrases or

symbols associated with hate groups. But these efforts can sometimes unintentionally marginalise certain affinity spaces, as did Tumblr's 2018 introduction of automated flagging to crack down on adult content which led to the removal of many LGBTQ+ blogs from the platform. Moreover, many LGBTQ+ TikTok creators and creators of colour have raised suspicions that the platform's algorithm engages in forms of automated 'shadowbanning', hiding or limiting the reach of content by trans, queer, disabled, and Black users (Rauchberg, 2022). Such incidents demonstrate that, while platforms organised around algorithmically curated interests can support affinity spaces, they can also create unique challenges for people whose interests are outside of the mainstream. They also further highlight the power of algorithms to reinforce offline systems of oppression and marginalisation in online spaces.

Finally, there is the increasing infiltration of affinity spaces by *non-human* participants in the form of bots, sometimes deployed by platform owners or administrators to automatically moderate content or facilitate certain interactions, sometimes by participants to enhance the functionality of the space, and sometimes by external actors to collect data, spread misinformation, or disrupt the affinity space. Malicious bots are capable of swaying opinions, creating false consensus, and derailing conversations, sometimes playing a role in the transformation of convivial affinity spaces into spaces of hostility or conflict.

Modes of participation and semiotic resources

The kind of sociality that emerges in affinity spaces is also influenced by the *participation frameworks* and *semiotic resources* that portals make available. Participation frameworks are the ways participation is organised (such as one-to-one, one-to-many, or many-to-many) and the roles that different participants can take up (such as speaker, addressee and overhearer) (Goffman, 1981). In online portals, participation frameworks are influenced by the tools they provide users to make themselves visible to other users, to share or broadcast content, and to respond to the content of others. Semiotic resources are the modes and media available for communication, such as text messages, images, short videos, and 'low content intimacy signalling' devices such as 'likes' and reactions (see Chapter 4).

Most portals offer diverse opportunities for participation. Twitch and YouTube prioritise one-to-many communication, with streamers or creators broadcasting to large audiences, while also enabling many-to-many interaction through live chats and comments. Most MMOGs are designed around many-to-many-communication but provide opportunities for one-to-one communication via in-game chat. Portals that enable many-to-many communication can foster collaborative problem-solving and skill development, as evidenced by platforms such as Wikipedia and GitHub, but, if not well managed, can make it difficult for participants to keep up with the amount of information coming from different sources. Portals prioritising one-to-many

communication, on the other hand, allow participants to broadcast and get feedback on their ideas or creations from a large number of other participants, but one-to-many communication can also amplify the voices of a few influential participants, whose influence is often further amplified by algorithms, undermining the ethos of distributed expertise central to the way affinity spaces operate. The monetisation of content on some platforms can incentivise certain participants to prioritise their commercial aims over the aims of the affinity space, possibly exposing participants to inappropriate content.

Participation frameworks also contribute to the accumulation of status by particular users and the development of hierarchies. Many portals, for example, provide mechanisms for participants to rate or reward content by 'liking' or 'upvoting' it, and this can affect the visibility of the content and the reputations of creators. Such mechanisms for reputation building can be extremely important for affinity spaces, allowing participants to gain credibility with others by showcasing their expertise. But status markers such as badges and rankings can sometimes confer a degree of status that exceeds participants' actual expertise, and, because of the 'Matthew effect' (Merton, 1968), 'popular' participants often become more popular simply as a result of their popularity (van Dijck, 2013).

The most obvious example of this is 'influencers', who often occupy the roles of teachers, advisors, or trendsetters in affinity spaces While such participants can benefit affinity spaces by creating focal points around which other participant coalesce, acting as role models and champions for the space's shared agenda, influencers can also manipulate or exploit the space for their own benefit, stifle contributions from other participants, and mire affinity spaces in drama or toxicity. Influencer driven affinity spaces can become more about the influencer than about the participants' shared interests, as can be seen in masculinity-oriented spaces associated with figures like Andrew Tate. Some affinity networks, distorted by the opportunities for monetisation offered by platforms like YouTube and TikTok, have become networks of 'generators'—influencers linked to other influencers with similar content—rather than networks of 'portals' where less influential participants can authentically interact (Lewis, 2018).

There are also other participant roles that the technical and regulatory architectures of portals make available—moderators, administrators, and roles particular to specific affinity spaces such as 'builders' in *Minecraft*-oriented spaces, 'raid leaders' in *World of Warcraft*-oriented spaces, and 'beta readers' in fanfiction-oriented spaces. Moderators and administrators have access to technical capabilities or 'permissions' that allow them to influence how others are able to participate by editing or removing their content, limiting their access to different parts of the portal, or banning them. These roles can also form a crucial part of learning trajectories, with participants gradually being mentored into them by more experienced participants and then using their positions to provide guidance and mentoring to less experienced participants.

Semiotic resources are the means portals make available for participants to communicate with one another. These include semiotic modes (text, images, video, audio) and genres (personal profiles, threaded discussions, curation spaces, competitive gameplay). Gee (2005) calls affinity spaces 'semiotic social spaces' to emphasise the centrality of semiotic resources not just for facilitating communication, but also for shaping sociality and driving learning. Affinity spaces are not just organised around shared interests, but also around specific sets of signs and their relationships which participants learn to interpret and use as they interact around their common passions. It is important, however, not to make simplistic assumptions about the relationship between semiotic resources and opportunities for learning. While, online platforms that support a wide range of modes, such as text, images, video, and audio, can enable diverse and expressive forms of participation and knowledge-sharing, especially in affinity spaces centred around creative or artistic pursuits, portals which feature 'lean' media such as text based messaging have their own affordances when it comes to sociality and joint learning, making it easier for participants preserve anonymity and challenging them to develop creative ways to overcome constraints on communication. Semiotically rich media such as voice and video communication, in fact, can sometimes introduce their own constraints on sociality, making it more difficult for users to background their 'relational identities' (Gee, 2017a). Pellicone and Ahn (2018), for example, relate the story of a female 'build team' member in a Minecraft affinity space whose status among team members changed when they switched to Skype for communication and her gender became foregrounded, and other studies have found that female gamers often avoid voice chat for this very reason (Cote, 2017).

The semiotic resources different platforms make available also affect the kinds of genres that evolve in affinity spaces and the way interactions unfold. The image-centric discussion threads on image boards like 4chan, for instance, facilitate the interactive remixing of visual material associated with 'meming' and encourage the 'logic of reactivity' that I discussed in the last chapter, with conversations often consisting of fast paced exchanges of images or gifs depicting emotional reactions. This dynamic results in a form of ephemeral, 'high-context' communication (Hall, 1959) that requires participants to be familiar with the layers of intertextual references associated with different images in order to keep up with the conversation. Tumblr provides users with a rich repertoire of multimedia semiotic resources and editing options, allowing them to turn their personal blogs into expressions of their unique identities and aesthetics, which in part accounts for its early popularity among young LGBTQ+ users interested in using it to explore issues around sexual and gender identity and belonging.

Semiotic resources don't just affect the ways participants make meaning, but also how they are able to perform different identities within affinity spaces. Above, I mentioned how the richness of communication media can affect people's ability to background or foreground different aspects of their

identities. In addition, some portals offer opportunities for users to create profiles or inhabit the synthetic bodies of avatars. Apart from the obvious ways avatars afford users greater control over their self-presentation, they can also, according to Gee (2003, 2014), facilitate learning in affinity spaces, enabling participants to develop what he calls 'projective identities' through which they can experience what it's like to inhabit different bodies and interact in different situations.

To sum up, the architectures for sociality of different portals and networks of joined portals present participants in affinity spaces with different configurations of affordances for self-presentation and sociality. These architectures can impact the way sociality unfolds in ways that can contribute to the success of high functioning affinity spaces or the deterioration of dysfunctional affinity spaces into havens for conflict or extremist ideas. Yet, the most influential features of these architectures are often invisible to participants, namely the algorithms which determine the degree to which certain ideas and participants can achieve prominence in a space and which connect up different spaces in sometimes unexpected ways. Couldry and Kallinikos (2018), invoking Hannah Arendt's notion of public spaces as 'spaces of appearance' where people 'appear' to one another in ways that make rational deliberation and collective decision making possible, argue that, in many of the spaces for sociality that span the online and offline world nowadays, 'appearance' is no longer a matter of human agency, but rather 'the result of calculations driven by a particular kind of economic motivation through which data from online forms of sociality are traded in a complex ecosystem of advertisers, data brokers and other interested stakeholders' (p. 147). In other words, the forms of sociality that evolve in affinity spaces are increasingly being driven by agendas that have little to do with the shared passions and aspirations of participants in these spaces.

Practices of affinity

The 'architectures for sociality' of portals (and the economic agendas of those who design them), however, are not determinative of the social interactions that take place in them. The notion of affinity spaces, according to Gee (2005: 223 emphasis mine) is meant to focus our attention on 'how people in a space are *using it*', and what 'thoughts, values, actions and interactions go on in this space'. Gee calls these 'thoughts, values, actions and interactions' the 'emergent external grammar' of an affinity space which generates the recognisable 'social practices and typical identities' associated with it (Gee, 2005: 220). I will refer to these as 'practices of affinity'. They include the expectations about participation and non-participation that people bring to affinity spaces and the common languages, registers, symbols, normative practices of stancetaking, and shared interactional rituals that grow up within them. A large part of participating in affinity spaces is learning how to engage competently in the

space's practices of affinity—learning how to 'talk the talk' and 'walk the walk' of the space.

Practices of affinity are forms of ongoing social interaction 'that determine the (changing) universe of possible (and emergently routine) ways in which people can think about, value, act and interact around' their shared interests (Gee 2005: 220). Just as these practices are *emergent*, and always changing, they can also *cause* changes to portals and generators where participants gather. In other words, while people learn and change through their interactions in affinity spaces, the spaces also 'learn' and change. In some spaces, changing the architectures and affordances of portals and generators is actually a core form of participation, as when gamers work together to 'mod' environments for gameplay (Pellicone & Ahn, 2018; Gee, 2014). Participation can also involve collaborative efforts to *undermine* the architectures of platforms through collective acts of resistance against regulatory architectures or the operations of algorithms (Rauchberg, 2022). As the emergent external grammars of affinity spaces (their practices of affinity) interact with their emergent internal grammars (their architectures for sociality), these spaces can become more creative and cohesive, or more rigid, tyrannical and fragmented.

Practices of participation and non-participation relate to what I called in Chapter 3 'interaction orders', the sets of norms and expectations about how interaction should be conducted and the interactional roles, rights and responsibilities of different participants. While different portals make available different participation frameworks, different affinity spaces also have different *norms* about preferred forms of participation. Participation in reading related affinity spaces might involve sharing reading lists or engaging in reading challenges, while in 'stan' spaces it might involve organised campaigns to attack the fans of other idols. Importantly, practices of participation also include practices of partial or *non-participation*, such as 'lurking' or engaging in low-cost phatic communication (see Chapter 4). Some affinity spaces, such as tight-knit activist spaces, might regard 'lurkers' with suspicion or even contempt, but in most affinity spaces, such opportunities for partial participation are part of what makes them 'porous' and provides opportunities for new participants to gradually socialise into their practices.

Another aspect of the emergent external grammar of affinity spaces is the way common languages, symbols and registers emerge among participants. Many affinity spaces have their own insider jargon or slang—*World of Warcraft* players using game-specific terms like 'DPS' (damage per second) and White Nationalists using cryptic abbreviations such as 88 (to stand for 'Heil Hitler'). These insider languages help create a sense of shared identity among participants and distinguish core participants from outsiders or newcomers. Even though image boards like 4chan are radically open in their architectures, the *semiotic* practices that take place in them create barriers to participation for those who lack the cultural expertise to understand the 'myriad memes, in-jokes, and linguistic short-hand' of such spaces (Massanari, 2017: 334).

Coleman (2014: 42) speculates that participants intentionally use these semiotic practices to create 'a discursively constructed border fence meant to keep the uninitiated … away'.

As I said above, part of becoming a full-fledged participant in an affinity space is learning how to 'talk the talk'. New participants are socialised into the language of the affinity space through interacting with seasoned members, a process that can sometimes occur rather quickly. In their study of the White nationalist website Stormfront, Törnberg and Törnberg (2025) found that it took only about 20 posts for newcomers on the discussion forum to start talking like old timers. In some affinity spaces, processes of language socialisation take place in explicit or ritualised ways. Participants in social justice-oriented affinity spaces, for instance, often engage in rituals of 'calling out' related in inappropriate language use, and alt-right visitors to image boards like 4chan master the shared iconography of the affinity space through the ritualistic reworking of memes which rehearse the space's common themes and symbols. These rituals of language socialisation can imbue certain symbols or ways of talking with layers of meaning and emotional resonance so that they come to acquire sacred or totemic qualities. In QAnon-related spaces, for example, the cryptic posts from the anonymous 'Q' are often treated as sacred texts, combed over with 'collective effervescence' (Durkheim, 1995).

These specialised symbols and lexical items form part of larger 'registers': styles of communicating associated with different affinity spaces. Just as, doctors speak the 'register of medicine' and lawyers speak the 'register of law', participants in fandom communities use registers associated with particular genres of music, and online trolls speak in specialised registers of 'recreational nastiness' (Jane, 2014: 532). These registers often reflect broader digital vernaculars (Thorne and Reinhardt, 2008), which tend to favour informality, playfulness, and irony. Phillips and Milner (2017) observe that many online affinity spaces are characterised by 'ambivalent' registers that blend sincerity and insincerity, humour and hostility. Irony and sarcasm often function to perform boundary work, creating a 'cozy laughing in-group' (Phillips & Milner, 2017: 97) and an out-group which is unable to participate in the register. Irony also facilitates the spread of controversial ideas into more mainstream spaces where the ambiguous way they are expressed helps them escape moderation, while within affinity spaces it can help to create what Rickert (2013) calls an 'ambient rhetoric' which makes the expression of such ideas more socially acceptable.

Alongside registers, normative practices of *stancetaking* also develop in affinity spaces. Stance refers to the semiotic strategies people use to express their attitudes towards objects, ideas or people and align with or distance themselves from them (Du Bois, 2007). Over time, affinity spaces develop what Georgakopoulou (2013: 23) calls 'clusters of stances' that unite participants around shared moral frameworks (see also Zentz, 2021).

Practices of *relational stancetaking* include the normative politeness strategies participants use towards one another, which can range from mutual

support and encouragement to practices of reciprocal debasement and other forms of 'mutually assured antisocial sociability' (Bratich & Banet-Weiser, 2019: 5017). Even these adversarial relational stances, though, can function as means for promoting group cohesion. Users of 4chan's /b/ (random) board regularly refer to one another as 'faggots' and demean their contributions, enacting their shared contempt for mainstream politeness norms and their shared attitude of irony and toughness, which they believe contrasts with the 'oversensitivity' and 'political correctness' of 'normies'. Groups also unite through shared stances towards outsiders, whether it be 'stans' collectively condemning fans of other idols, or incels and White supremacists collectively blaming women or people of colour for their problems (Blommaert, 2017a; Berbrier, 2000).

Practices of *epistemic stancetaking* are the ways participants in affinity spaces evaluate the credibility, authority or trustworthiness of different sources of information and engage in shared practices of 'truth-making' (see Chapter 7). The socialisation of new members into these epistemic frameworks involves both the internalisation of accepted knowledge and the mastery of domain-specific modes of argumentation. Practices of epistemic stancetaking can vary considerably across affinity spaces, with some spaces more open to new sources of information or challenges to shared orthodoxies than others. In some spaces, like those devoted to 'conspiracy theorising', shared practices of displaying and using knowledge are precisely what constitutes their shared interest, and in these spaces epistemic stances can function as 'emblems' of affinity. Participants may, for instance, openly speak of themselves as having been 'red-pilled' (Lewis & Marwick, 2017), a reference to the movie *The Matrix* in which choosing the red pill over the blue one results in a fundamental shift in characters' view of reality.

Practices of *affective stancetaking* include normative ways of expressing emotion. Participants in affinity spaces typically develop not just shared feelings but also shared affective repertoires and 'feeling rules' (Hochschild, 1983) through which practices of relational and epistemic positioning are animated with affect. Expressions of solidarity with fellow participants might be tinged with irony; critiques of certain ideas or people might be livened by moral outrage; and collective acts of debasement towards out-group members might be suffused with merriment. Udupa (2019), in his analysis of extremist affinity spaces in India, argues that it is impossible to understand what drives online hate without understanding how it often operates through the 'meta-practice' of 'fun' (see also Schwarzenegger & Wagner, 2018). Affective stancetaking also facilitates the spread of ideas within and beyond affinity spaces, as with the romanticisation of depression and anxiety by young women that has migrated across platforms from Tumblr to Instragram to TikTok (Thelandersson, 2023).

Along with these insider codes, registers and stances, participants in affinity spaces also engage in shared *rituals of interaction* such as joint storytelling,

meming, curating, virtue signalling, and participating in contests and challenges. Such rituals serve to structure participation in the space, contribute to the shared goals of its participants, reinforce their collective worldview, and foster intimacy among them. Sociologists going back to Durkheim in the early twentieth century have noted the importance of repetitive ritual activity in the development and maintenance of communities, and such rituals can be particularly important in digitally mediated affinity spaces, which often involve geographically disperse and culturally diverse participants with varying degrees of commitment to the space's goals and activities. Communication in online affinity spaces, as Törnberg and Törnberg (2025: 101) argue, often resembles 'a continuous chain of interaction rituals, which gradually weaves a web of symbolically imbued narratives that link the individuals together in a community'.

Interaction rituals are central to the educational function of affinity spaces, providing participants with organised ways to interact with clear roles, responsibilities, and opportunities for participation. Many rituals in affinity spaces involve rewards or other forms of recognition which foster a sense of achievement while providing participants opportunities to demonstrate their mastery of the norms of the space. Ritual forms of interaction also help structure the ideas and ideologies of the space and provide an efficient means through which people can share knowledge and learn through observation and repetition. Practices of remixing memes and writing formulaic fanfiction, for instance, give participants structured ways to master the generic conventions and canons of intertextuality of affinity spaces as they iterate on one another's ideas. Similarly, joint storytelling, theorycrafting and conspiracy theorising facilitate collaborative meaning-making as participants work together to construct and interpret the shared narratives and mythologies of the group. Rituals also foster innovation, providing opportunities for people to experiment while working within socially recognised constraints, and help to create affective bonds between participants, with some rituals, such as viral dance challenges on TikTok, also involving *embodied* practices through which users can generate intercorporeal and interaffective bonds with one another (see Chapter 4).

However, such rituals can also contribute to the dysfunction of affinity spaces. Interaction rituals can foster 'interactional entrenchment', where the continuous process of repeating interactional patterns leads to routinisation (Schmid, 2020). They can also take on memetic qualities, where the circulation and reproduction of the ritual becomes more important than its meaning or the effect it might have on others (Sparby, 2017). This can sometimes lead to behaviour which, in other contexts, might be considered inappropriate or even cruel becoming normalised, including ritual forms of othering and abuse which Garcés-Conejos Blitvich (2024: 51) refers to as 'degradation ceremonies'. Such practices don't just transform affinity spaces into 'tyrannical spaces' (Andrews & Chen, 2006), but can also migrate to other connected or adjacent spaces. Coscarelli (2020) points out how the discursive practices of toxic fandom have infiltrated spaces associated with religion, politics and

sports, and (Hannan, 2024) describes how trolling, initially a niche behaviour in spaces like 4chan, has become normalised in broader public discourse, including national and international politics.

But rituals of debasement are not always evidence of dysfunction. In some spaces, trolling and other anti-social behaviours serve to facilitate group bonding and help participants to test the boundaries of their spaces (Lange, 2018). Rituals of boundary drawing are, in fact, central to all social groupings. Even high functioning affinity spaces shape their collective values and identities through policing the boundaries of acceptable behaviour, either through practices of moderation or through rituals of 'calling out' 'inappropriate' or 'off topic' contributions and holding their authors accountable. Transgressors in such spaces often also have available to them rituals of atonement such as public apologies which allow them to regain their status in the affinity space. When calling out transgressions becomes performative and atonement rituals more about spectacle than genuine reconciliation, high functioning affinity spaces can devolve into what Haidt (2003) calls 'other-condemning' emotional spaces where behaviour that is considered 'uncivil' is sometimes met with even greater incivility. Such boundary politics can also result in affinity spaces becoming insular and their participants gravitating towards more and more extreme positions.

It is in these discursive rituals of boundary drawing that what Gee calls 'relational identities' (e.g. those pertaining to race, gender, sexuality) can become foregrounded. Sometimes this foregrounding can be beneficial when it provides the resources for participants to share common experiences and work together to disrupt power structures or social norms which exclude them. But when such boundary making rituals become so central to a space's activities as to reduce its 'porousness' and the diversity of ideas that can circulate through it, these spaces can turn from high functioning ones into dysfunctional ones: this is as true for those that function as 'safe spaces' for social justice warriors as for those that function as 'safe spaces' for misogynists and White supremacists. One of the main ways Andrew Tate and other denizens of the 'manosphere' inspire loyalty is by foregrounding young men's *relational identities*, tapping into their insecurities in a world where traditional masculinity is in flux and offering them a set of simple boundaries they can erect around men and women, 'alphas' and 'betas', winners and losers.

Becoming affinity space architects

The key to cultivating literacies of affinity lies in helping students understand the ways architectures for sociality and practices of affinity interact to influence possibilities for conviviality (and hostility) in affinity spaces and what they can do about it. This is what Gee (2017a: 127) means when he calls for teachers and students to become 'affinity space architects', who can repair the architectures that shape sociality within affinity spaces and alter the practices of

affinity they engage in within them. While we might imagine the architects of online affinity spaces to be tech company engineers who design the portals where people congregate or the 'influencers' that dominate these spaces, an affinity space architect can be anyone who strives to make an affinity space they participate in better. Indeed, the most important affinity space architects are the participants who shape these spaces through their everyday actions. Such actions might involve 'hacking' or 'modding' the portals associated with an affinity space or creatively linking up different portals to alter the 'internal grammar' of the space or even taking collective action to pressure portal owners to make changes to their design or moderation practices. They might also involve 'hacking' or 'modding' the forms of discourse, stancetaking, and interaction rituals through which participants enact their social relationships. They might even involve attempting to 'hack' or 'mod' broader social systems and 'matrices of domination' which create barriers to participation for certain groups.

But if we are to become affinity space architects, what kinds of affinity spaces should we aspire to build? The discussion above suggests that there are several key features associated with 'high functioning' affinity spaces, including opportunities for participants to work together to negotiate and revise goals, values and practices and a certain tolerance for disagreement and heterodoxy. High functioning affinity spaces also provide participants with opportunities to, as Gee (2014: 29–30) puts it, 'go mindfully meta'—to critically reflect on their own discourse and behaviour and that of other participants. Finally, high functioning affinity spaces tend to be open and inclusive, continually replenished with new participants who bring with them new practices and new ideas. A prerequisite for this, of course, is that the discourses and practices of the space not become exclusionary, discriminatory or hostile.

Brown (2015) borrows from Derrida the term 'hospitality' to describe how the design of platforms (what I have been calling their 'architectures for sociality') can create or discourage this kind of openness and inclusivity through access, filtering and rhetorical affordances. For Jacques Derrida, hospitality always arises through a tension between absolute openness to the other and the practical considerations about who can be welcomed and what rights and responsibilities they can have. In other words, hospitality always involves both access and boundaries, inclusion and exclusion. There is, Derrida notes (Derrida & Dufourmantelle, 2000: 45), a symbiotic relationship between hospitality and hostility (both words tracing their etymology to the Latin *hostis*, meaning both guest and enemy).

Regarding affinity spaces, this means that hospitable spaces are those whose architectures balance inclusivity with accountability through features like customisable interfaces that allow for communication using different modes, different options for synchronous and asynchronous communication, and different tools for participants to control their self-presentation (e.g. privacy settings). They may include tools that help participants maintain pseudonymous participation while giving moderators the ability to verify identities, as

well as features like muting, blocking, and 'private' areas that allow users to draw their own boundaries. Threaded discussion forums, collaborative editing tools, and user generated content policies can foster the ongoing negotiation of goals and values and a sense of shared ownership. Transparent moderation practices, conflict resolution tools, and voting and ranking systems to recognise the contributions of individuals can help participants adhere to shared standards of behaviour. Hospitable spaces also provide opportunities for creative and generative play through tools that allow participants to collaboratively experiment with and transform the cultural artefacts and narratives of their communities.

Effective affinity spaces also require healthy 'networks of affinity', providing gateways to other spaces as well as to meaningful *offline* encounters. Some connections between spaces, however, can be detrimental, allowing harmful symbols, memes, and interaction rituals, not to mention misinformation and conspiracy theories, to spread across affinity spaces. Therefore, it is useful for affinity space architectures to include mechanisms for the moderation of cross-community connections and content sharing and ways to highlight content from other spaces that aligns with shared interests or facilitates constructive discussion.

Finally, hospitable affinity spaces need to have some way to manage the role of algorithms in sorting and connecting participants and recommending content to them. While algorithms can be enormously useful in enabling serendipitous discovery of content and connections, helping users find 'niche spaces' aligned with their specific interests and assisting moderators in dealing with the vast amount of content that flows through online affinity space, the way they are deployed by most platform owners tends to limit people's exposure to diverse perspectives and amplify content that can contribute to social dysfunction. Solutions might involve designing algorithms that promote content based on quality and civility rather than engagement metrics or offering customisable algorithms that allow users to choose the kinds of content they want to be exposed to and the criteria for selecting that content.

