

CHAPTER 6

Digital Disengagement and the Environment: Solutionism, Greenwashing and Partial Opt-Outs

Introduction

This final chapter turns to the relations between digital disengagement and the environment, continuing the notion of digital disengagement and its paradoxes. As many scholars have pointed out (Brevini 2022; Chen 2016; Cubitt 2017; Emejulu and McGregor 2016; Gould 2016; Maxwell and Miller 2020; Qiu 2016, Velkova 2016), digital communication technologies inflict significant damage on both humans and the environment. These impacts vary considerably and include the ever-growing extraction of rare minerals needed to produce digital devices; the toxicity of the production process and of the e-waste left behind after their short lives, made disposable by design; the rapidly increasing energy demands of AI deep machine learning; and the carbon and heat emissions of internet traffic and more specifically, of data farms, needed to sustain every click, every website, every tweet, every Big Data database, every ‘smart’ network and every bitcoin. These activities have profound impact on land, water, landscape and atmosphere, *and* on people and communities. Yet, despite staggering levels of evidence, these damages are often overlooked, paradoxically precisely when digital technologies are placed at the heart of ‘green imaginaries’ – popular, political and scientific narratives that are centred around environmental protection, sustainability and other ‘eco’ values. Environmentally oriented digital disengagement, too, often finds itself in the trap of digital solutionism and techno-utopianism.

We begin our discussion by returning to the idea of ‘digital detox’ as discussed in detail in previous chapters. Here, we examine more closely how the ‘digital detox’ imaginary juxtaposes digital communication technologies with a ‘green’

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and ‘safe’ environment, away from the harms of digital life. We ask what exactly is viewed as toxic in the notion of ‘digital detox’, and why the environmental toxicity of digitisation itself is overlooked. We then turn to green imaginaries in academic research and the digital industry, asking whether and when do they consider reducing or abandoning the use of digital technologies for reasons of environmental harms and their global injustice. We finish the chapter by looking at the impact of the Covid-19 pandemic on how digital technologies are (re)imagined in relation to the environment.

Escaping the Digital into the Pastoral: The Semiotic Extractivism of Digital Detoxes

A Google Image search for ‘digital detox’ results in a screen filled with splashes of green, pictures of flowers, trees, or grass, and scenic photographs of serene landscapes (see Figure 6.1).

Some of the images displayed after a search for ‘digital detox’ simply deploy the colour green, semiotically coded as denoting nature and the environment (Won and Westland 2017): examples include a green Post-it note with the

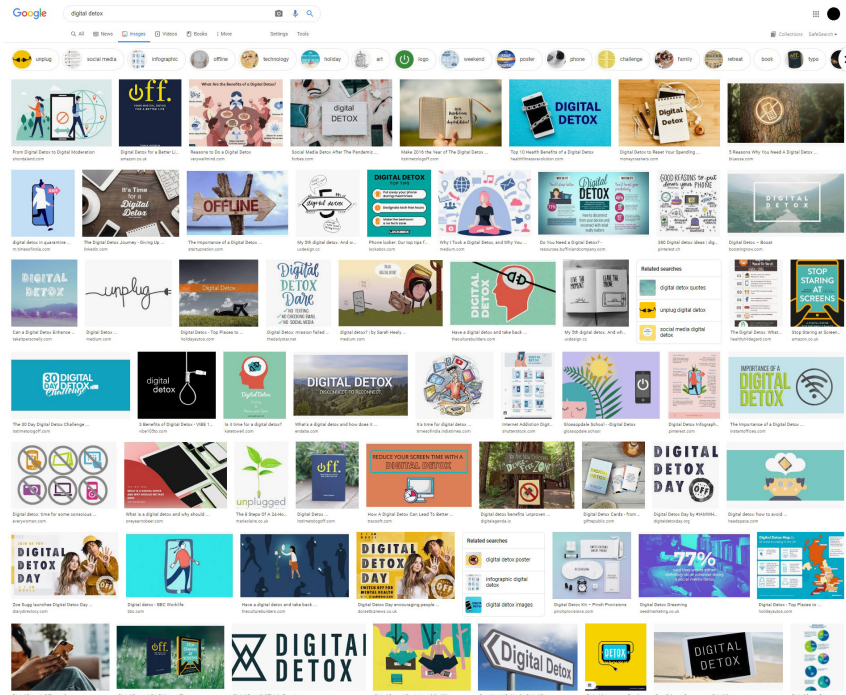


Figure 6.1: Google Image search results for the term ‘digital detox.’ (Google Images 2020)

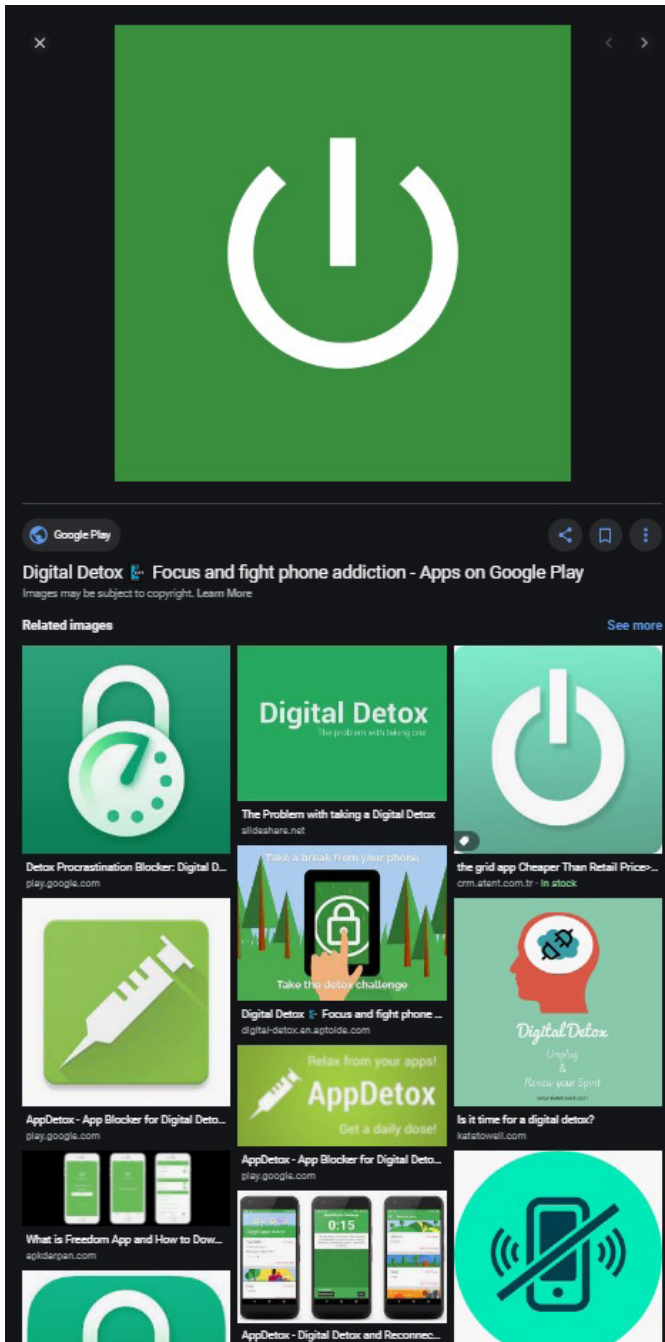


Figure 6.2: Image preview and ‘related images’ in Google Image search results for the term ‘digital detox’. (Google Images 2020)

