# Ethics of the Attention Economy:
# The Problem of Social Media Addiction

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Social media companies commonly design their platforms in a way that renders them addictive. Some governments have declared internet addiction a major public health concern, and the World Health Organization has characterized excessive internet use as a growing problem. Our article shows why scholars, policy makers, and the managers of social media companies should treat social media addiction as a serious moral problem. While the benefits of social media are not negligible, we argue that social media addiction raises unique ethical concerns not raised by other, more familiar addictive products, such as alcohol and cigarettes. In particular, we argue that addicting users to social media is impermissible because it unjustifiably harms users in a way that is both demeaning and objectionably exploitative. Importantly, the attention-economy business model of social media companies strongly incentivizes them to perpetrate this wrongdoing.

**Key Words**: social network addiction, internet addiction disorder, technology ethics, internet ethics, design ethics, exploitation

With most businesses, the user of the product or service is the source of the revenue. But there is another kind of business—the so-called attention-economy business, typically an ad-based business—where the user of the product or service is not directly the source of the revenue. Instead, the user's *attention* is the product, and this product in turn is sold to advertisers or other buyers (Williams, 2018). Businesses that operate on an ad-based attention-economy business model, of course, have long been around, including newspapers, radio, and network television (Wu, 2016). However, the most valuable and influential form of attention-economy businesses are social media companies, such as Facebook (including Instagram), Snap Inc., and Twitter (PwC, 2018).

A significant amount of attention has been devoted to the untoward ways social media has been used, including, for example, to bully (Campbell, 2005); to radicalize individuals sympathetic to terrorist causes (Huey, 2015); to exert undue influence on geopolitical events, such as the 2016 US elections (Allcott & Gentzkow, 2017); to generate mass outrage to pressure an employer into firing an employee (Bhargava, 2020; Ronson, 2015); and to polarize social groups (Sunstein, 2017). These are important issues, but they all involve using social media to pursue wrongful ends. In this article, however, we are concerned with an issue that is fundamental to the way attention-economy businesses on the internet—in particular,

social media companies—operate. We focus on how social media businesses design their products and platforms in ways that render them addictive. The design of these products and platforms, we will argue, raises unique ethical concerns even when others do not misuse them.

Internet addiction more generally has garnered substantial attention in the scholarly literature (see reviews in Aboujaoude, 2010; Andreassen & Pallesen, 2014; Byun et al., 2009; Chou, Condron, & Belland, 2005; Griffiths, Kuss, & Demetrovics, 2014) and the popular press (e.g., Beato, 2010; Borter, 2019; Davidow, 2012; Konnikova, 2014). Investors in Facebook and Apple have spoken out about the problem of teenagers becoming addicted to technologies associated with these firms (Manjoo, 2018; McNamee, 2018). Moreover, internet addiction has been met with significant government response in some countries. The Chinese government has declared that internet addiction is a "public health hazard" (Crouch, 2018), while the South Korean government similarly announced that internet addiction had become a significant public health issue (Block, 2008). A number of countries, including China, South Korea, Japan, the United Kingdom, the Netherlands, and the United States, have seen the establishment of numerous clinics devoted to treating internet addiction (Beato, 2010; Booth, 2017; King, Delfabbro, Griffiths, & Gradisar, 2011; Koo, Wati, Lee, & Oh, 2011).

Although the topic of internet addiction has been widely discussed in both academic and popular literatures, as yet, there has been no developed account of the business ethics of creating addictive social media platforms. Yet these technologies, designed and implemented by a relatively small group of engineers at a relatively small group of companies, are widely deployed, and they are accessed by a large number of people. As Harris (2018) aptly notes, "never before in history have such a small number of designers—a handful of young, mostly male engineers, living in the Bay Area of California, working at a handful of tech companies—had such a large influence on *two billion people's thoughts and choices.*" In this article, we will argue that a distinctive kind of ethical wrongdoing is involved when social media companies design and deploy these addictive platforms.

We will proceed as follows. In section 1, we discuss internet addiction in general and social media addiction in particular, its prevalence, and how it affects users. Section 2 characterizes the kind of wrong involved when social media companies addict their users. In particular, we argue that addicting users to social media is impermissible because it unjustifiably harms them and does so in a way that is both demeaning and objectionably exploitative. We discuss the harms through the lens of Martha Nussbaum's (2001, 2003, 2007, 2011a, 2011b) capabilities approach. Then, we argue that the way in which social media companies addict their users is demeaning because of how social media platforms get users to provide the very data that will be used to addict them. After that, we argue that addicting users to social media is objectionably exploitative because of the pervasive and legitimate role the internet plays in our lives. In section 3, we discuss how the business model of social media companies generates a strong incentive to perpetrate this very wrongdoing. We discuss both the practical and theoretical implications of our argument in section 4.

## 1. ON THE NATURE OF INTERNET ADDICTION

Clinicians and scholars began claiming in the late 1990s that excessive internet use was a growing problem that should be recognized as an addiction (Griffiths, 1998; Thompson, 1996; Young, 1998b). But there were then, and there continue to be, several controversies surrounding the concept of addiction (Du Plessis, 2012; Pickard, Ahmed, & Foddy, 2015; Shaffer, 1997; West & Brown, 2013) and its application to excessive use of the internet. To begin, there are multiple theories of addiction (West & Brown, 2013), including choice theories (which claim that addicts are not compelled to use an addictive substance but choose to do so because its perceived benefits are greater than its perceived costs; Ainslie, 2013; Becker & Murphy, 1988; Campbell, 2003; Heyman, 2009, 2013; Skog, 2003); disease theories (originating in the nineteenth century and officially endorsed by the American Medical Association in 1956, these claim addictive substances produce persistent pathological changes in vulnerable individuals that generate powerful craving and weakened self-control; Leshner, 1997; Levine, 1978; McLellan, Lewis, O'Brien, & Kleber, 2000; Volkow & Koob, 2015; Volkow, Koob, & McLellan, 2016); learning theories (which hold that addiction is a learned behavior acquired through a conditioning process of positive and negative reinforcement; Drummond, Cooper, & Glautier, 1990; Niaura, 2000); and, most recently, neurobiological theories (versions of disease theories developed in the 1990s, these propose specific molecular [e.g., the neurotransmitters dopamine and gamma-aminobutyric acid] and neurological [e.g., activity in the ventral tegmental area, the nucleus accumbens, and the prefrontal cortex] mechanisms of addiction; Fakhoury, 2014; Goldstein & Volkow, 2011; Koob & Simon, 2009).

Moreover, there are also multiple views of how addiction itself should be defined. The two most important clinical definitions of addiction are those provided by the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (*DSM*-5; American Psychiatric Association, 2013), and the *International Statistical Classification of Diseases and Related Health Problems*, 11th revision (*ICD*-11; World Health Organization, 2018). The *DSM*-5 and the *ICD*-11 provide similar characterizations of addictions, but while the *ICD*-11 defines "disorders due to substance use or addictive behaviors" in terms of seven criteria, the *DSM*-5 proposes eleven criteria, at least two of which do not appear in the *ICD*-11 list (Basu & Ghosh, 2018). Nonclinical definitions are also a subject of controversy. The *Merriam-Webster* online dictionary gives a medical definition of addiction as a "compulsive physiological need for and use of a habit-forming substance (such as heroin, nicotine, or alcohol) characterized by tolerance and by well-defined physiological symptoms . . . on withdrawal."[1] Yet some researchers argue that addictions do not involve compulsion (Heyman, 2009; Schaler, 2000) and others that addictions need not involve a habit-forming substance (Rosenberg & Feder, 2014; Yau & Potenza, 2015).

While recognizing the controversies surrounding the concept of addiction, we do not have to settle them here. For the purposes of our article, we adopt the view of

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[1] *Merriam-Webster Dictionary* online, s.v. "addiction," https://www.merriam-webster.com/.

Griffiths (2005; see also Kim & Hodgins, 2018; Shaffer, LaPlante, LaBrie, Kidman, Donato, & Stanton, 2004), who argues that all addictions are marked by six common components: salience (the addictive activity, e.g., smoking or taking heroin, dominates the addict's thoughts, feelings, and behavior), mood modification (the activity produces a "buzz," "high," or relaxed, destressed feeling or "flow"), tolerance (the addict must engage in increasing amounts of the activity to achieve its former effects), withdrawal (the addict experiences distress or unpleasant physical effects when unable to access the activity), conflict (the addict has conflicts within oneself or with those around them or experiences other adverse circumstances or damage), and relapse (unable to control oneself, the addict reverts to the activity after trying to stop). These six components overlap with the clinical criteria advocated by the *DSM*-5 and the *ICD*-11 and with other proposed lists of diagnostic criteria (Ko, Yen, Chen, Chen, & Yen, 2005; Tao, Huang, Wang, Zhang, Zhang, & Li, 2010; Young, 1998b). Griffith's components view provides a well-defined characterization of addiction and has been verified and endorsed by a number of studies (Andreassen, Torbjørn, Brunborg, & Pallesen, 2012; Canan, Ataoglu, Nichols, Yildirim, & Ozturk, 2010; Griffiths, Szabo, & Terry, 2005; Kuss, Shorter, van Rooij, Griffiths, & Schoenmakers, 2014; Lemmens, Valkenburg, & Peter, 2009; Nichols & Nicki, 2004), and so it is our preferred characterization of internet addictions. Note, however, that although much of the research on internet-related addictions uses diagnostic instruments based on Griffiths's criteria, some research uses instruments based on the *DSM*-5 and other criteria.