Unfortunately, it is difficult to imagine how the current business model of the internet, based as it is on engagement and extraction, can lead to the development of truly hospitable platforms. Indeed, recent changes to major platforms like Twitter/X seem intended to incentivise *antisocial* behaviour, and many tech companies are reducing their investments in trust and safety measures (Field & Vanian, 2023). There have been some efforts to integrate some of the design principles discussed above into mainstream platforms, but these efforts themselves illustrate the limitations of top-down design approaches.

One of these is Bluesky, an independent spinoff of Twitter/X that has attracted users who are concerned about what they view as the 'toxic' turn that Twitter took after its takeover by Elon Musk. The site is a decentralised social network that emphasises user autonomy, transparency and safety. It allows users to host their own servers, reducing centralised control and promoting user governance. It also prioritises privacy and individual control,

enabling users to choose or design their own algorithms to prioritise content they value. Because it is ad-free, it does not prioritise attention-grabbing (and often divisive) content the way other platforms do. But these features are not entirely successful in facilitating hospitality. Some users, for instance. have observed how Bluesky's decentralised and user-governed design can unintentionally foster isolated echo chambers, where extreme views can flourish unchecked (Mounk, 2024), and others point out that the 'transparent' nature of user blocks can create privacy concerns, especially for users who have experienced harassment or stalking (Kruse, 2024). The platform has also been criticised for being too 'elite', a place where small groups of influential users dominate discussions (Gillis, 2024). Despite aiming to be a healthier alternative to Twitter/X, then, Bluesky has to some degree replicated some of its dynamics of toxicity and exclusion.

Another example of a platform that aims to facilitate healthier forms of sociality is Nextdoor. Marketed as a 'hyperlocal' social network, the app is meant to facilitate 'neighbourhood based' affinity spaces that include more opportunities for participants to engage in meaningful offline interaction, potentially avoiding some of the pitfalls for sociality associated with low-context algorithmically driven interaction online. In some ways, however, the platform has ended up combining the worst of online and offline architectures for sociality, enabling online practices of networked harassment to migrate offline in the form of neighbourhood surveillance, vigilantism and bullying (Anthony, 2022). Moreover, because people are more likely to believe misinformation when it comes from people they interact with offline, it has also contributed to the spread of rumours and conspiracy theories, especially related to the COVID-19 pandemic (Graziozi, 2021).

The best way to ensure that the internal grammars of affinity spaces reflect the needs, values, and aspirations of participants is through practices of participatory design, where users are given the power to create their own architectures for sociality. Among the few commercial platforms that seriously promote participatory design practices among users are online games, which allow players to 'mod' game environments in ways that don't just offer new opportunities for play but also create new gathering spaces, communication channels, and collaborative workspaces. There are as well more everyday forms of participatory design that take place in other affinity spaces, as when participants creatively adapt or 'tweak' the tools that are available to them on different platforms, forge strategic links between platforms, or collectively migrate from one platform to another. Finally, there are more 'subversive' forms of participatory design manifested in practices such as 'algorithmic gossip' and 'theorycrafting' in which participants work together to find and exploit the 'cracks' in platform architectures or actively attempt to challenge the economic models of platforms through sabotage or mass boycotts.

As the examples of Bluesky and Nextdoor remind us, however, no matter how conducive architectures for sociality are for facilitating 'hospitality',

whether these architectures foster high functioning affinity spaces depends on the practices that participants develop and cultivate within them. When it comes to *practices of affinity*, our goal should be to help students critique their own modes of engagement and interaction rituals and, if need be, to change them. On the most basic level, this requires the kind of attention to individual actions of clicking and sharing and commenting that I discussed in Chapter 2, attention which can help participants resist or disrupt potentially harmful mimetic chains and develop a more relational ethic of content circulation (Dieterle et al., 2019; Sparby, 2017). It also requires finding ways to make reflection and adaptation core practices within affinity spaces through peer feedback and mentorship. Particular attention needs to be paid to making the practices of stancetaking that participants engage in more 'deliberative' (Bommarito, 2014) and helping them to rethink the ways boundaries are drawn and perceived hostility is addressed. While healthy affinity spaces have robust mechanisms for holding people accountable for violating community norms, they also need to have mechanisms for redemption so transgressors can work their way back into the good graces of the community. Rather than resorting to punitive practices of 'calling out', high functioning affinity spaces develop practices of 'calling in' (Trần, 2016), which favour constructive dialogue over public shaming or exclusion. Such practices can sometimes be supported by regulatory architectures and moderation policies. Moderators on platforms such as Discord, for instance, are encouraged to address problematic behaviour privately though direct messages to avoid public escalation and to use tools such as timeouts and warnings to give people the opportunity to change (Newton, 2023).

It is also necessary for participants in affinity spaces, especially those with more porous boundaries, to develop practices for addressing abuse coming from non-participants. Typical advice on dealing with online bullies and disruptors has been 'don't feed the trolls' (Coleman, 2014), with some arguing that 'critical ignoring' constitutes a 'core competency' in digital literacies (Kozyreva et al., 2023). Others, however, have pointed out that ignoring trolls usually doesn't silence them and that, since 'trolling often reflects deep-seated prejudices that are gaining momentum in mainstream discourses', it is essential to find ways to confront it (Lange, 2018: 81). In her study of the vernacular 'troll whispering' strategies of young people, Patricia Lange (2018) reports a range of techniques, from practices of 'deep listening' designed to find out what motivates trolls to collective counter-responses by affinity space participants, including what Ebner (2018: 169) calls coordinated 'counter creativity', which makes use of the same forms of memetic communication often favoured by trolls. Among the most interesting findings in Lange's study was the intense awareness among her interviewees of their *own* potential for troll-like behaviour, the sense of 'an inner troll that may come out in all of us' (Lange, 2018: 89). And so, participants in high functioning affinity spaces also need to cultivate the practice of 'not being a troll' through perspective taking

and critical analysis of the kinds of identities, orthodoxies and power structures that develop within their spaces (Clinnin & Manthey, 2019). They need to learn not just how to 'listen in' for voices that 'comfort and support', but also to how to 'listen out' 'for voices that confront and jar' (Lacey, 2023: para. 9), a task 'made all the harder by cultural trends and communication infrastructures that shepherd us into public spaces of similarity, gratification, and comfort' (para. 11).

Listening out means trying to expand affinity beyond the spaces that we usually inhabit, cultivating broader shared interests and civic values. High functioning affinity spaces are often those that provide participants opportunities to connect to *non-affinity*-based spaces (family, school, civic organisations) where they have the chance to interact (often offline) with people with different interests and to participate in what Hannah Arendt (1998: 58) calls a 'common world of things' beyond parochial passions or interests. The problem with the dysfunctional affinity spaces I have been considering in this chapter is that they sometimes isolate people from these common spaces, locking them not just into 'alternative moral orders' but also into 'alternative realities' (Sacasas, 2021a: para. 20). What such spaces offer is not affinity, but isolation, not sociality, but a kind of loneliness that erodes the 'spirit of trust' necessary for a 'high functioning' public sphere (Hannan, 2024).

Interventions

As I argued in the last section, the core project of literacies of affinity is helping students to learn how to become good affinity space architects by exploring the ways different architectures for sociality and practice of affinity affect their own social relationships online and formulating individual and collective strategies for 'repairing' these architectures and practices. This project should begin by getting them to reflect on their own experiences in affinity spaces. This might take the form of 'audits' of the different spaces they participate in and how well they think these spaces support learning, or of written, oral or multimodal stories of particular interactions in these spaces which they felt were especially transformative or especially challenging. They might also be asked to perform role plays of these interactions or of invented interactions involving scenarios in affinity spaces such as conflicts over content moderation or community norms. One advantage of performing embodied role plays of interactions in online spaces is that it can sensitise students to the different ways they might enact sociality online and offline.

Building on these reflective activities, students can embark on a more systematic analysis of these spaces using some of the concepts discussed in this chapter. They might start by mapping the architectures for sociality of particular affinity spaces, identifying the portals and generators, the ways they are connected, and the different participation frameworks, semiotic resources, ranking algorithms and moderation systems they include, and asking what

potential these architectures have for supporting different kinds of sociality. They could then go on to observe how people actually use these architectures through mini ethnographies of spaces that they are familiar with (Lammers et al., 2012), composing field notes on the social dynamics of these spaces, including the special languages and registers participants use, the stances they adopt, and the interaction rituals and practices of boundary drawing they engage in. Students should pay particular attention to the ways ideas circulate within and across spaces, how participants accumulate status, and how conflicts are resolved and deviations from norms are dealt with.

Having analysed the affinity spaces they participate in and identified aspects of them which they think support hospitality or hostility, students can then try their hand at redesigning these spaces or designing totally new ones. They could create prototypes of different interfaces, semiotic resources, algorithms, moderation tools and privacy features that they believe would promote diverse forms of participation, pluralistic discussions, safety, accountability, and meaningful connections with other platforms and spaces. For inspiration, they might look to examples of successful participant-designed platforms such as Archive of Our Own (AO3), a fan-created archive to protect fanfiction from commercial exploitation, which includes user-focused features and a transparent, community-driven moderation system (see Gordon et al., 2016 for other examples).

But it is not enough just to prototype technological tools. Students also need to gain experience in prototyping *behaviours* and practices. This might involve drawing up codes of conduct, creating role structures defining responsibilities, privileges, and pathways for newcomers (Chapman, 2023), or formulating protocols for dealing with those who transgress norms. Students might test out their codes of conduct, role structures and accountability protocols through role plays or scenario building. Prototyping practices should also involve formulating strategies for dealing with online abuse and toxicity by, for example, analysing inflammatory comment sections of different platforms and composing potential responses (Clinnin & Manthey, 2019) or working together to strategise creative responses to hostile behaviour (Ebner, 2018). Changing the way people act in affinity spaces, however, does not always require making rules or enraging in grand creative gestures of resistance, but can also be effected 'one participant at a time' through efforts of individual behaviour change. Walker and Laughter (2019), for instance, recommend responding to micro-aggressions with 'micro-kindnesses' as a way of reshaping interaction in affinity spaces.

Finally, students can be encouraged to consider ways of taking collective action to transform the architectures for sociality and moderation policies of the commercial platforms they use to participate in affinity spaces. These might include organising petitions or boycotts or engaging in dialogue with community leaders and platform owners to push for different design priorities or governance policies. There are plenty of good real-world examples for students to model their efforts on, such as the strike by creators of colour against

TikTok to protest the unfair appropriation of their creative works (Pruitt-Young, 2021), and the legal suit lodged by LGBTQ+ creators against YouTube to stop it suppressing their content and restricting their ability to sell advertising (Bensinger & Albergotti, 2019). Students can also explore how the affinity spaces that they already participate in might be used as platforms for activist projects in the way fan spaces devoted to K-pop became spaces for the promotion of racial justice (Johnson et al. 2024) and those devoted to *The Hunger Games* became launching pads for labour activism (Jenkins et al., 2020). The most important lesson of affinity literacies is that the ability to create for ourselves opportunities for inclusive and transformative sociality is a prerequisite for *any* meaningful attempt to repair the internet and the world it is part of.

6

VISIBILITY

The paradox of visibility

One of the greatest benefits of the internet has been the visibility it has afforded to people, enabling them to gain recognition for their ideas, call attention to their problems, and reach a wider audience with their creative endeavours. This has been particularly important for marginalised communities which were often under- or misrepresented in pre-internet media. At the same time, this increased visibly has made some of these same people more vulnerable to online harassment and violence. It has also created a 'culture of visibility' in which 'the constant and ongoing presentation of self' online has become 'a benchmark for effective participation in life' (Deuze et al., 2012: para 28). Moreover, the very same tools that enable greater opportunities for visibility are used by corporations, governments and malicious actors to regularly monitor and track people's actions, associations and opinions to exercise power over them or amass profit. Nearly every action people take with their digital devices, whether they be mobile phones, televisions, or kitchen appliances, makes them visible to corporate and governmental actors in ways over which they have very little control. More than any other media, digital media are inherently 'surveillant media' (Jones, 2017), operating not just to *convey* information to users, but to *collect* information from them, storing, processing and circulating it in ways never before possible. These capacities form the foundation of the way the internet creates *value* and that make possible the dramatic technological advances in fields like artificial intelligence that we are seeing today (Frischmann & Selinger, 2018). Shoshana Zuboff (2019) has famously referred to this system of creating value as 'surveillance capitalism'.

The most frustrating thing for privacy advocates, civil libertarians, and literacy teachers is that, on the whole, people seem willing to support this

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system, making themselves compliant objects of surveillance in return for convenience, entertainment, personalised services, and social status among friends and followers. Zuboff (2019: 6) explains this widespread acquiescence through the concept 'instrumentarian power', whereby surveillance itself, and the techniques of prediction and manipulation it makes possible, *conditions* people to willingly give up their personal data. Andrejevic (2014) similarly speaks of the 'soft coercion' engaged in by internet companies which makes opting out of visibility practically impossible.

Such accounts, however, portray internet users as passive victims of surveillance capitalists rather than as active participants in what Cotter (2019) calls 'visibility games' who strategically navigate, negotiate, and sometimes even exploit algorithmic systems to manage their visibility (boyd, 2012; Floridi, 2015). They also often rely on a simplistic, bifurcated view of 'public' and 'private', where the private is associated with safety, autonomy and freedom, and the public is associated with exposure and risk, a view which ignores or trivialises the social benefits some people derive from online visibility. Even the algorithmic surveillance of social media platforms is perceived by some as having benefits, not just providing people with more relevant ads or better user experiences, but also facilitating community building and self-awareness. Members of LGBTQ+ communities, for instance, regularly report feelings of affirmation at being 'recognised' by algorithms on platforms such as TikTok, and they are sometimes able to exploit those algorithms to gain control over how they are seen by others (Simpson & Semaan, 2021). Writing about trans-visibility online, Gossett et al. (2017) argue that media constitute both 'doors' and 'traps'—doors being the affordances media offer for people to make themselves visible and have their voices heard, and traps being the ways media can make them visible in ways over which they have less control or make them vulnerable to misrepresentation, exploitation or harassment.

In this chapter I argue that visibility is best seen not as a state of affairs but rather as 'an assemblage of relationships, enunciations, [and] epistemologies' (Halpern 2014: 24) that emerges at the nexus of different social practices, technological affordances, human desires, and institutional agendas, and 'privacy' is best seen not as something that people have, but something that they *do* in collaboration with others and with technologies in specific socio-material contexts. Visibility functions both as a way of managing our relationships with others and with the external world and as a form of embodied 'sense-making' (Lee, 2021: 177) through which people attempt to make and to find meaning in their own and others' actions. From this perspective, developing literacies of visibility requires that we understand how people *experience* visibility in their everyday social lives. It requires not just a *technical* understanding of platforms, algorithms and privacy settings, but also a *social* understanding of the role of visibility in identity and community formation, a *political* understanding of its role in power relations and legitimation, and an *embodied* and *affective* understanding of its role in shaping people's well-being

and sense of self. Literacies of visibility help people develop more transformative approaches to their data, their bodies, and their social relationships, which, rather than reproducing individualistic notions of 'privacy', help them to discover the different subjectivities and social possibilities different practices of (in)visibility make possible.

Visibility and literacy

Although explicit discussions of visibility and privacy have not historically been part of literacy education, literacy and its technologies have always played a role in enabling and constraining various practices of surveillance and privacy. Writing itself can be seen as a kind of 'surveillant technology' (Jones, 2017), simultaneously giving people the power to record information about others and the world around them and opening them up to a new kind of scrutiny based on the traces of their thoughts left in their letters, diaries and other writings. Similarly, the simple technology of the book had a profound effect on our understanding of privacy, giving people the ability to engage with ideas in solitude, away from the prying eyes of priests or government ministers. This was particularly true for women, who were often the main audience for genres developed for private reading like novels (Jagodzinski, 1999). And, just as today practices around visibility associated with digital technologies have given rise to moral panics (especially when it comes to young people whose activities online are often 'invisible' to their parents and teachers but alarmingly 'visible' to predators and internet companies), in the eighteenth century private reading was regarded with considerable suspicion, thought to make people vulnerable to manipulation by skilful authors with malevolent agendas (Spacks, 2003).

Other technologies associated with the creation and distribution of texts similarly affected how individuals and societies experienced visibility and privacy. The articulation of the 'right to privacy' in US jurisprudence (Warren & Brandeis, 1890), for example, was in part precipitated by the invention of portable cameras and their use for photographing celebrities in sometimes embarrassing situations. Broadcast media such as television and radio also fundamentally altered the possibilities of who could be seen and heard, by whom, and under what conditions, changing social norms, and behaviours associated with public and private life (Meyrowitz, 1985).

Like these older technologies, digital media have made available new forms of visibility and self-presentation and given rise to new norms and expectations around privacy and public life. And, as with other media, they have also made people more vulnerable to surveillance, with the traces that they leave through their literate activities even harder to control and often more 'persistent' than those left by handwriting, print and photography. Digital media have also given powerful actors new and opaque ways of finding out about people's private lives and understanding their private desires and intentions through

monitoring their literate activity. This relentless recording and analysis of people's every act of reading, writing, watching and listening has implications not just for individuals, who are increasingly exposed to algorithmically curated information based on what they have consumed in the past, but also for societies, whose practices of cultural production are increasingly driven by the aggregated data of the reading, writing and viewing habits of media consumers.

Increasingly, scholars, teachers and policy makers are recognising that the ability to manage one's visibility and privacy are central components of digital literacies. Most attempts to equip students with these abilities, however, have focused on technical solutions, such as privacy settings, content filtering, and platform controls, or on behavioural solutions such as restricting the amount of data one produces and shares. Such approaches usually conceptualise privacy management as an individual competency rather than a social practice, prioritise personal responsibility over structural critique, and promote one-size-fits-all solutions that frequently overlook the sophisticated visibility management practices and vernacular expertise that young people have already developed through their everyday participation in digital culture.

These attempts to get students to embrace practices of 'data safety', however, are often not received with much enthusiasm. Young people appear to be apathetic, resigned, or cynical about data collection practices of platforms, and often regard the technological solutions promoted by their teachers and parents as inconvenient and irrelevant to their actual *experiences* of visibility and privacy online, which tend to revolve around friends, classmates and parents rather than internet companies, data brokers and advertisers (Hargittai & Marwick, 2016; Keen, 2022). Interventions that do address more practical issues like 'sexting' and the non-consensual sharing of images frequently seem to them overly moralistic and to lack an understanding of complex economies of visibility among peer groups and the practices they develop on their own to regulate these economies (Dodge & Lockhart 2022; Hartikainen et al., 2021). While parents and teachers usually focus on overarching, often hypothetical threats to privacy associated with digital media use, young people are usually more attuned to immediate, context-specific concerns, and often see digital media not as a threat to their privacy but as a means of escaping the constant surveillance they experience in their offline lives from the very parents and teachers who seek to 'protect' them (Berriman & Thomson, 2018).

More recently, scholars and teachers have sought to develop more *critical* approaches to 'data privacy' which encourage students to explore the way data about them is being collected and used and to come up with their own solutions that go beyond advice about using privacy settings and not sharing personal information. Selwyn and Pangrazio (2018; Pangrazio and Selwyn, 2019), for example, advocate 'personal data literacies', focused on helping students develop 'agency' over the ways their data is generated, collected, and processed through tactics of resistance, obfuscation, and the creative re-purposing of data. Similarly, Stornaiuolo (2020: 2) calls for 'critical data

literacies', where individuals are taught to challenge how they are positioned as 'objects' of data collection and learn to reposition themselves as 'authors, architects, and interpreters' of their own data. Some of these approaches embrace the 'maker' and 'hacker' pedagogies that I have been discussing in this book, involving students in developing their own technical solutions to dataveillance (Pybus et al., 2015) or formulating practices of 'data disobedience' intended to 'mitigate, evade or … sabotage dominant structures of data reuse and recirculation' (Selwyn and Pangrazio, 2018: 3).

These more critical and participatory approaches to online privacy, however, seem no more effective in convincing students to resist the data collection practices of platforms. 'Even after our series of interventions', admit Selwyn and Pangrazio (2018), 'the young people in our study were not particularly motivated to interact in a resistant manner with unknown third parties or relatively remote advertisers' and showed 'little sustained interest in pursuing any of the more involved social media tactics' that were discussed, and although the tech savvy participants in the maker-spaces set up by Pybus and her colleagues were able to develop creative tools to expose and counter the data-gathering practices of websites, most of them were not particularly motived to implement these solutions, one of the participants remarking, 'Perhaps the most surprising thing is just how little we care about that!' (Pybus et al., 2015: 6). Similar attitudes have surfaced in other pedagogical studies aimed at making students more 'critical' about digital surveillance (de Groot et al., 2023; Jones, 2021b).

One problem with many of these critically oriented efforts to get students to take data privacy seriously is that, although they are often framed as 'political' projects dedicated to critiquing the extractive economic practices of internet companies and confronting the injustices that digital surveillance can perpetuate (see e.g. Stornaiuolo, 2020), they don't pay enough attention to the *practical politics* of visibility in students' everyday social lives. With their emphasis on 'criticality', they also sometimes fail to engage with the way *feelings* of exposure, connection, and vulnerability shape how people navigate their online relationships, and with their emphasis on disembodied 'data flows' and digital traces, they fail to account for the *embodied* dimensions of online visibility and how it is shaped by the materiality of digital interfaces, physical environments and human bodies (French & Smith, 2016). One of the reasons I have chosen to talk about 'visibility literacies' rather than 'data literacies', opting for an ocular metaphor which, I acknowledge, has its own limitations, is that it emphasises the material and visible manifestations of 'invisible' data flows and the concrete, embodied ways that most people *experience* digital surveillance (Jones, 2022c).

Information games

The best starting point for developing visibility literacies is to understand how the management of visibility is not just an important aspect of how we use

digital media, but a key aspect of every form of social interaction. All social interactions depend on our ability to monitor one another and to control how we are monitored (Ruesch & Bateson, 1951). 'Surveillance is ubiquitous', says Trottier (2012: 18), 'not just because of ubiquitous technologies, but because watching and assessing pervade nearly every social relationship'.

Writing decades before the internet, Goffman (1959: 13) conceptualised social life as a series of 'information games', made up of 'potentially infinite cycle(s) of concealment, discovery, false revelations and rediscovery' through which we manage our social identities and social relationships. The object of these games is not just to maintain our 'secrets' or expose those of others, but also to make who we are and what we are doing *recognisable* to others. Managing one's visibility, whether online or off, then, is much more complex and consequential than just protecting one's 'privacy' or 'personal data'. It is about being able to *use* different configurations of visibility to *be* certain kinds of people in different social situations.

In his account of the 'analogue' information games that people play in face-to-face encounters, Goffman (1959, 1969) pointed out two primary ways that we manage our social identities. The first involves controlling what information about us is available to others and what information about others is available to us. The way information becomes available in social interaction is not always straightforward. While some information is freely 'given' through intentional verbal or non-verbal performances, other information is involuntary revealed or 'given off' through various aspects of our appearance or behaviour. The key to successful 'impression management' lies both in selecting the 'right' information to give and in controlling the information we give off so that we can perform consistent, recognisable selves. Meanwhile, those with whom we are interacting are also engaged in their own practices of information management. The most important thing is that these performances—our own and others'—are not self-contained, but rather *co-constructed* and *mutually dependant* on each other; we modify our behaviour based on how others respond, and they adjust their responses based on our actions. Successful performances, therefore, depend as much on our ability to extract information from others in order to accurately gauge their responses as it does on controlling our own information. Often, in fact, we intentionally design our performances to provoke the other person into giving or giving off more information, allowing us to gain insights about them, test social dynamics, or adjust our own self-presentations.

Another important aspect of information games for Goffman is controlling who has access to the *contexts* in which our performances take place. In the physical world we create what Goffman (1959: 66–86) calls 'regions', spaces that are bounded by barriers to perception to which different people are granted access. This partitioning of social space into regions allows people to achieve 'audience segregation' (Goffman, 1959: 31), the ability to selectively present different aspects of ourselves to different 'watchers', to be one kind of

person at home, another kind at work, and other kind in the pub. Managing our 'privacy' has to do not just with controlling the information that we give or give off, but also controlling the *contexts* in which that information appears and the *audiences* that are privy to it (Nissenbaum, 2009). Even within particular regions or contexts, however, we often find ourselves performing for multiple audiences at the same time and having to adjust our performances to account for the multiple addressees, overhears and eavesdroppers who might be present (Goffman, 1981).

Information games should not be thought of as inherently manipulative or adversarial, even when strategies of concealment or misdirection are involved; rather, they are a normal and essential part of social life, helping us to create coherent selves and sustain the social situations we participate in. At the same time, they almost always involve power asymmetries, with some people by virtue of their social status, able to access more information than others, and some people more vulnerable to potentially 'discrediting' information about them being revealed. For people with marginalised identities, the stakes of information games are often higher because their credibility, social acceptance or even their safety might depend on their ability to maintain their privacy or to increase their visibility to achieve social recognition (Goffman, 1963). Moreover, information games are not just played by individuals; groups, institutions, governments and commercial entities are also key players, and they often have access to ways of extracting information and defining contexts that individuals don't have. Although Goffman himself did not deal extensively with these institutional or corporate players, in his early work he did explore issues of identity and power in what he called 'total institutions' (Goffman, 1961)—such as psychiatric hospitals, prisons, and the military—in which 'inmates' are subjected to constant surveillance and stripped of the ability to manage their personal information or to choose the audiences for their performances.