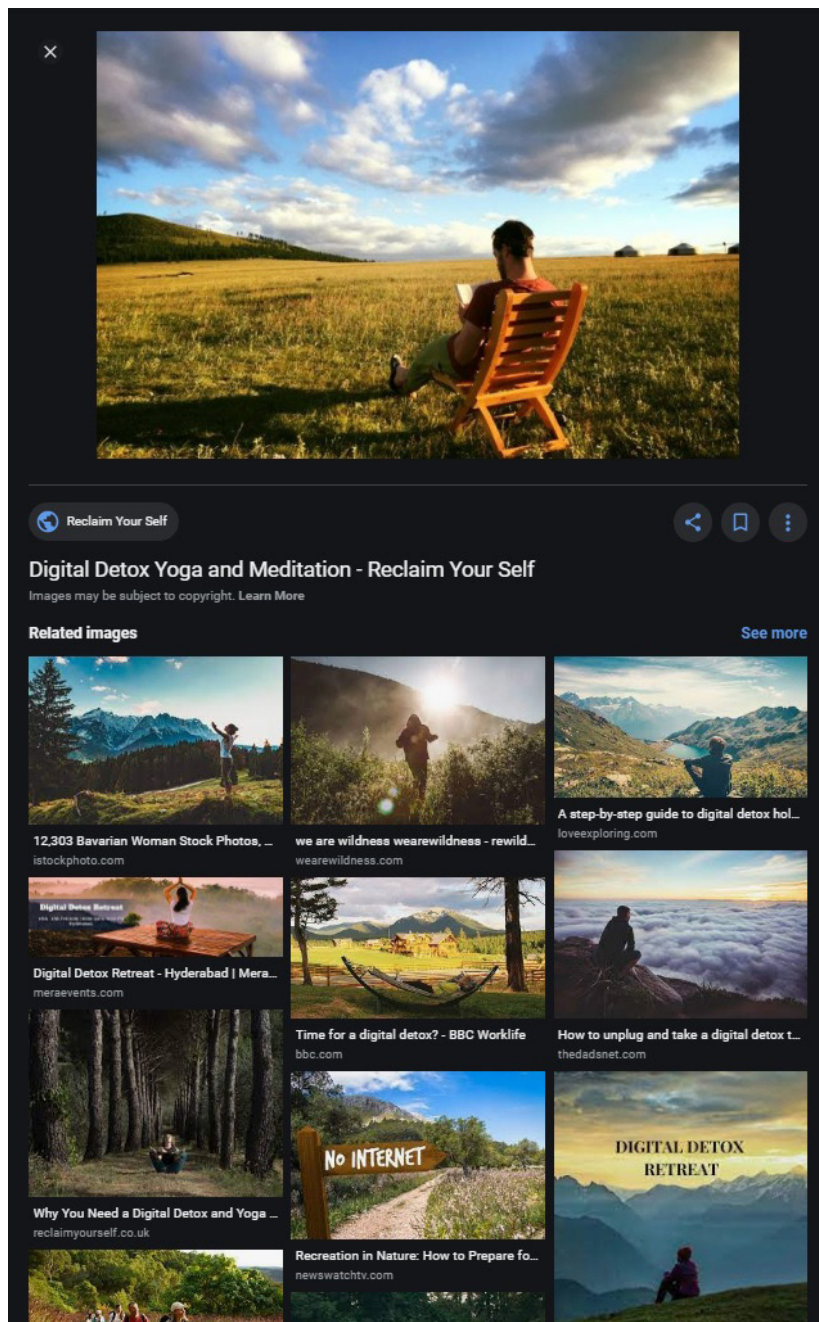


Figure 6.3: Image preview and ‘related images’ in Google Image search results for the term ‘digital detox.’ (Google Images 2020)

word ‘unplug’; a green ‘off’ button; or a plain green background.¹ Other images returned contain beautifully photographed landscapes: sunsets, beaches, fields, forests, rivers and mountains. Only a few words are added to these photographs, usually in the form of short titles or slogans. Sometimes, there are no words at all. Yet other images use either a combination of photography and graphics, or graphics alone, to create a clear visual juxtaposition of nature and technology. For instance, a forest rises up behind a hand that is holding a smartphone, depicting a ‘lock’ icon. A woman, depicted in bright colours, is shown leaning towards a huge, shining flower, her face illuminated by its glow; she is surrounded by smaller monochrome figures, who hold devices that emit a small amount of light – nowhere near enough to brighten the darkness. A massive tree trunk, showered in sunrays, seems to shine from within; on it we see a small, wooden-carved sign declaring ‘no phones’. Bright green leaves are growing from an unplugged USB-cable-turned-stem.

The slogans revolve around the idea of departing from the digital: ‘Disconnect to reconnect’, ‘Take the digital detox challenge’, ‘Unplug’, ‘Off’. And as we scroll through the algorithmically curated collection of slogan-wrapped visuals, each preview leading to further clusters of related or similar images (Figures 6.2 and 6.3), our screens are awash in green icons or digitally orchestrated nature. The latter appears untouched by technology, while in reality it is scrupulously photoshopped to perfection. The green colour returns over and over again, in an echo-chamber that renders digital disengagement as synonymous with (connecting to) nature. But is it? Or rather, what exactly is envisioned when disconnection is presented as an escape to nature?

Some of the websites listed in the search lead to digital detox holiday packages on major booking platforms such as TripAdvisor:

Every day more and more information, we need both? We are confident that no. That’s why we created DIGITAL DETOX Week (Digital Detoxification). This is where you will find the best connection, with *nature*. Back to the pure state. Connect with mountain and combined with your favorite activities. We offer everything you need so you can enjoy a carefree week and too much information. With all that, we’ll welcome you with a basket of fruit, vegetables, bread, water, juices, creams, chocolates and other products more (TripAdvisor n.d.: emphasis added; spelling original).

Others link to smaller businesses, specialising specifically in retreats in remote locations where one can ‘take a proper break from technology’, a break which can instead be filled with ‘yoga, good food, refreshing *nature* and downtime’:

UK Digital Detoxes: [Teacher’s Name] teaches Jivamukti yoga and leads our UK yoga and digital detox weekends. You’ll stay in a 17th century

¹ ‘Green’ is also commonly equated with being environmentally friendly, giving a rise to the phenomenon of greenwashing (Miller 2018).

manor house, hidden away in a traditional country village an hour north of London. On this yoga weekend we invite you to switch off your phones, leave your ipads and laptops behind and enjoy three days of peace and quiet in the countryside.

Mongolia Digital detox: There is no phone or internet reception at our Mongolia camps, only occasional solar power and the nearest town is three hours away. It is so quiet you can hear birds fly! You will be completely without contact with the outside world while you are on your yoga retreat (Reclaimyourself 2020).

These and other similar sites are not solely dedicated to digital detox and disconnection – rather, they offer an extensive menu of choices of trips and destinations (the Retreat website, cited above, has categories for ‘adventure’, ‘yoga’, ‘foodies’, ‘sunshine’, ‘digital detox’ and more). ‘Nature’, here, is a resource to be consumed; and of course, as such, it is also a brand (as discussed in Chapter 4), mobilised to promote tourism and hospitality businesses, as long as there is a demand for them. In the process of branding and marketing, ‘nature’ becomes an abstract idea – it can be anything and anywhere. It is offered as one of several commodities, together with fruit, vegetables, chocolates, yoga and downtime; but rarely an actual place, with actual landscapes (often ravaged by the tourist industry and gentrification). These are places devoid of living and non-living beings – unless the place itself needs to be characterised as non-digital, in a colonial imaginary of remote wilderness without technology.² Either way, there is very little nature actually included in the digital detox idea of escaping to nature.

Once we move away from holiday packages to other websites located via the Google Image search, we find even fewer traces of natural environments behind the pictures that led us to these sites in the first place. Many of the pages do not refer to nature at all. With a rare mention of ‘going on a walk’ as one of the many things to do instead of being on social media or otherwise staring at one’s phone, the sites discuss mental health, information overload and digital addiction; offer tips on how to set up and follow ‘disengagement’ habits (Andrews 2018; Cherry 2020; Marie Claire 2015; Parikh 2019; Rossi 2015); describe experiences of disconnecting (to be more productive, of course) (Walpert 2019); or even present apps to manage the detox (Urbandroid 2021) – all in line with the consumer trap of never-ending digitality which we have discussed in the previous two chapters. Often, the only reference to nature or the outdoors is the one image which led us to the website in the first place.