In addition to the controversies over what addiction is are issues related to the term *internet addiction.* Internet addiction, of course, does not refer to an addiction to a substance, such as heroin or nicotine, but is an addiction to a behavior, alongside other behavioral addictions, such as addictions to gambling, sex, and exercise (Karim & Chaudhri, 2012; Marks, 1990). But until recently, psychiatrists and other medical professionals did not recognize behaviors as potentially addicting (Holden, 2001, 2010; Karim & Chaudhri, 2012; Walker, 1989). It was not until 2013—with the publication of the *DSM*-5—that the American Psychiatric Association (APA) for the first time recognized a behavioral disorder (i.e., excessive gambling) as an addiction. Here we adopt the position of the *DSM*-5 that behaviors as well as substances can be addicting (Grant, Potenza, Weinstein, & Gorelick, 2010; Robbins & Clark, 2015).

Although the APA has not yet officially classified excessive use of the internet as an addiction (American Psychiatric Association, 2013: 795–98; Basu & Ghosh, 2018), it is now widely accepted that it is an addiction (Block, 2008; Ha, Yoo, Cho, Chin, Shin, & Kim, 2006; Karim & Chaudhri, 2012; Olsen, 2011; Robbins & Clark, 2015; Tao et al., 2010; Young, 1996, 1998b, 2004; Young & Rogers, 1998).[2] Excessive use of the internet, in particular, is now widely accepted as a behavioral addiction for three reasons. First, and most importantly, excessive use of the internet

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[2] There also is a full chapter devoted to "Microprocessor Abuse and Internet Addiction" in the American Society for Addiction Medicine's textbook on the principles of addiction medicine (Rosenthal & Taintor, 2014).

exhibits the same criteria that mark other substance and behavioral addictions (Andreassen, 2015; Grant & Chamberlain, 2014; Grant et al., 2010; Kuss & Griffiths, 2012; Young, 1998a, 1998b). Second, functional neuroimaging studies have shown that the same areas of the brain that are active in other substance and behavioral addictions are active in the brains of those who meet the diagnostic criteria for internet addiction (Brand, Young, & Laier, 2014; Han, Bolo, Daniels, Arenella, Lyoo, & Renshaw, 2011; Holden, 2001; Ko et al., 2009; Ko, Liu, Yen, Yen, Chen, & Lin, 2013; Kuss & Griffiths, 2012; Leeman & Potenza, 2013; Lorenz et al., 2013; Olsen, 2011; Park, Han, & Roh, 2017). Third, the same molecular pathways (e.g., dopaminergic) that operate in substance addictions are implicated in internet addiction (Hou, Jia, Hu, Fan, Sun, Sun, & Zhang, 2012; Shaffer et al., 2004; Tian et al., 2014). Although the question of whether internet addiction should be recognized as an addictive disorder is still sometimes debated (Cash, Rae, Steel, & Winkler, 2012; Pies, 2009; Ryding & Kaye, 2018), here we adopt the emerging consensus that compulsive and excessive use of the internet is as much a true addiction as a substance addiction (Aboujaoude, 2010; Grant et al., 2010; Hammond, Mayes, & Potenza, 2014; Kuss & Griffiths, 2012; Shaw & Black, 2008; Spada, 2014; Weinstein & Lejoyeux, 2010; Young, 1998b).

A final issue with the term *internet addiction* is that, despite the fact that we have been using the term as if it refers to a single kind of addiction, the term seems actually to encompass several distinct addictions. Davis (2001) distinguishes between addiction to the internet in all of its forms, which we will call *general internet addiction*, and addiction to specific activities that are accessed through the internet, which we will call *specific internet addictions*, such as social networking, gaming, gambling, information searching, and accessing online pornography. Young (1996, 1998b), one of the first to coin the term internet addiction, later argued that the term should be understood as an umbrella term encompassing five subtypes of specific internet addictions: cyber sexual addiction (cybersex and cyberporn), cyber relationship or social media addiction (online social interactions), net compulsions (gambling, shopping, or day trading), information overload (web surfing and information searching), and computer addiction (game playing) (Young, Pistner, O'Mara, & Buchanan, 1999). In this article, our primary focus will be on the specific internet addiction that Young categorizes as cyber relationship addiction or what others have called social media addiction or social networking addiction (Kuss & Griffiths, 2011). A secondary focus of our discussion, however, will be directed at general internet addiction, particularly because much of the research on internet-related addiction has been on its generalized form.

General internet addiction has a surprisingly high prevalence among both adults and the young. In their meta-analysis of thirty-one international studies, Cheng and Li (2014) estimated that 6 percent of the world's population had become addicted to the internet. A survey by Durkee et al. (2012) found that about 4.4 percent of European adolescents were addicted to the internet, while Bányai et al. (2017) found that 4.5 percent of Hungarian adolescents were addicted. Koukia, Mangoulia, and Alexiou (2014) found that the prevalence of internet addiction among Greek university students was 4.5 percent. Anderson (2001) found that 9.8 percent of US

college students who used the internet were addicted, while an online survey by Cooper, Morahan-Martin, Mathy, and Maheu (2002) found that 9.6 percent of US respondents were addicted. Thatcher and Goolam (2005) estimated that as many as nine million Americans were addicted to the internet. Studies of Asian populations have found significantly higher prevalence rates than those of Western groups. The studies of Yen, Yen, Chen, Tang, and Ko (2007, 2009) concluded that about 18 percent of Chinese high school students and about 12 percent of Chinese college students were addicted to the internet, while Ko et al. (2005) found that about 20 percent of Taiwanese adolescents were internet addicted. Internet addiction is clearly a large and global problem.

Although research on the epidemiology of social media addiction is not as mature as the research on general internet addiction, a few studies have attempted to look at how widespread social media addiction (as distinct from general internet addiction) is in the general population and among younger users. (While some of these studies rely on the Griffiths conceptualization of addiction, we note that others use overlapping but different diagnostic criteria.) Cabral (2011), for example, surveyed 313 users of social media in the United States and found that 59 percent of them felt they were addicted to social media, while Olowu and Seri (2012) surveyed 884 students in Nigeria and found that 27 percent of them felt that they were addicted; the studies of Cabral (2011) and of Olowu and Seri (2012), however, were based on self-reports. A study of Chinese college students by Wu, Cheung, Ku, and Hung (2013) using a self-designed validated diagnostic instrument found that 12 percent of their sample was addicted. A study of young Peruvian subjects by Wolniczak, Cáceres-DelAguila, Palma-Ardiles, Arroyo, Solís-Visscher, and Paredes-Yauri (2013), also using a newly constructed validated diagnostic instrument, found that 8.6 percent of their sample were addicted to social media. A study of 1,870 Indian students using yet another validated diagnostic instrument found that 36.9 percent of social media users in the sample were addicted (Ramesh Masthi, Pruthvi, & Phaneendra, 2018). Taken together, these studies suggest that social media addiction is an important problem, but because studies have relied on self-reports or newly developed and different instruments, it is difficult to say with precision how extensive the problem is. The lesson to be taken from the studies, however, is that social media addiction is a global issue that appears to be widespread among young people as well as adults.

While the specific mechanisms social media companies use in designing their platforms in ways that have rendered them addictive have changed over time, three of these design elements are common and worth pointing out: first, the use of intermittent variable rewards (or what is sometimes called the *slot machine effect*) (Griffiths, 2018; Harris, 2019; Williams, 2018; Wu, 2016); second, design features that take advantage of our desires for social validation and social reciprocity; and third, platform designs that erode natural stopping cues.[3] We describe these briefly

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[3] We note that the literature on these mechanisms in traditional research journals is still very limited; consequently, we rely here on a variety of kinds of sources.

here and will return to them in the next section, but we note that these are not the only addictive mechanisms internet companies use.[4]

Wu (2016: 187), paraphrasing the cognitive scientist Stafford (2006), notes that "the most effective way of maintaining a behavior is not with a consistent, predictable reward, but rather with what is termed 'variable reinforcement'—that is, rewards that vary in their frequency or magnitude." When a user opens the Twitter app, the user is brought to a blue loading screen. One might think that this loading screen must be due to slow hardware or internet; however, Morgans (2017) notes that this delay in loading is yet another way to generate intermittent variable rewards. Pinterest takes a slightly different approach: "As the user scrolls to the bottom of the page, some images appear to be cut off. Images often appear out of view below the browser fold. However, these images offer a glimpse of what's ahead, even if just barely visible. To relieve their curiosity, all users have to do is scroll to reveal the full picture. . . . As more images load on the page, the endless search for variable rewards of the hunt continues" (Eyal, 2014: 110). More generally, the "pull-to-refresh" feature seen in a number of social media platforms mimics the motion and variable reward schedule of a slot machine (Harris, 2019; Williams, 2018).

