

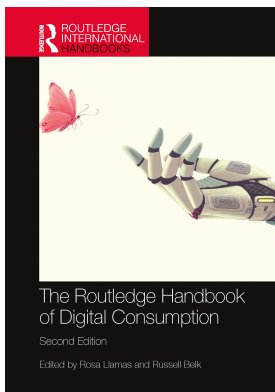
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A 'THUMBS UP' AND 'THUMBS DOWN' FOR THUMB CULTURE

The Paradoxical Nature of Smartphones

Katie Thompson and Anthony Patterson

Introduction

Over 30 years ago, David Glen Mick and Susan Fournier (1998) penned a seminal paper entitled *The Paradoxes of Technology*. Although written when smartphones were but a twinkle in the eye of its creators, their findings remain pertinent and, in a sense, prophetic. For example, one informant of the study, contributing to a projective dream-telling exercise, describes a computer which 'comes with me everywhere, and has planned my every move' (Mick and Fournier, 1998, p. 128). The informant yearns for a technological innovation that can manage and direct their life, perhaps more effectively than they can themselves (Mick and Fournier, 1998). Other respondents depict 'nightmare' scenarios, featuring a reality in which they are rendered slaves, rather than masters of technology. Here people come to rely on technology such that they could no longer 'live without it' (Mick and Fournier, 1998, p. 129). These contradictory musings exhibit a prescient foretaste of the issues that the smartphone era would raise. According to who you consult on the subject, one encounters either a collective 'thumbs up' sentiment of approval and hope or a 'thumbs down' sentiment of disapproval and distrust.

The smartphone has receded comfortably into the humdrum of daily life. However, this digital device has both transformed and embedded itself within contemporary consumer culture in a remarkably short timeframe. Four key technological developments led to the rise of the smartphone: (1) the invention of the first telephone by Alexander Graham Bell in 1876, (2) the release of early smartphone models (such as the 'Simon Personal Communicator' in 1994, the Nokia 9000 in 1996, and the Ericsson R380 in 2000), which began to incorporate computer features into cell phones, (3) the 2002 Blackberry smartphone, which successfully targeted the corporate market with its email capabilities, and (4) the 2007 release of Apple's iPhone. This final development proved a watershed moment in the history of the technology. When introducing the device at the Macworld conference, Jobs called it a 'magical product' and proclaimed: 'every once in a while, a revolutionary product comes along that changes everything'. He was not mistaken. Hands (2019) credits the success of the iPhone to its multifunctionality. The iPhone was unique because, unlike its predecessors, it combined hardware characteristics (such as music speakers, a seamless touchscreen, a high-resolution camera lens, and a portable ergonomic design) with software capabilities

(such as a user-friendly intuitive interface, communication features, access to the internet, and downloadable applications) in a single device (Hands, 2019; Melumad and Tuan Pham, 2020). Berger (2015, p. 25) reports that there are ‘more than 2,500 different models of smartphones, 2 million apps that can be used on them, and almost 7 billion smartphones in use’. Although the core characteristics of the smartphone have remained largely unaltered, successive models are becoming increasingly ‘smartified’. The term ‘smart technology’ has accrued multiple meanings in different contexts (Strengers, 2013). We employ Sadowski’s (2020, p.2) definition, which indicates that ‘data collection, network connectivity, and enhanced control’ are central to digital devices such as the smartphone. Sadowski (2020, p. 2) observes that this move toward smartification is ‘becoming the new normal’ and brings with it the promise of increased control, efficiency, and order (Strengers, 2013).

As our smartphones continue to become smarter and further infiltrate our lives, the need to critically investigate their influence becomes ever more pressing. In this chapter, we explore technological paradoxes caused by the smartification of the mobile phone. First, we define the chief characteristics of this phenomena, or should we say, phone-omena? By viewing the smartphone as Janus-faced, we foreground its uncertain and ambiguous nature. Next, we show how the smartphone concurrently (1) facilitates an extended and passive self, (2) hinders and helps health and wellbeing, (3) creates new and limits new opportunities for activist activity, and (4) both frees and tethers its owners. Finally, we offer up some concluding remarks about smartphone futures.