If we look at the multitude of webpages dedicated to digital detox, the ‘greenness’ of disconnection is thus both overwhelming and phantom. Deceivingly,

² Mongolia in the example above. See also Chapter 4 for a more detailed analysis of racialised and classed notions of ‘non-Western’, ‘exotic’ locations of digital detox retreats.

nature is repeatedly visualised as *the* choice of where to escape from technology, and what to do *instead* of engaging with technology. It is a touristy choice, though – one embedded in a colonial and capitalist logic of objectification and commodification, where ‘nature’ is a status symbol, a luxury to be consumed while seeking wellness, rather than a space to live in, or even a treasure to be protected. This commodified nature is cleansed from its human (and non-human) inhabitants. Crucially, it is also cleansed from any signs of labour involved in sustaining and serving these sites of nature; from social and environmental damage, often brought by the globalised ‘wellness’ industry; and from the material and immaterial impacts of the digital infrastructure itself, which is needed to organise, promote and manage such retreats (for of course, to offer a retreat away from digital technology, one needs an extensive web and social media presence as well as other means of digital communication). The reference to nature, in other words, is an empty gesture – it is merely a symbolic resource in the visual attention economy (which, in turn, is tied to the economy of tourism and leisure on the one hand, and the data economy, on the other). Ironically, but hardly surprisingly, the semiotic extractivism of the digital detox imaginary resembles the extractivist nature of tourism itself – where material resources and cultural practices are consumed, commodified and appropriated, often emptying their communities from natural resources as well as political and economic power (in the guise of providing jobs and supporting the economy).

While the notion of digital detox clearly carries no actual environmental agenda beyond consumerism, what about other green imaginaries, which are explicitly oriented towards environmental change, such as the idea of environmental sustainability?

Are Digital Technologies Here to Save the Planet? Environmental Sustainability and Digital Solutionism

In spring 2017, *Sustainability Science*, an academic journal dedicated to exploring how sustainability takes shape at the intersection between natural and social systems, published a collection of articles entitled ‘The game-changing potential of digitalisation for sustainability: possibilities, perils, and pathways’. The collection’s Introduction describes Big Data and digitisation as key ‘game changers’ in moving towards a more sustainable future: ‘digital technologies in the form of e-health services, robotics, or emission reduction solutions could help individuals, organisations, and nations achieve a more sustainable planet in light of the Sustainable Development Goals’ as set up by the UN (Seele and Lock 2017, 183; United Nations 2015). In the rest of the Introduction, the authors map the ways in which digital technologies could hold tremendous potential in developing planetary and human sustainability, in environmental, social and economic spheres. Sustainability, the editors argue, will need to adapt to the developments of the digital age, whereas digitisation itself is the ‘driver that changes sustainability’ (Seele and Lock 2017, 183–4). To illustrate

this, contributors to the collection describe various perils and benefits of digital technologies. While briefly acknowledging the former, they predominantly focus on the latter, when looking at citizen e-participation in environmental projects (He et al. 2017); geographic information systems (GIS) and digitised data regarding innovation of water systems (Widener et al. 2017); sustainable ICT-based education in developing countries and, in particular, the creation of digital content (Tabira and Otieno 2017); Big Data stakeholders as stakeholders of sustainability in the digital age (Seele and Locke 2017); and the knowledge society and digitisation (Stuermer et al. 2017). Taken together, these articles do indeed encapsulate the main areas where digital technologies and sustainability meet: engaging and educating citizens via digital communication; using digital tools for sustainable innovation; and utilising digital knowledge (and, increasingly, Big Data). Yet, they contain very little critical meditation on the question of whether, and to what extent, the digital *itself* might be unsustainable.

This collection of articles is only one example of the broader field of scholarship across a number of disciplines where digital technologies are seen as being at the service of sustainability projects: from tools of sustainable innovation and eco-efficiency that effectively manage and monitor resources; to powerful technologies of gathering and communicating information about the environment including environmental harms; to communication technologies tasked with changing consumer and citizen behaviour towards 'greener alternatives' (for a detailed systematic review of this literature, see Kuntsman and Rattle 2019). A similar thinking characterises another area where digital technologies are rapidly and increasingly embraced as environmental saviours: smart cities. Although ecology is usually *not* the cities' primary focus – rather, smart cities' websites and policy briefs discuss the infrastructural efficiency that serves the economy, governance and citizen needs (Kuntsman 2019) – they are also presented as projects that will ultimately help the environment. Smart cities will, according to their websites, streamline the collection of waste by using smart bins with sensors; run smartphone-operated bike-rental schemes; control traffic with the help of apps and dashboards; offer paper-free e-government services; or even help asthma-suffering children by digitally communicating the level of air pollution in playgrounds and instantly alerting citizens of potential dangers (Libelium 2019). Academic literature on smart cities radiates similar techno-optimism, putting forward notions of 'sharing cities' (McLaren and Agyeman 2015); 'green growth' (Kim 2018), 'green infrastructure' (Vasenev et al 2020), 'progressive urbanisation' (Gassmann et al. 2019), 'sustainable urbanisation' (Mukherjee 2018), 'green technology innovation' (Tomar and Kaur 2020), 'resilient cities' (Galderisi 2018), 'smart future' (Dastbaz et al. 2019) and more. 'What smart solutions can make life in cities safe, comfortable and environmentally friendly?' (Springer Geography 2020) – the researchers ask, over and over.

Both the literature on sustainability and smart cities displays a range of approaches to the digital. Most authors are optimistic and hopeful, although

there are also some critical and sceptical voices. Yet even when warning against the environmental costs of manufacturing and operating digital devices, platforms and environments, or when cautioning against the unintended effects of efforts to change people's behaviour, or when describing how the devices' improper use or disposal results in toxic e-waste, barely any authors advocate for reducing – not to mention opting out of – digital solutions due to their environmental harms (Kuntsman and Rattle 2019). If dangers or concerns about the environmental toll of digital communication are outlined, it only leads to suggestions about *how to do it better*, not whether to reduce the level of digital saturation. More precise tools, further research into their design, critical thinking, or better education for better user practices are discussed – but never a refusal or an opt-out.

Stubborn insistence on the almost magical promise of digital technologies is another powerful example of digital solutionism, where – as demonstrated in previous chapters – digital technologies are seen as the best, and often the only, way to solve problems, including problems that were created or exacerbated by digital technologies themselves. In the case of environmental issues, digital solutionism creates a form of paradigmatic myopia towards the material harms of digital dependency, a powerful and powerfully enforced blindness that persists despite a wealth of existing scholarly critique. The notion of paradigmatic myopia is crucial, for it is not the absence of evidence of environmental digital harms that is at stake (the fields of geography, environmental science, human health etc. have them in abundance), but rather, the insistence on the immateriality – and the 'greenness' – of the digital. This insistence is simultaneously ingrained in the power of the global digital economy (Chen 2016; Fuchs 2015; Qiu 2016) *and* in cultural beliefs and media practices that accompany and sustain it. As several scholars have noted, the digital economy rests on the 'planned obsolescence' (Chen 2016; Gould 2016) of digital devices, purposefully designed to have a short life span and be replaced frequently.

In addition to its economic hold (where, for example, repair is always more costly than upgrade/disposal), planned obsolescence is supported by consumer trends, cultures of communication, and by what Good (2016) has poignantly called 'symbolic annihilation'. In her detailed analysis of media representations of iPhones, she noted the iconic formation of the iPhone as a seamless dream, co-constituted through a consistent erasure of the stories of e-waste and other environmental damages which the technology generates. Furthermore, as critical media and communication scholars remind us, the culture of digital economy rests on a deliberate and consistent decoupling of 'digital labor' (seen as immaterial, 'virtual', data-based) from environmental degradation, even though the two are deeply intertwined (Casemajor 2015; Emejulu and McGregor 2016; Fuchs 2008). Within this logic, as Fuchs (2008) states, environmental problems continue to be seen as technological, rather than social, perpetuating the myth of the 'sustainable information society' and the myth of the digital as a 'game changing' saviour of sustainability hopes.