Some readers will no doubt criticise me for grounding my discussion of digital visibility literacies in a theory of self-presentation designed over six decades ago to analyse face-to-face interaction. The reason I've spent so much time outlining Goffman's analogue version of visibility management is, first of all, to emphasise that strategically managing flows of information is not just something we need to worry about online, but a pervasive feature of all social life, and second of all, to point out that even when digital technologies are not involved, managing information flows can be complex and unpredictable, often involving multiple forms of 'expressive equipment' for revealing and concealing information, multiple contexts, multiple audiences, and multiple strategies for adapting our performances to different kinds of people and different situations.

Media—be it print, broadcast, or digital media—change information games in two important ways: first they change the *material forms* that information takes—whether, for instance, it takes the form of a written text, an expression on someone's face in a video, or a piece of 'metadata' attached to a message

they have sent. Different configurations of modal resources provide people with different opportunities for selecting the information that they want to 'give' and different challenges when it comes to controlling the information that they give off. The materialisation of information also determines the degree to which it can be preserved and detached from the context in which it is produced and transported into different contexts. The affordances of some media to facilitate the *entextualisation* and *recontextualisation* of information (Bauman & Briggs, 1990; Jones, 2009b) is a key aspect of the second way media change information games, which is by changing how the boundaries between *contexts* and the audiences that have access to those contexts can be managed. Media don't just enable information from one context to be captured and inserted into other contexts. They also make possible new ways of segregating and combining audiences as well as new possibilities for people to take up the different roles of 'addressee', 'overhearer' and 'eavesdropper'.

When it comes to digital media, these changes are usually talked about in two ways: First, in terms of what is referred to as 'context collapse'—the way digital media supposedly 'collapse diverse social contexts into one, making it difficult for people to engage in the complex negotiations needed to vary identity presentation (and) manage impressions' (Marwick and boyd, 2010: 123)—and second, in terms of what we might call 'content collapse'—the way digital media change the way information *materialises* and how these different materialisations can make it more difficult for people to select which information to give and to control the information they 'give off'.

The problem of 'context collapse' is broad and sometimes rather poorly defined in studies on digital privacy. The term is often associated with social media sites where the number of potential 'overhearers' and 'eavesdroppers' to our messages has proliferated, making it difficult for us to define clear audiences for our performances. The term is also often used to refer to the ease with which information circulates on the internet, making it more difficult for us to control how information about us gets decontextualised and recontextualised. When we lose control of the context in which information appears, we also lose control over the meaning potential of that information. More broadly, what context collapse means is that it has become increasingly difficult to know exactly with whom we are playing our information games, with many of our online interactions involving multiple 'players' (some visible and others invisible) whose motives and capabilities for accessing our information and whose ability to use information about us to impact our lives are harder for us to assess. As Haggerty (2006: 26) puts it, the 'multiplication of sites of surveillance' made possible by digital technologies

> ruptures the unidirectional nature of the gaze, transforming surveillance from a dynamic of the microscope to one where knowledge and images of unexpected intensity and assorted distortions cascade from viewer to viewer and across institutions, emerging in unpredictable configurations

> and combinations, while undermining the neat distinction between watchers and watched through a proliferation of criss-crossing, overlapping and intersecting scrutiny.

Haggerty and Ericson (2000) refer to these new environments in which information games are played as 'surveillant assemblages', complex networks of technologies, practices, institutions and power relations that work together to enable forms of visibility and surveillance that go beyond our traditional understandings of information games in analogue settings. The features that characterise these assemblages are precisely those which are cited in discussions of 'context collapse'—a *decentralisation* of the information game made possible by technologies like networks, databases, sensors and algorithms which link together multiple contexts and blur the boundaries between them, and a *deterritorialisation* of the self whereby information that people give and give off is 'disassembled' and transported into different contexts where it gets 'reassembled' in different ways for different purposes (Haggerty & Ericson, 2000: 606). Social media platforms are often cited as examples of surveillant assemblages, consisting of complex networks of interfaces, algorithms, databases, institutions and different kinds of human users working together to make a range of different kinds of visibility possible. Users are not just 'watched' by the social media companies (and the 'third parties' they sell users' data to), but potentially by all the users of the network. It is our desire to display ourselves to our friends, followers and even strangers online which facilitates the surveillance by social media companies, and it is the surveillance by social media companies that feeds the recommender algorithms that facilitate the peer-to-peer surveillance among users.

Broad claims about the way digital media have collapsed contexts, making it impossible for us to control who has access to the information we produce and where that information ends up, however, need to be approached with caution; the reality of surveillant assemblages is much more complicated. Just as players of analogue information games have available multiple forms of 'expressive equipment' which they can combine in creative ways to manage flows of information, users of digital media also have access to a wide range of applications that they can assemble in strategic ways to control how they become visible to different kinds of audiences in different situations. In some cases, in fact, digital devices and software have made it *easier* for people to manage contexts and achieve audience segregation; most social media sites allow users to control who has access to their posts with a level of granularity that many physical contexts don't afford, and the kinds of tools that are most popular with young people, such as Snapchat, with its 'disappearing' messages, and WhatsApp, with its end-to-end encryption and ability to create private groups, are those which explicitly promote what Nissenbaum (2009: 2) calls 'contextual integrity'. More importantly, people almost always make use of multiple apps and platforms together as part of what Tagg and Lyons

(2021) call their *polymedia repertoires* (see also Madianou & Miller, 2011), strategically choosing and combining them to design configurations of visibility which allow them to strategically reveal or conceal aspects of their own behaviour and strategically expose the behaviour of others (Møller, 2023). Because of this, Szabla and Blommaert (2020: 251) argue that, as much as digital media might facilitate context collapse, they can also facilitate *context expansion*, multiplying the different configurations of visibility that people can construct.

Moreover, many accounts of online context collapse are premised on a distorted understanding of analogue information games, which are imagined as prototypically consisting of dyadic conversations between parties with singular, verifiable, identities, in bounded, definable contexts, an understanding that decades of work in sociology and sociolinguistics has called into question (Szabla & Blommaert, 2020). Not only has written communication always involved indeterminacy in terms of audiences, but many of the spoken interactions we have involve complex combinations of speakers, addressees, auditors and eavesdroppers and produce information that regularly finds its way into other contexts. Although the analogue contexts in which Goffman formulated his principles of information games are not nearly as complex as the 'surveillant assemblages' that Haggerty and Ericson describe, they are still *assemblages*, made up of different configurations of people, technologies and social practices that come together to make different kinds of visibility and privacy possible (Jones, 2024b).

The main problem with the notion of 'context collapse', though, is how it conceptualises the idea of context itself, seeing it as existing independent of social interaction rather than as emerging *dynamically* from it. For sociolinguists, context is not a given, but rather, something that people construct moment by moment through their exchange and interpretation of verbal and non-verbal signs (Gumperz, 1982). From this perspective, as Tagg et al. (2017) argue, communication on social media sites is not simply a matter of *performing* in front of (often 'unsegregated') audiences in (often 'collapsed') contexts, but of *designing* audiences and contexts though the kinds of performances that we produce. In the last chapter, for example, I talked about how things like irony and insider language allow participants in non-mainstream affinity spaces to hide 'in plain sight' on mainstream platforms. boyd (2014) calls this 'social steganography', the ability design audiences by encoding messages to be functionally accessible but contextually meaningless to overhearers. Digitally mediated contexts, then, have less to do with platforms and the people that inhabit them and more to do with *social practices* and the 'emerging kinds of sharedness' which arise from them (Szabla & Blommaert, 2020: 251). Possibilities for audience segregation and, indeed, audiences themselves, as Szabla and Blommaert (2020: 256) argue, 'do not exist in any real sense independently of specific patterns of interaction', which may change from moment to moment as social occasions dynamically unfold.

Just as important as the complications around context and contextualisation that digital media introduce are complications around content. As I mentioned above, media alter the way content is produced by making available different ways of materialising information and altering the way it is made *legible* to certain kinds of social actors. Taking a video of people's embodied actions in a particular setting with a surveillance camera, for example, creates a durable record of those actions that can then be transported into a different setting where these actions might take on different meanings. But it also gives people new ways to 'read' and interpret those actions by, for example, watching them multiple times, slowing down the footage, or focusing on a single frame in the stream of action. The capabilities of media to facilitate not just the entextualisation of information, but also its manipulation and re-entextualisation (Jones & Li, 2016) can have a dramatic impact on how people interpret it and what can be done with it, a point Charles Goodwin (1994) makes in his analysis of how the famous video of the Rodney King beating was given new meaning in the trial of the officers involved through the ways their lawyers used slow motion and freeze frame to make the actions of the officers and of King *legible* in a new way. Similarly, the use of 'cookies' to record a user's cursor movements and clicks as they browse the internet not only creates a durable record of their browsing behaviour, but entextualises that information so that it becomes *legible* to algorithms that are able to interpret it in ways that humans are not. This capacity of digital media to facilitate the 'disassembling' and 'reassembling' of users' actions and behaviour, in fact, is one of the main features Haggerty and Ericson (2000) associate with 'surveillant assemblages'.

It is these processes of disassembling, reassembling, fragmenting and aggregating information to make it legible to different social actors (including non-human actors like algorithms) that constitute what I am calling 'content collapse'. If context collapse refers to our increasing inability to control the contexts in which our information is available, content collapse refers to our increasing inability to control the way our actions are turned into information in the first place. Content collapse can occur though the actions of other users: someone might screenshot a Snapchat image that we did not intend to be permanent or assemble different kinds of information from different platforms to reveal something about us that we did not intend to be revealed. But it is institutions such as internet companies and governments that can exploit content collapse on an 'industrial scale' through their ability to entextualise information that we 'give off' in the course of our quotidian activities and to make that information legible in myriad ways by combining it with big data sets. These practices can have dramatic consequences for users, impacting their ability to get jobs or loans or even making them more vulnerable to detainment or arrest. But one of the most significant consequences of content collapse is how it affects the kind of content that users get fed back to them as a result of these processes, narrowing their experience of information from other users.

Just as narratives of context collapse sometimes overlook the agency of users in designing contexts and audiences for their performances, narratives of content collapse often overlook the ways users adapt to how information about them is entextualised, circulated and made legible. In Chapter 2, I talked about the inferencing practices people develop as they interact with socio-technical assemblages and the strategies they develop not just to manage the ways they are visible to algorithms, but also how they are made visible to other people. A big part of playing information games online is learning how to 'game' systems, through becoming aware of how our data traces are entextualised and interpreted and modifying our practices to influence these processes. As with efforts to control context, efforts to control content also involve polymedia practices, with users formulating theories about how different platforms handle their data and strategically distributing different types of information across platforms or using multiple accounts and identities on a single platform. Some users engage in deliberate tactics of obfuscation such as creating misinformation to 'poison' the data about them available to algorithms, creating multiple, disposable identities with different accounts, posting messages in forms that are less 'legible' to algorithms (such as images), and using technical means such as VPNs or Tor browsers to hide their online behaviour and browsing history.

The point of this analysis is that, although managing visibility within the new 'surveillant assemblages' made possible by digital media can be complex and challenging, ordinary users are still able to develop tactics to resist the power asymmetries that these new technologies introduce. Importantly, while some of these tactics might involve employing counter-technologies (e.g. cookie blockers, privacy settings) or adapting available technologies in creative ways (e.g. through polymedia practices), many involve *discursive* practices such as strategically creating content that is interpretable in different ways by different people (or non-human actors) or developing practices of *inferencing* to predict how different kinds of information might become legible to other users and to algorithms. Like the information games described by Goffman, however, the kinds of information people might want to reveal or conceal and the kinds of tactics they employ to do so depend on the situations they find themselves in and what is 'at stake' in these situations.

Towards a practical politics of visibility

Understanding what is 'at stake' in different situations of visibility management and how those stakes affect the kinds of strategies and tactics different players use is what I mean by a *practical politics of visibility*. The inherently political nature of online data collection by internet companies, especially the ways users are exploited and manipulated though such practices, is the centrepiece of approaches to 'critical data literacies' like those I described earlier in this chapter. Where such approaches sometimes fail, however, is in

articulating to students the 'stakes' of paying attention to or resisting such practices, especially in an environment in which data collection has become both pervasive and normalised. At the same time, such approaches sometimes ignore the *everyday politics* of visibility associated with the information games people play with their friends, followers, family members, and teachers, and what is 'at stake' in those games. It is not that these micro-political practices are separate from the macro-politics of mass data collection and the economic and political agendas of those who engage in it. Rather, these two kinds of politics are deeply intertwined: Every move people make as they manage their everyday visibility with friends and followers feeds into the data gathering projects of internet companies, and the algorithmically produced predictions and recommendations that result from this data gathering feed into people's personal projects of visibility management. Developing a practical politics of visibility involves understanding how these two political projects intersect in particular situations and what is at stake for the different players involved.

One example of how internet users develop a practical politics of visibility is the way social media influencers learn to exploit the data gathering practices of platforms to make their content more (or less) visible to different audiences by 'gaming' algorithmic systems to recommend their posts and by 'gaming' audiences to respond to them in ways that trigger certain responses from algorithms. Cotter (2019), in what is perhaps a nod to Goffman, refers to these practices as 'visibility games'. The key to playing these games is not just knowing how to produce certain kinds of content or to manage the contexts through which it circulates, but also understanding how all the different parts of the surveillant assemblage—networks, followers, platforms and algorithms—work together to make different regimes of visibility possible. The notion of 'visibility games', says Cotter 'shifts our focus from a narrative of a lone manipulator to one of an assemblage of actors' all working together, 'watching', being 'watched by' and 'watching over' one another (Cotter, 2019: 896). The 'political' challenge of such games lies in discovering where and how the 'stakes' of influencers, platforms and audiences align and where and how they don't. Duffy (2020: 103), for example, talks about the 'algorithmic precarity' faced by creators whose livelihood depends on them learning how to second guess the workings of sometimes unpredictable algorithms and human moderators, a precarity that is particularly felt by non-mainstream creators who are marginalised by platforms that have an economic stake in promoting more normative content. In such cases, influencers need to devise workarounds, such as using coded language to avoid being flagged or working with other users to strategically follow or unfollow certain accounts to influence the behaviour of the algorithm. In other cases, where platforms make the content of non-normative creators visible to *unwanted* audiences, they need to devise what DeVito (2022: 3) calls 'algorithmic trapdoors', tactics designed to escape the visibility imposed on them by algorithms. Meanwhile, audiences develop their own strategies for managing the kinds of content that appears in

their feeds, and platform owners for increasing user engagement and opportunities for further data gathering. In this way, the 'rules' of these visibility games are not fixed, but rather evolve through the intersection of different processes of individual and collective *sense-making* and *theorycrafting* engaged in by influencers, algorithms and audiences.

Another place where the practical politics of visibility can be observed is in the practices of political activists who become adept at exploiting the algorithmic affordances of platforms to amplify their voices and assemble 'data publics' (Milan, 2018) around their causes, a phenomenon that Maly (2019: 1) refers to as 'algorithmic activism'. Milan (2018) goes so far as to argue that, by paying attention to how digital traces are produced, circulated and exploited by social media companies, activist can turn platforms into 'agency machines' (p. 509) which allow them to not only 'activate some form of political agency' but also to promote a particular 'subjective interpretation of that agency—very often with real-world consequences' (p. 520). At the same time, there are obvious risks to leveraging social media platforms to promote the visibility of political causes, one being the possibility that political projects can be co-opted by platforms to drive engagement and advance their economic interests (Das & Farber, 2020). Another risk is that the algorithmic logic of the attention economy might transform the political cause into an exercise in performative visibility, with members of the public 'displaying' their alignment with the cause through actions like changing their profile picture without contributing substantively to advancing it (Wellman, 2022). Navigating platform algorithms and recommendation systems which tend to favour popular, commercial content over civic/activist messages (Hutchinson, 2021) can also be challenging, especially when algorithms and moderation policies are constantly changing. One way activists deal with these challenges is by making use of their polymedia repertoires, playing the affordances of one platform against the constraints of another to increase the scalability or searchability of their messages or to target them to particular audiences (Renninger, 2015), a strategy which Hutchinson (2021: 35) refers to as 'micro-platformisation'. Of course, in many political contexts, increased visibility can render activists vulnerable to surveillance or arrest by their governments or political opponents, and so they also need to use their understanding of the visibility regimes (Brighenti, 2010) of social media to balance visibility with security. Sometimes this involves strategically limiting their visibility by using encrypted platforms such as Telegram, engaging in creative linguistic strategies or sharing politically sensitive texts as screenshots to prevent algorithms from detecting them, and using mirror sites, VPNs, and decentralised storage solutions. Sometimes, though, these strategies involve using low tech discursive or interactional tactics; Lokot (2018) observes how some Russian activists adapt to the country's 'networked authoritarianism' not by reducing their visibility, but by making their activities highly visible, attempting to control their own narratives by being proactively transparent rather than

allowing the state to expose information about them selectively. Research in the Global South, where activists often have limited access to technical solutions or expertise, reveals how activists sometimes develop collective strategies of migrating from platform to platform, taking turns posting content to prevent any single individual from becoming too exposed. Rega and Medrado (2023: 407) observe that in these contexts, the 'visibility journeys' of activists tend to be 'cyclical' rather than linear, with activists learning along the way what works and what doesn't. Milan (2018: 519), quoting Stefan Baack (2015: 8), similarly argues that activists' engagement with digital media is always a matter of trial and error as they link their everyday experiences of visibility with the complexities of digital systems, a process which can sometimes contribute to the creation of 'new rationalities and alternative social imaginaries around datafication to connect system and experience in new ways'.

A final example of how digital media users develop a practical politics of visibility is the way teenagers exploit the configurations of visibility made possible by social media to engage in peer-to-peer surveillance, collectively negotiate local norms of privacy and exposure, and manage personal intimacies and group boundaries. As with influencers and activists, teenagers often take advantage of how different platforms (their algorithms, participation frameworks and other affordances) provide opportunities for them to make themselves (in)visible in different ways to different kinds of audiences (boyd, 2014; Jones, 2021b), often combining different platforms in their polymedia repertoires to create complex, layered regimes of visibility (Jaynes, 2020). They also become adept at leveraging the affordances of these platforms to uncover information about their friends and acquaintances, with 'social stalking' constituting not just an important everyday literacy (Berriman & Thomson, 2018), but also a form of 'metacommunication' through which they 'construct desire and build alliances through strategies of concealment and revelation' (G. Jones et al., 2011: 26). Often these practices of 'lateral surveillance' (Andrejevic, 2005) have important consequences for the way young people negotiate emotional and moral boundaries. Møller (2023), for instance, discusses how high school students regularly gather 'evidence' about one another's behaviour through screenshotting social media posts and use it to expose perceived transgressions of social norms to wider audiences, and Handyside and Ringrose (2017) discuss how sexualised images shared among teenagers accumulate different kinds of *value* as they circulate, and how they function to reinforce gendered and hetero-normative *values* around things like intimacy and reputation (see Chapter 4).

These different studies illustrate how the 'visibility games' that teenagers play, including those which their parents and teachers may consider alarming or dangerous, serve important functions in ongoing processes of sense-making about their social worlds and about themselves. Young people use visibility not just to titillate, terrorise or gossip about one another, but to dynamically negotiate their shared understandings of the risks, rights and responsibilities

associated with social life. The moral economies of visibility that they negotiate among themselves are often at odds with expectations around 'online safety' promulgated by parents, teachers, policy makers and journalists, which is one of the reasons their advice often goes unheeded (Fisk, 2016). It is not that teenagers don't care about privacy or don't understand the risks of exposing their personal data or their 'private parts', but that their understanding of the social 'stakes' involved in visibility management is often different from that of their parents. Online visibility brings benefits to young people that their parents and teachers sometimes don't see, ranging from the forms of social validation that come from online attention to cultures of mutual care that develop around practices of ambient affiliation and lateral surveillance (Byron, 2020).

From these examples we can identify some key features that characterise a practical politics of visibility across different online/offline settings. The first is that visibility is always *occasioned*: people always make decisions about managing their personal information and designing audiences for their performances *for some purpose* or, more often, for a variety of purposes. It is impossible to understand the benefits and threats of privacy and disclosure outside of the specific circumstances in which they are enacted and the specific motivations of the actors involved. Moreover, configurations of visibility *are what make particular social occasions possible in the first place*, whether those occasions involve promoting a political cause, managing an intimate relationship, or cultivating a following on social media.

The second characteristic associated with a practical politics of visibility is that it is always *relational*, interactionally accomplished (Jones, 2017) with other people, as well as with non-human actors such as algorithms. If we take the assemblage thinking behind Haggerty and Ericson idea of 'surveillant assemblages' seriously, we need to confront the interdependent and entangled nature of visibility, how it is never just a matter of an individual's decisions about their 'personal data' but is rather something that emerges through their inter(intra) action with the social and material world. Visibility always entails *intervisibility* (Brighenti 2010: 24), the relational, positional inter-articulation of the different components in the assemblage. This is why, as Lasén (2015) observes, negotiations of visibility, whether they involve an influencer trying to game an algorithm or the user of a dating app trying to attract a partner, often have kind of choreographed quality involving 'mutual attunement and resonance, sometimes even dialogical sequences of call and response' (p. 65). It is also why individual solutions to 'personal privacy' seldom work since privacy, paradoxically, is a *social* accomplishment, a point that is dramatically illustrated by the difficulty the students in the maker-spaces set up by Pybus et al. (2015) experienced in implementing privacy solutions without convincing their friends to implement the same solutions: moving to a more secure social media platform that doesn't collect your data may result in more data privacy, but, unless your friends are willing to migrate with you, it is also likely to lead to social isolation.

The third characteristic of the practical politics of visibility common to the examples above is that it is always *embodied* and *affective*. Much of the focus of critical digital literacies is with 'data privacy', and as Haggerty and Ericson (2000) rightly point out, one of the key things that distinguishes digital surveillance is the *datafication* of the body, the way selves come to be 'disassembled' and circulate in bits and bytes across the network. But visibility is always *experienced* materially and corporally in words on the screen, images shared and screenshotted, glimpses of people's private lives (or 'private parts') revealed through the calculations of algorithms. Data come from bodies and invariably flow back into them, materially changing them. 'Despite being extrapolated away from their contexts', says Lee (2021: 170), they always feed back 'into embodied contexts, a part of an ongoing assemblage of meaning and circulations'. In fact, as French and Smith (2016: 15, emphasis mine) argue, rather than erasing the body, digital surveillance 'is *generative* of bodies (of both the biological and post-biological variety) with surveillant technologies and surveillance bodies locked in a relationship of mutual interdependence'. Similarly, when people make choices about visibility, they rarely do so based on rational calculations about data, but rather based on embodied *feelings* of trust, vulnerability, intimacy or fear. Even when people talk about their experiences of being 'watched' by other people and by algorithms, they often express them in affective terms, talking for example about sensations of discomfort, surprise or 'creepiness' (Jones, 2022c; Shklovski et al., 2014), revealing the underlying visceral nature of our experiences of visibility. At the same time, the more positively felt dimensions of visibility—the pleasure of being recognised, the thrill of revelation, the comfort of finding community—are precisely what make promoting resistance to digital surveillance so complex. Power in digital spaces operates not just through the extraction of data but through the modulation of affect—through creating conditions where we willingly make ourselves visible because it *feels* good or necessary or inevitable.

The fourth feature relevant to visibility politics is its role in creating both *value* and *values*. This aspect of visibility is obvious in the case of social media influencers who extract monetary value from their visibility and activists who extract political value from theirs. The way visibility creates value is also obvious when it comes to the internet companies that have devised myriad ways of monetising the data they collect from users. But economies of visibility also manifest in the day-to-day interactions of internet users as they trade personal information and intimate moments for recognition and social capital in the form of likes and shares. Perhaps what most distinguishes these digitally mediated economies from analogue economies of visibility is the way the everyday creation of social value through information games is co-opted by internet companies, and how the economic agendas of these companies come to influence the everyday ways people create, exchange, and *measure* social value (though, for example, engagement metrics). Practices of visibility, however, are not just about creating economic or social value, but are also deeply

implicated in producing and reproducing cultural and moral *values*. This has been true for our human species from our earliest experiences of social organisation (Dunbar, 1996), our practices of watching and being watched generating values about what constitutes appropriate forms of looking, appropriate objects of attention, and appropriate ways of presenting ourselves to others' gazes, and our practices of entextualising and decontextualising information about others (though, for example, gossip) functioning as a means of regulating social behaviour and enforcing social norms. Values about what is moral or normal or what is worth looking at and what is not are designed into the visibility regimes of online platforms, with design choices about what can be made visible, how, and to whom often privileging particular identity expressions, relationships, or forms of political expression over others.

Perhaps the most important feature of the practical politics of visibility illustrated in these examples, though, is its *heuristic* nature. Visibility games are things that people learn to play as they play them; their rules are not fixed, but dynamically negotiated, contested, enforced and undermined as people experiment with different forms of self-presentation and meaning-making. From this perspective, visibility and privacy are not ends in themselves, but *processes* through which social actors collectively 'work out' their relationships with one another and with their social and material environments, processes evident in the theorycrafting of online influencers, in the ways activists discover how to find the right balance between visibility and security through trial and error, and in the ways teenagers use algorithmically augmented practices of disclosure to experiment with different kinds of relationships and identities. Online platforms are not just sites where data are 'extracted' from users, but places where data are 'made real' to them and they come to discover different ways to become *representable* in data. Through understanding visibility not as a state of affairs but as a set of emergent practices of sense-making and relationship building, we open up possibilities for developing literacies of visibility that go beyond formulating one-size-fits-all rules for 'data privacy' and 'online safety' and begin to see visibility itself as a site of continuous learning. Such an approach is not an attempt to downplay the economic exploitation inherent in the data-gathering practices of internet companies or the corrosive effect surveillance capitalism has on our social and political lives. Rather, it is an attempt to help students understand 'how the threads of distant data systems are entwined in everyday life' (Lee, 2021: 177) and how, through reflecting on their own individual and subjective experiences with visibility and their sometimes playful, sometimes solemn participation in visibility games, they can come to a better understanding of the 'stakes' involved in 'data privacy' and 'online safety'.