The Paradoxes of (Smart) Technology

It is commonly understood that technology, and our relations with it, is paradoxical (Mick and Fournier, 1998). Jarvenpaa and Lang (2005, p. 7) define a paradox as ‘a situation, act, or behavior that seems to have contradictory or inconsistent qualities’. Common depictions of technology tend to oscillate between utopian agendas of hope, and dystopian agendas of fear (Hands, 2019; Kozinets, 2008). On one hand, smartphones are depicted as empowering tools which facilitate increased control, independence, efficiency, and the democratization of information (Belk et al., 2020). On the other hand, they are laden with cautionary tales of societal and environmental degradation (Belk et al., 2020). Using a multi-method approach, Mick and Fournier (1998) shed light on daily consumer experiences of technology and developed an influential framework depicting eight central paradoxical experiences. The paradoxes they describe are: 1) control/chaos (technology can facilitate both order and disorder); 2) freedom/enslavement (technology can facilitate both independence and dependence); 3) new/obsolete (new technologies can soon become outdated); 4) competence/incompetence (technology can inspire feelings of both aptitude and ineptitude among users); 5) efficiency/inefficiency (technology can facilitate less effort in certain activities and more effort in other activities); 6) fulfills/creates needs (technology can facilitate the fulfillment of needs and lead to the development of new needs); 7) assimilation/isolation (technology can inspire both human togetherness and separation); 8) engaging/disengaging (technology can facilitate both involvement and disconnection).

The advancement of smart technology has intensified these paradoxical understandings (Strengers, 2013). The negative impacts of smartphones are widely discussed in popular media. Within these depictions, consumers are commonly framed as disempowered, nomophobic victims of an encroaching technology. Having said this, smartphones are widely

understood to be a 'need' rather than a 'want' in the present day, as their popularity continues to grow the world over (Roberts et al., 2015). Using the Disenchantment-Enchantment-Model (DEM) Belk et al. (2020) help us to demystify how the iPhone continues to remain an alluring device to consumers. The DEM describes how consumer desire for technology is instigated (by popular culture and the media), built up (by consumer-generated hype), realized (as the new technology is released into the market), and dispersed (creating a sense of loss as the technology eventually becomes normalized, and a longing pang for the next innovation sets in). The cycle is continuous, as consumers eagerly wait (in some cases, for days queuing up outside Apple stores) to be enchanted by the next 'magical' technological innovation. Belk and colleagues (2020, p. 260) suggest that it is the heady 'mix of desires – for pleasure, the future, spectacle, and liberation – at the heart of technology's perpetual charm to humanity'.

Arnold (2003, p. 233) reflects that although technologies are designed to fulfill a particular purpose or functionality, often they follow non-linear, ironic, and ambiguous paths, betraying the idea that they are fundamentally 'rational, goal directed, instruments of our will' (Arnold, 2003, p. 233). Cleverly, Arnold (2003) characterizes the smartphone as Janus-faced to explain its paradoxical role. The metaphor is derived from a Roman deity called Janus, who was blessed and cursed with two faces which look out in opposite directions. The smartphone likewise has two irreconcilable 'faces', which exist simultaneously. It is this perpetual tension that renders the smartphone a fascinating subject of study. We agree with Arnold (2003) that positioning the smartphone as Janus-faced is advantageous for the researcher, as by foregrounding uncertainty, it allows potential tensions and contradictions to arise in accounts of the technology. This, in turn, allows us to avoid an essentialist or determinist view of technology, and instead allows us to understand technology as just one of many complex forces that work to shape human life. In the remainder of this chapter, we adopt a Janus-faced perspective of the smartphone as we critically examine four paradoxical themes.

The Extended and the Passive Self

An extension and appendage of the self, the smartphone is a remarkably intimate and individualized technology. On the surface, they are a uniform mass-produced commodity, a sophisticated shiny lump of carbon, aluminum, and cobalt. However, for their owners, they are so much more, as our devices act as highly personalized repositories and reflections of the self (Belk, 1988; Tschida, 2021). Whereas landline telephones are typically shared by every member of a household, the smartphone is usually owned by one person. As Gardner and Davis's (2014, p. 60) observe, 'the apps arrayed on a person's smartphone or tablet represent a fingerprint of sorts – only instead of a unique pattern of ridges, it's the combination of interests, habits and social connections that identify that person'. The collection of photographs, music, and apps provides a powerful representation of its owner. Even the external surface of our phones can be adorned to reflect our personalities, facilitated by a rising market of cell phone cases and accessories (Reyes et al., 2015). We pour so much of ourselves into our devices, but why? The answer is simple. We love our smartphones. They are laced with positive memories and emotions. We use them to withdraw 'from public space into a solipsistic aural cocoon or privatized sound bubble' (Morley, 2007, p. 8) as we connect to loved ones and collect endorphin hits in the form of 'likes' on our latest selfie. Lanchester (2020, p. 13) observes 'you can see it in the way [people] handle them, the way they look at them; their