In addition to generating intermittent variable rewards, social media platforms have introduced reward schemes designed to take advantage of our desire for social validation and reciprocity, among other psychological tendencies and needs. One notable example is Snapchat's use of "snapstreaks," a running tally of the number of consecutive days a user has exchanged photographs or "snaps" with another user (Griffiths, 2018). Teens often face immense pressure to maintain these streaks (Bosker, 2016). Similarly, Facebook's "like" button taps into social reciprocity (and social validation); as Alter (2017: 128) notes, "it's hard to exaggerate how much the 'like' button changed the psychology of Facebook use." Most social media platforms have now introduced social reward schemes similar to the "like" button.

Third, the erosion of natural stopping cues is most prominently seen in the use of infinite scrolls (Harris, 2019; Williams, 2018). Prior to infinite scrolls, when a user arrived at the bottom of a webpage, there was a natural stopping cue—that is, the end of the page. The user at that point would have faced some decisions: whether to press the link to load the next page, whether to exit the platform, and so on. Introducing infinite scrolls removed the opportunity to make such decisions. Now, as the user scrolls, the platform automatically populates the next page, thereby removing stopping cues that would have previously given the user the opportunity to reflect, even for a moment, on whether that user should continue using the platform.

Crucially, the more that users spend time on social media platforms, the more data social media companies have about what works and what does not, which in turn allows them to further refine their platforms. As Alter (2017: 4) puts it, "the people who create and refine tech . . . run thousands of tests with millions of users to learn

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4 Alter (2017: 9) summarizes the techniques many internet companies use to addict their users as having "six ingredients: compelling goals that are just beyond reach; irresistible and unpredictable positive feedback; a sense of incremental progress and improvement; tasks that become slowly more difficult over time; unresolved tensions that demand resolution; and strong social connections."

which tweaks work and which ones don't—which background colors, fonts and audio tones maximize engagement and minimize frustration. As an experience evolves, it becomes an irresistible, weaponized version of the experience it once was. In 2004, Facebook was fun; in 2016, it's addictive."

Given the prevalence of social media addiction (and of internet addictions more broadly) and the ethical significance of the issues raised by addicting users to social media (issues we discuss in detail later), it is clear that social media addiction is a serious problem that managers of social media companies (as well as policy makers, public health officials, educators, and parents) would do well to address.

## 2. THE IMPERMISSIBILITY OF MAKING SOCIAL MEDIA ADDICTIVE

The research and related literatures on internet addiction, on balance, then, would seem to suggest that there is a substantial social media addiction problem, and one that gives rise to various harms. We turn now to making three distinct, but related, moral arguments about this problem. First, we argue that in light of the kinds of harms associated with internet addictions, it is wrong to use social media platforms to addict users, and these harms are not justified by the benefits those technologies produce. Second, we argue that users of social media platforms are injured in a way that is demeaning, thereby adding insult to the injury. Third, we argue that addicting users to social media constitutes a particularly objectionable form of exploitation. These arguments, we believe, show not only that it is wrong to design social media platforms that addict users but also why it is wrong.

### 2.1 The Harm Argument

Much of the literature on internet addiction has examined the harmful effects of both general internet addiction and addiction to social media, and several studies have confirmed their association with a wide range of harmful effects. Generalized internet addiction has been associated with poor performance at school because the addicted student fails to devote enough time to his or her studies (Fitzpatrick, Burkhalter, & Asbridge, 2019). It has also been associated with poor work performance because the addicted worker spends excessive amounts of time surfing the internet at work (Beard, 2002). A study focused on addiction to social media by Shakya and Christakis (2017) found that the more time young people spent on social media, particularly Facebook, the unhappier they were. Another study found that the more time adolescents spent on social media, the more depressed they became (Raudsepp & Kais, 2019). Kross et al. (2013) found that the longer people remained on Facebook, the more negative a mood they later reported.

It is significant that many of the harms associated with both general and specific internet addictions have a shared source: the time the addict spends on the technology. As the addicted person devotes more time to social media, the individual will necessarily have less time to devote to school, work, sleeping, caring for himself or herself, interacting with family, and face-to-face socializing with friends. As a result, the person's school, work, health, and social life often suffer. The individual's familial and other face-to-face social relationships will atrophy, leading one to

become more isolated. In addition, as the empirical studies reviewed earlier show, the greater the amount of time the addicted person spends on the internet, the more that person will feel anxious and depressed. Moreover, even when the addicted person is not on social media, the addiction continues to put demands on their time. An individual who is addicted to social media, for example, finds themself repeatedly throughout the day shifting attention away from other activities to check social media feeds. Each time the person returns to their other activities, the individual not only needs additional time to refocus attention on those other activities but is able to give only limited attention to those other activities (Ward, Duke, Gneezy, & Bos, 2017). This repetitive fracturing of attention, then, decreases the time and attention the addict can devote to school, work, or socializing.

These harms are not negligible, and they are morally significant. To understand their moral significance, it will help if we set them against a plausible view of what human dignity requires. Toward that end, we here adopt the capabilities approach developed by Nussbaum (1997, 2000a, 2001, 2003, 2011b, 2011a) and Sen (1985, 1992, 1999). The capabilities approach has, of course, been subjected to criticisms (Giri, 2000; Menon, 2002; Pogge, 2010, 2002)—a number of which are addressed by Nussbaum (2000b, 2007, 2019)—and there are critical differences between Nussbaum and Sen, the two major proponents of the view (Nussbaum, 2003). However, we here adopt the approach as articulated by Nussbaum, not only because the approach remains plausible to us despite her critics, but because it has also been endorsed by a large number of philosophers and has become part of the theoretical foundations of contemporary international development policies, including the United Nation's Human Development Index (Stanton, 2007).[5]

Nussbaum (2003: 40) proposes ten "human capabilities" that, she argues, are required by "the dignity of the human being and . . . a life worthy of that dignity." Among these are the following seven: 1) life; 2) bodily health; 3) senses, imagination, and thought (being able to sense, imagine, think, and reason in a "human" way informed by education); 4) emotions (being able to experience love, grief, longing, gratitude; not having one's emotional development blighted by fear and anxiety); 5) practical reason (the ability to form a conception of the good and engage in reflection about the course of one's life); 6) affiliation (being able to live with others, show concern for them, engage in social interaction with them); and 7) play (being able to laugh and enjoy recreational activities).[6] Nussbaum argues that these capabilities are "entitlements" of every person and that if we use the "language of rights," we can say that every individual has a "human right" to these capabilities (Nussbaum, 2011b: 36).

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[5] Beyond human development and human rights, the broader capability approach has had far-reaching influence on a number of fields, including welfare economics, environmental policy, gender studies, and global public health (Robeyns, 2016).

[6] In addition to these seven, Nussbaum includes three other capabilities that are not directly relevant to our argument; these three are bodily integrity (freedom to move from place to place, security from violence, and choice in matters of reproduction), other species (being able to live with concern for and in relation to animals, plants, and the world of nature), and control over one's political and material environment.

The harms that social media addiction—and internet addictions in general—inflict on the addict offend against these seven human capabilities that, according to Nussbaum, are required by human dignity and to which every person has a right.[7] Specifically, studies that have examined the harms social media addicts suffer and the corresponding capabilities they impair include the following:

1) *Life*: Several studies (Luxton, June, & Fairall, 2012; Twenge, Joiner, Rogers, & Martin, 2017) have shown that those who manifest an internet addiction, including a social media addiction, are more likely than others to have suicidal ideation. A recent meta-analysis of these studies by Cheng et al. (2018) showed that persons who have any kind of internet addiction not only think of suicide but also have significantly higher rates of planning and of actually attempting suicide.

2) *Bodily health*: A number of studies (Andreassen, 2015; Kim, Park, Kim, Jung, Lim, & Kim, 2010; Koc & Gulyagci, 2013; Wolniczak et al., 2013) found that compared to nonaddicts, adolescents who had a social media addiction, as well as those with other forms of internet addiction, suffered from poor sleep quality, used more alcohol and tobacco, ate irregularly, and had poor diets. Kojima et al. (2019) found that in general, adolescents addicted to the internet (including those addicted to social media) engaged in less exercise and physical activity and had less sleep. All of these factors, of course, undermine a person's bodily health.

3) *Senses, imagination, and thought*: Researchers have found an association between social media addiction (and other internet addictions) and a decline in the ability to reason accurately, think clearly, and engage in activities that require concentrated thought (Judd, 2014; Junco, 2012; Karpinski, Kirschner, Ozer, Mellott, & Ochwo, 2013; Kirschner & Karpinski, 2010).