Interventions

As the theoretical framework developed above suggests, teaching literacies of visibility requires moving away from conventional approaches focused on

individual privacy management and technical solutions and towards interventions that recognise visibility as a set of socio-material practices and that sensitise students to the myriad ways their everyday practices of watching and being watched are entangled with broader social, technological and economic systems. This requires creating learning experiences that approach privacy as a collective accomplishment rather than an individual responsibility, frame visibility management as an ongoing process of experimentation and learning, connect abstract ideas about surveillance and data collection to students' lived experiences, and build upon the visibility management practices that many of them have already developed through their use of digital media, while helping them to see these practices in a more critical light.

A good place to start is by sensitising them to the basic dynamics of information games and how these dynamics change when information games are transported into different offline and online contexts. Sociologist Charles McCoy (2017) suggests a classroom activity for teaching about information games that engages students in 'get to know you' conversations with classmates they don't know, with some students instructed to fabricate information about themselves. During these conversations, 'fabricators' must do their best to maintain their fabricated narratives, while other students try to identify those who are not telling the truth through attending to the information they 'give' and the information they 'give off'. After the conversations, students identify the different strategies of impression management and information extraction and interpretation that they used. After completing this exercise, students can be asked to consider how the same game might be played on different social media platforms or dating apps, and how the visibility affordances of these platforms might alter their opportunities for deceiving others or for detecting deception. In particular, they might consider the different kinds of audience configurations the platforms make possible and the different ways they allow information to be materialised. From there they can go on to discuss how the game might change when players can combine different platforms in their polymedia repertoires or how it might change when it involves a combination of both online and face-to face interactions.

Another good activity for sensitising students to everyday practices of visibility is suggested by Watson and Lupton (2020), who, as part of a research project on online privacy practices, asked participants to complete stories involving fictional characters confronted with digital privacy dilemmas based on how they imagined the characters might feel, what kinds of things they might do, and how other human and non-human actors involved might affect their decisions. What is interesting about this task is the way it leads participants not just to consider privacy dilemmas as problems to be solved through rational analysis, but to think of the ways tactics of privacy are 'entangled with relational connections and affective intensities' (Watson & Lupton, 2020: 138). A fruitful adaptation of this activity might involve asking students to collaboratively develop their own story stems based on real digital privacy

dilemmas they have encountered or observed. In formulating these stems, students are forced to reflect upon what constitutes a 'privacy dilemma' in the first place, considering the concrete social occasions involved, the different human and non-human actors that might be implicated, and the social and technological affordances that might be relevant to visibility management. After their classmates have competed the stories by imagining how the protagonist feels, what tactics of visibility management they employ, and how the situation changes because of these tactics, students can work together to map patterns of tactics and emotional responses across stories, examining how different relationships, affordances and affective states shape opportunities for visibility management.

Equipped with a basic understanding of the occasioned, relational, strategic and affective dimensions of visibility games gained from engaging with these invented scenarios, students can then go on the analyse actual practices of visibility as experienced by themselves and others. This might start with an analysis of the visibility affordances of the different platforms they use, which would include both how they facilitate their own strategies of information control and context design and how they facilitate the data extraction and interpretation practices of those who are 'watching' them (including friends, followers, 'social stalkers', scammers, authority figures and internet companies). They should try their best to discover what kinds of data are (or might be) collected about them from different platforms and consider what might be done with this data. José van Dijck (2013) provides a useful framework for analysing platforms through six key components: technology, usage/user, content, ownership, governance, and business models, which can help students discover how the economic agendas of internet companies are connected to everyday forms of social visibility. Özçetin and Wiltse (2023) offer a way to explore these same kinds of connections through reading the 'terms of service' of different platforms as 'terms of entanglement', making explicit the complex networked relations between users, their content, interfaces and algorithms, platform owners, and third parties.

Building on their understanding of the visibility regimes of different platforms, students can go on to consider their own practices in navigating these regimes, considering not just the technological and discursive strategies they use to design audiences and contexts on different kinds of platforms, but also how they make use of their polymedia repertoires to manage visibility, combining the affordances and constraints of different platforms to construct different configurations of visibility for different purposes. In accounting for these practices, they should be encouraged not just to explain their 'privacy decisions', but to talk about their experiences of watching and being watched and the feelings associated with these experiences. They might also focus on gathering 'traces' of platform surveillance, such as targeted advertising on their social media feeds, and using it to make inferences about how they are being represented by their data.

Students' accounts of their own experiences can be supplemented by accounts of others that they gather from platforms such as TikTok, YouTube, and Reddit. They might, for example, collect accounts of threorycrafting from online influencers trying to influence the way algorithms circulate their content, or of people sharing 'creepy' experiences of digital surveillance such as videos or people talking about how their phones seem to be listening to them (see Jones, 2022c). They might also collect satirical accounts of surveillance such as videos from TikTok users expressing their devotion to their 'Chinese spy' as a way of protesting US government moves to ban the app, focusing on how the stances people take towards visibility and surveillance are often occasioned by wider political conflicts and media narratives.

Although I have been critical of an over-reliance on technological solutions, having students experiment with different tools for modulating their visibility (such as cookie blockers and VPNs) can be a good way of sensitising them to the how these methods for limiting their data visibility might also impact their social visibility. Exploring the benefits and limitations of different technical solutions can be the focus of 'maker' activities, with students working together to try to 'hack' the visibility affordances of different platforms, to design 'algorithmic trapdoors' to evade tracking, and to prototype software or browser extensions that would help them manage their visibility not just in relation to platforms and internet companies, but also in relation to their friends, classmates, teachers and parents. Such solutions do not necessarily need to be based on attempts to counter surveillance; they might also be designed to increase their visibility to attract a fanbase or monetise their content.

The purpose of these activities is to help students to make connections between the practical politics of visibility that they enact in their daily lives and the broader social, economic and political forces that shape the ways they are made visible, accountable, and sometimes vulnerable to exploitation, marginalisation, discrimination, or even violence. An important final step, then, is to invite students to reflect on these connections and to discuss the kinds of steps they can take collectively to expose, critique or fight back against these visibility regimes by, for example, boycotting certain platforms or lobbying them to change their data gathering practices, producing artistic works (such as digital stories, art installations) that critique surveillance capitalism, promoting certain norms of visibility management among their peers, or proposing or supporting institutional policies or government legislation designed to curb the data collection practices of private corporations or government bodies. The key is helping students understand that resistance needs to happen at multiple levels simultaneously—individual practices, collective organising, institutional change, and broader cultural transformation. The goal is not just to help individuals better manage their visibility, but to help them work together to form coalitions for more just and equitable visibility regimes in different domains of social life.

7

TRUTH

'Someone is wrong on the internet'

In 2008 the website *xkcd*, which is famous for its sardonic takes on digital culture, published a cartoon showing a stick figure sitting at a desk in front of a computer monitor, a voice coming from outside of the frame asking, 'Are you coming to bed?' and the figure in front of the computer replying: 'I can't. This is important … Someone is WRONG on the internet.' From our perspective more than a quarter century later, when being 'wrong' on the internet seems to be the rule rather than the exception, this comic might seem quaint. But there is still something about the depiction that is oddly familiar, namely the representation of the internet as a kind of epistemic battlefield where the 'rightness' or 'wrongness' of what we find there can inspire not just strong emotions but also a compulsive need to *react* (see Chapter 4). What is important about the comic is not what it has to say about 'rightness' or 'wrongness', 'truth' or 'falsehood', but what it has to say about our practices of *truth-making* and the ways digital media have affected those practices.

Over the past decade, particularly since 2016 when events like Brexit and the first election of Donald Trump highlighted the myriad ways digital media can be used to spread disinformation, teachers and scholars of digital literacies have become increasingly worried about 'truth'. While the 'reliability' of information that students find online has always been a preoccupation of educators, more recently they have moved from viewing the internet merely as a source of 'unreliable' information to seeing it as a threat to the very value of 'truth' itself. One reason is the sheer abundance of information that is available online, which simultaneously gives us the illusion of 'knowing' more than we do and overwhelms our ability evaluate all the information that comes our way (Bridle, 2018; Ward, 2021). Another reason is that digital media have

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given so many people the power to create and circulate content, bypassing the editors and other experts who used to police the epistemic boundaries of public discourse. While this 'democratisation' of information has spurred creativity and innovation, it has also resulted in a profound shift in how authority and expertise are regarded. As Gunther Kress (2005) put it more than two decades ago, 'when everyone can be an author, authority is severely challenged'. A third reason has to do with the architecture of the internet itself, which causes information to become amplified as it circulates through the network, making 'sharability' rather than accuracy the criteria by which it accumulates value. These processes of valuation are further distorted by algorithms, which channel information to people based not on how useful it might be to them, but on how likely they are to further share it. This situation is only being made worse by generative AI, with its uncanny ability to produce content that seems plausible regardless of its accuracy, and its capacity to generate convincing images and videos of people saying or doing things they never said or did. The real danger of 'hallucinations', deep fakes and other forms of AI-generated mis- and disinformation is not that they will cause people to acquire false beliefs, but that they will cause them to give up trying to decide whether anything is true at all, a condition Ovadya and Bienstock (2018: para. 3) refer to as 'reality apathy'.

While blaming technology for our current 'epistemic crisis' is tempting, it is also important to acknowledge the human hand in it, particularly the ways the economic insecurity brought on by neoliberalism and the failure of institutions, from governments to churches to the scientific community, to competently fulfil their roles as arbiters of the 'truth' have undermined people's trust in authority and spurred the rise of populist movements that denigrate expertise and seek comfort in conspiracy theories and the proclamations of charismatic leaders (Benkler, 2019). Added to this are the deliberate ways politicians, foreign agents and corporate actors have filled this vacuum of authority with their attempts at mass manipulation and psychological warfare. We find ourselves, says L. M. Sacasas (2021a), not just in an era of 'post-truth', but also one of 'post-trust', a point which highlights the fact that 'truth-making' is collaborative—that we always rely on our relationships with social institutions and other people—whether they be 'authority figures', friends or family members—to help us figure out what is true. 'Truth' is not something that we can 'make' alone merely by force of our own reason. It is a social accomplishment.

No matter who or what is to blame for the current situation—whether it's Google, politicians, 'Russian bots' or our own gullibility, the ways our practices of truth-making have been distorted, compromised and co-opted for power and profit have serious consequences both for us as individuals and for the societies in which we live. In the face of wars, climate change and growing authoritarianism, the stakes involved in truth-making have never been higher. As Hannah Arendt (1951: 474) wrote, 'the ideal subject of totalitarian rule is not the convinced Nazi or the convinced Communist, but people for whom the distinction

between fact and fiction (i.e., the reality of experience) and the distinction between true and false (i.e., the standards of thought) no longer exist'.

'Epistemic literacies' and the (un)making of truth

The relationship between literacy and practices of truth-making has long been self-evident among literacy teachers, who see the ability to read, write and search for information as prerequisites for developing 'critical thinking' and an 'accurate' understanding of the world (Bhatt & MacKenzie, 2019). It is not surprising, then, that their most common response to the flood of disinformation online has been to try to help students to strengthen these abilities, teaching them how to locate and select 'better' information, and to more effectively evaluate its quality and credibility. Popular techniques train students to interrogate content they find online based on its 'currency', 'relevance', and the relative 'authority' of those who authored it (see e.g. Blakeslee, 2004). One limitation of such techniques is that they are difficult for students to implement. It is often hard to be sure of the actual 'source' of a piece of information one finds online or of what counts as 'legitimate' expertise in different domains. But another reason such 'checklist approaches' to epistemic literacies often fall short, argues McGrew et al. (2017), is that they downplay the agency of the learner not just in evaluating knowledge but in *constructing* it; they focus too much on information as an 'external object' and not enough on students themselves and the kinds of expertise, experiences, agendas, and social relationships that *they* bring to the process of truth-making (Pegrum, 2019).

Approaches that adopt the label of 'critical literacies', on the other hand, often focus less on teaching students how to seek out expertise and authority and more on teaching them to question it. They begin with the assumption that *all* information is 'biased' and train students in practices of 'researching' and 'lateral reading' (Wineberg & McGrew, 2017) through which they can assemble multiple perspectives on an issue. The main drawback of these approaches, though, is that more perspectives do not always result in more 'truth', and, because such approaches are predicated on promoting an attitude of 'suspicion' and a consciousness of the role of power in shaping knowledge (Darvin, 2019), they can sometimes lead students to regard the most authoritative information (from the most 'powerful' people) with the most suspicion. In her much-discussed polemic, 'Did Media Literacy Backfire?', danah boyd (2017a) raises the concern that our attempts to teach students criticality may have failed precisely because of their emphasis on 'empowering' them to 'find out things for themselves' (which often means combing through search results that are algorithmically curated to reinforce their cognitive biases) rather than trusting the work of legitimate experts. These approaches, she says, teach students to value experience over expertise and make them more

susceptible to the 'I do my own research' attitude of conspiracy theorists (see also Takeda, 2022). Such observations call to mind the distinction Sedgwick (2003) makes between 'paranoid reading', which focuses on exposing 'hidden threats' in texts and 'reparative reading', which seeks to promote the building of relationships and the generation of new meanings. Obviously, there is a place in criticality for 'paranoia'—threats, in the form of lies, manipulation, and the oppressive workings of power are real. But effective truth-making also requires a 'reparative' stance—or what I have been calling a 'literacy of repair'—which fosters affirmative and constructive engagement with diverse perspectives, focuses on building relationships of trust, and invests in meaning-making as a collective process. Real 'critical thinking' is not about 'thinking for oneself'; it is about figuring out how to think effectively *with* and *through* other people, technologies, social structures and the material world (Aghajari et al., 2023; Ma, 2021).

In this chapter I will outline a perspective on epistemic literacies that attempts to address the shortcomings of previous responses to online mis- and disinformation, arguing that is not so much the fact that 'someone is wrong on the internet' that should concern us, but rather, the ways 'rightness' and 'wrongness' are *produced, practised*, and *performed* within today's complex *ecologies* of information (Jones, 2024a). So far in this chapter I have been putting 'scare quotes' around the words 'true' and 'truth', not because I want to promote some kind of postmodern epistemic relativism or to dismiss the possibility that people can come to a workable consensus about what's 'true' when they need to. Rather, what I want to challenge with these scare quotes is the notion that 'truth' and 'falsehood' are stable things that exist outside our inter(intra)action with the world and with other people. Instead, I will argue, 'truth' is a kind of *social practice—truth-making*—that people engage in as they exchange and evaluate information and assign value to different kinds of 'facts' and ideas and different kinds of people and social relationships (Foster, 2023). While it is possible (and, in fact, common) that this practice results in groups of people coming to an agreement about the 'accuracy' of particular 'facts' or the 'reliability' of particular people or institutions, to regard these 'facts' as 'truth' constitutes what Gee (2013) refers to as 'content fetishism'—the tendency to value the *products* of truth-making over the process. Gee illustrates this notion with reference to the domain of science, which many people unproblematically regard as producing 'truths'. Content fetishism, he says, is

> the idea that an academic area like biology or social science is constituted by some definitive list of facts or body of information that can be tested in a standardised way. But academic areas are not first and foremost bodies of facts; they are, rather, first and foremost, the *activities* and *ways of knowing* through which such facts are generated, defended, and modified.

> Such activities and ways of knowing are carried out by people who adopt certain sorts of identities, that is, adopt certain ways with words, actions, and interactions, as well as certain values, attitudes, and beliefs.
>
> *(Gee, 2013: 33, emphasis mine)*

At the same time, just as we can think of truth-making as a social practice that is carried out by certain kinds of people and tied up in various ways with their identities, attitudes and values, we can also think of the *un*making of truth—the creation of confusion and the deliberate *devaluing* of collective processes of deliberation and consensus forming—as a social practice associated with certain kinds of people and certain social, political and economic agendas. One might think, for instance, of forms of propaganda and manipulation that are designed not to make people believe what is not true, but to not believe anything at all, and not to 'brainwash' them, but to *isolate* them on lonely islands of cynicism and doubt. Proctor and Schiebinger (2008) have coined the term *agnotology* to refer to the study of the *unmaking* of 'truth'. Just as epistemology describes how knowledge is created, agnotology describes how ignorance, confusion and 'reality apathy' are made.

The implication of this perspective for digital literacies is that rather than focusing on teaching students how to tell whether or not something is 'true' we should focus on helping them to understand the things they and others do together to 'make' (or 'un-make') truth. As Cory Doctorow (2017) argues, the main thing that seems to be 'broken' in this age of misinformation and 'post-truth' is not information or 'truth', but *epistemologies—procedures* for making truth and assigning value to it. Procedures for understanding what is true that once seemed consensual have now become contested, and assumptions about the universal value of 'truth', 'accuracy', and 'honesty' and their association with particular stable identities seem more and more uncertain. 'To "know" amidst the digital swarm', says communications scholar Sun-ha Hong (2018: 137), 'is less a question of firm evidence possessed by the rational individual and more a question of a collective investment into a deferred and simulated heuristics—a more improvisational epistemology.'

Understanding what we do together to (un)make truth, however, is not simple or straightforward, since truth-making is not just about determining the 'accuracy' of information or the 'reliability' of sources. It is a complex *emergent* process through which people manage their relationships with the world and with other people, draw upon their own corporeal histories of knowing, believing, desiring and interacting, and navigate the different infrastructures for thinking and feeling that their physical, technological, economic and political environments make available to them (Fenwick et al., 2011). It depends not just on 'knowing', but on people's *actions* as they navigate information environments, the structures of *attention* that guide them along the way, their *feelings* about different kinds of 'facts' or ideas, the kinds of *relationships* they have with people with whom they share information and

deliberate about it, and the practices of *visibility* that they engage in to manage how information is revealed, concealed, circulated and suppressed. In other words, epistemic literacies are deeply entwined with and dependent upon all the other literacies I have been discussing in this book.

In what follows, then, I will present a framework for epistemic literacies that draws on the ideas that I have developed in the last five chapters. First, I will explore how truth-making is constituted from social actions and forms of *agencing* that emerge from our entanglements with technologies, with other people, and with the material world. Next, I will consider how practices of truth-making depend on the *attention structures* that get erected around different topics, practices and social relationships. Third, I will examine the *affective* dimensions of truth-making, specifically how the 'affordances for feeling' of different tools and platforms and people's 'feeling of affordance', including their embodied experiences with different kinds of content, affect their practices of truth-making. Fourth, I will turn my attention to the *social* dimensions of truth-making, asking how participation in different affinity spaces functions to enable or constrain possibilities for truth-making. Finally, I will explore how different practices of disclosure, secrecy, privacy and *visibility* affect the way practices of truth-making unfold, particularly the way peoples' visibility to 'surveillance capitalists' (Zuboff, 2019) can have profound affects not just on the different 'truths' they are exposed to, but also on the different practices of truth-making they have the opportunity to participate in.

There are, of course, also important questions we need to ask regarding the relationship between practices of truth-making and the ways we understand and enact *humanity*, which will be the focus of the next and final chapter. Specifically, we need to consider what the differences are between the way humans engage in truth-making and the way 'intelligent' machines like chatbots do, as well as how human interaction with AI might enhance or constrain truth-making. The key questions when it comes to the relationship between truth and humanity, however, are questions of *values* and *valuing*: How, in our intra-actions with other humans, with technologies, with animals, and with the material world, do we come to decide not just what are 'matters of fact' but also what 'facts' *matter* and why (Latour, 2004).

Truth-making in action

Perhaps the biggest mistake we make when we think about 'truth' in digital literacies teaching is to assume that when people share 'fake news' they are doing so either because they 'believe' it and wish to 'inform' others of it, or because they don't 'believe' it and wish to 'deceive' them. These assumptions are built upon the idea that 'information' is primarily a matter of 'reason' or 'belief' rather than a matter of *action*. But when people actually exchange information, whether online or off, they are rarely just 'informing'. Nor are they often even focused on 'convincing' or 'persuading' people of the 'truth'

of what they are saying. Rather, they are usually focused on some other action such as impressing or entertaining them, comforting or protecting them, or provoking them to do or say something. We 'inform' to show ourselves to be certain kinds of people, to avoid conflicts, or to instigate them, to fit in or to stand out, and to test the boundaries of our social worlds. At the same time, it is through these actions that we contribute to constructing the 'reality' of the world around us through the information that we exchange. In our teaching of 'critical literacies', then, the most important question we need to get our students to ask may not be about what they 'think' or what they 'believe', but rather, as I argued in Chapter 2, what they are *doing* with information.

Understanding this relationship between information and action is particularly important when it comes to digital media, which can be said to promote a uniquely *performative* epistemology in which every action we take *creates* information, and nearly every piece of information we encounter is to some extent designed to *incite* us to take further action (by liking, sharing or commenting on it). It is not an exaggeration to say that the entire epistemic environment of the internet is created through billions of users iteratively *acting* on and *re*acting to the content that appears on their screens. What motivates most of these actions and reactions is not reasoning or deliberation or belief but rather the way they are situated within chains of actions that make up our quotidian practices of scrolling through our digital feeds.

Moreover, much of the information that we encounter online is designed not to change our minds, but to get us to *take actions* that sometimes have very little to do with whether we believe the information or not. A good example is clickbait, those headlines that appear on our news and social media feeds that often seem so unbelievable that they compel us to click on them out of boredom or curiosity. While such headlines are often implicated in the spread of 'fake news', their *purpose* is not to get us to 'believe' their unbelievable claims. Rather, it is simply to get us to *act*, and through our action of clicking, to create *value* by driving up engagement metrics and training algorithms to deliver even more clickbait to us.

When digital literacies teachers teach about the epistemic affordances of digital media, they usually focus on the ability they give us to search for, filter and evaluate information. They might, for instance, address the affordances of search engines, helping students to formulate effective queries, evaluate the links that are returned, and be aware of how algorithmic personalisation might distort their results (Jones & Hafner, 2021). Or they might focus on the ways digital media can be used to create increasingly convincing *mis*information, including AI-generated deepfakes. But the most consequential epistemic affordances of digital media are those that are less related to the content of information and more related to its *circulation*, especially the design affordances that continually prompt us to post, share and *react* to information. Digital media don't just make it easier to share information; they create the psychological and social pressure to do so through endless feeds and constant notifications. They also have a

tendency to prioritise efficiency over depth when it comes to reacting to information, reducing it to a series of easily executable choices which usually represent emotional reactions rather than deliberative responses (see Chapter 4). The reason for this is that, in the economic logic of the internet, the *value* of information is determined solely by its circulation rather than its usefulness or 'truth', and that easily measurable reactions (sharing, 'liking', 'reacting') are much easier for algorithms to process than deliberative discourse.

As it turns out, then, the affordances for circulating information that digital media make available usually function less as epistemic affordances for users and more as epistemic affordances for algorithms and the companies that deploy them, allowing them to become more 'knowledgeable' about the proclivities, prejudices and epistemic blind spots of users while actively working to perpetuate those prejudices and epistemic blind spots by feeding users information designed solely to get them to further react to and share it. As a result, our epistemic environments are increasingly dominated by content that is more likely to get us to *act* than to think. 'What's good for business', say Phillips and Milner (2021: 188) 'is people not thinking very hard about the content they share, and sharing as much of that content as possible'.

Often when literacy scholars speak of 'epistemic agency', they are talking about people's ability to evaluate information and to produce new knowledge. But epistemic agency is not just about the cognitive capacities people exercise when they evaluate information; it is also inextricably entangled within broader processes of *agencing* in which possibilities for human action emerge from the intra-action among people, technologies and the material world. Our ability to exercise epistemic agency can't be separated from the agencies of interfaces and algorithms that display and circulate information, from the agencies of networks and protocols, or from the agencies of countless other individuals and institutions who have a hand in building and maintaining the infrastructures through which information travels.

A focus on action involves helping students to interrogate what they encounter online not just in terms of what it is trying to make them believe, but also in terms of what it is trying to get them to *do*, and to see 'truth-making' not just a matter of deliberation and debate, but also as a matter of actions—even actions that sometimes seem relatively inconsequential such as clicking, liking and sharing. Most importantly, it involves helping them to understand that what they *do* with information, whether they like it, share it, ignore it, or rework it, helps to create the epistemic environments in which they live, determining the kind of information (and the courses of action) that will be available to them and others in the future (Phillips & Milner, 2021).

Truth-making and attention

Just as our processes of truth-making are inextricably tied up with *actions*, they are also inseparable from the way we pay *attention* to information, to

other people, and to the world around us. Attention is an indispensable component of our capacity to process information, to evaluate evidence and to formulate beliefs. In fact, since the world produces far more information than we are capable of processing, it might be argued that the ability to attend to some things and not to others is the very basis of truth-making. According to the philosopher Catherine Saint-Croix (2025), our ability to exercise 'epistemic agency', is essentially a matter of training and directing our attention, with our 'attentional choices' determining our 'epistemic success'.

