

Technology and addiction: What drugs can teach us about digital media

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Abstract

Comparisons between digital media and narcotic drugs have become increasingly common in the vigorous discussion on *smartphone addiction* and *technology addiction*. Commentators have used evocative terms such as “digital heroin,” “electronic cocaine,” and “virtual drugs” when discussing users’ growing dependence on their devices. This article looks at the spreading discourse comparing digital media with drugs from a set of interdisciplinary perspectives including media studies, political economy, critical theory, science and technology studies, and addiction studies. It engages several key questions: To what extent can heavy smartphone use be considered an addiction, and how is it similar or different from drug addiction? How do the analogies between media and drugs fit within prevalent imaginaries of information technologies, and within the greater cultural themes and preoccupations of late capitalism? And finally, what can drugs teach us about the possible escape routes from our society’s current predicament?

Keywords

consumer society, drugs, media addiction, psychedelics, set and setting, smartphone addiction, sociotechnical imaginaries

If technology is a drug – and it does feel like a drug – then what, precisely, are the side effects? (Charlie Brooker, creator of *Black Mirror* TV series)

Over the past decade smartphone use has become an issue of increasing social concern. Countless media articles have been dedicated to the subject of this growing social malady (Carr, 2017; Lewis, 2017; Twenge, 2017b). Several observers have produced grim accounts lamenting the habit-inducing nature of today’s digital gadgets, while others turned their efforts to writing practical manuals on “how to build habit-forming products” (Alter, 2017; Clement & Miles, 2017; Eyal, 2014; Kardaras, 2017; Twenge, 2017a). Meanwhile, thousands of scientific papers have been published in an attempt to clarify this new form of dependence, often openly referred to as an addiction: What are its symptoms? How should it be diagnosed? And which are its most deleterious effects? ¹

The literature on the addictive nature of smartphone technology makes several key claims. First, it claims to identify a neurochemical similarity between the brain mechanisms involved in so-called smartphone addictions and those involved in other types of addiction such as gambling or sex. Popular and scholarly accounts implicate the brain’s reward system in smartphone dependency. Repeatedly checking one’s phone for incoming messages and “likes,”

or constantly refreshing one’s newsfeed leads to the cerebral release of “feelgood neurotransmitter” dopamine, laying the grounds for the development of addiction. Second, the constant and unpredictable nature of digital stimulations makes digital appliances exceedingly addictive (Alter, 2017; Carr, 2010; Lucking, 2015; Veissière & Stendel, 2018). The superior conditioning power of variable, unpredictable rewards over consistent forms of reward has been observed in B. F. Skinner’s classic mid-twentieth-century behavioral psychology research on conditioning (Skinner, 1953, 1990). Thus, addiction to smartphones is compounded by the fact that the nature of rewards (e.g., the number and content of notifications received) are variable and unknown (Veissière & Stendel, 2018). Third, such recurring media-induced behaviors, repeated dozens or hundreds of times a day, are claimed to cause alterations to brain function

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including abnormal cue reactivity signatures similar to those of other addictive disorders, among other findings of aberrant neural action in diverse parts of the brain, which correlate with heavy smartphone use (Hadar et al., 2015; Horvath et al., 2020; Schmitgen et al., 2020). Finally, screen addiction is correlated by researchers with rising levels of depression, anxiety, attention deficit disorder, and other psychopathological conditions (Demirci et al., 2015; Elhai et al., 2016, 2017; Hadar et al., 2017; Roberts et al., 2015; Twenge, 2017a).

With such disturbing claims and incriminating evidence, it is hardly surprising that an increasingly alarmist discussion has developed around the topic of smartphone use (Becker, 2016; Gonzalez, 2018). One recurring feature of this conversation is a repeated analogy between smartphone addiction and drug addiction. In recent years, smartphones and digital media have repeatedly been referred to as “electronic heroin” (Phillips, 2017; Williams, 2014), “electronic cocaine” (Harsh, 2017), “digital cocaine” (Huddleston, 2016), “virtual drug” (Kardaras, 2017), “digital pharmakeia,” (Kardaras, 2017), and a host of other pharmacologically derived names (Harsh, 2017; Huddleston, 2016; Kardaras, 2017; Phillips, 2017; Williams, 2014).

At this point, it is important to note that the use of the term addiction to refer to smartphone dependencies raises several inherent problems. First, the concept of addiction can be questioned and interrogated. What and who, one might inquire, is an addict? Who defines an addict? What makes a substance addictive? And could certain socially accepted behaviors be considered addiction? These valid questions have been discussed elsewhere, and are beyond the scope of this article (for discussions of addiction as a concept, see Alexander & Schweighofer, 1988; Goodman, 1990; Sussman & Sussman, 2011).