Blindness to the material harms of digital technologies still prevails in media studies today. In particular, its English language, white and Western-centred mainstream, does not tend to examine digital communication's complicity in environmental degradation. Nor does it tend to account for the materiality of the digital and its human toll when discussing culture and communication (unless the latter is specifically focused on the environment, or conditions of digital labour). Despite decades of critical voices from feminist, post-colonial, diasporic and 'global South' scholars (Aristarkhova 2005; Gajjala and Gajjala 2008; Nakamura 2000; Oguibe 2004; Sandoval 2000), mainstream digital communication studies have largely enjoyed – and continue to enjoy! – the luxury of ignoring the deeply material consequences of the digital since such consequences mostly impact those in the Global South and the disenfranchised, racialised and colonised communities in the Global North (Chen 2016; Cubitt 2017; Emejulu and McGregor 2016; Qiu 2016).

There are, of course, a number of notable exceptions. Maxwell and Miller, for example, argued over a decade ago for the need of media studies as a field to develop 'eco-ethics' (2008). Emejulu and McGregor (2016) state that education for what they coin 'radical digital citizenship' must attend to the materiality of digital technologies and centre understanding and resisting of resource extraction and labour exploitation in the Global South, and displacement and gentrification of racialised communities in the Global North, on which the digital economy rests. Writing at around the same time, contributors to *Carbon Capitalism and Communication: Confronting Climate Crisis* (Brevini and Murdoch 2017) offer a thorough analysis of the relations between communication, capitalism and environmental degradation, including the impact of digital communication on power supplies; increased consumption and built-in obsolescence; e-waste; pollution; and rapidly growing energy demands in future projections. Another collection, entitled *Sustainable Media* (Starosielski and Walker 2016), similarly situates digital communication 'within a multiscale resource economy of extraction, production, distribution, consumption, representation, wastage, and repurposing' (Starosielski and Walker 2016, 1). In doing so, the collection draws attention to 'slow violence' – violence out of sight – inflicted by seemingly immaterial digitality, by addressing media as extractive and drawing on energy and other resources.

And yet, even within this critical scholarship lies a paradox. For example, despite the environmental commitment of its editors and the global scope of the chapters, *Sustainable Media* is ultimately driven by a belief in the power of media as a 'means to come to terms with and help ameliorate the ecological harms produced by industrial processes' (2016, 3). Similarly, the contributors to *Carbon Capitalism and Communication: Confronting Climate Crisis* foreground the power of communication to tell the untold 'back story' of the media industry and communication devices, as well as to address climate change and confront climate denial. And even Emejulu and McGregor, pioneering in their intervention into digital citizenship as embedded in material and environmental

responsibility, place hopes for social protest, transformation and justice back onto digital communication.

Awareness rather than refusal, adjustment rather than abolition – these are so far the main organising principles in the emerging debates about environmental responsibility and digital communication. Where does that place digital disengagement? Looking at the array of discourses on environmental sustainability and the digital in a range of disciplines, our critical questions, therefore, remain whether, and how, questions of digital disengagement can enter the conversation about environmental accountability and ‘eco-ethics’? How and when can we evoke the drive to ‘refuse, reduce, reuse, and recycle’ in relation to digital communication?

Partial Refusals

‘But we cannot give up the digital entirely!’ is a frequent comment we hear when speaking about our work on the environmental harms of digital communication or attending presentations and talks by others working on this topic. Comments such as this evidence the hopes invested in the transformative potentials of online communication, while also demonstrate the powerful economic, social and *affective* grip of compulsory digitality – one that we challenge throughout this book. Whether ‘giving up entirely’ is indeed possible is a question we cannot answer, though we do offer some thoughts on the matter in the Conclusion. In the meantime, what about environmentally motivated *partial* refusals and ways to reduce and reuse? These have long existed on the fringes of the digital economy in both the Global North and Global South, usually driven by poverty, necessity and creative survival. For example, repairing and reselling second-hand electronics, or scavenging an e-waste site and repurposing its components. Yet it is the wealthy centre of the capitalist digital economy that urgently needs to reconsider and reduce both production and consumption of digital technologies to fully address the planetary costs of our digital living.

To consider the environmental potentials of digital disengagement, we turn to several examples of partial refusal coming from the heart of the digital industry. The first is the Website Carbon Calculator, a project that addresses the need to reconfigure energy-taxing web design. The calculator illustrates how webpages can be environmentally ‘dirty’ and encourages developers to shift to renewable energy sources and less energy-consuming website design, and by ‘inspire[ing] and educate[ing] people to create a zero carbon internet’ (Wholegrain Digital n.d.c). ‘How is your website impacting the planet?’ we are asked when arriving at <https://www.websitecarbon.com>, a plain but thoughtfully designed page. At the centre of the page is an interactive element: visitors are invited to calculate the estimated carbon footprint of a website by inputting a webpage address and pressing ‘calculate’. The Website Carbon Calculator provides a short rationale for doing so: ‘the internet consumes a lot of electricity. 416.2TWh per year to

be precise. To give you some perspective, that's more than the entire United Kingdom. From data centres to transmission networks to the devices that we hold in our hands, it is all consuming electricity, and in turn producing carbon emissions' (Wholegrain Digital n.d.c).

In addition to the carbon calculator, the website features a call to action: 'Here's three things you can do now: Switch to a Green Host, Make your Website more efficient, Plant trees to reduce carbon impact' and a link to the business behind the project, a London based design agency called Wholegrain Digital (Wholegrain Digital n.d.a), promoting its services while also advocating for a partial digital refusal as a matter of energy accountability. The agency's co-founder, Tom Greenwood, has recently published a book describing the energy demands and carbon footprints of web design choices, and guiding the industry through alternatives that are carbon-efficient (Greenwood 2020).

Wholegrain Digital makes environmental sustainability its key mission, stating: 'if the internet was a country, it would be the world's sixth biggest polluter. As a digital agency, we are world leaders in greening the web and committed to being one of the world's most sustainable businesses'. The manifesto, created in partnership with others in the digital industry who are committed to sustainability in their practice, is movingly global in its approach:

We need a sustainable internet

We all share and use the web, just as we all share and live on this planet. This manifesto is a public declaration of a shared commitment to create a sustainable internet.

The planet is experiencing unprecedented climate change and the Internet is both part of the problem and the solution. From websites to cryptocurrencies, the Internet consumes large amounts of electricity in data centres, telecoms networks, and end user devices. If the Internet was a country, it would be the 6th largest polluter in the world and is expected to grow considerably by 2030.

If we embrace sustainability in our work, we can create a web that is good for people and planet. By signing this manifesto you declare your commitment to create a greener web (Wholegrain Digital n.d.b).

The manifesto is a much-needed intervention, placed right at the heart of the digital industry and challenging many of its technical principles, which are taken for granted and rarely questioned. Instead of corporate greenwashing that invests in the *appearance* of being green, the manifesto calls for actual change, on the granular level of design and programming – and comes with a vision, too. That said, Wholegrain Digital's conceptualisation of the planet seems to have no concrete people or places. Thus, while calling for environmentally responsible practices, there is no call for accountability for how the 'problem' of the internet is affecting communities around the globe in profoundly different ways. There is no reference to the extractivist logic of global digital capitalism

that serves the Global North and drains the Global South; nor any inclusion relating to the (often inhumane and literally poisonous) human labour involved in operating the internet. The web, here, is universal. As an imagined country in its own right it bears no connection to the violent geopolitics of digital toxicity. Who, then, will this partial refusal of 'dirty' web design actually benefit? Who is the unnamed inhabitant of the promised greener web? How can we make sure that the move away from 'dirty' webpages does not become yet another example of privilege-centred 'detox', attentive to the one being detoxed, but oblivious to the global injustice required to sustain it?