reluctance to let them out of arm's reach'. When we misplace them, a rising sense of panic invariably ensues until said item is found (Gazzaley and Rosen, 2016). Pathologizing this fusion of human and machine, some researchers have coined the term 'nomophobia' ('no-mobile-phone-phobia') to describe the fear we have of losing our phones or of the battery dying, or, heaven forbid, our connection to Wi-Fi dropping (Alter, 2017). It is akin to having a body part shorn off, of being brutally amputated by mundane technological failure (Mauer, 2006). Similar in nature to phantom limb pain, we suggest that a fitting diagnosis for this contemporary affliction might be what we call 'phantom phone pain' (PPP). According to the McLuhanesque model of technology (McLuhan, 1967), the mobile phone can be viewed as an extra organ that is carried with the body always. From time to time, this organ is activated to 'extend the reach of the voice and ear across vast distances in real time' (Arnold, 2003, p. 246). Indeed, gestures such as the 'swipe' have become enfolded into our muscle memory and embedded into part of our daily routine and rituals (Hands, 2019). Hands (2019) observes that it is almost revelatory to revisit the footage of Jobs displaying how to wield iPhone devices, as he demonstrates gestures that have now become positively mundane.

As our devices become more enfolded in our bodies and selfhood, our dependence on them grows. In 1998, Mick and Fournier observed that the pervasive mediation of technology in daily life was depleting human motivation and skills. One informant in their study, who had recently purchased a portable computer, conveyed such concerns: 'I appreciate what technology is, but sometimes I think that people [...] forget to think for themselves [...] relying on technology to do everything [...] you become passive [and] I think the more passive you get, you lose the ability to ever become active again'. The modern-day portable computer has intensified this trend. We invest so much of ourselves into our smartphones that in some ways, they know us better than we know ourselves. Take for example, the concept of the data double, which is related to the idea that data-generating devices produce unfolding aggregates of ourselves (Vallee, 2020). Based on our digital activities, our data doubles are presented back to us in the form of music recommendations, following suggestions on social media, and personalized shopping ads (Vallee, 2020). Our data doubles are not only honed to cater to our present tastes but also anticipate our future preferences and desires. The extent to which we rely on our smartphones to act as a mirror for our ever-emerging selves, is demonstrated in Sam Tschida's (2021) novel, '*Siri, Who Am I?*' Here, we follow our protagonist, Mia, who has suffered amnesia and is attempting to piece her identity back together with only her iPhone to guide her. The concept of the novel is adroitly hinged on the notion that the internet, and more specifically, social media profiles, act as 'personal memory banks', reminding us of who we are. It is not unreasonable to delegate our memories to our smartphones, as they are primed to answer our every whim. Think back to your own search history, and the multitude of queries you have amassed on Google. According to statistics, Google receives over 63,000 searches per second on any given day. A plethora of downloadable apps are also designed to make life almost *too* easy for us, *Shazam*, for example, is geared up to help us recognize music, *Maps* helps us to find our way, and *Calendar* relays our agenda for the day. As we become more reliant and intertwined with our smartphones, are they concurrently sapping our skills, and rendering us irrevocably passive?