This article draws on the diagnostic criteria presented in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013) section on addictive disorders and substance use. Addiction in this model is defined as taking a substance for a longer period or larger quantities than intended, unsuccessful attempts to decrease use, and significant time spent using. The DSM framework also describes recurrent use that obstructs obligations at work, school or home; recurrent use in situations in which it is physically hazardous; and continual use despite knowledge of a psychological problem induced or exacerbated by the addiction (American Psychiatric Association, 2013).

Another critical question targets the object of addiction that could be framed as either the smartphone itself, specific apps used on the smartphone, or the attention mobilized through the device. In effect, one might speak of three aspects involved in addictive smartphone use: a gadget addiction, an app addiction, and an attention addiction, which do not preclude one another, but rather reflect and reinforce each other at differing ratios. Smartphones

therefore serve as rather ambiguously delimited objects of addiction. On this view, uncritically embracing hyperbolic expressions that compare media with drugs is likely inaccurate and naïve. Digital media are in many ways distinct from pharmacological substances.

And yet, the growing use of pharmacologically inspired metaphors to describe contemporary digital life does merit our attention. This article investigates the applicability of the term addiction to cases of heavy and compulsive smartphone use, as well as the use of drug analogies to discuss smartphone effects. We approach the subject by engaging with diverse types of literature and theories that are not commonly brought in conjunction, including media theory, addiction studies, science and technology studies, neuroscience, and psychedelic therapy. A comprehensive investigation of the comparisons and links drawn between media and drugs can only be achieved by mutually considering existing knowledge on both. The current paper thus aligns itself with past attempts to explore the interactions of—rather than similarities between—media and drugs (MacDougall, 2012a).

This article explores a series of questions inherent to the smartphone-drug discussion.² First, to what extent can heavy smartphone use be considered an addiction, and in what ways is it similar or different from drug addiction? Second, how does the smartphone addiction analogy fit within prevalent imaginaries of information and communication technologies? Third, how does the addiction analogy fit within the larger cultural themes and preoccupations of late capitalism including enhanced forms of individualism, atomism, consumerism, and commodification arising within the context of increased reliance on information and communication technologies, and digital forms of labor and consumption? (Kumar, 2009). Finally, based on social science perspectives on addiction and on insights gleaned from the field of psychedelic therapy, our paper explores possible escape routes from this current societal predicament.

The digital addiction metaphor

Over the past years, popular and scholarly discourse around the topic of “smartphone addiction” (more generally referred to as “tech addiction”) has boomed. Over 10,000 scientific papers using the phrase “smartphone addiction” have been published since 2017.³ This growing interest has so far not been translated into any medically recognized diagnosis. While the DSM-5, the latest edition of the psychiatric community’s authoritative diagnostic manual, includes a new potential diagnosis dedicated to “Internet gaming disorder,” the editors were reluctant to add an “Internet addiction” diagnosis (Petry & O’Brien, 2013; Pies, 2009). This decision runs counter to a growing number of voices who argue the existence of underlying biopsychosocial processes common to both behavioral

addictions and Substance Use Disorders (SUD; Karim & Chaudhri, 2012; Leeman & Potenza, 2013; Orford, 2001). Behavioral addictions are defined as nonsubstance-related behaviors, that include short-term rewards causing persistent behaviors despite knowledge of adverse consequences (Grant et al., 2010). Commonly discussed behavioral addictions include addiction to gambling, shopping, exercise, food, and porn. A growing number of studies find that behavioral addictions involve the same neurotransmitter pathways as SUDs (for comprehensive reviews of such articles, see Karim & Chaudhri, 2012; Leeman & Potenza, 2013). Additionally, nonsubstance addictions share the same types of behavioral patterns with SUDs, including “craving, impaired control over behavior, tolerance, withdrawal and high rates of relapse” (Karim & Chaudhri, 2012, p. 14). Both nonsubstance addictions and SUDs share the same genetic prognosticators (Leeman & Potenza, 2013), and are helped by the same types of therapy and medication (Karim & Chaudhri, 2012).