Another example of a partial refusal is Fairphone – a Dutch-based social enterprise established in the early 2010s to create smartphones that are durable and fixable (Qiu 2016). Fairphone's mission is premised first and foremost on the refusal to dispose – a challenge to disposability by design of the global smartphone industry.³ But it does not stop there. Unlike the universal notion of the sustainable web discussed above, Fairphone is committed to both environmental *and* social justice. 'We care for people and planet' reads the 'Our mission' section of Fairphone's website (Fairphone n.d.c). The company strives to reduce both resource extraction and e-waste; commit to using only conflict-free raw materials; and ensure fair working conditions during phone assembly (Qiu 2016). Furthermore, whilst focusing on both the human and the environmental sustainability of producing their phones, Fairphone aims to impact the entire industry: 'From responsible material sourcing to advocating for workers' welfare, we share all our results freely and set new standards for the entire industry' (Fairphone n.d.a).

The transformative mission of Fairphone is discussed at length by Qiu (2016) in his book, *Goodbye iSlave* – a powerful and moving monograph dedicated to examining the inhumane world of digital capitalism and of Apple smartphone production in particular. For Qiu, Fairphone's vision is an example of a true challenge to the violence, corruption and lack of transparency of the global smartphone supply chain. Although a small company, unlikely to overtake, or even compete with, tech giants such as Apple, Amazon or Google, its commitment to people and the environment might hold a promise for justice in the global digital industry. 'What Fairphone set out to achieve was nothing short of creating an entire global eco-system of design, supply, assembly, and e-waste processing, while involving and engaging consumers effectively' (Qiu 2016, 162).

Here, looking at the actual and imagined users of Fairphone might be insightful. Maxwell and Miller, authors of *How Green is Your Smartphone?*, state that Fairphone is perfectly suitable for environmentally conscious 'consumers, trying to limit their carbon footprint' (2020, 114). Qiu similarly notes that the

³ Fairphone's refusal to dispose can be seen as an early bird of broader legal changes, such as the recent EU law of 'the right of repair', introduced in March 2021. The law dictates that electronics, including computing devices, are designed to last at least a decade rather than made to be disposed of in 2–3 years.

Fairphone community consists of mostly tech-savvy users, ‘concerned about corporate responsibility’ (2016, 165). And here comes a potential limit to Fairphone’s transformative potential. Both statements focus on individual, and individualised, practices – which, as we have argued in previous chapters, are always in danger of appropriating and depoliticising digital refusal by reducing it to a feel-good consumer practice. Indeed, one may argue that Fairphone produces a commodity that sells progress and clear consciences without the need to do or change much (a feel-good practice at a hefty price of £400 – although substantially cheaper than an iPhone).

While celebrating initiatives such as Fairphone, we must therefore also raise several critical questions. First and foremost, can a ‘fair’ smartphone change the global culture of compulsory connectivity while remaining its active participant? (a sustainably made phone is still embedded in the toxic materiality of the global digital infrastructure). For Qiu, one of the most celebrated features of Fairphone is its preinstalled disconnection app, EnjoySomePeace, which puts the phone on silent and disconnects it from the internet for a chosen period. ‘An abolitionist timepiece this is, simple and functional, in the shape of a well-designed app’ he writes (2016, 165). Is this indeed a true tool of digital abolition – a phone that has a disconnection app built into it – or yet another form of digital solutionism that we have discussed extensively in previous chapters?

Secondly, can Fairphone empower global solidarity and challenge the North-South divide and its racial injustice when it comes to its refusal to dispose? This is an ongoing mission, one for which both the company and its users are responsible. Here, the images displayed in the Fairphone online shop (Fairphone n.d.b) are quite telling. One of the images shows a young Black person’s hands, palms up, holding a small pile of minerals. Another image shows the phone’s screen, displaying photos of two young white women – mostly selfies, but also some serene landscapes. On the one hand, such images, especially when placed next to each other, document *and* normalise the racialised global division of labour/consumption, by celebrating it – as long as it is ‘fair’. Black people are working outside, mining rare metals to make the phone, while white people are enjoying leisurely outdoor time with friends, and capturing it on their (ethically manufactured) phone. Yet, the page also contains an important *different* image of repair and reassembly, which challenges both the distinction between labour and consumption *and* its racial and geopolitical mapping. We see the hands of a young white person, in what looks like a home or a school, taking the phone apart to repair or replace its components. Not a repair shop or an assembly line labourer, but a geographically and financially privileged phone user, taking the responsibility of care and repair. Against the appropriation of digital disengagement into Western-centred greenwashing and neoliberal individual betterment, projects such as Fairphone can and should become catalysts of ‘radical digital citizenship’ (Emejulu and McGregor 2016) – a practice that is both accountable to the material harms of the digital inflicted on humans and the environment and committed to actively and continuously changing it.

The Pandemic and Beyond

When the UK, like many other countries around the world, introduced quarantine and social distancing measures in March 2020 due to Covid-19, the lion's share of people's everyday activities moved online. This inadvertently created a profound yet ambiguous impact on the environment. On the one hand, the sudden drop in aviation and motor travel, and the shift to remote working, led to an unprecedented reduction of greenhouse gas emissions and dramatically improved air quality, albeit only temporarily (Air Quality Expert Group 2020; Le Quéré et al. 2020; Monks 2020). At the same time, the increase in video-conferencing, streaming and cloud storage for personal and professional use has created strenuous demands on the capacity limits of broadband and mobile services (Marks 2020). Tellingly, in March 2020 the European Commission asked streaming companies to place bandwidth limitations on their activities to alleviate the strain and to protect communication infrastructures (BBC News 2020). However, these limitations were minimal, with most streaming companies using the increased demand for video streaming to justify their growth, despite the spike in their carbon footprint (Marks 2020).

The 'green imaginaries' in the early months of the pandemic took an interesting turn. For many people, unable to travel or even leave their dwellings during lockdowns, digital communication became a site of newly formed relations with landscapes and animals, through a wealth of 'virtual visits', live streaming and other forms of digital spectatorship and interactions (see, for example, Schultz-Figueroa 2020; Turnbull et al. 2020). Although a new phenomenon in terms of the scale of quarantine, closures and isolation, the mobilisation of digital tools to connect with nature resonates strongly with the digital solutionism of sustainability education (Dogbey et al. 2014; Giusti et al. 2012; Howard 2015; Kalogiannakis and Papadakis 2017; Schaal and Lude 2015), where apps, devices and games act as key mediators in connecting to one's environment.

But pandemic green imaginaries did not stop there. In the midst of a general rise of fake news and disinformation related to the pandemic – what was described by many as the 'Covid-19 infodemic' (World Health Organization 2020) – one could also see the rise of an 'environmental infodemic' (Kinefuchi 2020). This included news and social media stories of 'healing nature', which presented a mixture of true and false information about the reduction of air and water pollution and improved conditions for wildlife – a particularly viral example was a hoax regarding sightings of swans and dolphins in Venice's canals. As Kinefuchi (2020) aptly argued, such stories and their socio-political impact were deeply problematic, firstly because such stories promote the idea that 'nature' can heal fast (undermining the vast extent and scope of the current environmental crisis). Secondly, the environmental infodemic on social media juxtaposed nature with people, where humans need to disappear in order for nature to 'heal'. Allison (2020) has further demonstrated that the rise of

environmental fake news in the early months of the pandemic was weaponised by eco-fascists – far-right environmentalists that merge ecological concerns with white supremacy and ethnonationalism. Such a coalition, as Haritaworn reminds us, is far from new: ‘as environmental justice activists have long argued, the fantasy of pristine landscapes freed of humans lends itself to an eco-fascist imaginary (Brown 2020; Gosine and Teelucksingh 2008). In this greenwashed variation on White supremacy, nature recovers by ridding itself of humans, but never all equally’ (2020, 12.4: citations in original text).