4) *Emotions*: Those who are addicted to social media, and to the internet in general, suffer a number of emotional deficits, including depression, low self-esteem, social anxiety, alienation from family and peers, hostility toward others, and poor interpersonal relationships (see the reviews of Andreassen, 2015; Ko, Yen, Yen, Chen, & Chen, 2012; see also: Chen & Lee, 2013; Huang, 2017; Sampasa-Kanyinga & Lewis, 2015; Satici & Uysal, 2015; Twenge, Martin, & Campbell, 2018; Vannucci, Flannery, & Ohannessian, 2017).[8]

5) *Practical reason*: Studies have found that those with a social media addiction are less satisfied with how their lives have progressed (Błachnio, Przepiorka, & Pantic, 2016; Samaha & Hawi, 2016), have low levels of control over the courses

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[7] We are not claiming, of course, that internet addiction assaults Nussbaum's capabilities more than other kinds of addictions.

[8] As Nussbaum acknowledges, some of these categories overlap; human relationships, for example, seem to belong both in the "emotion" and the "affiliation" categories. To avoid repetition, we have placed human relationships in the "affiliation" category and located emotions connected with such relationships in the "emotion" category.

their lives take, and have less ability to plan into the future (Akın, Arslan, Arslan, Uysal, & Sahranç, 2015; Błachnio & Przepiorka, 2016; Ismail & Zawahreh, 2017; Mehroof & Griffiths, 2010). But the most significant assault that social media addictions inflict on the ability to direct one's life according to the dictates of practical reason is that social media addictions, like all addictions, damage autonomy by limiting the ability to prevent social media from taking over one's life (Çam & Isbulan, 2012; Wang, Lee, & Hua, 2015).[9]

6) *Affiliation*: Several studies have reported that social media addictions are associated with social isolation and loneliness (Błachnio & Przepiorka, 2019; Çam & Isbulan, 2012; Elphinston & Noller, 2011; Griffiths et al., 2014; Karapetsas, Karapetsas, Zygouris, & Fotis, 2015; Radhamani & Arulsamy, 2012; Zaremohzzabieh, Samah, Omar, Bolong, & Kamarudin, 2014). Kraut, Patterson, Lundmark, Kiesler, Mukopadhyay, and Scherlis (1998), Snyder, Li, O'Brien, and Howard (2015), and King and Delfabbro (2018) found that those with internet addictions in all its forms engage in fewer social activities, spend less time with family and friends, and experience less family closeness.

7) *Play*: Although those affected specifically with online gaming addiction may engage in excessive amounts of online gaming, all others afflicted with social media addiction or any other form of internet addiction have little time to participate in sports or any other kind of recreational activities, much less to "enjoy" them (Kim et al., 2010; Zhang, 2012).

The harms associated with social media addictions, then, are substantial moral injuries inflicted on the users they encumber. If we accept Nussbaum's (2003: 40) argument—as we do—they are harms that strike at the "central requirements of a life with dignity." To use Nussbaum's language, inflicting such harms are violations of the addicted person's rights (Nussbaum, 2011a). Inflicting such harms, then, is, prima facie at least, morally wrong.

An objection might be raised to our argument at this point. We argue that internet addiction (particularly social media addiction) imposes serious harms on users. To support our argument, we have cited a number of studies, many of which are correlational studies, that show that addiction to social media is associated with certain detrimental conditions, such as depression and anxiety. It may be objected, however, that although correlational studies may show that addiction to social media is associated with these detrimental conditions, they do not show that the addiction to social media (or, more generally, to the internet) causes those harmful conditions. Recent critical reviews of the research on social media have, in fact, pointed out that the correlational studies do not adequately distinguish cause from effect (Odgers & Jensen, 2020; Orben & Przybylski, 2019). Moreover, it is possible that the causality

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[9] Although appeals to autonomy are common in applied ethics, autonomy itself is a difficult and important topic. For a helpful overview of the advances in the philosophical scholarship on autonomy, as well as a discussion of the difficulties many influential approaches to autonomy face, see Taylor (2005: 1–29). For other difficulties surrounding the concept of autonomy, see Arpaly (2002: 117–48).

is bidirectional (Zink, Belcher, Kechter, Stone, & Leventhal, 2019). Indeed, some studies have found evidence that depression and anxiety lead some people to become addicted to the use of social media, while the addiction to social media leads others to fall prey to depression and anxiety (Gamez, 2014; Li et al., 2018).

A number of longitudinal and experimental studies, however, have addressed the causality issue, and these provide grounds for believing that, even if in some cases conditions such as depression and anxiety lead some users to become addicted to the use of social media, nevertheless, addiction to social media causes a significant number of users to fall prey to these detrimental conditions. A longitudinal study by van den Eijnden, Meerkerk, Vermulst, Spijkerman, and Engels (2008) found that the addicted use of chat and messenger features, now a core part of most social media platforms, at one point in time predicted the development of depressive symptoms six months later, while depressive symptoms did not predict later addiction to social media. The authors speculated that being addicted to social media might lead to the displacement of face-to-face interactions with friends and family and that the reduction in such face-to-face interactions results in depressive symptoms. Lam and Peng (2010) found that young subjects who engaged in the addicted use of the internet at the beginning of their study developed depressive symptoms nine months later. A three-year longitudinal study by Shakya and Christakis (2017), employing 5,208 US subjects, found that the more addicted their respondents became to the use of Facebook over three years, the more their physical health later declined, the poorer their mental health became, the lower they assessed their life satisfaction to be, and the higher their body mass index became. On the other hand, the more time their respondents devoted to interacting with real-world friends, the better they later fared on these measures. In an experimental study, Kross et al. (2013) followed eighty subjects over two weeks, asking them to text their responses to a questionnaire assessing their subjective well-being five times per day for fourteen days. Their study found that the more frequently their subjects interacted with Facebook, the lower their subsequent subjective well-being. A randomized experimental study by Tromholt (2016) found that when Facebook users were asked to give up their use of Facebook, they experienced fewer symptoms of depression a week later compared to those who continued to use Facebook. A similar experimental study by Hunt, Marx, Lipson, and Young (2018) followed 143 subjects over a four-month period and found that individuals who stopped using social media subsequently showed a reduction in their levels of depression, while those in a control group that did not stop using social media showed no changes. The decline in depression was strongest in those who were most highly depressed when they stopped using social media. The evidence, then, supports the position that addiction to social media is a cause of the harmful conditions that the correlational studies have found to be associated with such addiction.

It may also be objected that just because an act harms, or imposes risks of harms, does not necessarily render it morally impermissible; after all, many surgeries, medicines, and so on, cause harms, but we nevertheless deem the harms justified because of the compensating benefits the act produces. One might argue that the aggregate benefits produced by websites like Facebook greatly outweigh (and may

justify) the aggregate harms due to addiction. Facebook and other social media websites, for example, have allowed billions of people to communicate and interact in ways that have been of enormous benefit. They have allowed many people to go online and build new relationships or recover old relationships with distant family and friends, to share their expertise and knowledge with others, to educate themselves about what is happening in the world, to communicate in times of crisis, and to organize entire social movements. In other words, social media also produces benefits, particularly by enhancing communication. Such benefits are not negligible, and the benefits Facebook and other such websites have produced may very well outweigh the harms they produce.

But this objection fails to consider the fact that the immense benefits associated with the internet in general, and social media in particular, do not require the use of the mechanisms that have given these websites their addictive character. Much of the communicative and social interaction benefits social media websites deliver can be produced even if social media companies did not introduce the addictive mechanisms that they have designed into their websites, such as the intermittent variable rewards, social validation rewards, and elimination of natural stopping cues that we discussed earlier. These addictive mechanisms are not necessary to provide the communicative, relationship-building, educative, and organizational benefits social media has provided. The internet companies that build social media websites, then, build mechanisms into their websites that end up harming their users by addicting them, though they could provide similar valuable forms of social communication without those mechanisms.[10] Social media addiction is not a necessary part of delivering the benefits these products provide.

We conclude that it is morally wrong, then, to inflict on users the kinds of addictions that afflict many users as a result of the way social media companies construct their platforms and that the benefits produced by those platforms cannot justify the assaults on human dignity that result from the harms associated with those addictions.

### 2.2 The Adding Insult to Injury Argument

Not only are social media websites designed in ways that harm their users by addicting them but they add insult to the injury in a way that demeans and thus disrespects their users. To bring out this point, it will help first to briefly touch on a key feature of the design of social media platforms: adaptive algorithms.

Social media companies use so-called adaptive algorithms that continuously refine their platforms such that they can become more addictive for each user. The algorithms embedded in social media adjust the content they feed each particular user such that each user will remain engaged with the platform for ever longer

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10 We are not here claiming that social media companies are intentionally harming their users. Rather, we are saying that social media companies make decisions that—regardless of their intentions—end up addicting users and thereby end up inflicting morally significant harms on users. Whether the social media firms intend to perform the action under that description (of intending to harm) is an issue on which we here take no position. For an overview of philosophical theories of intention, see Setiya (2018).

periods of time (Lanier, 2018; Rader & Gray, 2015).[11] The algorithms do this by monitoring the amount of time particular kinds of content keep the particular user engaged with the platform, and they use that data to continuously adjust the content so that the particular user remains engaged with the platform for ever lengthening periods of time (Lee, Hosanagar, & Nair, 2018). The user's engagement with social media, then, produces an addictive feedback loop: the more one uses the platform, the more data the platform's algorithm has about what keeps that particular user engaged, and the more the algorithm feeds that particular user precisely the content that will keep them engaged even longer, and so the more addictive the platform becomes for that particular individual (Chessen, 2018; Schou & Farkas, 2016).