Indeed, any brief examination of the DSM-5’s diagnostic criteria for substance use disorders indicates strong similarities between the markers of substance abuse as currently defined by the DSM, and behaviors common to heavy smartphone users. DSM-5 defines substance addiction as a condition recognizable by the prevalence of two or more characteristics including: “craving or strong desire to use the substance,” “the substance is often taken in larger amounts or over a longer period than was intended,” “persistent desire or unsuccessful efforts to cut down or control use of substance,” “recurrent use of the substance resulting in a failure to fulfill major obligations at work, school or home,” “recurrent use of the substance in situations in which it is physically hazardous” (American Psychiatric Association, 2013; quotes are based on the DSM’s template descriptions of SUDs including alcohol, cannabis, phencyclidine, inhalants, and others; see pp. 490–491, 509–510, 520, 533–534). Such characteristics correspond closely with smartphone-user reports of strong urges to use smartphones and difficulties cutting down on use (Alter, 2017; Mod, 2018), that users often find themselves spending longer periods than intended on their devices, that heavy use correlates with lower school and work performance (Hawi & Samaha, 2016). Finally, the reference to physically hazardous situations caused by addictions might correspond to reports of 56% of parents admitting to texting while driving according to a survey on parent–teen dynamics around smartphone use (Common Sense Media, 2016). Indeed, most surveys show over half the American population consider themselves addicted to their phones (Common Sense Media, 2016; Roberts et al., 2014; Sellgren, 2016; Wheelwright, 2021).

These rates of smartphone addiction raise further concerns, as evidenced in a growing number of studies establishing links between heavy smartphone use and a host of

mental-health conditions including depression, anxiety, attention deficit disorder, as well as reduced quality of sleep and impulse control (Demirci et al., 2015; see, for instance, Elhai et al., 2017; Hormes et al., 2014; Przybylski & Weinstein, 2013; Ward et al., 2017). Despite the growing prevalence of the concept “smartphone addiction,” some observers have argued that discussions about smartphone addiction tend towards alarmism, hysteria, and even moral panic. Much of the new research on tech-addiction, it is argued, suffers from lack of systematization and is fraught with weak statistical correlations. Tech-addiction science, critics say, is much like nutritional science: due to its highly complex and multi-variant dependent nature, it can offer little certainty (Becker, 2016; Gonzalez, 2018).

Others have argued that the very term “addiction” is misleading (MacDougal, 2012b). “Talking about addiction subverts our best thinking because it suggests that if there are problems, there is only one solution,” argues MIT professor Sherry Turkle (2011). “To combat addiction, you have to discard the addicting substance. But we are not going to ‘get rid’ of the Internet ... The idea of addiction, with its one solution that we know we won’t take, makes us feel hopeless” (pp. 293–294). Rather than using the term “addiction” with its substance abuse connotations, Turkle prefers to think of media consumption in terms of diet. It is impossible to completely stop consuming media in the same way that it would be impossible to stop consuming food, and yet one might work towards a healthier, more nutritional diet.

Turkle’s argument might be challenged on several counts. First, addiction is not necessarily limited to avoidable substances. Rather, the definition might include routine activities that cannot easily be eliminated such as shopping, work, sex, and physical exercise. Most prominently, food addiction is itself a recognized pathology (see, for instance, Ifland et al., 2009). Addiction to an essential, unavoidable activity or object is thus arguably still an addiction. Furthermore, Turkle’s assertion that the addiction concept leaves only one option—that of complete renunciation—might also be disputed by the literature on addiction, which finds many different shades of addiction in the realms of compulsive behaviors (Alexander, 2010).

A second pertinent objection to the notion of tech-addiction is raised in an article by Veissière and Stendel (2018), which links smartphone addiction with archaic evolutionary mechanisms such as the need to monitor and be monitored by others. Smartphone use, the authors argue, is motivated by the natural need to connect and is therefore social rather than anti-social. On these authors’ views, there is nothing inherently addictive about smartphones. Rather, smartphones provide a “potentially unhealthy platform for another healthy impulse” (p. 2).

This is an important observation. Indeed, it sometimes appears impossible to distinguish between the crave for

tech and the crave for connection. Our main objection here is, first, that human relationships too can become addictive, so that the social nature of smartphone use does not negate its addictive potential. Second, the facilitation of immediate, 24/7 communication channels changes the addictive potential of social relationships. Third, a variety of carefully arranged addiction-enhancing mechanisms (e.g., scrolling, bottomless newsfeeds and notifications) are part of the smartphone complex and further enhance its addictive potential.

While the human need to engage in sociality is itself mostly healthy, heavy smartphone use, by contrast, has been linked with growing psychological dispositions towards insecurity and an insatiable craving for attention and validation (Twenge, 2017a). To summarize, while the smartphone services a natural human need for sociality, it also magnifies that need and creates new and intense *manufactured needs*. If we compare sociality to coca leaves—a natural stimulant safely integrated into the life texture of countless cultures—then smartphone sociality can be likened to cocaine—a more concentrated synthesized version with a remarkably higher potential for addiction. Similarly, while consuming food is a necessary and natural part of human existence, current research suggests that processed food containing refined sweeteners, carbohydrates, fat, and salt can be considered addictive substances (Iffland et al., 2009).