Indeed, inequality, racialisation and injustice are at the heart of pandemic digitalities and their material impacts on *both* human and non-human life. Platform capitalism has expanded and flourished since the start of the pandemic – due to the sharp rise in the routine use of digital communication in every sphere of everyday life, the use of AI and robotics for many essential tasks, and, of course, the unprecedented scale of adopting contact tracing and other related technologies of public health management and surveillance. All of these have created, and continue to create, a substantial strain on resources, infrastructures and energy. The rapid expansion of digital infrastructure and technologies, such as mobile phones, broadband and data farms, exposed their – now deemed ‘essential’ – workers to both the ruthlessness of global capitalism, and the Covid-19 virus itself (Brazier 2020). The rising use of digital consumption is intimately tied to the rise of digital labour and its already inhumane conditions (Brevini 2022; Cao 2020; Khreiche 2020; Qiu 2016). The same is true for the toxicity of rapidly growing e-waste: devices and gadgets, disposable by design, are poisoning lands and communities, already devastated by racism, settler-colonialism, imperialism, and their extractive economies of profit before people. As Aouragh et al. (2020) remind us, racial capitalism is central to our understanding of how extractive infrastructures of both resources and human labour shape the invisible violence of pandemic digitisation, in particular for racialised workers and subaltern communities in both the Global North and the Global South.

Conclusion: Digital Disengagement as Radical Environmental Responsibility

This chapter was driven by the following question: can digital disengagement bring a positive environmental change? We began answering it by looking at the idea of ‘digital detox’ as an escape to nature, where excessive digitisation was imagined as toxic, whereas the natural world was depicted as simultaneously clean and cleansing. Reading this imaginary against the grain, this chapter showed that, despite its symbolic orientation towards nature, digital detox discourse carries no actual environmental agenda, and no account of the material *environmental* toxicity of the digital. This toxicity is different from the metaphorical notion of ‘toxic’ digital habits, and is about the physical destruction of land, water, air, animal habitats and human health. Digital environmental toxicity is based on ‘resource extraction and labour exploitation’ (Emejulu

and McGregor 2016, 134), which is unevenly distributed and mostly affects communities in the Global South. And yet, these are invisibilised and ignored. Instead, digital detox promotes and centres wealthy, Western and often imperialist individual wellness that is symbolically, physically and infrastructurally extractivist (Aouragh et al. 2020), just like the digital economy itself.

In searching for digital disengagement within the field of environmental sustainability, we have shown that both the academic and industry discourses on sustainability are ultimately based on digital solutionism. The notion of ‘digital solutionism’, discussed extensively throughout the book, has been particularly useful in this chapter to explain how digital technology comes to be perceived and promoted as an environmental saviour, while cleansed from recognition of, and accountability for, its own environmental harms. In this context, could the digital industry ever shift to reduce, reuse, recycle – and possibly even refuse? We searched for answers in several examples of partial digital refusal – a phone that refuses human and material disposability, and web design that refuses carbon heavy internet consumption. These examples, we argued, were limited in their impact, and yet they can and should become catalysts for digital material accountability that is committed to both human life and the planet.

As in previous chapters, this final one ended with the Covid-19 pandemic. We started writing this chapter in summer 2020 when much of the mainstream view was that pandemic digitality was environmentally beneficial (Arora et al. 2020; Henriques 2020; Watts 2020).⁴ At the same time, a number of critical voices began emerging, including scholars who have long worked on the extractivist materiality of the digital, and were now watching it accelerate on an unprecedented scale. As we are entering the third year of the pandemic (at the time of this book’s production, spring 2022), the question of the *materiality* of the digital – including its environmental harms – is crucial. Environmentally motivated digital disengagement, though, seems as imperative as it is inconceivable. The atmosphere created by an ongoing global health crisis acts as a catalyst for cementing digital solutionism, with media corporations, tech giants and the entire platform economy on standby to grab the gain from the new digital normal. Not surprisingly, hearts and minds are expected to follow. It is no wonder that bringing up digital disengagement in the context of pandemic communication usually triggers arguments about access and the digital divide, which in turn is used to shut down consideration of the possibility of digital reduction, as if the call to reduce digital consumption is directed at those who are excluded, rather than at those who are digitally abundant. Asking to reconsider the normalised reliance on digital platforms for every aspect of (post) pandemic life is often met with defensive fury. And a suggestion that more digital tracking tools may not necessarily be a panacea for the global health crisis is seen as blasphemy.

⁴ While some rapid response research on the topic is currently taking place, it is in the early stages and would require more time.

At the same time, the immediacy of the ongoing Covid-19 crisis acts as a tool for obfuscating the racial and global nature of environmental injustice. It is crucial to remember that it is the high-income countries that are the lead culprits of digitisation's environmental toll. The question of environmentally oriented digital disengagement is therefore, first and foremost, a geopolitical one. It is not about blocking access to digital tools and technologies for those on the disenfranchised side of the digital divide. Rather, it is about the responsibility of the privileged and the over-digitally-saturated. It is the 'first world'/Global North, high-income countries that must act to reduce the harms of digital (and other) overconsumption, for example, by turning to 'digital sobriety' and 'lean ICT' – technology design and use that minimises energy consumption (Marks 2020, The Shift Project 2019). Digital disengagement, embedded in environmental justice that is also a racial justice, will only be possible if we turn away not only from the extractivist world of digital solutionism, but also from individualised, Western-centred and whitewashed notions of safety and wellness *and* eco-fascist environmentalism. Digital disengagement must become a form of collective turn against the harms of the digital world we are living in. The call for radical digital citizenship (Emejulu and McGregor's, 2016) – and radical digital environmental responsibility – is now more urgent than ever.

Bibliography

- Air Quality Expert Group. 2020. 'Estimation of Changes in Air Pollution Emissions, Concentrations and Exposure During the COVID-19 Outbreak in the UK. Rapid Evidence Review'. UK Air. https://uk-air.defra.gov.uk/library/reports.php?report_id=1005
- Allison, Marcia. 2020. "'So Long, and Thanks for All the Fish!': Urban Dolphins as Ecofascist Fake News during COVID-19". *Journal of Environmental Media*, 1 (1): 4.1–4.8. https://doi.org/10.1386/jem_00025_1
- Andrews, Shelli. 2018. 'Spring "Clean" with a Digital Detox'. Vine Health Care, 9 March. <https://www.vinehealthcare.com/2018/03/09/spring-clean-with-a-digital-detox/>
- Aouragh, Miriyam, Seda Gürses, Helen Pritchard, and Femke Snelting. 2020. 'The Extractive Infrastructures of Contact Tracing Apps'. *Journal of Environmental Media*, 1 (1): 9.1–9.9. https://doi.org/10.1386/jem_00030_1
- Aristarkhova, Irina. 2005. 'All Like One in Cyberspace: The Homogenizing Logic of Net Communities'. In Zaheer Baber (Ed.). *CyberAsia: The Internet and Society in Asia*. Boston: Brill.
- Arora, Shefali, Kanchan Deoli Bhaukhandi, and Pankaj Kumar Mishra. 2020. 'Coronavirus Lockdown Helped the Environment to Bounce Back'. *Science of The Total Environment*, 742. <https://doi.org/10.1016/j.scitotenv.2020.140573>