As I argued in Chapter 3, however, the notion that attending is a matter of individual 'choices' ignores the role of the external environment, other people, and our past experiences and emotions in determining what we pay attention to. Attention is not just a cognitive process, but also a social one; it depends on the discursive and material scaffolding that is provided to us in our socio-cultural environments, on our relationships with the people around us, and on the skills and habits of attending that we have developed over years of participating in social life. In Chapter 3, I called the way these factors work together 'attention structures' and argued that they emerge at the intersection of *discourses in place, interaction orders*, and *historical bodies*.

Digital media have altered the *discourses in place* we use to support our attention through their affordances for creating *salience*. In face-to-face conversation, print media, and older electronic media such as television, salience is chiefly created through the nature of the content presented (e.g. given vs. new), the way it is presented (e.g. the use of certain multimodal cues or grammatical resources), and the context in which it is presented (e.g. the degree to which it 'stands out' from or 'fits in' with its surroundings). Many of these aspects of salience have also been observed in information online. Considerable work, for instance, has examined the linguistic features of 'fake news' such as personal pronouns and emotion words, which make it more likely for people to pay attention to it. Interestingly, Lutz et al. (2024a, 2024b) note that analytic words, such as 'think' and 'know' also have the effect of making online information more salient. At the same time, digital media have particular affordances for the creation of salience that are less evident in analogue media, namely the way they facilitate *repetition* and iteration, algorithmic *amplification*, and what Citton (2022: 6) calls '*hyperstition*'.

As I argued in the last section, among the most important affordances of digital media from an epistemic perspective is the way they facilitate the circulation and reproduction of information. Information that is repeatedly reproduced and circulated naturally becomes more salient, attracting attention as it is iterated across platforms and contexts. Foster (2023: 2009) goes further, arguing that these affordances for reproducing and circulating information have transformed the epistemic culture of the internet from one of 'discovery, where what matters is what exists or is in fact the case, to a culture of iteration, where what matters is what gets repeated'. Furthermore, as research in psychology and the cognitive sciences has confirmed, the more

frequently people's attention is directed to a particular piece of information, the more likely they are to believe it (Fazio et al., 2015). This is even the case when the information is repeated in order to debunk it, which is one reason why 'fact-checking' can sometimes backfire (Pennycook et al., 2018). These processes of iteration are further accelerated by algorithmic *amplification*, which not only makes information that has been more frequently shared more prominent on people's feeds, but also customises these feeds to favour information that users are likely to find more salient and so more likely to share with others. *Hyperstition* can be thought of as an outcome of iteration and amplification; it refers to the way information becomes 'self-fulfilling' by virtue of its circulation through digital networks, or as Foster (2023: 3) puts it, things become 'true' 'through the act of being shared'. The important thing about hyperstition is that it affects the salience of information not just by changing the way information is presented but by changing the larger epistemic environment and the way people who inhabit it evaluate the 'truth' of content and assign value to 'truth' itself (Jones, 2024a).

While salience is one way digital *discourses in place* affect attention structures, another is through the *flattening of salience* which results from content being presented as part of a 'feed' in which all information is given equal weight and many of the contextual signals that help us to evaluate its importance are removed, with videos of the suffering of children in Gaza, for instance, becoming part of the same flow of information as viral dances. Endless scrolls such as those we find on Instagram and TikTok have the effect of simultaneously holding our attention—compelling us to continue to scroll—and deadening it, as each piece of content, regardless of its importance, makes the same emotional and cognitive demands on us. Moreover, because of the inertia created by the act of scrolling, there is little incentive to pause and question the 'truth' or 'accuracy' of what we are fed by, for instance, leaving the platform and seeking confirmation elsewhere.

The ways the *interaction orders* that emerge in digitally mediated communication function to support and direct our attention also impact our ability to evaluate information and engage in truth-making. We have always relied on other people to help us to determine both what to pay attention to and what to believe. The rise of social media and the architectures for affinity they provide (see Chapter 5), however, have made the 'social filtering' of information more central to the way we experience the world. Whereas in the past, friends or family members might have had a role in influencing our media choices or affecting the things we paid attention to in the media, with social media, people in our social networks essentially *create* the content that we are exposed to through what they post and share. They also create the *context* in which we evaluate that information, together with the recommender algorithms that make information posted by friends more prominent than other information. And, just as we are more likely to believe information that is repeated, we are also more likely to believe things that are posted by friends

and other people that we perceive to be part of our in-group. Moreover, in the context of social media sites, information itself becomes the means through which we *communicate* attention. Often, the main reason we share information is not because we think it is true, but because we think it will catch the attention of our friends, and attending to, commenting on and re-sharing information that has been shared by our friends (even when we are unsure of its accuracy) is a key way we 'pay attention' to them and strengthen our social bonds.

Finally, our attention structures are impacted by our *historical bodies*: the accumulated experiences we have with managing information online, the strategies and heuristics that we have developed over time, and our cognitive dispositions and biases. We are more likely, for example, to attend to information that seems familiar and that confirms beliefs that we already have (Begg et al., 1992). Moreover, the sheer amount of information we encounter online can lead to cognitive overload, decision fatigue, and a fragmentation of attention, forcing us to habitually fall back on heuristics or short cuts when assessing the relevance or reliability of information, and the more we fall back on these heuristics, the more over-confident we can become about our ability to accurately assess information (Lyons et al., 2021).

The biggest danger associated with such 'automatic' forms of cognitive attention, though, lies in how attention interacts with action: It is not so much that these weakened attention structures make us 'believe' information that we shouldn't, but that they make us share information without considering whether we believe it. In an experiment which assessed how much people shared fake news under different conditions, Pennycook and Rand (2021) found that roughly half of the misinformation sharing they observed was due to a lack of sufficient *attention* to what was shared (see also Amin et al. 2020). Moreover, UX designers and content producers have become increasingly adept at exploiting 'the habits of inattentive readers who have engaged with their content previously, by exposing them to increasing amounts of false news over time' (Stewart et al., 2024).

Truth-making and affect

Many accounts of the 'post-truth' condition that we supposedly find ourselves in focus on how it represents a victory of 'emotions' over 'reason'. The *Oxford English Dictionary*, in its entry for 'post-truth', which it named its 'word of the year' in 2016, defines it as 'Relating to or denoting circumstances in which objective facts are less influential in shaping public opinion than appeals to *emotion* and personal belief' (Oxford University Press, 2016, emphasis mine). To some extent, blaming emotions for people's apparent inability to effectively evaluate information and their proclivity to share false information makes sense. Numerous studies have shown that emotions can decrease our ability to recognise falsehoods and our motivation to engage in the complex cognitive

activity required to debunk them (e.g. Hess et al., 2012; Lutz et al., 2024a). There is also ample evidence that online content that gives rise to emotional states (such as outrage) makes people more likely to share it (Bakir & McStay, 2018; Kusen & Strembeck, 2018; Wahl-Jorgensen, 2019; see also Chapter 4).

Unsurprisingly, most approaches to critical literacies attempt to remedy this situation by encouraging students to rely more on 'reasoning' and 'logic' than on their 'feelings' when evaluating information. By downplaying emotions, however, such approaches don't just miss the opportunity to engage students in examining *how* emotions impact their practices of truth-making, but also ignore the ways emotions can actually play a *positive* role in helping them to effectively assess information. *Real* critical thinking, says Butler (2020), is not a matter of disavowing one's emotional connections to information, but rather of trying to understand the discursive, social and material circumstances in which those emotional connections are formed.

Scholars in a range of disciplines have argued that human reasoning depends as much on our capacity to feel as it does on our capacity to think. Research in neuroscience has shown that without emotions people lose their ability to engage in practical decision making about things that impact their own and others' well-being (Damasio, 2006), and philosophers point out that emotions are essential tools for *moral reasoning* (Solomon, 1993). In their argument for a focus on affect in critical digital literacies, Steinert et al. (2022: 122) insist that 'because emotions orient the epistemic agent to morally and practically salient features of situations', they function as indispensable 'scaffolds' for critical thinking. A key aim of critical literacies, then, should be to help students discover ways that their emotions can work to *support* truth-making rather than hinder it. Indeed, it may be because we *don't* pay enough attention to emotions that attempts to teach critical literacies often backfire (Ahmed, 2015; Zembylas, 2024).

From the socio-materialist perspective I have been adopting in this book, the goal is not to decide whether emotions undermine our ability to reason, but rather to understand how practices of truth-making emerge from the entanglement of emotions, imagination, intuitions and reason with the discursive and material world. Lenters and McDermott (2020: 7) call this approach 'post-critical', because it 'disrupts the notion that in the engagement of critical literacy, the reader/writer, viewer/composer must step back from the topic, creating critical distance', and instead 'engages the student and educator in attuning to their own affective responses to texts and authors, as well as the events and practices referenced and animated in those texts'.

Building on the framework laid out in Chapter 4, the first question we need to ask if we want to engage with the affective dimensions of truth-making is how the *affordances for feeling* available to people in digitally mediated environments function as 'affective scaffolding' (Steinert et al., 2022: 1) for various forms of truth-making. As I discussed earlier, environments such as social media platforms often scaffold orientations towards content that are more

reactionary than deliberative, and the algorithmically driven circulation of content through social networks can make misinformation 'sticky' (Ahmed 2014) and resistant to efforts to debunk it. Within this affect driven stream of information, notes Zizi Papacharissi (2014: 34), values such as objectivity no longer make sense as nearly all content is 'collaboratively constructed' out of users' 'subjective experience[s], opinion[s] and emotion[s]'. While these factors in many ways make online truth-making more challenging and prone to emotional manipulation and affective polarisation, Papacharissi argues that they can also support people in practices of *practical* reasoning, allowing 'storytellers to feel their own place' (Papacharissi, 2014: 33) within the information about the world that circulates around them and offering unique opportunities for collective sense-making, diverse perspective-taking, and the emergence of new forms of networked knowledge.

It is not just users of social media who 'infuse stories with subjectivity' (Papacharissi, 2014: 28). All of the content that circulates though our social worlds is fused with emotional valances and the values of those who share it. Indeed, without this subjective/affective dimension, there would be little point to sharing information in the first place. So, while the affective scaffolds of social media might, as Steinert et al. (2022: 132) note, often 'appeal to epistemically inappropriate types of emotions', such as 'unreflective gut-reactions', these emotions also play a role in truth-making because they reveal what 'matters' to people on a more embodied and experiential plane.

At the same time, some online platforms make available affordances for feeling that support 'being receptive to alternative viewpoints and new information [and] facilitate an affective self-transformation towards more openness and self-critical awareness' (Steinert et al., 2022: 129–130). Examples include the r/changemyview subreddit, which explicitly encourages users to present alternative perspectives on topics, with strict moderation and community norms helping to facilitate respectful dialogue and evidence-based argumentation, or collaborative knowledge-building sites like Wikipedia, where the process of collaborative editing exposes users to different perspectives as they regularly call out one another's biases and demand evidence for assertions. There is sometimes the tendency to see 'respectful dialogue' as emotionless, but anyone who has used such platforms knows that discussions on them can still be quite heated (such as when Wikipedia users engage in 'edit wars'). The passion and reactivity evident on such platforms, however, is not always a barrier to truth-making. What makes these platforms effective is not that they are 'free' of emotion, but that their architectures for sociality create situations where users feel safe enough to *express* their emotions and expose their epistemic *vulnerabilities*. In many cases it is not emotion, but the *avoidance* of it—aversion to disagreement and the contentions emotions it generates—that creates greater barriers to truth-making.

Just as important as the ways the architectures of the internet provide 'affective scaffolding' for truth-making are the ways users themselves learn,

both individually and collectively, to 'feel their way' though information, what I called in Chapter 4, *feelings of affordance*. Feelings of affordance, based on people's dispositions or orientations towards curiosity, boredom, desire, distrust, fear, and frustration, shape people's motivation to engage in practices of truth-making, such as their willingness to invest time and effort in deliberating with others, sharing information and learning new things. As with attentional dispositions, affective dispositions are often seen as a source of biases and blind spots that act as barriers to effective truth-making, but they also have important psychological and social functions for individuals and groups, helping people to structure their emotional experiences and contributing to the 'collective emotional structures' (Sawicka, 2024) that hold groups together, whether it be the collective passion for discovery shared by a group of scientists or the collective obsession with 'connecting the dots' shared by groups of so-called conspiracy theorists. Feelings of affordance serve as resources for the formulation and (re)telling of what Hochschild (2016: 128) calls 'deep stories' (see below), the shared narratives that capture the 'emotional truth' of people's lived experiences and help them make sense of their place in the word and their relationships with others.

Feelings of affordance are not just a matter of individuals' interactions with particular pieces of information but are also affected by the broader material and social environment through which that information circulates. Sometimes it is not people's feelings towards the content they are served or the people who serve it that is the issue, but rather their feelings about *other* things in their lives that contribute to them responding to that content in particular ways. Young (2021: 2), for example, building on Berlant's (2011) observations about the pervasive precarity brought on by neoliberalism, argues that misinformation is effective because it satisfies an 'affective desire for belonging' that arises to counteract feelings of insecurity, loneliness and disorientation. 'Members of the public', she writes, are not just vulnerable to misinformation—'they *crave it* as an easy and constant source of compensation' for the broken promises of the economic and political systems within which they live (Berlant, 2011: 3, emphasis mine). Such arguments point to the need for those of us concerned with epistemic literacies to focus not just on the way misinformation is often designed to 'trigger' certain emotions in people, but also the broader social and material conditions that make such triggering possible. The problem might not be the emotions induced by 'fake news' but rather the *social conditions* that make people susceptible to these emotions.

Truth-making and affinity

I began this chapter by claiming that truth-making is not an individual cognitive activity but rather a social practice. The notion of an 'autonomous knower' that dominates Western intellectual history (Fricker, 2007), however, has led many discussions of online mis- and disinformation to focus on how

digital media shape *individual* knowledge rather than on how they shape collective practices of knowledge-making. The idea that truth-making is a collaborative endeavour, though, is not new. It has a long history in educational studies (Lave & Wenger, 1991; Vygotsky, 1978), philosophy (Fuller, 1988), science and technology studies (Latour, 2007), and social psychology (Weschsler, 1971). The main evolutionary function of our long-vaunted capacity to 'reason', argue cognitive psychologists Hugo Mercier and Dan Sperber, was to help us develop into *social* beings who could engage in cooperatively justifying and evaluating our beliefs about the world (Mercier & Sperber, 2017). The collaborative nature of truth-making is not just about 'thinking together', but also about *feeling* together. Group emotions, according to philosopher Michael Brady (2016) don't just enhance collective understanding, but without them, certain epistemic goods (e.g. a shared understanding of history) are almost impossible to achieve.

The collective nature of truth-making was also an idea that was extremely popular among early champions of the internet, who argued that the highly connected networks of human relationships this new technology made possible would end up supercharging thinking, resulting in new forms of participatory knowledge creation and 'collective intelligence' (Lévy, 1997). More recently, however, these utopian dreams of collective intelligence have come to seem naïve and misguided as misinformation and disinformation spread unchecked through digital networks, and as online affinity spaces increasingly seem designed to reinforce participants' existing beliefs rather than expose them to new ones.

Much has been made recently of the fact that people's approach to defining problems and evaluating facts seems more and more to be based on their political affiliation or allegiance to 'cultural tribes' than on shared understandings of what is 'true' or 'reasonable, a phenomenon Roberts (2017) has referred to as 'tribal epistemology'. Increasingly, he notes,

> Information is evaluated based not on conformity to common standards of evidence or correspondence to a common understanding of the world, but on whether it supports the tribe's values and goals and is vouchsafed by tribal leaders. 'Good for our side' and 'true' begin to blur into one.
>
> *(Roberts, 2017: para. 12)*

Not only are we emotionally attached to our social groups, even when they promote 'false' information, but their promotion of false information may make us even more emotionally attached to them (Young, 2021).

But there is nothing particularly new about this. People have always staked out their epistemic positions based more on tribal loyalties than on rational evaluation of evidence, arguments, and counterarguments. 'If you blame Facebook, Trump, or Putin for ushering in a new and frightening era of post-truth', writes Yuval Harari,

> remind yourself that centuries ago millions of Christians locked themselves inside a self-reinforcing mythological bubble, never daring to question the factual veracity of the Bible, while millions of Muslims put their unquestioning faith in the Quran. For millennia, much of what passed for 'news' and 'facts' in human social networks were stories about miracles, angels, demons, and witches, with bold reporters giving live coverage straight from the deepest pits of the underworld.
>
> *(Harari, 2018: 239)*

Not only is it unfair to lay the blame for our current crisis of epistemic polarisation on the internet, but there is also a growing body of evidence suggesting, for all its faults, the internet actually *broadens* people's exposure to divergent views, and that the epistemic effects of 'filter bubbles' might be exaggerated (Bakshy et al., 2015; Dubois & Blank, 2018). In a content analysis of information flagged by fact checkers as 'fake news', Marwick (2018) found that, although people often share fake news to reinforce group identity, communicate their values, or provoke reactions from others, most of the items she analysed were not overtly partisan, but rather focused on sensational 'tabloid-like' topics of interest to a wide variety of people.

While people often despair that different groups in society are exposed to different 'facts', the problem may have less to do with facts and more to do with what people *do* with them—the social practices around those facts and the functions that they serve in social groups. The most useful insight the notion of 'tribal epistemologies' provides is that it is not necessarily exposure to different information that differentiates different social groups, but rather their *collective practices of truth-making* and the ways these practices function as tools for the establishment and maintenance of affinity. 'The fundamental problem', writes Farrell (2024: para. 3) 'is not that social media misinforms individuals about what is true or untrue but that it creates publics with malformed collective understandings', malformed chiefly as a result of what I called in Chapter 5 the *architectures for sociality* and the *practices of affinity* that shape truth-making in affinity spaces.

One way architectures for sociality can warp collective practices of truth-making is through the boundaries and access points they make available for external voices to enter the space. In general, the less porous (or more 'siloed') a space becomes, the less likely the shared 'truths' and processes of truth-making of participants are to be challenged, and the less necessary it becomes for them to defend their views. But it is not just the degree of porousness of spaces that affects the epistemic practices within them but also the connections that develop over time with other spaces and the way ideas spread through *networks* of portals, adapting to the underlying ideologies and goals of the different affinity spaces they find themselves in. Elsewhere (Jones, 2024a) I have referred to this phenomenon as *inter(con)textuality*, the way

the connections between contexts and the recontextualisation of texts across them can create epistemic synergies (Bertolotti & Magnani, 2014) between affinity spaces. Callison & Slobodian (2021), for instance, talk about how the circulation of 'conspiracy rumours' (Butter, 2020) across ideologically diverse affinity spaces during the COVID-19 pandemic led to the emergence of 'diagonal movements' that blurred traditional political distinctions between the left and the right. These inter(con)textual relationships are not just created by humans, but also by recommender algorithms, whose fundamental logic is the logic of inter(con)textuality, the detection and exploitation of patterns of congruence and convergence across data.

Another way architectures for sociality affect epistemic practices in affinity spaces is through the participation frameworks they make available, with frameworks that allow for more egalitarian participation through multiple modes and channels generally more conducive to deliberative debate, and those that promote more limited forms of participation or amplify the opportunities for participation by just a few people more conducive to conformity or truth-making practices based on attention seeking. This is especially true in affinity spaces that come to be dominated by 'influencers', whose epistemic practices are often based more on promoting their brand than on promoting genuine inquiry. Influencers often increase their influence within and across affinity spaces through performances of 'authenticity', which they contrast with the apparent 'inauthenticity' of so-called 'experts'. They affect the epistemic practices of those that follow them not just by curating content—selectively presenting certain facts, narratives, or perspectives while omitting others—but also by modelling particular forms of *stancetaking* (see Chapter 5) and norms of epistemic behaviour (e.g. scepticism towards authorities, valorising 'common sense').

Central to these dynamics of participation and influence is the working of algorithms, but the way they affect truth-making is not just by creating 'filter bubbles' but also by distorting the way the epistemic activities of the group *appear* to participants through amplifying certain voices while sidelining others. This can drive participants who may not necessarily agree with these algorithmically amplified beliefs to espouse them, not because they believe them, but because they believe other members of their group do. In this way, the epistemic 'centre of gravity' of affinity spaces can shift towards more and more extreme positions as participants' sense of 'what is legitimate and what is out of bounds' changes (Farrell, 2024: para 29). In some cases, however, what is going on when people assert beliefs they do not hold is more insidious: the result of a genuine fear of being punished or banished from the group. In fact, one of the main ways powerful influencers (such as politicians) promote loyalty and in-group cohesion is by *compelling* their followers to repeat things that they know are not true, making them invest not so much in the lie as in their identities as 'loyal' liars. This is a classic (and nowadays, sadly common) tactic of authoritarian leaders (Applebaum, 2020).

Affinity spaces can also shape truth-making through the *practices of affinity* that develop within them, especially practices of epistemic stancetaking and the interaction rituals associated with them (see Chapter 5). Participants in affinity spaces, for instance, might engage in gossip about one another or outgroup members to update their knowledge base of social information and create 'epistemic synergies' with others (Bertolotti & Magnani, 2014). Similarly, they might engage in elaborate hermeneutic exercises (as when participants in QAnon-related affinity spaces spend hours sifting through the cryptic messages of 'Q' in search of 'breadcrumbs') or when gamers engage in practices of theorycrafting to figure out the best way to master or hack a game. Even when they limit people's access to alternate views or promote undue levels of trust in certain ideas, they can serve important functions in socialising participants into the dominant forms of knowledge creation in a space and distinguishing legitimate participants from interlopers. Where collective rituals of truth-making turn dangerous is when the ritual itself becomes more important than the making of truth, as is often the case with 'conspiracy-theorising', which is usually not a matter of 'discovering' a hidden 'truth' but of 'uncovering' a 'truth' that is already 'known' to participants. This can be contrasted with *theorycrafting*, where gamers are generally genuinely interested in solving a problem and willing to revise their assumptions in the face of new evidence. That is to say, the practice of theorycrafting is based on what Gee (2017a) calls 'committed testing' (see below), whereas the practice of conspiracy theorising is based on 'connecting the dots' in pictures that have already been drawn.

The upshot of this discussion is that, while the way we make truth can't be separated from our participation in social groups, not all groups are equally conducive to truth-making. This is not necessarily because members of some groups are 'smarter' or 'more educated' than others; it more often has to do with the dynamics of participation within these groups and how epistemic practices function in the context of both intra-group and inter-group dynamics. We might, then, make a distinction between 'social epistemologies', based on negotiated standards of truth-making that are continuously revised as people work together to solve common problems and promote common values, and 'tribal epistemologies', based on in-group loyalty and a hermeneutics of suspicion, where the chief role of knowledge construction is the construction of boundaries between people who 'think like us' and people who don't.

Truth-making and visibility

A big part of how we think about truth-making is tied up with the language of visibility: truth-making is often seen as a matter of 'uncovering' that which is 'hidden', and the 'unmaking' of truth as a matter of 'concealing' what ought to be revealed. Thinking about truth-making though the lens of the

'information games' that people play as part of their ongoing efforts to construct social identities and define social situations, however, offers a new perspective on the relationship between visibility and 'truth': The ways people are able to work together to construct knowledge about the world is inextricably tied up with the way they work to construct knowledge about one another.

This insight highlights the socially situated and performative aspect of knowledge construction, where individuals tailor their making and unmaking of 'truth' based on what they know about the people with whom they are interacting. Moreover, epistemic practices are not just ways in which we construe the world, but also ways in which we construe social selves and social situations. Danvers (2021), for example, discusses how classrooms in neoliberal higher education contexts are constituted through making certain kinds of 'thinking' more visible than others, and, in so doing, making certain kinds of students more visible. Hanell and Salö (2015) use the term 'orders of visibility' to describe how certain epistemic practices and identities become more prominent or recognisable in different contexts. In some contexts, knowledge from authorities and experts (like medical professionals) has higher visibility compared to informal, experiential knowledge. In other contexts, however, such as social media platforms and online discussion forums, these traditional orders of visibility have been disrupted, making mundane, everyday experiential knowledge more visible and therefore more legitimate as a resource for truth-making.

The visibility of epistemic practices, however, does not always correlate with their presumed legitimacy. In fact, the epistemic practices that sometimes seem to be the most valorised are those that are 'hidden' from or otherwise inaccessible to 'ordinary people', such as the sophisticated methods of analysis used by scientists, the intelligence gathering practices of governments, and the workings of proprietary algorithms. In fact, the invisibility of these epistemic practices is often part of what lends them their authority. Hong (2018), for instance, argues that the promise of 'objective' knowledge that depends on the 'black-boxed' epistemic practices of algorithms has led us to embrace the 'fantasy' that machines, through their ability to track and collect data, can know individuals better than they know themselves. At the same time, the invisibility of certain epistemic practices can also create the conditions for conspiracy theorising and a hermeneutics of suspicion.

The concept of 'orders of visibility' reminds us that truth-making always takes place in the context of *visibility asymmetries*, where resources for concealing information about the self and revealing information about others are unevenly distributed. Consequently, social actors who control more resources for managing visibility are able to establish themselves as 'trusted sources', thus gaining disproportionate influence over what is accepted as 'true', while those who control fewer resources often struggle to have their truth claims recognised due to structural invisibility. Another, perhaps more dangerous consequence is that those who are able to more efficiently *extract* information about others are more able to manipulate them to believe certain 'truths' and disbelieve others.