Jaron Lanier points to the financial incentive system behind social media as the most likely culprit for addiction. In *Ten Arguments for Deleting Your Social Media Accounts Right Now*, Lanier (2018) argues that users are falling under the “stealthy control” (p. 2) of nefarious corporations and their clients. Lanier’s first argument, “you are losing your free will,” discusses the collapse of the boundary between healthy socialization and unhealthy dependency on social media. Sean Parker, the first president of Facebook, is cited, arguing that

we need to sort of give you a little dopamine hit every once in a while, because someone liked or commented on a photo or a post or whatever. ... It’s a social-validation feedback loop ... exactly the kind of thing that a hacker like myself would come up with, because you’re exploiting a vulnerability in human psychology. (cited in Lanier, 2018, p. 8)

According to Lanier, these purposefully addictive installments merge with our social lives to create “zombie” users that are gradually devoid of free will, as users get driven from one manipulative cue to the next.

Describing our tech dependencies in terms of addiction might feel uncomfortable, but rather than denying the addictive potential of smartphones wholesale, a more productive approach might lend an ear to the cultural resonances and theoretical implications of such a perspective. If we think of addiction in broader terms, as a spectrum

of excessive appetites lurking in the background of human existence (Orford, 2001), we might find that rather than rejecting the doctor’s diagnosis, embracing it can lead to new and productive theoretical avenues.

Pharmakomediatic imaginaries

In Turkle’s (2011) argument, one of the defining characteristics of smartphone addiction is that unlike drug abusers, gamblers, or porn addicts (who are theoretically able to cede their habit), it is, in most cases, not practical for digital media users to relinquish it and return to a pristine pre-digital state. Renouncing smartphone use is rendered virtually impossible by a mixture of social and professional obligations in a digital world where workers are expected to regularly check their inboxes and social communication is largely conducted through social media. Classic models of recovery and rehabilitation call for complete abnegation of one’s habit in the spirit of 12-step programs. For smartphone abusers, this is not a sensible option. While recreational drug use is an “opt-in” technology, smartphone use is an “opt-out” technology because it is inescapable and ubiquitous.

Smartphones act as flexible and versatile substitutes for countless other nearly-defunct devices like cameras, music players, maps, calendars and watches. Users are thus repeatedly impelled to return to their device, and upon their return, they habitually lose themselves in its plethoric abundance of stimulations and possibilities. As a centripetal hub of psychosocial activity, the smartphone functions as a hyper-networked extension of the human mind, to which one habitually and instinctually turns (McLuhan, 2003). Tellingly, addiction to smartphones often manifests as an inadvertent, evasive, yet ineluctable psychosomatic habit of periodically reaching for one’s phone, even without any obvious reason.

Our culture’s growing fascination with the notion of tech-addiction indicates a seismic shift in our understanding of technology. It is at this point that we wish to propose that our postindustrial culture’s reception and adaptation of digital technologies has, since the mid-20th century, been informed by two major types of media-related imaginaries: the narcotic imaginary of media which regards it as insidious and addictive, and the cyberdelic imaginary of media which regards it as liberating and empowering (for discussions of imaginaries and their role in sociotechnical development, see B. Anderson, 1983/2006; Jasanoff & Kim, 2015). By turning to narcotic metaphors (“electronic cocaine,” “digital heroin”) early 21st century culture has, in fact, gone full circle and returned to earlier views concerning the psychoactive nature of information technology.

McLuhan’s (1964) “Notes on Burroughs” essay provides an early example for a position which views electronic technology as inherently narcotic. “When the full consequences of each new technology are manifested in

new psychic and social forms, then the anti-Utopias appear,” writes McLuhan (1964, p. 517). Drawing on Burroughs’ accounts of apomorphine addiction in *Naked Lunch* (1959/2013), McLuhan’s, (1964, 518) ninth note suggests that one possible escape route from technology’s arresting power is to regard “our entire gadgetry as *Junk* [...] applying the same formula that works for *junk ‘apomorphine,’* extended to all technology.”

McLuhan’s argument is that our human bodies and minds are incapable of keeping up or handling the new intensities of electronic technologies. The only alternative therefore is a media detox (here McLuhan quotes Burroughs): “Shut the whole thing right off—Silence—When you answer the machine you provide it with more recordings to be played back to your ‘enemies’ [...] Don’t answer the machine—Shut it off” (Burroughs, 1959/2013, quoted in McLuhan, 1964, p. 518).