- BBC News. 2020. 'Netflix to Cut Streaming Quality in Europe for 30 Days'. *BBC News*, 19 March. <https://www.bbc.co.uk/news/technology-51968302>
- Brazier, Hayley. 2020. 'Disease, Disaster and the Internet: Reconceptualizing Environmental Hazards in the Time of Coronavirus'. *Journal of Environmental Media*, 1 (1): 10.1–10.8. https://doi.org/10.1386/jem_00031_1
- Brevini, Benedetta, and Graham Murdock. (Eds.). 2017. *Carbon Capitalism and Communication: Confronting Climate Crisis*. London: Palgrave Macmillan. <https://doi.org/10.1007/978-3-319-57876-7>
- Brevini, Benedetta. 2022. *Is AI Good for the Planet?* Cambridge: Polity.
- Cao, Xuefei. 2020. 'Futuristic Media: A Temporal Reflection and Eternal Platform Capitalism'. *Journal of Environmental Media*, 1 (1): 7.1–7.8. https://doi.org/10.1386/jem_00028_1
- Casemajor, Nathalie. 2015. 'Digital Materialisms: Frameworks for Digital Media Studies'. *Westminster Papers in Culture and Communication*, 10 (1): 4–17. <https://doi.org/10.16997/wpcc.209>
- Chen, Sibö. 2016. 'The Materialist Circuits and the Quest for Environmental Justice in ICT's Global Expansion'. *TripleC: Communication, Capitalism & Critique*, 14 (1). <https://doi.org/10.31269/triplec.v14i1.695>
- Cherry, Kendra. 2020. 'What Is a Digital Detox?' Verywellmind.com, 20 November. <https://www.verywellmind.com/why-and-how-to-do-a-digital-detox-4771321>
- Cubitt, Sean. 2017. *Finite Media: Environmental Implications of Digital Technologies*. Durham: Duke University Press.
- Dastbaz, Mohammad, Wim Naudé, and Jamileh Manoochehri. (Eds.). 2019. *Smart Futures, Challenges of Urbanisation, and Social Sustainability*. Cham: Springer International Publishing.
- Digital Detox. 2020. Google Images. 11 August. https://www.google.com/search?q=digital+detox&client=firefox-b-e&source=lnms&tbm=isch&sa=X&ved=2ahUKEwiKhcGUk4zrAhVku3EKHeRcDkYQ_AUoAnoECA0QBA&biw=1664&bih=757&dpr=1.15
- Digital Detox Retreats with Yoga and Meditation. 2020. Reclaimyourself. 13 August. <https://reclaimyourself.co.uk/digital-detox/>
- Dogbey, James, Cassie Quigley, Megan Che, and Jeffrey Hallo. 2014. 'Using Smartphone Technology in Environmental Sustainability Education: The Case of the Maasai Mara Region in Kenya'. *International Journal of Mobile and Blended Learning*, 6 (1): 1–16. <https://doi.org/10.4018/ijmbl.2014010101>
- Emejulu, Akwugo, and Callum McGregor. 2016. 'Towards a Radical Digital Citizenship in Digital Education'. *Critical Studies in Education*, 60 (1): 131–147. <https://doi.org/10.1080/17508487.2016.1234494>
- Fairphone. n.d.a. Fairphone. Fairphone. Last accessed 21 August 2020, <https://www.fairphone.com/en/>
- Fairphone. n.d.b. Fairphone Shop. Fairphone. Last accessed 21 July 2020, https://shop.fairphone.com/gb_en/?__store=gb_en

- Fairphone. n.d.c. Our Mission. Fairphone. Last accessed 21 August 2020, <https://www.fairphone.com/en/story/>
- Fuchs, Christian. 2008. 'The Implications of New Information and Communication Technologies for Sustainability'. *Environment, Development and Sustainability*, 10 (3): 291–309. <https://doi.org/10.1007/s10668-006-9065-0>
- Fuchs, Christian. 2015. 'Dallas Smythe and Digital Labor'. In Richard Maxwell (Ed.). *The Routledge Companion to Labor and Media* (pp. 51–62). New York: Routledge.
- Gajjala, Radhika, and Venkataramana Gajjala. (Eds.). 2008. *South Asian Technologies*. New York: Peter Lang.
- Galderisi, Adriana. 2018. *Smart, Resilient and Transition Cities: Emerging Approaches and Tools for a Climate-Sensitive Urban Development*. Cambridge: Elsevier.
- Gassmann, Oliver, Jonas Böhm, and Maximilian Palmié. 2019. *Smart Cities: Introducing Digital Innovation to Cities*. Bingley: Emerald Publishing Limited.
- Giusti, Leonardo, Alessandro Pollini, Liselott Brunnberg, and Federico Casalegno. 2012. 'En Plein Air: A Mobile Learning Approach for Sustainability Education in the Wild'. *International Journal of Mobile Human Computer Interaction*, 4 (2): 44–58. <https://doi.org/10.4018/jmhci.2012040104>
- Greenwood, Tom. 2021. *Sustainable Web Design*. A Book Apart.
- Good, Jennifer Ellen. 2016. 'Creating iPhone Dreams: Annihilating E-Waste Nightmares'. *Canadian Journal of Communication*, 41 (4): 589–610. <https://doi.org/10.22230/cjc.2016v41n4a3058>
- Gould, Amanda. 2016. 'Restor(y)Ing the Ground: Digital Environmental Media Studies'. *Networking Knowledge: Journal of the MeCCSA Postgraduate Network*, 9 (5). <https://doi.org/10.31165/nk.2016.95.455>
- Haritaworn, Jin. 2020. '#NoGoingBack: Queer Leaps at the Intersection of Protest and COVID-19'. *Journal of Environmental Media*, 1 (1): 12.1–12.7. https://doi.org/10.1386/jem_00033_1
- He, Guizhen, Ingrid Boas, Arthur P. J. Mol, and Yonglong Lu. 2017. 'E-Participation for Environmental Sustainability in Transitional Urban China'. *Sustainability Science*, 12 (2): 187–202. <https://doi.org/10.1007/s11625-016-0403-3>
- Henriques, Martha. 2020. 'Has Coronavirus Helped the Environment?' *BBC Future Planet*, 23 April. <https://www.bbc.com/future/article/20200422-how-has-coronavirus-helped-the-environment>
- Howard, Patrick. 2015. 'Digital Citizenship in the Afterschool Space: Implications for Education for Sustainable Development'. *Journal of Teacher Education for Sustainability*, 17 (1): 23–34. <https://doi.org/10.1515/jtes-2015-0002>
- Kalogiannakis, Michail, and Stamatios Papadakis. 2017. 'Combining Mobile Technologies in Environmental Education: A Greek Case Study'. *International Journal of Mobile Learning and Organisation*, 11 (2): 108–130. <https://doi.org/10.1504/IJMLO.2017.084272>

- Khreiché, Mario. 2020. 'The Cost of Labour and Energy in Digital Media and Automation Technologies beyond the COVID-19 Pandemic'. *Journal of Environmental Media*, 1 (1): 8.1–8.8. https://doi.org/10.1386/jem_00029_1
- Kim, Kwi-Gon. 2018. *Low-Carbon Smart Cities: Tools for Climate Resilience Planning*. Cham: Springer International Publishing.
- Kinefuchi, Etsuko. 2020. "Nature Is Healing": Environmental Infodemic and the Pitfall of Dualism'. *Journal of Environmental Media*, 1 (1): 3.1–3.8. https://doi.org/10.1386/jem_00024_1
- Kuntsman, Adi. 2019. "Smart Cities' Environmental Dreams and Their Dirty Material Politics'. In *Infrastructures and Inequalities Conference*. Helsinki.
- Kuntsman, Adi, and Imogen Rattle. 2019. 'Towards a Paradigmatic Shift in Sustainability Studies: A Systematic Review of Peer Reviewed Literature and Future Agenda Setting to Consider Environmental (Un)Sustainability of Digital Communication'. *Environmental Communication*, 13 (5): 567–81. <https://doi.org/10.1080/17524032.2019.1596144>
- Le Quéré, Corinne, Robert B. Jackson, Matthew W. Jones, Adam J. P. Smith, Sam Abernethy, Robbie M. Andrew, Anthony J. De-Gol, et al. 2020. 'Temporary Reduction in Daily Global CO₂ Emissions during the COVID-19 Forced Confinement'. *Nature Climate Change*, 10 (7): 647–53. <https://doi.org/10.1038/s41558-020-0797-x>
- Libelium. 2019. 'Preventing Asthma Attacks in Children with a Sensor Network That Monitors Air Quality Conditions in Play Areas'. Libelium.com, 10 April. <https://www.libelium.com/libeliumworld/success-stories/preventing-asthma-sensor-network-air-quality-pm10-dust-in-play-area/>.
- Marie Claire. 2015. 'The 8 Steps of a 24-Hour Digital Detox'. [marieclaire.co.uk](https://www.marieclaire.co.uk/entertainment/technology/the-8-steps-of-a-24-hour-digital-detox-119714), 26 October. <https://www.marieclaire.co.uk/entertainment/technology/the-8-steps-of-a-24-hour-digital-detox-119714>
- Marks, Laura. 2020. 'Streaming Video, A Surprising Link Between Pandemic and Climate Crisis'. *Journal of Visual Culture*, Harun Farocki Institut Special Issue on Covid-19, April. <https://www.harun-farocki-institut.org/en/2020/04/16/streaming-video-a-link-between-pandemic-and-climate-crisis-journal-of-visual-culture-hafi-2/>
- Maxwell, Richard, and Toby Miller. 2008. 'Ecological Ethics and Media Technology'. *International Journal of Communication*, 2: 331–53.
- Maxwell, Richard, and Toby Miller. 2020. *How Green Is Your Smartphone?* Cambridge: Polity.
- McLaren, Duncan, and Julian Agyeman. 2015. *Sharing Cities: A Case for Truly Smart and Sustainable Cities*. Cambridge: The MIT Press.
- Miller, Toby. 2018. *Greenwashing Culture*. New York: Routledge.
- Monks, Paul. 2020. 'Coronavirus: Lockdown's Effect on Air Pollution Provides Rare Glimpse of Low-Carbon Future'. *The Conversation*, 15 April. <https://theconversation.com/coronavirus-lockdowns-effect-on-air-pollution-provides-rare-glimpse-of-low-carbon-future-134685>