Health and Wellbeing: A Help and a Hindrance

Research shows that smartphones can simultaneously be advantageous and disadvantageous for user's health and wellbeing. The beneficial role of smartphone devices was starkly highlighted during the coronavirus pandemic. Undoubtedly, they served as lifelines for many

people around the world. Helping them to stay connected with personal networks, carry out a plethora of (maybe not so) vital Zoom quizzes, and work remotely. Unsurprisingly, reports show that we used our devices more than ever in 2020 (Koetsier, 2020; Ofcom, 2020). Contrary to what had been envisaged, there was no anarchy on the streets. Instead, we withdrew to the comfort of our screens. Our mobile phones are integrated into almost everything we do. Checking phones is the first thing we do every morning, usually while still in bed. It is hardly hygienic, but phones are frequently perused while using the loo, so it is probably just as well that 12% of us also take them into the shower. Studies also show that 9% of us use them during sex, perhaps to stimulate our sex 'n' shopping fantasies, or maybe it is the frisson of being discovered doing so by one's partner – 'But I'm just replying to an email, darling...' And despite the obvious dangers to life and limb, not to mention its illegality, a shocking 55% of us regularly use smartphones while driving. Our smartphones can capture our attention for hours (and hours, and hours). In fact, they are carefully designed to do just that (*The Social Dilemma*, 2020). A former Google ethicist, Tristan Harris, left the company to campaign about the alarming lengths tech companies go to manipulate our attention and keep us scrolling (Bosker, 2016). He explains that the technology embedded in smartphones is crafted to target the most vulnerable areas of our cognition (Lanchester, 2020). One such vulnerability, called 'bad forecasting', relates to our inability to accurately assess just how much time we will spend scrolling through updates from the Kardashian-Jenner clan when we pick up our phones.

Further, the technology within our smartphones is laden with 'intermittent rewards', in the form of notifications, likes, comments, follows (etc., etc.). And we are hopelessly addicted to these little nuggets of endorphin. If we do disengage from our devices, we may be prone to experiencing 'FOMO' (that is, the fear of missing out). This is because for most, so much of social life now plays out in digital spaces, making it difficult to ignore the incessantly ping-pong WhatsApp group chat, and for some reason, an imperative that we keep up with far-flung connections on Facebook. Our smartphones are also endowed with 'frictionless' behaviors, such as auto-playing videos. I mean, really, we had no choice but to binge *Bridgerton* in one night, did we? Even the minutest of details such as the color of the 'like' button on Facebook has been agonized over (*Smartphones: The Dark Side*, 2018). Harris argues that the user is not easily able to fend off these alluring designs, because at the other side of the screen, there are thousands of people whose job it is to ensure that we stay hooked to our devices (Bosker, 2016). The addictive nature of smartphones has contributed to a widespread desire to disconnect from our time-and-hungry devices. Ironically however, 'digital detoxes' are often facilitated by smartphone apps designed to help users 'disconnect' such as *Phoneless*, *Forest*, and *Freedom*. A digital detox may be easier said than done, as reported side effects of cutting the cord with our smartphones range from boredom, frustration, anxiety, and, in some cases, an alarming preference for electrical shocks (Roberts et al., 2015; Wilson et al., 2014). In 2014, Wilson and colleagues asked people to sit alone in a room for 15 minutes, without any external stimulation. 67% of men and 25% of women taking part in the study, found being alone with their own thoughts so objectionable that they opted to self-administer a painful electric shock instead. Let's just mull that over for a moment. A self-administered electric shock, it seems, is preferable to being severed from our smartphones.

Although it can surely be argued that our devices can capture *too* much of our attention, research also shows that our smartphones help to increase our wellbeing. Melumad and Tuan Pham (2020) note that for all the hype surrounding smartphones, the relationship between the consumer and their device remains largely unclear. Using this idea as a starting point, the authors found that aside from obvious functional benefits, our mobile phones actually

offer psychological comfort, particularly during times of stress. They attribute a number of reasons to explain why smartphones function in this way, including their highly portable, personal, and private nature. Smartphones offer a reassuring and constant presence for their owner, rendering them not dissimilar to an adult pacifier (Melumad and Tuan Pham, 2020). In light of their findings, the author's rally against an oversimplifying conceptualization which frames the relationship with our device solely in terms of addiction. In another study, Cheikh-Amman (2020) found that whilst the smartphone can offer stress-relief, it can also generate new stresses. He argues that digital environments can paradoxically offer 'temporary refuge', 'comfort', and 'opportunities for mental escapism' (p. 7) and simultaneously produce 'technostress', associated with hyperconnectivity, social pressures, time and energy depletion, and privacy concerns.