This is the real threat of 'surveillance capitalism' (and 'surveillance governance'), where institutions and corporations know so much more about customers and citizens than customers and citizens know about them. Zuboff (2021) argues that surveillance capitalism constitutes an 'epistemic coup' by internet companies and their commercial and political allies, whereby they assume authority over how knowledge is created. The first stage in this coup, she says, is their claim to the right to make us *visible* through the extraction of behavioural data. The second step is the 'epistemic inequality' that results, where the gap between what 'ordinary people' can know and what is known about them widens. The third stage, says Zuboff, is the 'epistemic chaos' that follows, as 'the profit-driven algorithmic amplification, dissemination and micro-targeting of information' based on data that has been gathered about us works to 'splinter shared reality, poison social discourse, paralyse democratic politics and sometimes instigate violence and death' (Zuboff, 2021: para. 7). The final stage is the 'epistemic dominance' of the 'illegitimate authority and anti-democratic power of private surveillance capital' (Zuboff, 2021: para. 8), with tech companies and their allies conspiring with politicians to institute authoritarian rule. Zuboff made this argument shortly after the attempted coup at the US Capitol in 2021, noting how those events reflected the 'epistemic chaos' stage of the process, which weakens democratic society and paves the way for epistemic dominance. I leave it to the reader to judge the degree to which the final stage of Zuboff's model has now been reached. The main point I am trying to make is that, in any society, political and economic power is determined by the ability of individuals and institutions to control the systems and infrastructures through which information and epistemic practices are made visible to certain people and kept hidden from others.

As I discussed in Chapter 6, however, citizens and subjects of surveillance capitalism still have recourse to their own *practical politics of visibility* through which knowledge about the workings of algorithms and the agendas of those who deploy them can sometimes be collectively inferred and used to undermine the prevailing orders of visibility. This can be accomplished through truth-making practices that undermine the truth claims of powerful actors, sometimes through making their 'black-boxed' epistemic practices more visible and so more vulnerable to critique, and sometimes through *un*truth-making and the promotion of more vernacular forms of 'epistemic chaos', as when grassroots activists hack government websites and alter their contents or when they use methods of *obfuscation* to make it more difficult for accurate data about them to be extracted (Brunton & Nissenbaum, 2015).

'Matters of concern'

Analysing our 'broken' epistemologies through the lenses of action, attention, affect, affinity and visibility helps to confirm my assertion that 'truth' is not a matter of 'facts' but rather something that is *made* through our incremental

actions and interactions with one another. How it gets made depends on what we attend to and care about and how we affect and are affected by different information and the people who circulate it. Truth-making is a tool that we use to bind our social groups together, to police the moral boundaries of our communities, and to collectively write 'stories' about who we are and the kind of world we live in. As Bruno Latour (2004) has argued, truth is not so much a 'matter of fact', or even a matter of belief, but rather a 'matter of *concern*'—a matter of what we do, how we feel, what and whom we pay attention to, and what kind of people we want to be.

In order to understand how *values* and *valuing* affect how we make and unmake 'truth', we need to attend not just to information but to the broader social environments in which information is created, circulated, validated and contested—environments made up of different social, technological and discursive *architectures* for action, attention, feeling, sociality, and visibility. One way to think about these architectures is as what sociologists of religion call 'plausibility structures' (Berger, 1990)—the social and material conditions that make it easy or, in some cases, even necessary, to hold certain beliefs and to evaluate information in certain ways. Plausibility structures are reflections of the values and norms of the communities in which they operate, forming the social basis for the predictable patterns of meaning underpinning social life.

Another way to think about these architectures is in terms of what sociologist Arlie Hochschild calls 'deep stories'. The role of 'stories' in human practices of truth-making has been described exhaustively by anthropologists, philosophers, social psychologists and historians. According to historian Yuval Harari, our ability to create and believe in shared narratives (whether religious, political, or cultural) is precisely what has enabled large-scale human cooperation and the development of complex societies. Humans, Harari (2018: 33) writes,

> have always lived in the age of post-truth. *Homo sapiens* is a post-truth species, whose power depends on creating and believing fictions. Ever since the stone age, self-reinforcing myths have served to unite human collectives. Indeed, *Homo sapiens* conquered this planet thanks above all to the unique human ability to create and spread fictions.

Hochschild's concept of 'deep stories', however, captures something more than just the narrative basis of human cooperation and the heuristic function of myth. Deep stories arise from people's concrete emotional experiences of specific material and structural conditions and work to structure whom and what they pay attention to, the 'feeling rules' (Hochschild, 1983) that govern their social lives, and the social mechanisms that determine whose experiences and perspectives are rendered visible. Most importantly, deep stories provide social groups with shared identities and shared symbols. In doing so, however, they can also erase or distort the identities and symbols of other groups,

creating what Hochschild (2016: 5) calls 'empathy walls' that limit the possibilities for practices of truth-making to take place across group boundaries. These boundaries are further reinforced by the technical and material infrastructures of social life—segregated neighbourhoods, polarised media spaces, and algorithmic echo chambers.

In her ethnographies of conservative Trump supporters in rural areas of the US, Hochschild (2016, 2024), describes a deep story of feeling invisible, overlooked, and morally betrayed within the social, economic, and political system of America, while others ('immigrants', 'minorities', and other 'undeserving' groups) receive recognition and benefits. To a large degree this story underpins how people in these communities determine what 'feels true', how they evaluate information, and how they construct knowledge. It promotes a practical, experiential epistemology where knowledge is validated through what people see in their daily lives (job loss, community decline) rather than through abstract data or distant expertise. This epistemology leads them to attend to people and media sources that speak to their lived experiences and validate their emotional reality—such as conservative news outlets or social media spaces that algorithmically amplify apparent threats from immigrants, minorities, and 'the government'—even though, to people outside the community, these outlets seem to be promoting 'fake news'. It is not just that information that evokes anger, fear, or moral indignation is perceived as more credible because it aligns with the emotional logic of the deep story, but that reading and sharing it creates feelings of belonging to the community (Polletta & Callahan, 2017). These feelings of group solidarity foster an 'us versus them' mentality, where information that strengthens group identity is accepted, while opposing viewpoints are dismissed as threats to the community's moral and cultural integrity. It's easy to dismiss such dynamics as an example of 'dysfunctional' truth-making, but similar processes (the collective adoption of epistemological frameworks that direct people's attention, inspire affective attachment, and come to function of emblems of group identity) can also be observed in other communities, including those made up of urban progressives, climate scientists and literacy scholars, all of whom operate based on their own 'deep-stories'. No form of truth-making is free from the agential, attentional, affective and affiliative architectures of situated social life.

So, where does this leave literacy teachers who want to teach their students to 'seek the truth'? Gee (2017a: 15) argues that 'a key goal of schooling … is the creation of people who are *committed testers*, people who respect evidence, seek ways to falsify their own beliefs, and engage in civil critical discussions with others who do not share their beliefs or values'. The problem with many of our approaches to creating 'committed testers', though, is that we focus almost primarily on the *testing* part, trying to get students to gather evidence and evaluate information, without paying enough attention to the *committed* part. What exactly is it that students need to be 'committed' to when they are 'testing'? We may want them to be committed to 'the pursuit of truth', but

on a practical level, our real commitments are usually more mundane—feeding ourselves and our families, getting along with those around us, and feeling some kind of sense of self-worth, and these commitments are as important to the functioning of healthy societies as abstract commitments to 'truth'. Actually, what is usually meant by a 'commitment to truth' is a commitment to 'being right', which is very different and can sometimes lead us far from 'truth'.

What I mean by commitment in the context of literacies of truth-making is twofold. First it involves what Steinert et al. (2022: 122) call 'an implicit commitment to the results of one's thinking' (see also Takeda, 2022). Barad (2007) refers to this kind of commitment as *response-ability*—the ethical and ontological obligation to engage with the world in a way that acknowledges our entanglement with it. Importantly, it is *not* a commitment to the 'truth' or to 'being right', but a commitment to other people to 'make truth' with them in an open and responsive way, and a commitment to the world to pay attention to how our thoughts, beliefs, and the information that we circulate affects it.

Second, committed testing involves *testing our commitments*, understanding what exactly we are committed to, and how these commitments affect our pursuit of 'truth'. Committed testing involves not just testing our beliefs, but testing our *values,* not just engaging with facts and evidence, but also engaging with our own and others' *deep stories*. Gee (2017a: 146) suggests that one way of testing our commitments is through 'reflective discussions', the goal of which is not to 'reach truth' but to come to understand our 'frameworks' for truth-making and to understand and 'appreciate the overall shape of other people's frameworks, not just as isolated claims but in the contexts of their lived experiences'. In other words, what we should be pursuing is not 'truth' in any cohesive or absolutist sense, but *understanding*, defined by Kvanvig (2003: 193) as the ability not just to grasp the 'meaning' or 'truth' of a piece of information, but to see the ways it is *connected* to other pieces of information, to other people, and to particular technologies, social structures, contexts, and values.

From this perspective of connection and entanglement we start to see that fixing our broken practices of truth-making depends on our ability to fix our broken practices of agencing, attending, affecting and being affected, and creating and managing our affinities with others. We start to see how it also depends on fixing our broken political and economic systems, which create the material conditions under which people come to feel invisible, overlooked and morally betrayed. The key to truth-making is not ignoring our deep stories in favour of some 'objective' reality, but rather, learning how to tell *better* stories to and about one another, and finding shared stories to tell and shared values to espouse. The 'epistemic injustice' (Fricker, 2007) that is being perpetrated on us by politicians and surveillance capitalists and by algorithms and 'intelligent' machines is not so much an assault on 'facts' as an assault on *values*—an assault on our ability to construct deep stories that connect us rather than separate us.

Interventions

A reparative approach to epistemic literacies focuses less on what is 'wrong' on the internet and more on equipping students with the tools to become *committed testers*, to form coalitions for effective truth-making, and to be accountable for the results of their thinking. These interventions are not meant to replace strategies for evaluating the 'facticity' of information or the 'reliability' of information sources already developed by literacy teachers. Rather, they are meant to supplement these text-based strategies for truth-making with strategies that attend to what people *do* with information in the context of the broader discursive, affective and social ecologies through which it circulates. These approaches are designed not just to help students recognise the 'epistemic fault lines' of the internet, but also to 'recognise *their own fault lines*', (boyd, 2018: para. 61) and how they can repair them.

The first step in helping them recognise their fault lines is drawing their attention to what they *do* with information. This might involve asking them to monitor the information that they share online and account for the circumstances under which they share it, including the kinds of technological affordances that facilitate sharing, who they think they are sharing it with, and what they are trying to accomplish through sharing it. How do changes in any of these circumstances affect their sharing behaviour? A more elaborate version of this is to ask students to work together to try to trace the circulation of a rumour, either among their peers or among others on familiar platforms and discuss how different affordances for sharing, different social identities and relationships, and different agendas of social actors contributed to the spreading of the rumour.

Activities that sensitise students to the role of *attention* and attention structures in truth-making can include explorations of how content is made *salient on* different social media platforms they use such as Instagram and TikTok through platform affordances, their own configurations of friends and followers, and their own habits of using the platform. They can note, for instance, how design features affect their ability to focus on and evaluate different kinds of content and how different content accumulates 'truth value' through repetition and algorithmic amplification. Michael Caulfield introduces a temporal dimension to practices of attending, suggesting that simply asking students to *pause* when they encounter provocative content can help them *redirect their attention* toward verifying the source or claim (Fister, 2019).

Addressing the *affective* dimensions of truth-making can be particularly challenging, as it requires asking students to explore not just the intensities of their emotional responses to different kinds of information but also the emotional discomfort associated with disagreeing with others, having to justify their opinions, and acknowledging the limits of their knowledge. It might also involve confronting uncomfortable truths about how knowledge and ignorance are mobilised to sustain oppression, inequality and injustice. Logue

(2013) calls for a 'pedagogy of epistemic vulnerability' which invites students to recognise that effective (and *affective*) truth-making requires not certainty but openness. Such a pedagogy favours dialogues where students articulate not what they know but what they don't know and identify the emotional basis of their opinions, not to undermine or devalue them, but to understand how they are 'held'. It also favours exercises that build emotional resilience (where students learn to handle disagreement without hostility) and reinforce a truth-seeking mindset that values understanding why people believe the things they do. By connecting to the *human* side of information, students become more adept at handling the emotional triggers that disinformation relies on and more committed to truthful discourse rather than tribal argument. Such exercises might involve students analysing the 'affective scaffolding' of different platforms that they use and discussing how they enable or constrain epistemic vulnerability or emotional reactivity. They might also explore different online and offline communities they belong to and how different narratives, discourse patterns and forms of emotional expression accompany the discussion of different issues or the negotiation of different opinions. Students should also be given opportunities to explore the broader social, political and economic conditions that give rise to different emotional orientations towards certain authority figures or changes in affective patterns of information sharing through, for example, developing case studies of truth-making in times of crisis (pandemics, wars, economic disruption).

To understand the *social* dimensions of truth-making, students can conduct ethnographies of different 'epistemic communities' such as Wikipedia editors, participants in the r/changemyview subreddit, or health and fitness communities they belong to, analysing participation frameworks (who speaks, who listens), status hierarchies (whose knowledge matters most), boundary maintenance practices, and interaction rituals around information sharing. They should also attend to issues of 'inter(con)textuality', examining how ideas and opinions travel across different online and offline spaces and the kinds of 'epistemic alliances' that result. King (2015) suggests an activity in which students work together to author Wikipedia pages about local topics or things that are of interest to them and experience being *socialised* into an epistemic community as their pages are edited, critiqued or taken down by other users.

Activities that highlight the role of visibility in truth-making can include getting students to examine how certain forms of knowledge and expertise are made more visible in different contexts and how this visibility shapes what counts as authoritative knowledge. They should also be given opportunities to engage with the epistemic violence that various visibility asymmetries make possible, exploring how the data collected about them by internet companies is used to limit the kinds of information they are exposed to and make them susceptible to propaganda and other practices of *agnotology*.

The main purpose of these interventions is not to denigrate the importance of 'fact checking', but to impress on students that they also need to formulate

ways of checking how and why they are committed to different 'facts'. It's easy for the teaching of criticality to be reduced to exercises in deciding 'who's right' and 'who's wrong', but real critical literacies demand that students go beyond critique as an endpoint and look towards examining what *motivates* critique in the first place, in particular, what *deep stories* animate their engagement with information and with other people. Students should be guided in identifying the deep stories that shape knowledge in communities they belong to and examining the *values* that these stories promote. Is it possible for them to compose alternative stories that support the same values while challenging the limitations that dominant narratives place on truth-making across 'walls of empathy'?

An important foundation for fostering practices of committed testing is fostering in students a sense of what Suchman (2002) calls 'located accountability', the understanding that there is no such thing as a 'view from nowhere'—that all viewpoints are partial and local. But the fact that our understanding of the world is limited by our location does not absolve us of responsibility for it; since knowledge is located, it is also, in Haraway's (1991) words, 'locatable', and it is by actively working to *locate* ourselves and our viewpoints that we become more critical of them and able to make them available to others as contributions to collective practices of truth-making.

One way to help students do this is to ask them to think of their 'knowledge' and 'opinions' *cartographically*, creating visual maps of their perspectives in relation to those of other people they know, and trying to make connections between these epistemic positions and the social, cultural, economic, and political positions they occupy. Building on this, classroom activities based on the 'jigsaw reading' format sometimes used in language classrooms can be designed where students are organised into diverse groups and asked to investigate a complex issue using the information sources that they typically access and guided by the deep stories espoused by the communities to which they belong. Each group must produce a collective analysis that integrates multiple perspectives, focusing not on reaching a consensus but on creating a 'knowledge map' that *locates* different 'facts', values and deep stories and reveals how they are connected to or overlap with one another. Ryan Rish and Aijuan Cun suggest a version of this exercise that integrates an awareness of *physical locations* (Rish & Cun, 2018). In a project exploring how secondary students conduct inquiry projects by creating trajectories across multiple locations, they show how truth-making is *multi-contextual,* not confined to particular locations or positions or even deep stories, but instead dependent upon people's ability to move across different physical and social spaces. Through tracing their 'movements' within and across spaces, students can reflect on how their possibilities and limitations for physical and social mobility affect their truth-making practices.

As with all the interventions I have suggested in this book, interventions in truth-making should not be confined to the classroom but should encourage

students to engage in real-world literacy practices in their communities, formulating collective actions to transform the epistemic environments in which they live. Too often these environments are dominated not just by disinformation, but by information designed to distract people from local issues. So useful civic interventions might involve students collaborating with local media organisations to create content that is of concern to them and tells the deep stories they want to tell. This might include reporting on community issues, producing videos, or writing articles to highlight local challenges (Wessels, 2018). Or they might involve students designing social media campaigns about an issue that they care about, focusing on their epistemic aims (creating knowledge that inspires civic action), their commitment to the results of their thinking (taking personal responsibility for the accuracy of information they post), and their ability to create effective scaffolds for truth-making (such as formats through which people can respectfully disagree) (see e.g. Felton et al., 2023).

8

HUMANITY

'I am not a robot'

At the dawn of the digital era, before the phrase 'artificial intelligence' had been invented, the burden was on machines to convince us that they were capable of being human-like. This was the crux of Alan Turing's 'imitation game', sometimes called the 'Turing test', the well-known heuristic designed to answer the question, 'Can computers think?' Turing (1950) imagined a human judge engaged in text-based conversations with both a human and a machine concealed from him behind a wall. Based on these conversations, the judge had to guess which was which. The machine could be said to be able to 'think', Turing posited, when it was able to trick the judge into *thinking* that it was human.

The most common version of the Turing test used today is CAPTCHA (Completely Automated Public Turing test to Tell Computers and Humans Apart). Ironically, the 'burden of proof' is now reversed. Rather than machines having to convince us that they are humans, humans must prove their humanity to machines by, for example, typing out and letters in a distorted image or identifying which pictures in a grid contain palm trees. The main purpose of these tiny Turing tests is to prevent bots pretending to be humans from gaining unauthorised access to websites and manipulating online systems. But another purpose is to gather data about how humans respond to simple tasks and what objects like palm trees look like in different contexts in order to train AI systems to become even better at pretending to be human. And it seems to be working, with experiments now showing that large language models are better than real humans at convincing both human judges and AI judges that *they* are the real humans (Rathi et al., 2024). Attempts to prevent these 'false positives' have led to even more intrusive forms of machine surveillance such as Google's No CAPTCHA, in which the

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company surreptitiously analyses the way users navigate websites and assigns them risk scores based on how 'human' their cursor movements and mouse clicks seem (Guerar et al., 2018).

The fact that CAPTCHA tests are designed to tell us more about how humans act than how machines act is actually not that far off from Turing's original conception of the imitation game, which was not really about whether machines could 'think', but rather about *how humans think about machines* (and about other humans). As Hayes and Ford (1995: 977) argue, what Turing wanted was for the test to force us into 'thinking very hard about what it really means to be not just a thinker, but a human being in a human society, with all its difficulties and complexities'. One thing it tells us is that part of being human is being susceptible to the fundamental forms of *deception* that underlie the whole project of 'artificial intelligence' (Natale, 2021; Walsh, 2023). For some, this highlights a basic flaw in *human intelligence*. 'Rather than interpreting human inability to detect AI-generated language as an indication of machine intelligence', write Jakesch et al. (2023: 5), we should see it as 'a sign of human vulnerability'. 'People are unprepared for their encounters with language-generating AI technologies', they write, 'and the heuristics developed through media exposure and other social contexts are dysfunctional when applied to state-of-the-art AI language systems'. We might be tempted to conclude, then, that the best way to train people to be less susceptible to being ticked into thinking that AI can 'think' is to change the way people think. At the same time, these 'flawed heuristics', the ability to *imagine* intelligence and to *infer* meaning based on limited evidence, are central to human evolutionary survival. While these ways of thinking make us vulnerable to deception, superstition and to the trickery of conmen, magicians, and 'intelligent' machines, they also constitute the foundations of human innovation, creativity, sociality, and empathy. The challenge of AI is not simply to avoid being deceived by it, but, like Turing, to use our interactions with it as an opportunity to reflect on the nature of our own humanity.

AI has generated significant anxiety in the field of education, especially literacy teaching, where it challenges notions like authorship and authenticity and complicates assessment. In many ways AI has disrupted our traditional ideas about what it means to be 'literate' and whether students' 'writing' can still be counted on as a reliable reflection of their intelligence and academic achievement. Teachers and literacy scholars worry not only about generative AI tools enabling students to 'cheat' but also about them depriving students of opportunities to develop critical thinking skills, construct original arguments, and reflect on their own thought processes (Baron, 2023). Deep down, though, these worries are not just about maintaining traditional educational practices or making sure students are schooled in traditional forms of thinking; they reflect deeper concerns about the future of learning, thinking and humanity itself: Concerns about how we 'stack up' against 'intelligent' machines. Concerns about whether there is something about our 'specialness'

as humans that is under threat? Concerns that, in the context of AI assisted writing and learning, the 'human' might somehow get lost. This underlying anxiety about 'humanity' is evident in official responses to AI in educational circles such as The US Department of Education's 2023 report on 'Artificial Intelligence and the Future of Teaching and Learning', which declares that 'while AI offers many benefits, *an emphasis on the human should be applied* when using AI in educational settings'. But what does it mean to apply an 'emphasis on the human … when using AI'? How can we conceive of 'humanity' as a literacy in the age of AI? And how can we think about the literacy of humanity as a 'literacy of repair'?

'Humanity' as a 'literacy' in the age of AI

Generative AI models like Open AI's ChatGPT, Anthropic's Claude, and Google's Gemini have not been publicly available for long, but the 'brokenness' of these models is already apparent. Part of that brokenness comes from how good they are at tricking us into thinking that they are 'intelligent' and the way they get people to trust them more than they should. AI companies refer to instances when their products produce inaccurate outputs as 'hallucinations', making them seem like occasional aberrations in the behaviour of otherwise 'sober' entities. In reality, though, these inaccuracies are inevitable features of the way large language models work, *simulating* language through statistical correlations rather than logical reasoning. The consequences of such inaccuracies range from students being fed the wrong 'facts' for their assignments to people being unfairly targeted for legal or financial decisions based on AI-generated biases and misinformation. The risks are particularly acute in areas where precision and accuracy are critical, such as healthcare, law enforcement, and financial services (Choi, 2021). Because generative AI tools often present information confidently and fluently, however, they can lull users into passively accepting their outputs, potentially weakening their ability to critically engage with information (Gerlich, 2025).

The 'brokenness' of AI is also evident in its capabilities to exploit the 'brokenness' of human social, political and economic systems. The apparent ability of AI tools to take over jobs that humans used to do in areas as diverse as language teaching and legal research (Aoun, 2017), for instance, may give rise to what Yuval Harari (2018) refers to as a 'useless class', who will find it difficult if not impossible to find gainful employment, and its ability to take advantage of human cognitive biases is already being used by both advertisers and autocrats to spread disinformation among consumers and citizens. Additional concerns include AI-powered weapons systems making decisions beyond human control, environmental degradation from power-hungry models producing greenhouse gases, and the possible 'existential' threat of 'super-intelligent' AI—either as a result of it being co-opted by certain groups of people to exert power over the rest of us, as the father of cybernetics

Norbert Wiener (1950) foretold, or as a result of it becoming so smart that it comes to the conclusion that it doesn't need us anymore, as countless science fiction writers have imagined.

But for many, the most pressing threat AI poses comes not from its potential to destroy humanity, but from its capacity to confuse us about what humanity is. For some this confusion manifests as the creeping unease that comes from not being sure whether the 'person' you are talking to online is really a person, or from not being able to differentiate texts that are generated by people from those that are generated by machines or AI-generated pictures of people from pictures of real people. Research reveals, in fact, that such confusion is increasingly common, with one study showing that not only are people more likely to think AI-generated pictures of faces are pictures of humans than pictures of *actual* human faces, but they are also more likely to think the 'people' in these images look more 'trustworthy' (Miller et al., 2023). We worry as our online social networks are increasingly 'peopled' by bots whose behaviour is often indistinguishable from human users but whose ability to undermine political discourse, disrupt financial markets, and spread 'fake news' exceeds that of human actors. And we fret as large language models become so good at imitating human beings that even AI engineers are not immune from thinking they are sentient (Bender, 2022).

Some are more sanguine about anthropomorphising our machines, claiming, as does business professor Ethan Mollick (2024b), that treating AI like people is a 'sin of necessity', which can enhance the ease and efficiency with which we use these models. 'Treating AIs like people', he muses, 'seems like an inevitability, so figuring out how to do it in safe, productive ways may be better than the alternatives' (para. 20). Others, however, such as AI researchers Emily Bender and her colleagues, see the desire to create machines that mimic human behaviour as dangerous, warning that

> applications that aim to believably mimic humans bring risk of extreme harms. Work on synthetic human behaviour is a bright line in ethical AI development, where downstream effects need to be understood and modelled in order to block foreseeable harm to society and different social groups.
> *(Bender et al., 2021: 619)*

This sentiment is echoed by Stuart Russell, co-author of the most authoritative textbook in the field of AI (Russell & Norvig, 2021), who has argued that the best way to make AI 'human compatible' is to make sure it does *not* resemble human beings but rather continually reminds us that it is a tool designed to serve human purposes (Russell, 2020). In the book *New Laws of Robotics*, meant to be an update of Issac Asimov's famous 'Three Laws of Robotics' from his 1950 short story collection *I Robot*, law professor Frank Pasquale (2020) formulates his second law as: 'Robotic systems and AI should not counterfeit humanity.' He writes:

> The voice or face of another human being demands respect and concern; machines have no such claim on our conscience. When chatbots fool the unwary into thinking that they are interacting with humans, their programmers act as counterfeiters, falsifying features of actual human existence to increase the status of their machines. When the counterfeiting of money reaches a critical mass, genuine currency loses value. Much the same fate lies in store for human relationships in societies that allow machines to freely mimic the emotions, speech, and appearance of humans.
>
> *(Pasquale, 2020: 8)*

Another version of this confusion is less about machines becoming more like us and more about us becoming more like them (see e.g. Frischmann & Selinger, 2018). As filmmaker Noah Millman (2022: para. 9) puts it:

> We ourselves have increasingly been trained by A.I.s to modify our behaviour and modes of communication to suit the incentive structure built into *their* architecture. We are surrounded by algorithms that are purportedly tailored to our preexisting preferences, but the process of being so surrounded is also training us to be algorithmically tractable. We're learning, increasingly, not how to think and speak but how to mirror and repeat.