Of course, employing user data to influence content and presentation decisions is not new. Television has used Nielsen ratings to make both content and presentation decisions. What is new, however, is the level of granularity with which the adaptive algorithms are able to tailor their platforms to specific individuals and to do so continuously, automatically, and in real time. As Wharton professor Jonah Berger puts it, "social media is like a drug, but what makes it particularly addictive is that it is adaptive. It adjusts based on your preferences and behaviors" (Knowledge@Wharton, 2019).

One might object that *all* addictions are characterized by tolerance, so that the more a person consumes an addictive substance, the more addicted that individual becomes. That is, the more a vulnerable person consumes alcohol, smokes cigarettes, or snorts cocaine, typically, the more addicted the person becomes to each of these things. So how is the rise in the addictive potential of social media different? While addictive substances change the addicted person by increasing the person's desire or craving for the substance, the adaptive algorithms of addictive social media websites change the website itself to increase its own addictive potential for each particular user. In other words, the more a person uses a social media platform, the more addictive the *platform itself* becomes (and in turn, the greater the propensity and likelihood of addicting the user or making the user more addicted). Cigarettes do not change themselves to become more addictive for each particular smoker; however, the more a person uses a social media website, the more addictive the website itself becomes for that particular individual.

Crucially, then, there is an added insult in the way the social media platform's addictive potential is increased: the social media companies involve the individual in the very process that makes the platform more addictive to that individual. Not only are social media companies inflicting the harms associated with the addiction but they get the user to contribute to their ability to do this. The user is being used against oneself, given that by using the social media platform, the user provides the data that make the platform itself more addictive for that individual. This adds a demeaning

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[11] Our point is not that spending lots of time on a social media platform is equivalent to addiction. As noted in section 1, one must satisfy additional conditions to be addicted. However, excessive time spent on social media is a particularly salient observable feature that does not rely on user reports about his or her mental state and is defeasible evidence of addiction.

insult to the harms that accompany social media addictions and makes social media companies' act of addicting their users particularly perverse.[12]

To highlight the nature of the demeaning insult, it will help to consider insults in a different context: paternalistic policies. Shiffrin (2000: 207) argues that paternalistic policies "convey a special, generally impermissible, insult to autonomous agents." This sort of insult has been characterized as "effectively telling citizens that they are too stupid to run their lives, so Big Brother will have to tell them what to do" (Anderson, 1999: 301).[13] More simply, the thought such paternalistic policies and interventions express is the insulting thought that "you do not know best with regard to your own matters" (Cornell, 2015: 1316) and that "we know better than you what's good for you" (1317).

Now the insult in getting a person to contribute to making addictive the very thing to which that person becomes addicted expresses something worse than the insult involved in paternalism.[14] The insult involved when a social media website uses the person to harm themself is not the insult that a person does not know what is best for them (the insult expressed in some acts of paternalism); rather, it expresses the demeaning idea that the person's interests do not matter at all—a paradigmatic instance of disrespect. The insult involved in some cases of paternalism might be preferable, given that in such cases, at least what's best for you is a consideration in the decision calculus, even if it is condescending. But the insult involved in the case of social media is one that disrespects users through expressing the demeaning thought that the companies do not care whether it is better or worse for the user because the user does not matter; the user's interests do not figure into the social media company's decision-making.

The demeaning insult involved in the way social media companies addict users—by getting them to provide the data they will use to addict them—is a further reason why addicting users to social media is morally wrong. We will next turn to building on the argument in this and the previous sections to advance our final argument—that addicting users to social media constitutes a wrongful form of exploitation.

### 2.3 The Exploitation Argument

Much of the contemporary philosophical attention to exploitation (Mayer, 2007; Sample, 2003; Valdman, 2009; Vrousalis, 2018; Wertheimer, 1996; Zwolinski & Wertheimer, 2017), including in business ethics (Arnold, 2010; Arnold & Bowie, 2003; Berkey, 2020; Powell & Zwolinski, 2012; Snyder, 2010, 2013; Zwolinski, 2008, 2009), has been directed at what we might call the "hard case" of exploitation, that is, understanding why and to what extent exploitation is wrong, when in many

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[12] The demeaning insult is analytically distinct from the harm because the harm can be realized without doing so in an insulting way (as is the case with other businesses that sell harmful products). Given this, the two are not one and the same, even if the insult and the harm are contingently linked. We thank an anonymous reviewer for asking us to clarify this point.

[13] Citation due to de Marneffe's (2006: 80).

[14] See Caulfield (2019) for an account of the value of assessing various problems in business ethics through an expressive lens.

exploitative arrangements (e.g., sweatshops and price gouging), both parties are better off than they would be without the arrangement. But there is an easier case of exploitation: the case of exploitation that harms the exploited party. We will argue that addicting users to social media is just such a case. In section 2.1, we discussed the harms involved in addicting users to social media. Now, we turn our attention to why addicting users to social media is a form of exploitation and one that is morally objectionable.

Wood (1995, 2016) has provided an important account of exploitation that has had influence in a diverse range of contexts (e.g., Arnold & Valentin, 2013; Healy, 2010; Miller, 2010; O'Neill, 2013; Rogers, Mackenzie, & Dodds, 2012). Wood (1995) holds that exploitation involves taking advantage of a person's vulnerability to advance one's own ends. He notes, "To exploit someone or something is to make use of him, her, or it for your own ends by playing on some weakness or vulnerability in the object of your exploitation" (Wood, 2005).

But not all acts of taking advantage of another's weakness or vulnerability for one's own ends are morally objectionable—that is, not all acts of exploitation are morally objectionable. For example, it is not wrong in basketball to exploit a defender's lapse in attention to pass the ball to a teammate for an easy layup, nor is it objectionable for an attorney to exploit a weakness in the opposition's argument (Wood, 1995: 152). So, what makes an act of exploitation morally objectionable? For an act of exploitation to be a wrongful kind, it must involve disrespect toward the object of exploitation (Arnold, 2010; Wood, 1995).

We will build on the argument in the previous subsection and argue that addicting users to social media involves a wrongful form of exploitation. We can characterize the components of the morally objectionable form of exploitation in which we are interested as follows: exploiting X involves 1) taking advantage of X's vulnerability to 2) advance one's own ends 3) in a way that disrespects X.[15] In section 2.2, we already discussed the demeaning insult that disrespects the user when social media companies design their websites in ways that addict their users. So now, we will focus on 1) and 2): how social media companies advance their own ends through taking advantage of their users' vulnerability.

According to Wood (1995), then, an act is exploitative only if the exploiter advances his or her ends (even if the exploiter does not benefit all things considered) through the interaction with the object of exploitation. This is clearly satisfied in the

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[15] Since Wood's (1995) article on exploitation, there have been numerous accounts of exploitation. The debate surrounding the concept of exploitation is an active area of research. For some overviews of the state of the debate on exploitation, along with some worries with Wood's account, see Vrousalis's (2018) and Zwolinski and Wertheimer's (2017). That said, Wood's key insight that exploitation involves taking advantage of another's vulnerability for one's benefit strikes us as capturing a critical aspect of exploitation. Moreover, it has been a particularly important account in the realm of business ethics (Arnold [2010] calls it "perhaps the most compelling empirical account of exploitation"). So, while acknowledging that there are a variety of accounts of exploitation available, we think it plausible that Wood's account captures a key component of exploitation, even if his account ultimately falls short of offering an exhaustive set of individually necessary and jointly sufficient conditions for the concept of exploitation.

interaction between social media companies and their users. Social media companies, in fact, are among the most lucrative of all businesses, and given that their profitability stems largely from advertisements directed at users (PwC, 2018), it is clear that social media companies are advancing their own ends when they get users to engage and remain engaged with their social media platforms. This point is uncontroversial, and we will not say more about how social media companies benefit themselves through their interactions with their users.

However, for the interaction between social media companies and users to be exploitative, the companies must advance their ends in a certain way: they must do so by taking advantage of the vulnerability of the users. So, we now turn our attention to how social media companies take advantage of the vulnerability of social media users to advance their own ends.

There are two sources of vulnerability in social media users. The first source of vulnerability is seen in the garden-variety type of exploitation that exists between drug dealers and their addicted buyers. This vulnerability is based on the addicted person's powerful and sometimes desperate craving for the addictive object that is the usual outcome of becoming addicted to the object. Wood (1995: 143) notes that "an addict's need or desire for drugs, for example, is clearly a vulnerability which pushers may [exploit]."[16] Similarly, social media companies exploit the desire or craving to use their platforms that is the result of becoming addicted to those platforms, and the companies profit when this craving leads their users to engage with the platforms.