McLuhan’s sober assessment of the narcotic nature of electronic gadgetry was forsaken in the next 40 years, as digital media increasingly came to be understood not as a narcotic, but rather as a mind-expanding psychedelic. Fred Turner’s (2006) *From Counterculture to Cyberculture* documents the shift that occurred from the late 1960s to the late 1990s as computers, once regarded as centralized agents of nefarious control and manipulation, increasingly came to be seen as forces of decentralization, personal empowerment, and even liberation. Ironically, it was McLuhan again who challenged the new governing metaphor when he argued, as early as 1968, “the computer is the LSD of the business world” (McLuhan et al., 1968, p. 83). By 1972, Stewart Brand, countercultural entrepreneur and co-organizer of famed 1960s *Acid Tests*, was calling attention to the mind-expanding potential of digital computers. In a prominent *Rolling Stone* story, Brand (1972) called computers the best news “since psychedelics.” A culture celebrating the psychedelic potential of cyber technologies emerged under the banner “cyberdelia,” and would reach a growing popularity in the 1980s and 1990s, often through such outlets as the psychedelically minded cyberculture magazine *Mondo 2000* (Dery, 1996). As this culture grew, the conflation of digital virtual realities and psychopharmacological ones became increasingly common. By the 1990s, even ex-1960s LSD-evangelist Timothy Leary was arguing that “the PC is the LSD of the 1990s,” and was calling upon the public to “turn on, boot up, jack in” (a paraphrase of his earlier 1960s slogan “turn on, tune in, drop out”; Leary, 2014).⁴

The early 2000s collapse of the Internet sector NASDAQ index (dot com bubble) (Wheale & Amin, 2003) and the growing domination of the web by a small number of multinational corporations dealt a fatal blow to the utopian cyberdelic vision. Searching for new sources of revenue, Internet companies were forced to rethink their business models. They turned their eyes towards massive online surveillance schemes that sought to

maximize user engagement and effectively manipulate user attention and actions (Zuboff, 2019). It took several more years, the invention of social media, and the emergence of Internet-connected touchscreen-enabled phones, to revive the narcotic imaginary in full.

Interestingly, the revived idea of electronic media as narcotics fits within the greater sociocultural themes of late capitalism. Historian David Courtwright (2019) calls ours “the age of addiction.” Like many others, Courtwright argues that addiction is a key component of consumerist capitalism, where consumers are encouraged to set their desires loose, and where dependence on regular consumption of products is the lifeline of so many economic sectors from fashion and lifestyle products to electronic gadgetry.

Unlike Max Weber’s characterization of capitalism as based on an ascetic protestant work ethic sanctifying the accumulation of wealth (Weber, 2001), contemporary theories of capitalism speak of a *late capitalism* in which attention is shifted from production to lavish consumption (Baudrillard, 2016). As commented by cultural and financial theorist Ole Bjerg (2008), “Consumption and enjoyment are no longer vices but rather virtues, and we are constantly bombarded by demands for us to buy, consume and enjoy” (p. 6). Drug addiction, Bjerg claims, is actually “a radical way of fulfilling the imperatives of enjoyment constantly thrown at us by the contemporary ideology of consumption” (p. 1).

According to Burroughs (1959/2013), everyone is a junky of some sort in the capitalist system, which is permeated with the “algebra of need”: a consumer system where junk functions as “the mold of monopoly and possession” (p. 200). As Burroughs explains, opiate addicts exist at the bottom of “the pyramid of junk, one level eating the level below right up to the top or tops since there are many junk pyramids feeding on peoples of the world and all built on the basic principles of monopoly” (p. 200).

Alongside such literary and cultural theory perspectives about capitalism and addiction, social scientists have also explored the linkage between capitalism and addiction. Chief among these is psychologist and addiction expert Bruce Alexander. In his *Globalization of Addiction*, Alexander (2010) follows historical data and argues that addiction is strongly driven by dislocation—a sustained absence of psychosocial integration. Alexander defines psychosocial integration as a sense of meaning and identity, derived from stable social relationships and roles. While it is possible to endure the absence of psychosocial integration for some time, Alexander argues that “severe, prolonged dislocation eventually leads to unbearable despair, shame, emotional anguish, boredom and bewilderment” (p. 59). Historical data, Alexander argues, demonstrate that addiction can disappear almost completely from a society for extended periods but become endemic in times of crisis. One example is the case of the Indigenous

communities of the Americas, who—dislocated from their land, language, and culture—became susceptible to alcoholism and other forms of addiction.

Psychosocial dislocation can happen to any individual in any society, but it is much more frequent in societies experiencing crisis. Importantly, argues Alexander (2010), free-market society is the first society in history in which dislocation is endemic even in times of ostensible prosperity. By subjecting its citizens to increasing pressures of individualism, competition and rapid change, free market society undermines traditional sources of psychosocial integration.