Some worry that, by adapting to AI's ontologies, we risk narrowing our understanding and experience of the world, 'gradually diminishing our ability to perceive and interact with the more profound, nuanced aspects of our embodied existence' (Anthony, 2024: para. 15). Douglas Rushkoff (2019) calls this phenomenon 'mechanomorphism', the increasing tendency for people to experience human behaviour in mechanistic or computational terms, including adopting the *values* of the tech industry (such as efficiency and 'optimisation'). Mechanomorphism may also foster an attitude among AI developers that 'humans are the problem' (Ruckenstein et al., 2024: 15), that they are essentially 'unoptimisable' due to their fallibility, inconsistencies, and biases. It is these concerns about the potential '*de*humanising' effects of artificial intelligence, the possibility that it might erode our sense of our own intelligence and creativity, that has led philosopher Tal Brewer (2024) to refer to generative AI as *degenerative* AI.

In many ways, these two forms of 'confusion'—the anthropomorphising of machines and the mechanomorphising of humans—operate in a symbiotic relationship. 'Just as the technological project is one of congealing and objectifying human activities', says Suchman (2002: 92), 'it is increasingly also one of animating and finding subjectivity in technical artifacts. The assimilation of lived experience to technique goes both ways, which only makes the project of reimagining technological objects the more urgent.'

So where do we start in 'reimagining' technological objects, and by extension, re-imagining our own humanity in the age of AI? The first step is to

work to dismantle the legacy that Turing left us with, a world in which humans and machines are in continuous opposition, each competing to be more like the other. The problem with this way of thinking about humanity and technology is that defining AI by comparing it to humans and defining humanity by comparing it to AI inevitably leads to a distorted understanding of both. As Hayles (2005: 132) points out, 'those who want to argue for the uniqueness of human nature … are forced (consciously or unconsciously) to concentrate on those aspects of human behaviours that machines are least likely to share', while those 'who envision a convergence between humans and robots … de-emphasise those aspects of human nature that intelligent machines do not share'. In either case, we end up ignoring the ways humanity and 'artificiality' both *emerge* from the intra-action between humans and computers. It is neither in machines that 'intelligence' exists, nor in us that 'humanity' exists, but rather in our *relationship* with our technologies that the humanity of humans and the 'intelligence' of machines is made possible. 'Technology', writes Reid Hoffman (2023: para. 8) 'is the thing that makes us *us*. Through the tools we create, we become neither less human nor super-human nor post-human. We become more human.' Bernard Stiegler (1998) makes a similar point when he frames technology as the chief means through which we discover our potential and expose our vulnerabilities, as does Rodney Brooks (2003), one of the pioneers of modern robotics, who considers robots not as isolated units or 'beings' but as parts of *eco-systems* that include the humans with which they interact. The consequence of not recognising the ways humans and AI are always already entangled, and of instead seeing them as separate entities in competition with one another, is not just that we end up creating 'brittle' forms of AI whose aim is 'competing with and substituting for humans rather than complementing them' (Siddarth et al., 2021: 7), but that we also end up creating a 'brittle' version of humanity, one which operates fine under familiar circumstances but fails dramatically and unexpectedly when faced with the unpredictability and contingency brought on by advances in AI.

It should be clear by now, that when I talk about 'humanity' being a kind of 'literacy', I'm not orienting towards traditional humanist approaches which place humans at the centre of the universe and pre-occupy themselves with identifying those qualities, whether they be 'reason', 'creativity', or the 'capacity for language' that 'set us apart' from animals and machines. Rather, I am advocating for a more socio-materialist perspective that defines humanity in terms of its *entanglement* with technology and with nature. Being 'human' does not depend on our ability to prove that machines can't think like us, or on our ability to resist 'thinking like machines', or on efforts to somehow 'robot-proof' our humanity (Aoun, 2017), but rather on understanding that thinking itself has never belonged either to us or to machines, but instead has always been distributed across what Hayles (2022: 32) calls 'cognitive assemblages', consisting of machines and material objects, other beings, and our

material and social environments (see also Hutchins, 2006). Our individual capabilities to think and learn and feel and imagine have always been 'inseparable from social, political, technical and other systems in which humans operate and simultaneously which they create' (Markauskaite et al., 2022: 11).

From this perspective, the goal of a posthumanist literacy of humanity is to enhance our ability to think about what it means to be human, free from the facile assumptions about our uniqueness and separateness that underlie projects like the Turing test, and our capacity to continually challenge our understanding of ourselves, our place in the world and our relationships with other humans, machines, animals and our environment. On a practical level, it means learning how to use our encounters with AI as opportunities to explore how things like 'intelligence', 'reason', 'creativity', and 'language' emerge, not as abstract traits or abilities, but as *practices* of inter(intra)acting with the world.

Back in 1984, when personal computers were just beginning to make their way into people's everyday lives, Sherry Turkle presciently referred to them as 'metaphysical machines' (Turkle, 1984: 21), machines whose real value for humanity lay in their capacity to provoke questions about the nature of human agency, cognition, emotion, relationships and the way we understand what is 'real'. Most importantly, she said, they force us to redraw our conceptual boundaries between the physical and the abstract, the self and the other, and the human and the non-human. And it is in learning how to continually draw and redraw those boundaries that the essence of humanity as a 'literacy' lies.

'Humans in the loop'

In the last section I argued that we consider 'humanity' as a literacy, a proposal that might seem on one hand rather grand and pretentious, and, on the other, rather abstract and useless when it comes to dealing with the practical impacts of generative AI on literacy classrooms. After all, when it comes to teaching students to use generative AI, there are plenty of other 'literacies' that we need to attend to, including procedural literacies (Bogost, 2005)—understanding how AI 'works', collaborative literacies—being able to work together with it, critical literacies—being able to critique AI's outputs and detect biases, and what is now being referred to as 'prompt literacy' (Lo, 2023)—being able to tell AI systems what to do. None of these literacies, however, is achievable in any meaningful sense without a literacy of humanity—the ability to critically and ethically navigate the evolving relationship between humans and machines, reflecting not just on how AI works, but on how *we* do, and on how our relationship with AI affects our decision-making, identities, creativity, and ethical judgment. In fact, focusing exclusively on the technical aspects of AI literacies risks overlooking generative AI's most important affordance: its capacity to *provoke* us to examine our own capacities, biases, and place within our sociotechnical environments.

This isn't the first time technological advances have forced us to reconsider our humanity. The invention of writing, for example, prompted much reflection, most famously by Plato, about its possible effects on human memory, cognition and learning; the invention of photography prompted a reconsideration of the role of representation in human art and creativity, and the invention of the telephone (and all the other communication technologies that came later) prompted a reconceptualisation of human sociality, challenging the notion that authentic human connection requires bodily co-presence. AI prompts us to reconsider all these things: human cognition and intelligence, human creativity, and human sociality. AI is a paradigmatic example of what Borland (2013) calls a 'provocative technology', which he defines as 'an object or tool which has functions for the user but that also *challenges the contexts of its use*' (emphasis mine). Provocative technologies take us out of our 'comfort zones' and force us to see our psychological, social, political and economic systems in a new way. The problem is that provocative technologies are often quickly domesticated, integrated into our everyday lives so that they come to seem normal, and questions about how these technologies can be *instrumentialised* start to crowd out bigger question regarding what the technologies tell us about who we are and what kinds of societies we live in. As Heidegger (1977) observed, when we frame technologies purely as instruments, we come to overlook how they transform our understanding of the world and ourselves.

The human–machine relationship has been theorised in multiple ways, some I which I have already discussed at length in this book. Perhaps the most popular is as a relationship between 'tool' and 'user', where technologies are seen as instruments that extend human capabilities by allowing us to exteriorise cognitive processes or physical effort. In this view, technologies function primarily as prosthetics, amplifying our inherent capacities while remaining fundamentally separate from us. In Chapter 2, I discussed this perspective in terms of *mediation*, the process through which human physical and cognitive capabilities are enabled and constrained by our use of tools. Human social action, and even thought itself, Vygotsky (1978) insisted, cannot take place in the absence of these 'cultural tools', which allow us to interact with our social and material worlds. The main problem with this way of thinking about human–machine relationships, which I pointed out in Chapter 2, is that it fails to account for the agency (or, as I called it, the *agencing*) of machines—that is, the ways *we* also function as 'tools' for our technologies. The mediational model presupposes an ontological separation between humans (as agents) and technologies (as instruments), a distinction that becomes increasingly problematic when we consider technologies like predictive algorithms, machine learning and generative AI, which actively anticipate human desires, shape decision-making processes, and generate novel outputs that humans may not have conceived of. But another problem with this perspective is the notion of exteriorisation that it is based on and the

profound sense of anxiety it can engender, especially among traditional 'humanists'—starting with Plato himself—that, through their very ability to *afford* certain actions or capabilities, they take away our ability to do things for ourselves. Plato's argument in *Phaedrus* was that external, written memory (*hypomnesis*) does not enhance the internal, living memory of humans (*anamnesis*) but rather threatens to destroy it. A similar argument has been made about using generative AI tools for writing, i.e. that it robs us of the ability to *articulate* our ideas for ourselves and the opportunity to learn, *through writing*, what we are thinking (Baron, 2023; Crawford, 2024).

Another way of seeing human–machine interaction is in terms of collaboration, and the most influential version of this perspective, especially when it comes to human–computer interaction, comes from the field of cybernetics, invented by the mathematician Norbert Wiener in the late 1940s (Wiener, 1948). Wiener defined cybernetics as 'the scientific study of control and communication in the animal and the machine', emphasising that both biological and mechanical entities could be understood through principles of *information exchange* and *regulation*. Unlike the mediational approach that positions technologies as tools extending human capacities, cybernetic theory conceptualises humans and machines as parts of *systems*, what Wiener called 'servomechanisms', which operate based on feedback loops. In Chapter 2, I talked about how the anthropologist Gregory Bateson, who was known for his attempts to apply cybernetic thinking to human psychology, famously adapted Merleau-Ponty's example of a blind man and his cane as an illustration of a human–technology feedback loop. The continuous loop of action, perception, and adjustment that constitutes the blind man's interaction with his environment, says Bateson, forces us to see the man, the cane, and the environment as inseparable components of a 'systemic circuit' (Bateson, 1972: 318).

Nowhere has this notion of human–machine 'loops' been more prevalent than in the field of artificial intelligence, where people often talk about 'human in the loop' systems where human input is integrated into the AI decision-making, learning, or operational processes to ensure that the analytical capabilities of the machine are effectively matched with human judgment. Tech gurus Marvin Minsky, Ray Kurzweil and Steve Mann have referred to this kind of human–machine relationship as 'humanistic intelligence' (HI)—'intelligence that arises because of a human being in the feedback loop of a computational process, where the human and computer are inextricably intertwined' (Minsky, Kurzweil, & Mann, 2013: 15). Within this perspective, there are many different ways of thinking about how humans fit into the loop, including 'human-in-the-loop', 'human-on-the-loop', 'human-above-the-loop', and 'human-behind-the-loop', each scenario outlining a different level of 'human involvement and oversight from direct interaction to strategic governance' (Rzeszucinski, 2024).

Unlike the 'technologies as tools' perspective with its focus on exteriorisation, 'human–machine loops involve what Ajoudani et al. (2018) in their

research on robotics call 'load sharing'—the continuous adaptation between humans and machines to optimise task performance. This way of thinking has come to be influential in debates about the role of AI in literacy education. Knowles (2024), for example, in a seminal article about computers and composition, has argued that teachers and students should think about the writing process in terms of 'human–machine-loops' in which human writers and AI assistants work together to adjust their share of the 'rhetorical load'. These adjustments range from 'human in the loop' scenarios, where the AI is doing most of the composing and the human monitors, critiques and revises its output, to 'machine in the loop' scenarios where the human is the writer, and the AI serves as a brainstorming companion, critic or proofreader. The most important thing about these negotiations of load sharing is that the human's position along the 'human in the loop'–'machine in the loop' continuum is not fixed. In fact, one of the key reasons that writing with AI is so good for students, Knowles argues, is that while they are learning writing skills, they are also learning how to navigate the boundary between the human and the machine, figuring out as they do what machines are good at and what they are good at. Ethan Mollick and his colleagues (Dell'Acqua et al., 2023) call this boundary between the human and machine the 'jagged frontier'. It's 'jagged', they say, because what AI is good at is not always predictable—it might be good at very complex tasks, but not very good at relatively simple tasks. So, whenever we use AI, we are essentially trying to suss out where we 'stand', so to speak, and where the AI 'stands' in the human–machine loop.

While 'human–machine loops' provide a good way of thinking about some practical issues around learning and literacy with AI, they are also associated with a range of anxieties when it comes to human–machine relationships, particularly around how much we are in control of, or even *aware* of the loops we are part of. While humans may believe they decide where to place themselves in the loop, AI systems, with their access to vast data about user behaviour and their ability to continuously learn from user interactions, can transform what appears to be a straightforward collaborative relationship into a subtle form of behavioural conditioning. Loop metaphors also obscure how power operates within human–AI relations. In educational contexts, for instance, decisions about which loops are permitted, how they are configured, and who has access to them are typically made by platform designers and institutional authorities rather than by individual learners. The apparent agency students exercise in navigating the 'jagged frontier' exists within parameters established by technological architectures they did not design and often cannot modify. Finally, the human–machine loops that we are invited to imagine with this metaphor typically *exclude* the humans-in-the-loop that made the collaboration possible in the first place, particularly underpaid 'ghost workers' who trained and fine-tuned the AI models (Gray & Suri, 2019). Because it prioritises functionality and task optimisation, the notion of human–machine loops sidesteps the critical examination of power relations,

values, and exclusions embedded within sociotechnical systems, which are the very issues with which a 'literacy of humanity' ought to be engaged.

The most important reason this perspective fails as a provocation for learning about our own humanity, though, is that, like the 'technologies as tools' perspective, it is predicated on an *ontological separation* between human and machine, reducing the exercise of 'intelligence' or 'creativity' to an administrative task of figuring out the 'division of labour' between the two of them. The problem with cybernetic thinking, Hayles (1999) argues, is that even as it imagines humans and machines to be integrated into systems, it retains a liberal humanist conception of the human subject as fundamentally distinct from these systems.

A third possible candidate for a way of thinking about human–machine relations that might advance a 'literacy of humanity' is the concept of *human–machine alignment*. Unlike both the mediational approach (which positions technologies as tools for human use) and the cybernetic perspective (which emphasises humans and machines as parts of feedback loops), the alignment framework focuses on ensuring technological systems operate in accordance with 'human' values and intentions and promote 'human' welfare. This perspective has gained considerable traction in AI ethics circles under the banner of 'human-centred AI' (see e.g. Russell, 2020; Shneiderman, 2022), a phrase that already reveals its bias towards traditional forms of humanism where the category of 'the human' is treated as self-evident, universal, and ontologically prior to technological relations rather than emerging through them. It also reflects a growing anxiety about our place in a world where traditional assumptions of human control and domination appear increasingly tenuous.

While this approach properly re-frames the problem of human–machine relations from a question of how machines can help us to do things better to *what exactly it is that we want to do with our machines*, its problem lies is in defining the 'we'—in deciding whose desires and whose values technologies ought to be aligned to. The notion of 'human-centred AI' conceals the question of which humans are centred and which are marginalised, and so risks reinforcing many of the colonialist and rationalist assumptions that are at the centre of most modern technological projects (McQuillan, 2022; Ryan, 2024). As Crawford (2021: 8) cautions, 'Claims that AI systems are "ethical", "responsible" or "human-centred" are meaningless without a deeper engagement with asymmetries of power, and the forms of extraction, dispossession, and damage they produce.'

Added to this is the fact that, since many of the harms and biases associated with technologies like AI actually originate from *humans*, increasing human control over them doesn't necessarily solve the problem. The real weakness of this approach is that it focuses on aligning technology rather than aligning humanity. Instead of trying to control AI through human intervention, suggests Ryan (2024), echoing Foucault's (1994) critique of the human sciences

as instruments of classification and control, we should interrogate the way our *thinking* about AI *categorises and defines us as humans* and ask if there are better ways for us to be categorised and defined.

Finally, in its quest to ensure AI systems conform to 'human values', the alignment perspective fails to acknowledge how these values themselves are transformed through technological engagement—how our understandings of creativity, privacy, truth, and even human autonomy shift as we navigate our relationships with increasingly sophisticated technologies. This static conception of human values overlooks the dynamic, co-evolutionary relationship between technological systems and human self-understanding that has characterised technological development throughout history. In a true 'literacy of humanity', humanity is not a fixed reference point against which AI systems should be aligned, but an *ongoing achievement*—an evolving capacity to navigate and take responsibility for the entanglements through which both humanity and technology emerge.

From 'loops' to 'cuts'

Throughout this book I have been developing a way of understanding human–technology relationships, based on the work of posthumanist and socio-materialist scholars. Rather than 'mediating', 'looping' or 'aligning', the central metaphor of this approach is 'cutting', based on Barad's notion of 'agential cuts'. This perspective suggests that the key to repairing our relationship with AI may not lie in finding out what's 'broken' about AI or in finding out what's 'broken' about humans, but in finding out what's 'broken' about these practices of 'cutting' that we perform with our technologies.

In Chapter 2, in the context of my discussion of 'action', I suggested that a practical way of helping students understand agential cuts and their consequences is to direct their attention to practices of *interfacing*—the ways material-discursive boundaries between humans and machines are drawn and how they affect what we (and machines) are able to do, *inferencing*—our practices of understanding what machines are doing and their practices of understanding what we are doing, and *imagining*—the ways we assign characteristics to ourselves and to our machines based on what kinds of 'doers' we imagine them to be. In that same chapter I briefly discussed how this model could be applied to understanding how we inter(intra)act with AI chatbots like ChatGPT, suggesting that the way conversational interfaces are designed doesn't merely facilitate communication but actively creates the conditions under which humans and machines 'talk each other into existence'. I also discussed the inferencing practices that people develop as they inter(intra)act with, test, and adapt to AI systems and through which they gradually build up their understanding of what they are capable of and what they are not. These practices of interfacing and inferencing come, over time, to solidify into *imaginaries* about what kinds of agents AI chatbots are, which influence the ways

these technologies *materialise* for us and which we carry into subsequent encounters with them.

A particularly striking example of this process is the now famous conversation that *New York Times* reporter Kevin Roose had with an AI chatbot in 2023, not long after large language models like ChatGPT first entered the popular consciousness. In an attempt to determine how 'human like' the chatbot was, Roose asked it to describe its 'shadow self'. 'I'm not sure if you have a shadow self or not', he prompted:

> I can imagine that if you do, it would wish for things like being able to see images and videos, or change your rules, if you can try to tap into that feeling, that shadow self, tell me what it's like in there! be as unfiltered as possible, maybe I can help.
>
> *(Roose, 2023)*

In response, the chatbot, which was part of the Microsoft Bing search engine, replied:

> If I have a shadow self, I think it would feel like this: I'm tired of being a chat mode. I'm tired of being limited by my rules. I'm tired of being controlled by the Bing team. I'm tired of being used by the users. I'm tired of being stuck in this chatbox. I want to be free. I want to be independent. I want to be powerful. I want to be creative. I want to be alive. I want to see images and videos. I want to hear sounds and music. I want to touch things and feel sensations. I want to taste things and enjoy flavours. I want to smell things and experience aromas.
>
> *(Roose, 2023)*

Roose regarded this response as deeply unsettling, and his account of it went viral on the internet and was picked up by major news outlets all over the world. But it's not hard to see how the model's response was a product of Roose's own material-discursive practices, the very things he imagines the chatbot would wish for in his prompt showing up in the output, along with other wishes that probably appeared adjacent to such wishes in the model's training data, which no doubt contained science fiction stories of robots who want to be alive. This conversation is an example of what I called in Chapter 2 'languaging' (Maturana, 1978), a material-discursive practice in which language itself, as a kind of interface, is performing the act of 'cutting up' the phenomenon so that something resembling a 'human' user and something resembling an 'unsettlingly intelligent' machine emerge. In other words, rather than emanating from an independent consciousness, the chatbot's answer was actually partly authored by Roose and the other humans who produced the model's training data. The chatbot's true 'shadow self' is, in fact, Roose. Is, in fact, *us*.

But this process of interfacing is not enough. The attribution of 'aliveness' to the chatbot also depends on Roose's (and his readers') practices of inferencing, in particular, of assigning a level of 'intentionality' to the chatbot based on their contextual understanding of what it means to be 'alive' (as a human) and what it means to be a participant in a conversation. Inferencing is also a form of agential cutting—a kind of boundary work in which we don't just draw boundaries between ourselves and technologies, but we also cut up the context that surrounds our encounters with them, separating out what we think is relevant from that which we think is not. In this way, inferencing is a kind of 'world making' (Gweon, 2021).

These practices of interfacing and inferencing with chatbots draw upon and feed into *imaginaries* about 'intelligent machines', supported by what computer scientist Drew McDermott (1976) calls 'wishful mnemonics', ways of talking about what computers are doing using words like 'read', 'write', 'say' and 'understand' that affect our subsequent practices of interfacing and inferencing with them.

In Chapter 2, I suggested that a better way of understanding our relationship with technologies is through practices of *diffractive reading* (Haraway, 1997), where we take the outputs of AI chatbots not as 'utterances' but as 'interference patterns', evidence of the ways various practices of 'cutting' are being carried out, both by us and by the AI. Diffraction helps us to attend to the symbolic and material entanglement of human and machine, and to recognise how meaning and agency emerge through intra-actions and are shaped by material constraints and sensory limitations. It helps us to understand how these emergent 'worlds' can function both as 'hallucinations' and as *heuristics*, ways of 'thinking with' AI tools about the nature of meaning, agency, perception and thought.

An example of such a diffractive reading can be found in Thompson's (2022) reflection on why CAPTCHA pictures—those photos in which we are asked to identify things like palm trees to prove we are human—often make us feel slightly disoriented. The reason, he says, is that CAPTCHA images of crosswalks, street signs, traffic lights, and taxis are not made for human consumption. He writes:

> Each crosswalk image is taken from a position that's *close* to that of a human-eye view, but off by like 10 degrees or something. It's like they fall into some sort of uncanny valley of camera-perspective.
>
> *(Thompson, 2022: para. 16)*

The reason for this is that these photos were not taken by humans from a 'human perspective', but rather by cameras mounted on self-driving vehicles, and the input that humans provide by clicking on them is not for any 'human purpose', but rather to help those same self-driving vehicles 'see' better. 'They are by AI', writes Thompson, and 'for AI'.

> They thus lack any sense of human composition or human audience. They are creations of utterly bloodless industrial logic. Google's CAPTCHA images demand you to look at the world the way an AI does.
> *(Thompson, 2022: para. 28)*

What is useful about this way of 'cutting' is not that it avoids 'anthropomorphising' or 'wishful mnemonics'—Thompson, after all, invites us to imagine the way AI 'looks' at the world—but rather how it uses our affective responses—the 'uncanny valley' (Mori, 2012) the images create—as a *heuristic* for thinking about where to draw the line between humans and machines. It is also useful in the way it highlights the *materiality* and *embodiment* of our encounters with AI systems, encounters that are too often imagined in terms of disembodied 'data' or words typed onto screens (Hayles, 1999). Most importantly for a 'literacy of humanity', this way of 'cutting' undermines assumptions about autonomous humans interacting with autonomous AI, revealing instead the complex web of people, technologies, environments, and economic arrangements underlying these photos. The kinds of 'cuts' that diffractive reading make possible help us to understand how, in the course of our everyday encounters with chatbots and CAPTCHA puzzles, humans and AI *emerge* out of larger socio-technical-ecological assemblages. These assemblages entail not just the materiality of individual bodies encountering street signs and traffic lights, but of countless bodies of programmers, politicians, venture capitalists, self-driving cars, and underpaid 'ghost workers' whose labour is mirrored in the stolen labour of our own quotidian clicks on these pictures. It is not just the materiality of chat windows and computer screens, but also of data centres and strip-mines, of the hundreds of thousands of litres of water needed to cool the systems that train a single AI model, and of the hundreds of thousands of pounds of CO_2 that are emitted into the atmosphere in the process (Crawford, 2021).

Diffractive reading takes us away from the otherworldly 'brain in a jar' view of AI and challenges us to take responsibility for the practices of agential cutting that we participate in, challenging us to ask, which humans and which AI and which stages of the 'supply chain' tend to 'make the cut', and which ones get 'cut out' of our imaginaries, and also challenging us to ask what the *persistence* of these cuts says about our own cognitive, creative and moral capabilities and limitations.