Other studies show that among vulnerable populations, smartphones can positively mediate increased health and wellbeing. For example, Linnemayr et al. (2021) found that text messaging interventions (TMI), alongside other services such as counseling, can help homeless youth quit smoking. Compared to the general population, smoking rates are significantly higher among young people experiencing homelessness. Despite this, targeted resources in this area are scarce. Linnemayr et al. (2021) found that TMI are beneficial on a number of accounts. First, they offer a tailored approach that can be accessed anywhere. Second, it is a low-cost and low-burden solution for service providers and users alike. Third, given the widespread mobile phone ownership among homeless youth, phone-based support holds great potential for behavior change (Lynnemayr et al., 2021). Also recognizing this potential, Thompson et al. (2020) argue that smartphones can provide engaging and effective interventions for other health issues faced by young people experiencing homelessness. They found that an app (called 'OnTrack'), designed to help people self-monitor their behaviors, can help homeless young adults to reduce substance use and sexual risk behaviors. Whilst the captivating nature of smartphone technology can be deleterious to wellbeing, it can simultaneously offer valuable support for users.

Algorithm Activism

Our smartphones, and the tools embedded within them, such as interactive websites, QR-codes, applications, and social media sites, can create (and limit) new opportunities and possibilities for producing, sharing, and accessing information related to social movements (Fuentes and Sörum, 2019; George and Leidner, 2019). Hybrid campaigns (which take place in both digital and 'non-digital' spaces) benefit from an increased potential for impact, as pictures and videos captured at protests can be shared and viewed many times online (Matich et al., 2019). This allows the impact of physical protests to reverberate, long after the event has taken place (Matich et al., 2019). By utilizing a 'digital megaphone', activists and social organizations can share their message with wider audiences (Matich et al., 2019). However, activities related to digital activism, such as liking, sharing, and commenting on social media posts, can be viewed as a form of individualistic 'virtue signaling'. Such behavior, often termed 'clicktivism', is commonly framed as 'a non-committal act, full of sound and fury, which ultimately achieves nothing' (Kozinets, 2019, p. 80). However, Kozinets (2019) rightfully observes that if much of our modern-day communication takes place in digital spaces, these are surely the very places for social movements to garner attention. Such spaces can not only connect like-minded individuals but may also spark momentum for heightened political engagement. Adapting Milbrath's (1965) hierarchy of political participation, George and Leidner (2019) present political involvement as a spectrum of engagement. Individuals who

are beginning to read and disseminate information are viewed as ‘spectators’. In time, they may transition to a higher level of involvement, by attending a rally or contributing money to a political cause. Moving up the pyramid, they may participate in what Milbrath (1965) terms ‘gladiatorial activities’, by volunteering for political campaigns or becoming party members. In this manner, so-called clicktivism may result in people climbing the pyramid of involvement, creating tangible socio-political change (George and Leidner, 2019).

It is important to acknowledge that most digital platforms facilitating such political participation are commercially owned. Within these spaces, corporations are powerful actors and intermediaries of activist activity. In their study of a feminist movement called #freethenipple, Matich et al. (2019) emphasized the tendency for activism to become commodified and appropriated by brands through merchandise and affiliation (Mukherjee and Banet-Weiser, 2012). By interacting with consumerism, movements such as #freethenipple (which fundamentally oppose the free market) simultaneously resist and advance the market through their cause. The marketplace promotes the movement (by facilitating the circulation of its message) whilst also potentially undermining that message, which creates an irreconcilable tension (Matich et al., 2019).

The study also highlights censorship which occurs in digital spaces. The authors found that those most likely to participate in #freethenipple (by sharing images of their bodies online) were women who adhere to the narrow ideals associated with aspirational bodily appearance. The censorship of marginalized bodies on social media is evident and emphasizes underlying moral and ethical issues associated with AI-enabled technology (Du and Xie, 2021; Verbeek, 2011). For example, when a plus-size model and black activist called Nyome Nicholas-Williams shared an image containing partial nudity on her Instagram account, it was promptly taken down by the site for supposedly flouting the platform’s guidelines. Nicholas-Williams shared the intervention with her followers, and outrage, as well as a viral hashtag #IwantotoseeNyome, ensued. The significance here is that the imagery Nicholas-Williams uploaded is common, if not inherent to the platform, raising questions as to why her post was targeted by Instagram’s algorithm.