The second source of vulnerability is rooted in the pervasiveness and importance of the internet in our lives. Even if a user were to overcome the first source of vulnerability (i.e., were to overcome his or her addiction), the user must continue to contend with this second source. The second source of vulnerability is based on the fact that the same powerful desires or cravings that are the result of becoming addicted to an object in the first place can be reignited by environmental cues even after the addict has managed to overcome the addiction (Lu et al., 2002; Niaura, Rohsenow, Binkoff, Monti, Pedraza, & Abrams, 1988). Several studies have shown that objects or situations that are associated in the addict's memory with the object of his or her addiction will arouse the desires and cravings that originally accompanied the addiction, even years after the addict was presumed to have overcome the addiction (Conklin, 2006; Siegel, 1999). A former drug addict, for example, may begin to experience such cravings when seeing drug paraphernalia or watching a movie with scenes of people using drugs (University of Guelph, 2019; Wolter, Huff, Speigel, Winters, & Leri, 2019). In a similar way, people who have recovered from an addiction to social media (or some other form of internet addiction) may again experience a craving to engage with social media when they see others using a computer or smartphone or when they themselves use a computer or smartphone for some purpose unrelated to social media (Ko et al., 2013). Unfortunately, because of

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[16] See also Mayer (2007: 137): "It is usually thought to be wrong to exploit another person's attributes, for example when a pusher takes advantage of an addict's craving and sells her more drugs."

the pervasiveness of the internet and its unavoidability in our lives, this second source of vulnerability is inescapable in contemporary life.

In other words, the pervasiveness and importance of the internet in our lives create an inescapable vulnerability to exploitation that makes addicting users to social media especially invidious. Addictions to many other activities and goods—for example, gambling, heroin, marijuana, television, and, to a lesser extent, alcohol—are such that one can get through life without having to be in situations where one is exposed to the environmental cues that can reignite craving for the addictive object. One can maintain a productive life even if one, for example, avoids going to casinos, removes oneself from the environment in which heroin use was common, or gets rid of the television. But it is virtually impossible in today's world to avoid use of the internet. While one can get on with a fairly productive life with little or no exposure to heroin, television, or gambling, it is extremely difficult to get by in contemporary society without exposure to the internet.

Moreover, it is not just that the internet is pervasive; it also plays a legitimate and essential role in many of our lives (Jackson, 2011). Many professional jobs require one to use email. Students at universities rely on the internet, as universities use online portals for grades and assignments, email communications, and entire courses. Health care professionals often convey test results through the internet. One report indicates that a majority of employers are less likely to hire a person without an active online presence (Harris Poll, 2017). Some employers strongly encourage employees to be active on social media and to post their experience as employees so that they can serve as brand ambassadors (Cervellon & Lirio, 2017). Many university social groups rely heavily on social media. Alerts and active shooting warnings are often disseminated through social media platforms by local governments, university security departments, and regional police departments; in some cases, changes to national and foreign policy are announced through the social media accounts of government officials. In other words, the internet's reach into our lives is much deeper and wider than the reach of other addictive substances and that constant exposure provides the cues that produce the cravings of social media addiction. This gives social media businesses innumerable opportunities not only to addict but to also readdict users.

The pervasiveness feature is perhaps most worrying in the context of children and teens.[17] Unlike many addictive substances and activities that are illegal for minors, the internet is entirely licit. A fifth grader cannot go to a store to purchase cigarettes or alcohol. Similarly, teenagers and children are not permitted to gamble in casinos. Yet there are few barriers to a child's internet use, and in fact, children face a significant cost to not using the internet.[18] Children and teens, then, are exposed

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[17] The Royal College of Psychiatrists recently released a report calling on the British government to require social media companies to provide data so researchers can further study the mental health effects of social media on children (Dubicka & Theodosiou, 2020). We thank an anonymous reviewer for bringing this to our attention.

[18] Of course, some social media companies might note that a child needs to be of a certain age to sign up, but this has been almost entirely ineffective given the ease with which one can input a different age when signing up (Coughlan, 2016).

to the internet at a time when they lack full moral agency and are most susceptible to addiction (Chambers, Taylor, & Potenza, 2003; Jordan & Andersen, 2017).

In addition, some individuals, adults as well as children, have characteristics that make them particularly vulnerable to becoming addicted to the internet. Some studies have shown, for example, that users with low self-control (Li, Dang, Zhang, Zhang, & Guo, 2014; Özdemir, Kuzucu, & Ak, 2014) and neuroticism (Kuss, Griffiths, & Binder, 2013) are particularly vulnerable to internet addiction. The pervasiveness feature of the internet means that individuals with such vulnerabilities will find it particularly difficult to avoid becoming addicted.

Addicting users, given our current context, then, constitutes a form of morally objectionable exploitation. Social media companies exploit the vulnerabilities of potential targets who are vulnerable not because of deviant preferences but because our society now relies heavily on the internet. Internet companies have a vast number of potential addicts who cannot simply follow Nancy Reagan's infamous mantra to "just say no."

To conclude, given how pervasive the internet is in our lives, and how difficult it is for most of us to forgo the internet, addicting users to social media involves an especially invidious sort of exploitation. By inflicting its users with addiction, social media businesses engage in a form of morally objectionable exploitation.

### 2.4 Summary

In this section, we argued that addicting users to social media is impermissible because it involves unjustifiably harming them in a way that is demeaning and objectionably exploitative. We argued that addicting users to social media harms them in ways that violate their rights and that these harms are not justified given that whatever benefits social media may provide, they can be realized without addiction. Second, the way in which social media companies have users contribute to making the platforms themselves more addictive, we argued, is particularly perverse because it involves a demeaning insult. Furthermore, addicting users is a morally objectionable form of exploitation that is especially troubling because the pervasiveness and legitimate role the internet plays in our lives create for some users an inescapable vulnerability to such exploitation.

In what follows, we will discuss the nature of the business model used by social media companies and how it incentivizes this wrongful kind of behavior.

## 3. A BUSINESS THAT INCENTIVIZES WRONGDOING

Many kinds of businesses (both technology and nontechnology businesses) provide products that addict their users. But addiction is merely a contingent feature of the business model of most of them. For example, a cigarette company would not object if a customer bought its product and threw it in the garbage, used the cigarettes to build model bridges, transformed them into modern art, or used the product in any other way apart from smoking, so long as the customer continued to purchase the

product.[19] In other words, the cigarette company would be indifferent to whether a customer ever actually smoked its cigarettes, as long as its revenues continued to flow at the same or an increased rate.[20]

Something similar is true even for some addictive technology products that do not have an attention-economy business model. For example, consider subscription-based digital streaming services (e.g., Netflix): the contemporary popularity of the term *binge watching* is perhaps in large part due to such services. But so long as their customers purchase or renew their memberships, it is immaterial to these subscription streaming services whether or not they binge watch a given television series. This is not to say that these subscription-based streaming services do not employ mechanisms that render their platforms addictive: automatically rolling over into the next episode is a feature designed to keep users on the platform by eliminating natural stopping cues (e.g., having to end an episode and click into a new one). But the point is that it is not a necessary feature of the business model of companies with subscription-based streaming services that customers continue to watch the companies' shows. As long as customers renew or purchase their memberships, their failure to binge watch is not a significant problem for these companies. Perhaps it is even beneficial to subscription-based streaming services; assuming a company pays royalties on a per use basis, the company could lower its costs, and it would perhaps even be able to narrow its bandwidth infrastructure costs. To be clear, we are not saying that all of its customers would continue to buy and renew their subscriptions to these streaming services if they did not find the content addictive; rather, we are pointing out that making a platform addictive is not an essential feature of the subscription-based streaming service business model.

But attention-economy businesses—of which social media businesses are the paradigmatic example and our primary focus—have a business model that exhibits an important difference: it hinges on keeping users active on a platform for prolonged periods of time. The longer a user is active and engaged on a social media platform, the more profitable it is for the social media company. This is because the longer the user remains engaged with the platform, the more likely it is that this user will be exposed to, influenced by, and engaged with advertisements, and so the more the social media company can charge its advertisers (Lanier, 2018; McNamee, 2019; Price, 2018). Users of social media, unlike users of cigarettes, alcohol, or junk food, are not the source of the companies' revenues. The revenues of social media companies come from advertisers, not users. As the familiar slogan goes, with social media, you are not the customer, you are the *product*.[21] Thus built into the business

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[19] There is, of course, the possibility that cigarette companies would want you to smoke them for the purpose of getting other people to think it is trendy. But insofar as you are able to make it *look* like you are smoking, it would be irrelevant to them whether you in fact smoked.

[20] None of this is intended by way of apologetics for the many serious ethical worries that arise due to cigarette businesses. We acknowledge the innumerous public health consequences of cigarettes and the cigarette companies' efforts to thwart democratic processes through troubling lobbying efforts and their attempts to influence the research agendas of universities.