Balancing the medium and the setting

To what degree then, is smartphone addiction an outcome of the technological medium and to what degree is it dependent on social construction? Here Alexander presents us with a diametrically opposed perspective to that of Marshall McLuhan. McLuhan's famous aphorism "the medium is the message" points to the inherent addictive properties of smartphone technology. Certain technologies present a higher potential for addiction in the same way that some types of drugs and foods (e.g., foods rich in sugar or fat) are more addictive than others (Volkow & Wise, 2005). This view is challenged by Alexander et al.'s (1980) description of addiction as a product of sociocultural conditioning, best exemplified by his famous *Rat Park* experiment, which serves to demonstrate that it is not only the medium but also the context that determines the message.

Alexander et al.'s (1980) classic *Rat Park* experiment overturned the findings of 1960s research that demonstrated the addictive properties of drugs by observing the behavior of laboratory animals that were left in small cages where they could self-administer morphine. Alexander argued that life in small, solitary conditions made drugs increasingly attractive. He therefore built an alternative experimental design where lab animals had regular access to social contact, mating opportunities, exercise toys, as well as dark and secluded nesting spots ("Rat Park"). Extraordinarily, in his design, rats did not develop addictions or experience drug overdoses. The study, which was later replicated using cocaine and methamphetamine (Chauvet et al., 2012; Stairs et al., 2006; Whitaker et al., 2013), stands as a prime example for the crucial role of contextual factors in addiction. Brought outside of the lab, and into the field of drug sociology, it might give us hints on the prevalence of addiction in urban slums, ghettos and prisons, where humans are subjected to poor conditions of dislocation, arguably not unlike those experienced by animals in standard lab experiments.

Evidence of this type provides much needed nuance on McLuhan's insistence that the medium is the message. A simplistic view of drugs might consider them to be exemplary illustrations of the medium (i.e., the substance) being the message. Individuals under the influence of

drugs arguably become a corporeal manifestation of a corresponding drug state. Their words and actions might be construed as only secondary products of a psychopharmacological medium that has interfaced with their brains to evoke specific thoughts and emotions (e.g., self-confidence with cocaine, concentration with Ritalin, affection with MDMA). Nevertheless, the *Rat Park* example, and other studies on the essential importance of context in psychopharmacology, point to the fact that drug effects are rarely as certain as one assumes.

One location where the idea regarding the crucial role of context in shaping drug effects has been developed to the fullest is in the field of psychedelic drug research. A key insight that recurs throughout the literature on psychedelics is that the effects of drugs are crucially dependent on what researchers call "set and setting": psychological, social, and cultural variables such as intention, expectation, social, or physical environment. The same drug and dose might elicit a wide range of reactions, all depending on context (Carhart-Harris et al., 2018; Hartogsohn, 2017). The concept of set and setting closely relates to the concept of harm reduction—the use of diverse strategies (offering medical/psychological support, providing safehouses, etc.) to reduce the harms of drug use (and other risky behaviors) rather than attempting to fully eradicate the behavior itself (Collins et al., 2012; Lenton & Single, 1998).

We propose that introducing drug-related concepts such as set and setting and harm reduction, into our discussions of media, and media-related ideas (the medium is the message) into our thinking about drugs gives rise to fruitful perspectives on both subjects. Most fundamentally, it forces us to confront the chasm between those approaches which stress the formative power of new technologies (such as drugs) to change the ratio of our senses, and those that point to the context-dependent nature of technology's effects.

On the one hand, the material reality of digital technology—its features of constant availability, facile reproduction and multiple networked uses—seems to point to a very real addictive potential inherent to the technology, leading us back to McLuhan's (1964) warning that "the power of the image to beget image, and of technology to reproduce itself via human intervention, is utterly in excess of our power to control the psychic and social consequences" (p. 518). Alexander's *Rat Park*, on the other hand, might lead us to study the ways in which smartphone addiction is not a function of medium but of environmental conditions.

Smartphones also point us back to the tensions between narcotic versus psychedelic imaginations of digital technologies, and their relevance for shaping new forms of engagement with technology. In recent years, literature in the field of Science, Technology and Society (STS) has extended Benedict Anderson's (1983/2006) concept of imagined communities, later developed into the concept of social imaginaries (Taylor, 2004), to include

“sociotechnical imaginaries,” defined as “collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology” (Jasanoff & Kim, 2015, p. 4). According to STS scholar Sheila **Jasanoff**, such shared imaginaries of the desirable (or undesirable) meaning of technology serve to shape its development and acceptance into society.