- Mukherjee, Jenia. 2018. *Sustainable Urbanization in India: Challenges and Opportunities*. Singapore: Springer Singapore. <https://doi.org/10.1007/978-981-10-4932-3>
- Nakamura, Lisa. 2000. 'Race in/for Cyberspace: Identity Tourism and Racial Passing on the Internet'. In David Bell and Barbara M. Kennedy (Eds.). *The Cybercultures Reader* (pp. 181–93). London: Routledge.
- Oguibe, Olu. 2004. *The Culture Game*. Minneapolis: University of Minnesota Press.
- Parikh, Samir. 2019. "Digital Detox" Is the Need of the Hour! 11 July. <https://m.rediff.com/getahead/report/digital-detox-is-the-need-of-the-hour/20190711.htm>
- Qiu, Jack Linchuan. 2016. *Goodbye iSlave: A Manifesto for Digital Abolition*. Chicago: University of Illinois Press.
- Rossi, Ben. 2015. 'Do You Need a Digital Detox? Take the Quiz'. *Information Age*, 6 March. <https://www.information-age.com/do-you-need-digital-detox-take-quiz-123459131/>
- Sandoval, Chela. 2000. 'New Sciences: Cyborg Feminism and the Methodology of the Oppressed'. In David Bell and Barbara M. Kennedy (Eds.). *The Cybercultures Reader* (pp. 181–93). London: Routledge.
- Schaal, Steffen, and Armin Lude. 2015. 'Using Mobile Devices in Environmental Education and Education for Sustainable Development—Comparing Theory and Practice in a Nation Wide Survey'. *Sustainability*, 7 (8): 1–18.
- Schultz-Figueroa, Benjamin. 2020. 'Abandoned Aquariums: Online Animal Attractions during Quarantine'. *Journal of Environmental Media*, 1 (1): 5.1–5.8. https://doi.org/10.1386/jem_00026_1
- Seele, Peter, and Irina Lock. 2017. 'The Game-Changing Potential of Digitalization for Sustainability: Possibilities, Perils, and Pathways'. *Sustainability Science*, 12 (2): 183–85. <https://doi.org/10.1007/s11625-017-0426-4>
- Springer Geography. 2020. 'Green Technologies and Infrastructure to Enhance Urban Ecosystem Services'. Springer. <https://www.springer.com/gp/book/9783030160906>
- Starosielski, Nicole, and Janet Walker. (Eds.). 2016. *Sustainable Media: Critical Approaches to Media and Environment*. New York: Routledge.
- Stuermer, Matthias, Gabriel Abu-Tayeh, and Thomas Myrach. 2017. 'Digital Sustainability: Basic Conditions for Sustainable Digital Artifacts and Their Ecosystems'. *Sustainability Science*, 12 (2): 247–62. <https://doi.org/10.1007/s11625-016-0412-2>
- Tabira, Yoshihiro, and Francis Xavier Otieno. 2017. 'Integration and Implementation of Sustainable ICT-Based Education in Developing Countries: Low-Cost, En Masse Methodology in Kenya'. *Sustainability Science*, 12 (2): 221–34. <https://doi.org/10.1007/s11625-017-0422-8>
- The Shift Project. 2019. *Lean ICT: Towards Digital Sobriety: Our New Report on the Environmental Impact of ICT*. <https://theshiftproject.org/en/article/lean-ict-our-new-report/>
- Tomar, Pradeep, and Gurjit Kaur. 2020. *Green and Smart Technologies for Smart Cities*. Abingdon: Routledge.

- Tripadvisor. n.d. DIGITAL DETOX WEEK | BASE CAMP TENERIFE. Tripadvisor. Last accessed 13 August 2020, https://www.tripadvisor.co.uk/VacationRentalReview-g319795-d12712756-DIGITAL_DETOX_WEEK_BASE_CAMP_TENERIFE-Garachico_Tenerife_Canary_Islands.html
- Turnbull, Jonathon, Adam Searle, and William M. Adams. 2020. 'Quarantine Encounters with Digital Animals: More-than-Human Geographies of Lockdown Life.' *Journal of Environmental Media*, 1 (1): 6.1–6.10. https://doi.org/10.1386/jem_00027_1
- United Nations. 2015. The 17 Goals. SDGs. <https://sdgs.un.org/goals>.
- Urbandroid. 2021. 'Digital Detox Focus and Fight Phone Addiction.' Google Play, 11 May. Version 7.5.
- Vasenev, Viacheslav, Elvira Dovletyarova, Zhongqi Cheng, Riccardo Valentini, and Carlo Calfapietra. (Eds.). 2020. *Green Technologies and Infrastructure to Enhance Urban Ecosystem Services: Proceedings of the Smart and Sustainable Cities Conference 2018*. New York: Springer International Publishing. <https://doi.org/10.1007/978-3-030-16091-3>
- Velkova, Julia. 2016. 'Data That Warms: Waste Heat, Infrastructural Convergence and the Computation Traffic Commodity.' *Big Data & Society*, 3 (2). <https://doi.org/10.1177/2053951716684144>
- Walpert, Jarrod. 2019. 'Diary of a Digital Detox: Havas Exec Survives 20 Days Without Social Media.' *AdAge*, 22 August. <https://adage.com/article/opinion/diary-digital-detox-havas-exec-survives-30-days-without-social-media/2193011>
- Watts, Jonathan. 2020. 'Could Covid Lockdown Have Helped Save the Planet?' *The Guardian*, 29 December. <https://www.theguardian.com/world/2020/dec/29/could-covid-lockdown-have-helped-save-the-planet>
- Wholegrain Digital. n.d.a. <https://www.wholegraindigital.com/>
- Wholegrain Digital. n.d.b. Sustainable Web Manifesto. <https://www.sustainablewebmanifesto.com/>
- Wholegrain Digital. n.d.c. Website Carbon Calculator. Website Carbon. Accessed 17 August 2020, <https://www.websitecarbon.com/>
- Widener, Jeffrey M., Travis J. Gliedt, and Preston Hartman. 2017. 'Visualizing Dynamic Capabilities as Adaptive Capacity for Municipal Water Governance.' *Sustainability Science*, 12 (2): 203–19. <https://doi.org/10.1007/s11625-016-0408-y>
- Won, Seahwa, and Stephen Westland. 2017. 'Product-Specific Colour Meanings: A Semiotic Approach.' *Journal of the International Colour Association*, 18: 43–59.
- World Health Organization. 2020. 'Managing the COVID-19 Infodemic: Promoting Healthy Behaviours and Mitigating the Harm from Misinformation and Disinformation Joint Statement by WHO, UN, UNICEF, UNDP, UNESCO, UNAIDS, ITU, UN Global Pulse, and IFRC.' WHO Int. 23 September. <https://www.who.int/news/item/23-09-2020-managing-the-covid-19-infodemic-promoting-healthy-behaviours-and-mitigating-the-harm-from-misinformation-and-disinformation>