This being said, on other platforms such as TikTok, the algorithm is being harnessed by activists to advance their cause. So-called ‘algorithm activism’ has recently played a role in raising awareness for a social movement called Black Lives Matter (BLM), which aims to address systemic racial injustices (Mitchell, 2020). Unlike other platforms such as Instagram, Twitter, and Facebook, TikTok plays a more direct role in recommending new content to its users. The algorithm on other platforms recommends content to users based on what they already engage with. In contrast, TikTok recommends new content to users which has the potential to go viral, although it may have little to do with their current interests. Activists have co-opted this feature to increase the visibility of BLM content on the platform (Mitchell, 2020). Algorithm activism entails activities such as commenting en masse and ‘duetting’ with videos (using a split-screen feature which shares the original video with a new video side-by-side). These activities raise the ‘viral potential’ of the content, inciting TikTok to share the content to more users. Within this context, activists appear to have heightened control. However, TikTok is a commercial entity, designed to garner revenue and ‘eyeballs’. If the movement were to lose its political or commercial shine, they could down rank content relating to the movement (Mitchell, 2020). As Mitchell (2020) states, ‘there is no automatic entitlement of people to use the platform in the way they want’.

Although smartphones can help to advance social movements, their production and consumption have been connected with social and environmental degradation. For example, the estimated lifespan of a smartphone is 5–10 years; however, they are typically only used

by consumers for an average of 12–14 months, before advertising efforts encourage them to take up a new model. This cycle generates a huge amount of e-waste as disregarded phones, which usually end up in landfills, leak harmful chemicals into groundwater, effecting human and plant life (Suckling and Lee, 2015). Labor and environmental violations have also been identified in Apple's Chinese supply chain, as reports indicate that factory workers toil in unsafe environments and work in excess of daily and weekly limits with no legal recourse (Cole and Chan, 2015). Although smartphone technology has the potential to advance social movements, issues such as commodification, ownership, and bias have the potential to exacerbate inequalities, rather than oppose them. Further, the smartphones' ability to garner social change juxtaposes harmful practices associated with its own consumption and production.

Free and Tethered

A defining affordance of the smartphone is its mobility. Allowing us to communicate from anywhere to anywhere, the smartphone liberates us from geographical constraints and offers us independence (Arnold, 2003). By providing a permanent 'individualized address' (Arnold, 2003, p. 243) we are free to roam but remain tethered by an 'invisible perpetual leash' (Hjorth, 2011, p. 99). As a result, our smartphones keep us 'switched on', 'plugged in', and eternally connected to a neoliberal sensibility. By which we mean, we are transformed into a portable resource, 'a resource for the employer, a social resource for friends and acquaintances, a family resource for relatives, always at call, fixed in position, ready to be accessed and pressed into service [...] we are digitally leashed, because we are unwired' (Arnold, 2003, p. 244). With our mobile phones in tow, we become split between 'competing planes of significance' as they draw our attention toward the 'digital sphere' lurking behind the 'analogue world' (Reyes et al., 2015, p. 116). As a result, we display 'in-and-out' behaviors, and ordinary events, such as dinner with friends become fragmented, as we continually flick between the mediated and non-digital realm. Even silent devices have a tangible presence at the dinner table, ready to divert our attention at any moment with a notification (Reyes et al., 2015). When we are drawn into digital worlds, our cognitive and corporeal attention is drawn away from our surroundings, causing people to abruptly stop and block walkways to answer a phone call, or pause mid-conversation to reply to a text message much to the frustration of those around them (Reyes et al., 2015).

The ability of the smartphone to foster connection can produce experiences of empowerment. Nemer and Freeman (2015) found that selfies act as a source of connection for people living in Brazilian favelas. Experiencing constant repression and censorship in the presence of drug traffickers, participants use selfies to express themselves, strengthen interpersonal communication, and connect with family and peers (Nemer and Freeman, 2015). For migrating populations, mobile phones also offer connection to loved ones, as well as access to 'vital information about where to go, how to get there, where to stay [and] how to make the journey safer' (Awad and Tossell, 2019, p. 612). As a result, it is commonly assumed that a refugee would wholly benefit from mobile connectivity. However, recent research reveals that this relationship is more complex. Participants in Awad and Tossell's (2019) study recognized the benefits of staying in regular contact with family and friends but also reported that the connectivity afforded by their mobile phones could result in 'psychological distress'. For some, hearing about their loved one's plight from afar created feelings of powerlessness (Awad and Tossell, 2019). For others, being constantly 'on-call' used up large portions of their time, creating a draining effect (Awad and Tossell, 2019). Some participants in the study

felt the need to tailor accounts of their lives in the Netherlands in order to avoid distressing those in Syria. One participant, for example, preferred communicating through instant messaging apps, as they found it easier to conceal their feelings when they were upset (Awad and Tossell, 2019).