Both the cyberdelic and narcotic-media imaginaries could be seen as a part of the sociocultural context that participated in the coproduction of digital technology and novel social norms (for an account of coproduction as an analytic concept, see Jasanoff, 2004). The cyberdelic imaginary of digital technology might be thought of as a product of a period characterized by lofty ideals of mind-expansion, individual empowerment, and virtual communities based on idealistic models of gift economy, inspired by former hippies such as Stewart Brand and Howard Rheingold (Turner, 2006). The narcotic-media imaginary, on the other hand, fits well in a time when the web is controlled by a few powerful global corporations, and an attention economy designed to hook media consumers into binge watching and endless scrolling (Hari, 2016).⁵

Transcending digital narcoticism

So what, finally, is the take-away from this discussion? Recent years have seen the emergence of new genres of technology-related writing that include both the confessions of media addicts as well as recovery guides aimed to inspire and empower media addicts to change their lives (Mod, 2018; Pellicane & Chapman, 2017; Price, 2018; Zahariades, 2016). A variety of digital detox and digital rehab programs have sprouted, which aim to help addicts regain control of their digital habits (Colin, 2013; Koo et al., 2011; Madrigal, 2013). Additionally, a series of smartphone apps with such names as “Phoneaddict Free” and “Addiction Meter” have become available, intended to help users control and curb their use of digital media. Tellingly, even the resistance to digital media is often incorporated within the medium: digital applications meant to curb digital use; social media rants against social media; erudite papers excoriating digital culture and published on digital platforms. Historian of drug economy David Courtwright (2002) notes that drug rehabilitation is an integral part of the drug economy. Digital media detox culture, it seems, is no exception.

In this sense, we argue, the inability of users to escape the virtual parameters of their digitalized existence reflects a broader issue discussed by many critics of late capitalism: the impressive ability of capitalism to assimilate and absorb all types of criticisms, to the point it appears to be an all-encompassing system without any viable alternative in sight. As Fredric Jameson (1996) famously wrote: “It

seems to be easier for us today to imagine the thoroughgoing deterioration of the earth and of nature than the breakdown of late capitalism” (p. xii). From Che Guevara images to punk music and no logo books—capitalism will turn anything into additional commodities to be sold, so it seems as if the capitalist framework cannot be escaped.

The rat park analogy is again instructive in this regard. As digital realities become the dominant and paramount environment for learning, socializing, work, and entertainment in the 21st century, users increasingly and naturally turn to their smartphones for help with their addictions. Digital technologies thus become not just the drug supplied in the rat park, but the rat park itself—the setting in which rehabilitation is attempted—symbolizing the inability of escaping the digital framework. Attempting to escape the throes of dislocation through digital remedies, users thus risk a return to the very source of that dislocation, potentially reinforcing and exacerbating its consequences.

Let us be clear: digital technology is not a drug in the common sense of the word, and the dependencies it creates should be distinguished from those created by narcotic drugs. Yet, despite these differences, certain striking similarities do stand out, and might offer valuable perspectives for a society in search of answers and solutions to its growing social-digital malaise.

Research on psychoactive drugs has shown their effects to be deeply dependent on cultural context (Hartogsohn, 2017). Technology may be similar in this regard. When using polemic terms such as “digital heroin” and “electronic cocaine” it is perhaps worthy to note that both coca leaves (containing the active agent cocaine) and opium (containing the active agent morphine) have been used by traditional societies for centuries in socially accepted ways, producing little in terms of addictions and abuse, and sometimes assisting the performance of positive social roles (Schultes et al., 1992; Weil, 1986). Today, ritual uses of certain psychedelics, such as those of peyote and ayahuasca religions, are invoked by scholars as examples for socially constructive ways of approaching psychoactive substances while minimizing risk and maximizing the potential for personal and social benefits (Blainey, 2015; Labate et al., 2017).

A balance needs to be struck between McLuhan’s insight of the medium being the message, and the insight that the effects of technology are highly context dependent, drawn from drug theory, and STS literature. On the one hand, digital media might indeed be inherently biased towards addiction. Many users, for instance, develop a dependent relationship with their email inbox, a technology developed in the early 1970s, without any intention of fostering addiction (Turel & Serenko, 2010). This seems to imply that digital technology, through its affordances of ubiquity and immediacy naturally tends toward addiction. On the other hand, such affordances are modulated and enhanced by economic incentives as well as by a culture of connectivity that values productivity and constant availability.