[21] The fact that user data are also sold is another point that supports the notion that users' attention is the product.

model of social media is a strong incentive to keep users online for prolonged periods of time, even though this means that many of them will go on to develop addictions (Alter, 2017; Price, 2018). And, as we have argued, the significant harms of social media addiction have a temporal dimension: they are primarily related to the amount of time the person who becomes addicted spends on social media.[22] Given the arguments from the previous section—that addicting users to social media is impermissible because it inflicts unjustified harms in a way that is demeaning and objectionably exploitative—social media businesses have a strong incentive to engage in wrongdoing.

To be clear, we are not claiming that ad-based businesses are the only ones with a strong incentive to capture their customers' attention for as long as possible. We are arguing, rather, that insofar as a company's business model is an attention-economy business model (of which the ad-based models of social media companies are a paradigmatic example), this model generates a strong incentive to design websites in ways that addict users. The prime incentive for an attention-economy internet business is to get its users to devote prolonged periods of time to its website, and devoting their time to the website, for those who subsequently become addicted, is a primary source of the harms associated with their addiction.

The attention-economy business model is not novel, of course: both radio and TV programming have long run on such a model (Wu, 2016). Worries about addiction to radio and TV were also raised when these technologies first came to market (Meerloo, 1954; Sussman & Moran, 2013). And as ad-based attention-economy businesses, TV and radio also have an incentive to addict. But, as we have argued, technologies such as adaptive algorithms allow social media companies to target and continuously maximize their addictive potential at the individual level in ways that radio and television, currently, at least, cannot do.

Not all social media users, of course, become addicted, and there are a variety of reasons why particular individuals are vulnerable to becoming addicted to various behaviors, including genetics, environmental factors, and individual vulnerabilities (Browne et al., 2019; Kim & Hodgins, 2018). But a particularly important cause of internet addiction in general, and social media addiction in particular, are the design elements that internet companies embed in their platforms (Alter, 2017; Price, 2018). Some of the design elements that addict users to internet platforms were originally developed by engineers who drew on behavioral psychology to keep gamblers seated before the computerized slot machine monitors (electronic gambling machines or EGMs) that have largely replaced other forms of gambling in casinos (Abbott, 2017; Breen & Zimmerman, 2002; Schüll, 2014). According to Yücel, Carter, Harrigan, van Holst, and Livingstone (2018: 20), these EGMs "are intentionally designed with carefully constructed design elements … that modify fundamental aspects of human decision-making and behaviors, such as classical and operant conditioning, cognitive biases, and dopamine signals." Having been

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[22] The content of what users are exposed to also is plausibly linked to the harms. For example, exposure to content involving self-harm is linked to higher rates of suicidal ideation (Arendt, Scherr, & Romer, 2019). We thank an anonymous reviewer for raising this point about the relevance of the content that users encounter.

developed in the gambling industry, it was an easy step to adapt these design techniques to early computer games and then to the design of internet websites (Alter, 2017: 136–39; Courtwright, 2019). But web design researchers have gone on to develop new addicting technologies that combine engineering and behavioral psychology to ensure website users will be "persuaded" to behave as the designer wants (Alter, 2017; Fogg, 2003; Lanier, 2018; Price, 2018). Engineers trained in university programs where such techniques are researched, developed, and taught (e.g., at the Persuasive Technology Lab of Stanford University, located in Silicon Valley) are hired by Silicon Valley companies to use those techniques—for example, variable reinforcement (Cash et al., 2012)—to design websites that entice users to remain engaged for ever longer periods of time (Andersson, 2018; Leslie, 2016; Simone, 2018) and that ultimately addict many of them (Alter, 2017; Lanier, 2018; Young & de Abreu, 2011). Users who are vulnerable become "hooked" (Eyal, 2014). The morally significant harms suffered by those who become addicted to social media, then, are the result of the design decisions of people who work in the companies that own and create those platforms.

Our aim has not been to argue that social media firms *intentionally* addict their users; rather, we have focused exclusively on characterizing the moral dimensions of the act of social media firms designing platforms in ways that result in addicting users (whatever the intentions might have been of the people designing these platforms). Making claims about any given agent's intentions with respect to an action requires a kind of evidence that we have not aimed to provide. (We may note, however, that there is a plausible case to be made that some individuals at social media companies at least *knew* that users would become addicted and thus harmed by their website designs.)[23] Our chief aim in this section has been to discuss some of the distinctive incentives created by the business model of social media companies and to highlight how these incentives—particularly the incentive to monopolize the user's time—have led to the time-related harms inflicted on those who become addicted to social media.

## 4. IMPLICATIONS FOR THEORY AND PRACTICE

Some implications for both theory and practice are now worth noting. Several decades ago, the importance of not divorcing business ethics and engineering ethics was most prominently raised by the case of Ford Pinto (Danley, 2005). Our article provides further support for why certain issues in design ethics and engineering ethics are not only of tangential relevance to business ethics but themselves raise distinctly business ethics issues. While the specific issues of how exactly to design a

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[23] For example, Chamath Palihapitiya, a former vice president at Facebook, stated, "The short-term dopamine-driven feedback loops we've created are destroying how society works… . I feel tremendous guilt… . I think … we kind of knew something bad could happen" (quoted in Lanier, 2018: 9). Sean Parker, the first president of Facebook, stated, "We need to sort of give you a little dopamine hit every once in a while because someone liked … a photo or a post or whatever … because you're exploiting a vulnerability in human psychology… . The inventors, creators—it's me, it's Mark [Zukerberg], its Kevin Systrom on Instagram, it's all of these people—understood this consciously. And we did it anyway" (quoted in Lanier, 2018: 8).

social media platform may turn on questions of engineering and its ethics, many of these decisions are made by the company's managers and are prompted by the incentive structure of the company. Scholars should not see engineering ethics questions as divorced from business ethics, and vice versa.

Second, well-intentioned teachers often encourage children to become more tech savvy, with an eye to preparing them for college and beyond. But this emphasis on technology in K–12 education, given the high addictive potential of social media, should be carried out with full awareness of its costs. More than that, it is not self-evident that a more technologically advanced class is a more pedagogically advanced class. Nor is it obvious that use of technology allows our children to become better—however we may understand this term—graduates or even citizens of our communities. Indeed, the founders and executives of many Silicon Valley tech companies—employees of the very firms that create the most addictive platforms—have opted to send their children to low-tech schools that do not integrate computers, tablets, or other electronic devices into their curricula (Archibald, 2018).[24]

Furthermore, although much research has focused on the so-called digital divide (the disparity in access to the technology needed for educational and professional success between low- and high-income communities) (Rideout & Robb, 2019; van Dijk, 2006), there is a different kind of digital divide—call it the *digital use divide*—where teens in low-income communities are exposed to nearly two hours more per day of screens than teens in wealthier communities (Rideout & Robb, 2019). While it is important to ensure that children of low-income communities have access to the resources required for educational and professional success, understanding the digital use divide takes on added importance, given the potential to addict.

Third, the design features firms use to make their platforms more addictive could be used for the opposite purpose: to empower users to have a healthier relationship with social media. Importantly, these are fixes tech companies could implement with relative ease. For example, Apple has implemented features into its most recent iOS operating system to alert the user to his or her phone's usage statistics (e.g., hours spent on the device, number of instances a user turned on his or her phone). Something similar could be done for social media. Harris (2018) suggests other helpful design features, including alerting users to the estimated time they would spend were they to log in to a given website, alerting them to how long ago they logged in, and more. These suggestions are akin to the sorts of suggestions Sunstein and Thaler (2008) make in their discussion of nudges: in the same way that use of an opt-out on an organ donor form dramatically increases the number of donors, social media companies could assume that users opt out of the use of addictive aspects of technology unless they explicitly opt in (see also Goldstein, Johnson, Herrmann, & Heitmann, 2008).

Fourth, insofar as social media firms continue to render their products more addictive, this fact should be made plain to their users. This is especially so given

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[24] For example, Steve Jobs famously did not allow his children to use iPads (Bilton, 2014).

that, as we discussed, the platforms themselves are increasing in addictive potential due to the use of adaptive algorithms. Imagine if every time you bought coffee from your neighborhood café, the coffee, without your knowledge, spiked in addictiveness. This, obviously, would be troubling. But it might be made less bad if the café were to tell you that it would increase the addictiveness of your coffee each time you purchased coffee there. Tech firms, similarly, owe it to their users to make it clear that they are employing the users' usage data in ways that will not only make the experience better but may also make the platform more addictive. Moreover, doing so would help to lessen the force of the insult we discussed in section 2.2 on adding insult to injury. In short, even if technology firms continue to addict users, they ought to be transparent to users about the ways in which they are incorporating tools of behavioral psychology to design mechanisms that may elicit addiction.