The connectivity of the smartphone is bolstered by location-aware technology which offers the potential for corporate and state surveillance (e Silva and Sheller, 2014; Sheller and Urry, 2006; Zuboff, 2019). This can prove an advantageous quality, enabling flexible rendezvous to occur (Patterson, 2013). The flipside, of course, is that the smartphone is fundamentally a tracking device. In recent times, the tracking capabilities of the smartphone have proved pivotal in informing local and global understandings of the coronavirus pandemic. Relying on geolocation tracking software, tools such as data visualization maps and contact tracing apps have been taken up by numerous countries around the world to help them manage the risk of contagion. However, issues such as privacy concerns, exacerbated inequalities, and increased surveillance have been connected to such schemes (Frith and Saker, 2020). Perpetuating the digital divide, those who do not own a smartphone are essentially rendered invisible in these schemes. These developments have also resulted in unprecedented levels of surveillance, which are difficult to reign back in as their infrastructure and their normalization are already in place. Frith and Saker (2020) also question the level of anonymity afforded to personal data, which may not be as impenetrable as one may hope.

This being said, privacy is perhaps a commodity that we are more than willing to forego in the present day. Giroux (2015, p. 157) argues that rather than being ‘imposed by repressive or secret mechanisms of the state, big corporations, and powerful institutions’, in many cases the loss of privacy is actually voluntary, as we are driven by a desire to make ourselves visible in the public sphere. Every day, many of us are happy to broadcast our lives on social media sites such as Facebook, Twitter, Instagram, and TikTok or share personal data when we strap on wearable tracking devices to monitor our fitness endeavors. Such behavior has become normalized, as smart technology and social networks have become our primary mode of entertainment and communication. In the present epoch, young people are being socialized into the commodification of life, as personal information is willingly given over to social media platforms and harvested daily (Giroux, 2015; Zuboff, 2019). Increasingly, person contact is being replaced with person-to-machine contact, and as machines become more intelligent and interactive, this trend will intensify.

As new generations are brought up in this technologically infused world, we wonder to what extent state and corporate surveillance will become normalized and positively mundane. As our lives become increasingly interwoven with gadgets such as the smartphone, we wonder if we will become less critical and more accepting of our data being harvested. In order to counteract this potential outcome, Frith and Saker (2020) call for pedagogical tools within classrooms to facilitate more knowledge about how our data is collected and handled, enabling people to make critical decisions when engaging with their smartphones. Such moves hope to empower us with a critically reflexive stance as regards the relationship we have with our devices.

Looking Forward

For most people, especially in the western world, the intimate and embodied technology of the smartphone is integral to their lives. Throughout the jarring sociological changes that will occur over the next few decades which include self-driving cars becoming the default

mode of transport, the development of machines that are much cleverer than humans, and the colonialization of the moon and mars, it is easy to assume that devices similar to the smartphone will still be in our possession. Certainly, in the futuristic sci-fi series, *The Expanse*, set in the 24th century, they remain essential everyday accessories, although they are called hand terminals and are, as one would absolutely expect, entirely transparent. Nonetheless, there are those that argue that the days of the smartphone are numbered, that the integration of yet to be invented augmented reality devices into our lives will quickly make them obsolete (King, 2016) and that they are destined to become historical relics like fax machines, and er, Google Glasses. Like the makers of *The Expanse*, we believe smartphones will be with us for many years to come. The allure of their tiny screens – just as Aldous Huxley predicted – will continue to hold us captive, undo our capacity to think for ourselves, affect our subjectivities, and in Orwellian fashion monitor our every move and swipe. Yet, most consumers, we predict, will remain relatively unperturbed by the ‘thumbs down’ concerns we sketch in this chapter. The extraordinary malleability of the smartphone will ensure that they stay in the pockets of consumers for a long time to come.

Further Reading

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