Conclusion

The lessons of set and setting in drug use suggest that the effects of digital media might be more flexible than we habitually assume. Digital existence does not necessarily lead to narcotic pathologies. However, to enable a new *modus operandi* in our relationship with media, earlier more fruitful imaginaries of technology need to be reclaimed. To transcend the narcotic imaginary that dominates the current discourse about technology, we must reimagine technology and reinstate its mind-expanding potential. To this end, we might turn to a variety of sources and alternative visions of technology that are not based on commodified, repetitive, habit-forming activities, but on communal, creative, and empowering uses. Some prominent examples include online user communities, the blogosphere, the free software movement, collaborative production projects such as Wikipedia and decentralized user-owned social networks (Newport, 2019). Other sources of inspiration might include speculative writing and fiction ranging the gamut from Feminist Sci-Fi to Afrofuturism.¹ (For scholarly analyses of feminist sci-fi and its political potential for imagining other futures see the work of Donna Haraway. In particular her recent *Staying with the Trouble*: Haraway, 2016) (For an analysis of afrofuturism and its visions of alternative social models see Barber et al., 2017) (For a comprehensive collection of essays which explore the social and political implications of speculative literature see O'Sullivan et al., 2017)

A more conscious, mindful, and constructive relationship with technology can be cultivated on both the individual level and the collective level. Mindless habits of digital consumption can be challenged by developing a more mindful approach to technology: by changing one's mindset in the use of technology, and by recalibrating the parameters of our everyday digital existence (e.g., turning off one's notification updates, or placing one's phone outside the room). Though they might sound banal, user experiences and research data show such measures can be surprisingly effective (Alter, 2017, Chapters 10–12; Ward et al., 2017; Yoon et al., 2014).

Importantly, individual solutions will have limited value and efficacy if they continue to run counter to the collective cultural setting. And herein lies the rub. Can media be reimaged? Does a different type of digital media with distinct non-narcotic effects exist? The answer is: *they might*, but such relationships with media cannot be based on the perverse incentives and dispositions of surveillance capitalism with its emphasis on repetitive mindless consumption. The capitalist model of technology, based on maximal engagement and compulsive behavior aimed to generate capital gains for a thin layer of global corporations cannot but lead to mindless, disempowering, narcotic models of technology use. More poignantly still, technology's narcotic spell will continue to wreak havoc on human minds, as

long as boredom, anxiety, and isolation continue to exist as the default mental states of the individuals in the free market society (Weareplanc, 2014).

The cyberdelic, mind-expanding imaginary of the network has been prevalent since its early days, but it has repeatedly been thwarted and subverted to serve the causes of libertarianism and neoliberalism (Barbrook & Cameron, 1996). Assuming we will remain bound to the capitalist framework in the foreseeable future, we are left with the fundamental question: Can we somehow combine the contrasting visions of Leary and Burroughs, and “turn on” while at the same time “shut off”? Can a mind-expanding vision of technology exist within capitalism and its purposely addictive gadgetry? And how might it be cultivated in an age where the dominion of capital seems to unprecedentedly expand itself across all walks of life?

The challenge is daunting and will become increasingly acute in the foreseeable future. Yet not all is lost—the shape of media to come is yet to be decided, and in an era when awareness of digital pathologies as well as of a crisis in the neoliberal order is growing, a new type of conversation can emerge alongside with new horizons for action. Digital media is not necessarily narcotic, nor is it necessarily psychedelic. It can be both, depending on set and on setting of use. It is, perhaps, time to revisit the cyberdelic imaginary of digital media, not in its naïve and antiquated form which simplistically perceived technologies as tools for liberation, but by invoking the concept of set and setting and its lessons for a more beneficial integration of digital technologies in society and everyday life.


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Notes

1. An August 15, 2021, Google Scholar search of the term “smartphone addiction” yields 10,400 results since 2017.
2. The smartphone, it is important to note, should be considered here as a symptomatic, ephemeral, and perhaps secondary, yet more easily delineated, stand-in for a more general phenomenon that permeates digital existence and digital networks in their various forms, transcending the incidental, contemporary form of the smartphone itself.
3. An August 15, 2021, Google Scholar search of the term “smartphone addiction” yields 10,400 results since 2017.

4. Of course history is rarely as clear-cut as its descriptions and this historical account of cyberdelic movement should be qualified by the existence of other less hopeful varieties which existed on the fringes of the cyberdelic imagination, linking it to other more sinister cyberpunk visions. The writings of Phillip K. Dick and William Gibson come to mind.
5. As stated earlier, history is never as neat as the models used to describe it, and this model, too, only serves to offer general contours of the broad cultural trends. The cyberdelic imaginary continues to exist, even as the narcotic imagination currently reigns supreme.
6. For scholarly analyses of feminist sci-fi and its political potential for imagining other futures, see the work of Donna Haraway. In particular her recent *Staying with the Trouble* (Haraway, 2016). For an analysis of Afrofuturism and its visions of alternative social models, see R. Anderson and Jones (2017). For a comprehensive collection of essays which explore the social and political implications of speculative literature, see O'Sullivan et al. (2017).

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