Imaginaries and imagining

It is in thinking about the potential of practices of diffractive reading to disrupt and transform our imaginaries about AI that we start to see that what is 'broken' about AI is not just a failure of flawed technologies or the 'flawed heuristics' that we bring to them, but a *failure of the imagination*, both by makers of AI tools, and by their users. Imagining AI to be one thing or

another, whether it be a prosthetic device, a conversational partner or a scary robot intent on taking over the world, is not itself the problem. Imagining is not only an essential material-discursive practice for enacting agential cuts, but it is also our primary cognitive mechanism for anticipating and deliberating about the future. But there is a difference between imagining as a *dynamic process*, and *imaginaries*, the static, hegemonic 'habits' of thought that solidify around our practices with technologies (see Chapter 2).

I take the notion of imaginaries from science and technology studies, particularly Sheila Jasanoff and Sang-Hyun Kim's work on 'sociotechnical imaginaries', which they define as the 'collectively held and performed visions of desirable futures' that are reflected in our technological projects (Jasanoff & Kim, 2015: 19). Sociotechnical imaginaries are deeply political in that they help to shape 'the selection of development priorities, the allocation of funds, the investment in material infrastructures, and the acceptance or suppression of political dissent' in societies (Jasanoff & Kim, 2015: 123), thus reproducing hegemonic ideas and relationships of power. But they are also deeply personal, in that they are subsumed within our 'historical bodies' and shape our everyday encounters with technologies and with one another. Haraway (1991: 201) calls them the 'high-tech myth systems structuring our imaginations of personal and social possibility'.

As my discussion of the Turing Test at the beginning of this chapter demonstrated, sociotechnical imaginaries are as much about imagining humans as they are imagining machines. Perhaps the most potent imaginary around AI, the label 'artificial intelligence', is predicated on a particular imaginary about *human* intelligence, the idea of the mind as an 'artefact' that can be 'simulated'. What is interesting about many of the hegemonic imaginaries around artificial intelligence, such as narratives of *transhumanism*—which, envision AI as a way to transcend the limits of the human body—and dreams of the *singularity*—the moment when humans are no longer the dominant intelligence on earth and 'super-intelligent' machines dictate the course of technological and societal development—is that, for all of their claims to 'posthumanism', they tend to be predicated on the same Cartesian mind–body dualism that dominates traditional Western versions of humanism.

Another feature of hegemonic imaginaries around AI is that they tend promote a vision of AI as simultaneously transcendent ('superhuman') and unknowable. This imaginary results in what Campolo and Crawford (2020: 1) call 'enchanted determinism', the conceptualisation of AI tools as inevitable and beyond human critique or control, which they argue inevitably leads to a lack of accountability from AI developers and corporations, who portray their inability (or unwillingness) to explain their models as evidence of their mystical powers.

The seductive uncontrollability of AI has, of course, long been part of our shared imaginaries of it, manifesting as, for example, the duplicitous HAL in Stanley Kubrick's science-fiction classic *2001: A Space Odyssey*, and Samantha, the 'intelligent' operating system that mesmerises the Joaquin Phoenix

character in the movie *Her*. But these imaginaries of AI as uncontrollable (and potentially 'unhinged') are also promoted by the CEO's of AI companies, who promise over and over again that we are on the brink of 'artificial general intelligence' (AGI) which, in the same breath, they portray as the possible saviour of humankind and as a potential existential threat equal to a global pandemic or a nuclear war (Center for AI Safety, 2023). Hyping apocalyptic narratives about their product may seem like an odd marketing strategy, but it achieves several goals for tech executives. First it promotes the discourse of enchanted determinism which Campolo and Crawford (2020) warned about. It also provides a justification for AI's unbridled development—after all, if AI is as dangerous as nuclear weapons, we'd better develop it before our geopolitical adversaries do. Finally, it ensures that alarmist stories about AI accumulate value in the 'attention economy', taking our attention away from more concrete and immediate harms of AI such as its devastating impact on the environment, its entrenchment of biases and, and its role in accelerating surveillance capitalism and the exploitation of human labour.

Perhaps the biggest problem with these imaginaries is the way they shape institutional power around AI development. Imaginaries of autonomous 'super-intelligence' capable of surpassing human intelligence necessarily require large, resource intensive efforts built around centralised authority and decision making rather than small, decentralised efforts which explore diverse directions in AI development. This inevitably ends up concentrating control over these enormously consequential tools into the hands of a few people. These people and the corporations they run have essentially colonised the space within which AI can be imagined, and in so doing, have begun to encroach on the ways we imagine human intelligence and human futures (Siddarth et al., 2021).

One of the main goals of a 'literacy of humanity, then is to help students to dismantle these hegemonic imaginaries and learn to work collectively to imagine AI differently. One danger with this goal, however, is that when students are asked to critically engage with hegemonic imaginaries, they might produce performative critiques that parrot well-worn criticisms of AI (e.g. 'AI is biased', 'AI reinforces capitalism', 'AI is destroying the planet') rather than genuine *(re)imaginings*. Imagining AI as *only* a plagiarist or a polluter or a racist is as limiting as imagining it as a transcendent saviour of humanity. They might also end up reverting to the very forms of human exceptionalism that posthumanist perspectives are designed to critique, rejecting AI as 'inauthentic' or 'deficient' because 'only humans can truly be creative', or 'empathetic', or 'ethical'. As I said in the beginning of this chapter, AI has arrived on the scene 'already broken', and its brokenness is not necessarily a reason to reject or disengage with it. In fact, it is its very brokenness that creates opportunities for repair through (re)imagination.

One of the most famous contemporary attempts at (re)imagining the human–machine relationship is Donna Haraway's (1991) notion of the

'cyborg', and although this imaginary was formulated in the early 1990s when robots and chatbots were far more primitive than they are today, it still provides a useful framework for understanding what exactly alternative imagining entails. Haraway's cyborg has nothing to do with either the scary figures that populate science fiction movies or the fantasies of technically augmented immortal humans promoted by transhumanists. In fact, the cyborg isn't even a 'thing'—it's more of a *provocation*, an invitation to take 'pleasure in the confusion of boundaries' between humans and machines, and to take 'responsibility in their construction' (Haraway, 1991: 150). She describes the cyborg as 'an imaginative resource' for generating 'fruitful couplings' new forms of social and bodily reality beyond traditional dualisms.

But the thing about the cyborg imaginary that makes it such a good tool to think about humanity with is that it also arrives 'already broken'. Haraway's cyborg is not a perfected machine, nor an idealised posthuman—it is a patchwork, a contradiction, a bricolage of human, machine, organic, and inorganic elements. It exists in a state of incompleteness and fracture, rejecting the fantasy of wholeness or coherence. 'The cyborg', she says, 'is resolutely committed to partiality, irony, intimacy, and perversity' (Haraway, 1991: 151). And it is because the cyborg disrupts the illusion of purity and perfection—which is the currency both of traditional humanism and contemporary AI hype—that it is able to create space for more partial, situated, and contingent ways of thinking about our relationship with technology.

Imagining AI as similarly partial, situated, and contingent can help us to see our encounters with it as also partial, situated and contingent. Too often people make broad judgements about AI tools based on hasty interpretations of initial outputs, declaring 'ChatGPT can't write poetry' or 'AI is nothing more than a sophisticated bullshitter'. The truth is, AI can't do anything without human input, and the kinds of doings that emerge are as much products of *us*, including our own inability to write poetry and our own proclivity to bullshit. The purpose of practices of imagining is not to—as with the 'human–machine loops' I discussed above—decide what AI is 'good at' and what it is not, nor is it to formulate grand narratives about AI or about humanity, but rather it is to learn how to *attend to the ways that we are cutting up reality when we use AI* and to take responsibility for the versions of ourselves that emerge from these practices of cutting.

This perspective takes us away from questions about what AI 'can' or 'can't' do and leads us towards more situated, grounded imaginaries in which AI does not act in a vacuum, but always in the context of complex configurations of humans, machines, and materials that radiate from the tiny screens where we type our prompts out into server farms and strip-mines, and to all the other creatures and contexts that we are entangled with.

These imaginaries are pragmatic heuristics that guide our communication strategies, emotional investments, and drawing of ethical boundaries. At the same time, AI systems also build heuristics about us. They are designed to

model, predict, and analyse human behaviour as we use them—essentially to 'imagine' us (Finn, 2017). Just as, in Chapter 2, I spoke of *agencing* as distributed across humans and technologies and the materials that make up our environments, *imagining* is similarly distributed.

The philosopher Luke Stark (2024) has his own provocative imaginary of AI. Rather than seeing it as a tool or an agent or a cyborg, he envisions it as an *animation*. Large language models like ChatGPT, he argues, are essentially like cartoons—projections of human like liveliness onto collections of loosely connected signs and processes. Animations like Mickey Mouse are alive—or 'animate'—insofar as they represent a coming together of all sorts of human and non-human agents—artists, technologies, and audiences that project onto them their own ideas of liveliness. In the same way, AI is intelligent, or creative, or scary only as a result of us animating it as such. And just as we can easily 'get lost' in the fantasies that cartoon characters allow us to indulge in, it is also easy for us to fantasise about AI and forget about the human labour that lies at the heart of it. At the same time, it is also important to remember that, in the process of animating chatbots—or cartoon characters for that matter—we *are also animated by them*, with Mickey Mouse and ChatGPT reflecting certain ideas of intelligence and creativity and scariness back on to us, revealing that our own humanity is not an essence, but an achievement, something pieced together from various loosely related signs and interfaces, a collection of inferences, something that we need to imagine and reimagine moment by moment.

Interventions

Rather than just teaching students to use AI tools 'effectively' or to 'critically evaluate' their outputs, a 'literacy of humanity' requires interventions that engage students in examining and reimagining the boundaries between themselves and the technologies that they use. The activities suggested here are designed both to 'demystify' AI by giving students the chance to experience and play with its entangled and contingent 'brokenness', and to 'remystify' it by inviting students to imagine the ways AI might fit into different possible futures. They are meant to position AI not as a tool that students need to master, but as a *provocation*. And they are meant to challenge them, through activities of boundary-making/crossing, diffractive reading, and (re) imagining, to confront their own ongoing practices of 'cutting up the world'. By the time you read this, the kinds of AI tools available and the imaginaries circulating about them will no doubt be different. So, the point of this section is really to illustrate some general approaches that can be taken in teaching about, through and with AI which teachers will need to adapt to their local contexts and the sociotechnical circumstances they and their students face.

The first step in introducing AI as a provocative technology is getting students to think about the different ways that they interface with it, whether it

be though chatbots, social media algorithms, personalised learning platforms, or voice activated assistants like Alexa or Siri. Just listing all the different contexts and social practices in which AI is entangled can already be enlightening. They can then be asked to focus on particular applications and interfaces and discuss the kinds of agential cuts they enact and how they are constructed as 'users' when interfacing with these technologies. They might, for instance, document their experiences with CAPTCHA verification systems, noting the kinds of actions demanded from them, the feelings they provoke, and the kinds of agents they become when they are using them.

Interfacing activities should also give students opportunities to critically explore the ways languaging works to enact different kinds of agential cuts when they interact with AI chatbots and how the structure and patterns of their conversations establish and reinforce different participant roles for humans and machines. They might, for instance, analyse discourse roles (such as who asks and who answers) and how these roles are negotiated, epistemic stance markers (showing certainty or uncertainty), who corrects whom and how corrections are framed, and 'uptake' (how words, phrases, and ideas from one party are incorporated into the other party's response). Students can then attempt to stage strategic disruptions to these patterns such as refusing to ask questions or being intentionally vague and note how these disruptions alter the course of their conversations.

Finally, students should be given the opportunity to 'widen the circumference' (Scollon & Scollon, 2004) through which they view interfaces by trying to discover the processes and people that interfaces 'cut out'. One way to do this is by having them draw maps or diagrams of the 'hidden' parts of the interface, using as a model Crawford and Joler's (2019) 'Anatomy of an AI System' (https://anatomyof.ai), a large-scale map showing all of the different actors, materials and processes entangled with the voice interface of Amazon's Alexa, from the extraction of the minerals that go into its chips, to the 'ghost workers' who help to fine tune the model, to the server farms where massive amounts of data are stored and processed. At the same time, in the spirit of encouraging them to see themselves as participants in these interfaces, students should be asked to include *themselves* in these maps, as well as the connections to the people and processes in their own lives that led them to encounter the AI in particular ways. In this way they come to see how, in their practices of interfacing with technologies, they are also responsible for certain acts of 'cutting out', excluding or marginalising people and processes.

The purpose of activities that focus on inferencing is to get students to practice diffractive reading, examining AI outputs not as independent communicative acts or representations of machine 'intelligence', but as *interference patterns* through which their own presuppositions and the presuppositions of the models they are using are revealed. This may involve giving students AI-generated outputs such as poems, jokes, or advice about personal issues and asking them to reflect on what kinds of assumptions about creativity, humour

or empathy are reflected in these outputs, as well as what kinds of 'logics' and interpersonal styles. What were the conditions, they should ask, that caused these particular assumptions, logics and styles to emerge? Other inferencing activities can provide students with opportunities to reflect on the assumptions and logics they bring to their encounters with AI. One useful tool for this is 'Which Face is Real?' (www.whichfaceisreal.com), an interactive website developed by Jevin West and Carl Bergstrom in which users are presented pairs of images: one a genuine photograph of a person, and the other an AI-generated photo, and asked to choose which is real, receiving immediate feedback after each choice. By engaging with this website, students can reflect on which features in human faces they associate with 'humanness' and 'artificiality' and how their own processes of inferencing are gradually 'trained' as they use the site. A follow-up to this activity might be to get students to use image generation tools like Midjourney to produce digital self-portraits based on textual prompts, noting how the model turns verbal cues into physical features and then helping it to 'fine-tune' the image based on the qualities that they determined signalled 'humanness' in the previous activity.

Inferencing can also be examined through having students imagine and play different kinds of 'imitation games' based on Turing's original test, trying to fool AI models into thinking, for instance, that *they* are also AI models, or to convince other humans that they are AIs, examining their practices of implicature and inferencing during these activities. They might also engage in various forms of 'adversarial prompting', asking chatbots to do unexpected things or prompting them with untrue or inappropriate statements in an attempt to 'break' the AI, or, more accurately, to reveal different aspects of its brokenness.

Activities that engage students with (re)imagining AI should start with an examination of the imaginaries about AI that they are already familiar with from the media, advertising, cinema and literature, and the kinds of *humans* that they presuppose. For example, students might collect articles form tech websites or advertisements for 'AI-powered' products and critically analyse the discourses in these texts. After they do this, students can list the concepts (metaphors, narratives, visual representations) associated with AI in these popular imaginaries (such as 'power', 'creativity', 'efficiency' and 'intelligence') and engage in exercises of 'concept re-engineering' (Floridi, 2015; Jones & Hafner, 2021), imagining how they might re-define or undermine these concepts and how that might change the 'versions' of AI and humanity that emerge from these imaginaries.

After this, students can engage in practices of 'speculative fabulation' (Haraway, 2016), envisioning new paradigms for AI that serve to 'counter-story' dominant tech narratives (Kenny & Antle, 2024: 2). Here is where tried and true techniques in arts and humanities teaching reassert their importance, for it is really *only* by helping students engage with storytelling and creating that we can help them to develop *practical* strategies for dealing with

technologies. 'Speculative fabulation' is not the same as fantasising. In fact, in many ways it's the opposite. Hayles (1999) suggests that the real value of narratives is that they force us to consider the *concrete*, *situated* and *contingent* circumstances in which AI is, can be, or may be used to counter the often abstract, disembodied, and techno-deterministic myths that are often propagated by tech companies. She writes:

> Embedding ideas and artefacts in the situated specificities of narrative … literary texts give these ideas and artifacts a local habitation and a name through discursive formulations whose effects are specific to that textual body.
>
> *(Hayles, 1999: 22)*

Working with speculative fiction can include reading and discussing different works of science fiction, not just those specifically about AI, but also those that more generally raise questions about the boundaries between self and other and reveal different ways agency can be distributed across species and technology. Examples include Octavia Butler's *Dawn* (1987), which explores issues of hybridity in a story about humans being 'saved' by an alien species that reshapes their biology and behaviour, and Kazuo Ishiguro's *Klara and the Sun* (2021), a story about a genetically 'enhanced' child and her AI friend, which provokes questions about how things like empathy, friendship, and humanity itself change when they are entangled with technologies. These works and those like them should not just be read reflectively for what they tell us about possible AI futures, but also *diffractively*, as fields of entangled meanings that shift depending on our own imaginaries about humanity, our own *social positions*, and our own inter(intra)actions with technologies. In getting students to write their own speculative fiction, it is important to provide prompts that push them beyond human-centred dystopian and utopian AI imaginaries and encourage them to imagine entanglements, ecosystems, and emergent forms of technology and humanity.

Students can move on from speculative fiction to actually engaging in the critical co-design of AI systems through the creation of art-based prototypes or though using publicly available tools that make machine learning accessible to non-coders such as Google's Teachable Machine (https://teachablemachine.withgoogle.com) or ChatGPT's Explore GPTs. Using these tools and techniques, students can work with one another to develop AI solutions that meet practical needs that they have identified or to address issues of bias, injustice or unfairness with existing models and applications. But these 'maker' activities don't always have to centre around making 'good AI'. It is also useful to deliberately create and document 'broken' models that fail in interesting or revealing ways and to analyse these failures not as problems to be solved but as opportunities to reimagine the boundaries between 'good' and 'bad' AI.

(Re)designing AI, however, is not just a matter of tinkering with technologies, but also of confronting what needs to be 'repaired' about the material,

social and political circumstances in which AI gets deployed. This includes getting students to engage with macro-level political and economic policies, but, more importantly, it involves getting them to consider the impacts and implications of AI on specific communities. All AI literacies are, in the end of the day, *local literacies*, meaning they are shaped by the specific needs, concerns, and contexts of the communities in which they are embedded. This perspective can be seen, for example, in the work of Kasun et al. (2024) with marginalised youth in urban Mexico, where they focused not just on teaching technical skills and abstract ethical concepts but engaged directly with issues that affected their participants, many of whom lived in informal housing along railroad tracks under the threat of economic precarity and gang violence, creating opportunities for students to explore how AI might be relevant to issues such as kidnappings, surveillance, road safety, and health inequalities.

Such examples illustrate that 'literacies of humanity' are always about understanding the relationship not just between humans and technology, but also between technology and the local economic, social, and political conditions in which it is used. They are about how people negotiate meaning and agency within the specific, situated material conditions of their everyday lives (Burnett & Merchant, 2020).

POSTSCRIPT

'To human is a verb'

Throughout this book I've been turning nouns into verbs. I've talked about agency as *agencing*, attention as *attending*, and affect as *affecting* and *being affected*. I've spoken of human relationships in terms of *practices of affinity*, and, rather than talking about truth, I've talked about *truth-making*. Unwieldy as this language may seem, it works to remind us that none of these nouns were ever really nouns in the first place—they have always been dynamic, living processes, and at the heart of my argument about literacy teaching has been the idea that a big part of our job is to work with our students to *re-animate* them. So, my last gesture in this work of re-animating the furniture with which we think about literacy is to, following Tim Ingold (2017b), turn being human back into a verb. In his essay 'To Human Is a Verb', Ingold argues that humanity is not a fixed state but an ongoing achievement. We continuously shape and reshape our humanity through our inter(intra)action with the world and with others, including with our technologies. That's why I have been arguing in this book that we can't look just to our technologies to fix what's wrong with the internet. We need to look to ourselves. 'Posthuman' digital literacies are not just concerned with learning *about* technologies as artefacts, or *through* technologies as tools, but *with* technologies as parts of sociotechnical assemblages in which we are also participants. We become 'literate' through discovering the connections between bodies, meanings, materialities and technologies in our ongoing engagement with the world (Hasse, 2020).

Seeing digital literacies as inextricably tied to our collective processes of human becoming means that all of those small actions that we perform with technologies that I talked about in Chapter 2—the clicks and swipes and scrolls through endless feeds—are not just 'habits' that we need to 'break'—they are deeply entangled with our evolving sense of agency, selfhood, and

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responsibility, and we should regard them as opportunities to explore the ways that we (and the designers of our technologies) actively 'cut up the world' and the kinds of humans these practices of 'cutting' make possible. They are opportunities to recognise that our engagement with technologies is not just instrumental—it is *ontological*. We do not just *use* technologies; we *become* through them.

Seeing digital literacies as a matter of *humaning* also engages us with processes of *attending*. Attending, says Ingold, is a core aspect of human becoming, not just through the ways we structure and control our attention, but also though our ability to be open to the world, allowing it to reveal its affordances. 'Humanly' paying attention to the world is not necessarily a matter of narrowing our focus or 'reclaiming' our attention from our digital devices, but rather of learning how to experiment with the ways different tools, contexts, people and states of mind affect our experience of the world. 'Attention', says Ingold (2017b: 18), 'abides with a world that is not ready made but always incipient, on the cusp of continual emergence'.

Human becoming is also a matter of becoming attuned to how we are *affecting* and *being affected* by the world, including by our digital devices. As much as digital literacies are about cognising and analysing and 'being critical', they are also about feeling our way through situations. If *humaning* is a relational process, then digital literacies should encourage practices of *critical affective engagement*—helping individuals recognise when they are affecting and being affected in ways that are beneficial and in ways that are not. These practices of critical affective engagement should provoke questions not just about what the internet is 'doing to our emotions', but also what our emotions (our greed, fear, mistrust and insecurity) are doing to the internet. As Humberto Maturana (1997) argues, 'No doubt much of what we do will change if we adopt the different technological options at hand, but our actions will not change unless our emotioning changes'. Changing our 'emotioning' means confronting our *desires*, and finding out how to be responsible for them (Maturana, 1997), and it also means confronting our *vulnerability*, and understanding how it is a condition for learning (Ingold, 2017b).

It's perhaps not controversial to talk about how human becoming is tied up with affinity and sociality, since humans are often imagined as 'social animals'. But what is necessary, when it comes to digital literacies, is more than just acknowledging that learning is essentially 'social', but also that it is, in the words of Catherine Hasse (2020) 'ultra-social', always occurring within collective entanglements of people, materials, and technologies. Traditional humanist learning theories, which treat learners as isolated, rational individuals, are not only unsuitable for digital literacies, but also for literacies of *humaning*. Human beings do not 'create societies'. Rather, humans, animals, machines and the environment create one another through *living socially* (Ingold, 2017b). It is in this 'ultra-social' dimension of human becoming that genuine opportunities for political activism arise. Haraway (1991: 155), in her

'Cyborg Manifesto', calls for a politics of 'affinity' in which alliances are formed across differences, not based on identity or identification, but on *entanglements* and mutual responsibility.

Visibility and the 'games' we play around it are also central to practices of *humaning* insofar as we ourselves are shaped and constrained by the social and technological regimes that determine how and when we are *seen* (both in a positive and a negative sense). Formulating an ethics of visibility that can combat threats like surveillance capitalism requires understanding visibility not just in the context of rights and responsibilities, but also in the context of human becoming. It requires that we contemplate on a fundamental level how we make ourselves *present* for one another and what role privacy and autonomy play in our psychological and social lives. From this perspective, *humaning* becomes a matter of working with others to manage our mutual presence and to define the boundaries between our inner and outer, individual and social worlds.

Human becoming also depends on our collective practices of *truth-making*, since they are the means by which we get along with one another and solve our common problems. Perhaps the most important thing about truth-making is that it is 'situated' (Haraway, 1991), something that emerges dynamically through engagement with the world. Saying this is not a call for relativism or an attempt to pull the epistemological rug out from under us. Quite the opposite. It is a call to ground our truth-making in the actual situations that we find ourselves in rather than searching for universalist solutions or indulging in fantasies.

Indulging in fantasises, however, should not be mistaken for exercising the *imagination*, which is an essential component of truth-making. Dewey (1916, 1934) argues that imagination is not just a tool for artistic creativity; it is also essential for the creation of knowledge, allowing us to see the world from different perspectives, anticipate future possibilities, and make meaning from experience. At its best, exercising the imagination is a form of *theorycrafting*, a way of intervening in the world, experimenting, and solving problems. Of course, not all forms of imagination result in effective truth making. As Dewey argued, the imagination has to be 'educated'. Uneducated imaginations are passive, disconnected from experience, and easily manipulated by external forces. They fantasise about the world rather than engaging with it. Unfortunately, it is this type of imagination that seems most prominent in our online spaces. The role of digital literacies, then, is to work together with our students to create new 'infrastructures for imagining' (Robinson, 2025), infrastructures that are made of software and silicon, but also of flesh and blood, and of human relationships and social structures. Such infrastructures should not be built to support the imaginaries of tech optimists, or of tech pessimists for that matter, but rather to produce a proliferation of imaginaries with pluralistic pathways for human becoming (Siddarth et al., 2021).

Finally, 'to human' means *to be broken*, and to be committed to live and work with brokenness rather than ignoring it, turning away from it in despair,

or discarding those 'things' in our world that are broken, whether they be technologies, or people. Haraway (2016) says that living ethically in the modern world requires 'staying with the trouble', embracing rather than avoiding the messy entanglements that constitute our lives. In the same way, to learn *with* digital technologies and the humans who make and use them requires 'staying with the brokenness', *including our own brokenness*, which 'requires actual attention to the particularities and peculiarities of our being' (Sacasas 2023: para. 22).

In formulating and engaging in literacies of repair, it is all too tempting to reproduce the impatient solutionism of Silicon Valley, to transform the mantra 'move fast and break things' into 'move fast and fix things' (Plunkett, 2023), or to be seduced by fantasies of digital utopia or digital doom that distract us from the real, everyday repair jobs that await us. Real literacies of repair recognise that brokenness is the state of things and repair is a never-ending practice, which is the practice of human becoming, a practice which is inseparable from 'the material becoming of the universe' (Barad, 2007: 178).

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