Fifth, we should take seriously the possibility of ridding ourselves of social media until it takes on a form with a dramatically changed incentive structure and is designed to empower users in their decisions regarding its use (Lanier, 2018; Newport, 2019). And policy makers have an important role to play.[25] Although it is unlikely that policy makers would (or even should) pursue measures as drastic as prohibiting social media, policy makers should lower the barriers users face to *exit* social media. If a user wants to quit Facebook, for example, this is the process the user must go through at present. First, the user must click an unlabeled down arrow at the top right of the screen, and then "Settings." After doing so, the user is presented with a menu of thirteen options, including "Privacy," "General," "Security and Login," "Your Facebook Information," and "Blocking." The user would need to know that the correct option to choose is "Your Facebook Information." Once that is selected, the user is brought to a menu of an additional five options, one of which says "Deactivate and Delete."

One might think the process is now complete. Not quite. The user is then presented with a choice to "Deactivate Account or Permanently Delete"—with the default, preselected option being the former. Suppose the user selects "Deactivate Account." After doing so, the user is brought to a different page, at the top of which it asks, "Are you sure you want to deactivate your account?" followed by five algorithmically curated photographs of that user's friends. Above each photograph, it notes that the friend will miss the user; so, for example, above Anjali's photo, it says "Anjali will miss you," along with a prompt to send Anjali a message (which would then thwart the deactivation process).

Suppose the user remains on course. Facebook next requires the user to select from one of ten reasons for leaving. Each of the listed reasons generates a pop-up

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[25] One US senator has introduced a bill called the SMART bill—an acronym for "social media addiction reduction technology"—that would "prohibit social media companies from using practices that exploit human psychology or brain physiology to substantially impede freedom of choice, to require social media companies to take measures to mitigate the risks of internet addiction and psychological exploitation, and for other purposes" (US Senate, 2019). This bill has not yet passed either the Senate or the House, but it is an important first step and has proposed several worthwhile measures, including prohibiting infinite scrolls, autoplay, and badges/rewards given merely for engaging with the platform (e.g., snapstreaks).

window. For example, suppose the user's selected reason for leaving is "I spend too much time using Facebook"; that option pops up a window with the following response: "One way to control your interaction with Facebook is to limit the number of emails you receive from us. You can control what emails you receive [by clicking this link]." Let's suppose the user exits this window and continues the deactivation process. Once the user selects his or her reason for deactivating, the user must then select a further box to opt out of receiving future emails from Facebook (and select whether the user wants to keep using Facebook's messenger platform). Suppose the user opts out of receiving emails from Facebook and declines to continue using Facebook's messenger platform. Now the user can press the deactivate button. After doing so, once again, a notification pops up asking whether the user is sure about wanting to deactivate. If the user selects selects in the affirmative, the user can then press "Deactivate Now," which will conclude the deactivation process.

Suppose that, after deactivating, the user wants to return to Facebook. What must the individual do to reactivate? Facebook states, "You can reactivate your Facebook account at any time by logging back into Facebook or by using your Facebook account to log in somewhere else." That is, simply log back in. Given that many users habitually log in, some users may inadvertently log in. And once a user has logged back in (inadvertently or not), if the user wants to deactivate, the user must restart the entire deactivation process.

Suppose that, instead of deactivating, the user wants to permanently delete. The user needs to go through the same process discussed earlier for deactivating, but the user is instead ultimately brought to a screen that notes, "Your account is scheduled for permanent deletion. Facebook will start deleting your account in 30 days." If at any point during that thirty-day window the user inadvertently logs back in, the deletion is canceled, and the user must begin the process all over, with a renewed thirty-day period. This recommendation for policy makers is thus a simple one: require lower barriers to *exit*.

## CONCLUSION

Social media companies have designed their platforms in ways that render their platforms addictive. Moreover, this is precisely what the attention-economy business model of social media companies strongly incentivizes them to do. Our article shows why scholars and policy makers should not treat social media addiction as the same sort of phenomenon as other addictions. We argued that a special kind of wrongdoing is involved in social media companies addicting their users: it unjustifiably harms users in a way that is both demeaning and objectionably exploitative.

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# REFERENCES

Abbott, M. 2017. *The epidemiology and impact of gambling disorder and other gambling-related harm*. Paper presented at the WHO Forum on Alcohol, Drugs and Addictive Behaviours, Geneva, Switzerland.

Aboujaoude, E. 2010. Problematic internet use: An overview. *World Psychiatry*, 9(2): 85–90.

Ainslie, G. 2013. Intertemporal bargaining in addiction. *Frontiers in Psychiatry*, 4: Article 63.

Akın, A., Arslan, S., Arslan, N., Uysal, R., & Sahranç, Ü. 2015. Self-control management and internet addiction. *International Online Journal of Educational Sciences*, 7(3): 95–100.

Allcott, H., & Gentzkow, M. 2017. Social media and fake news in the 2016 election. *Journal of Economic Perspectives*, 31: 211–36.

Alter, A. 2017. *Irresistible: The rise of addictive technology and the business of keeping us hooked*. New York: Penguin Press.

American Psychiatric Association. 2013. *Diagnostic and statistical manual of mental disorders*, 5th ed. Washington, DC: American Psychiatric Association.

Anderson, E. S. 1999. What is the point of equality? *Ethics*, 109: 287–337.

Anderson, K. J. 2001. Internet use among college students: An exploratory study. *Journal of American College Health*, 50: 21–26.

Andersson, H. 2018. Social media apps are "deliberately" addictive to users. *BBC*. https://www.bbc.com/news/technology-44640959.

Andreassen, C. S. 2015. Online social network site addiction: A comprehensive review. *Current Addiction Reports*, 2(2): 175–84.

Andreassen, C., & Pallesen, S. 2014. Social network site addiction—an overview. *Current Pharmaceutical Design*, 20: 4053–61.

Andreassen, C. S., Torbjørn, T., Brunborg, G. S., & Pallesen, S. 2012. Development of a Facebook addiction scale. *Psychological Reports*, 110: 501–17.

Archibald, T. 2018. Why the Silicon Valley titans who got our kids addicted to screens are sending their own children to tech-free Waldorf schools. *Times*, November 18. https://www.thetimes.co.uk/article/silicon-valley-titans-got-our-kids-addicted-to-screens-are-sending-their-own-children-to-tech-free-waldorf-schools-xl7vm60bk.

Arendt, F., Scherr, S., & Romer, D. 2019. Effects of exposure to self-harm on social media: Evidence from a two-wave panel study among young adults. *New Media and Society*, 21: 2422–42.

Arnold, D. G. 2010. Working conditions: Safety and sweatshops. *Oxford Handbook of Business Ethics*, June: 1–28.

Arnold, D. G., & Bowie, N. E. 2003. Sweatshops and respect for persons. *Business Ethics Quarterly*, 13: 221–42.

Arnold, D. G., & Valentin, A. 2013. Corporate social responsibility at the base of the pyramid. *Journal of Business Research*, 66: 1904–14.

Arpaly, N. 2002. *Unprincipled virtue: An inquiry into moral agency*. New York: Oxford University Press.

Bányai, F., Zsila, Á., Király, O., Maraz, A., Elekes, Z., Griffiths, M. D., *et al.* 2017. Problematic social media use: Results from a large-scale nationally representative adolescent sample. *PLoS ONE*, 12(1): e0169839.

Basu, D., & Ghosh, A. 2018. Substance use and other addictive disorders in International Classification of Diseases–11, and their relationship with Diagnostic and Statistical Manual–5 and International Classification of Diseases–10. *Indian Journal of Social Psychiatry*, 34(5): 54–62.

Beard, K. W. 2002. Internet addiction: Current status and implications for employees. *Journal of Employment Counseling*, 39(1): 2–11.

Beato, G. 2010. Internet addiction. *Reason*, August-September. https://reason.com/2010/07/26/internet-addiction/.

Becker, G. S., & Murphy, K. M. 1988. A theory of rational addiction. *Journal of Political Economy*, 96: 675–700.

Berkey, B. 2020. The value of fairness and the wrong of wage exploitation. *Business Ethics Quarterly*, 30: 414–29.

Bhargava, V. R. 2020. Firm responses to mass outrage: Technology, blame, and employment. *Journal of Business Ethics*, 163: 379–400.

Bilton, N. 2014. Steve Jobs was a low-tech parent. *New York Times*, September 10. https://www.nytimes.com/2014/09/11/fashion/steve-jobs-apple-was-a-low-tech-parent.html.

Błachnio, A., & Przepiorka, A. 2016. Dysfunction of self-regulation and self-control in Facebook addiction. *Psychiatric Quarterly*, 87: 493–500.

Błachnio, A., & Przepiorka, A. 2019. Be aware! If you start using Facebook problematically you will feel lonely: Phubbing, loneliness, self-esteem, and Facebook intrusion. A cross-sectional study. *Social Science Computer Review*, 37: 270–78.

Błachnio, A., Przepiorka, A., & Pantic, I. 2016. Association between Facebook addiction, self-esteem and life satisfaction: A cross-sectional study. *Computers in Human Behavior*, 55: 701–5.

Block, J. J. 2008. Issues for DSM-V: Internet addiction. *American Journal of Psychiatry*, 165: 306–7.

Booth, B. 2017. Internet addiction is sweeping America, affecting millions. *CNBC*, August 29. https://www.cnbc.com/2017/08/29/us-addresses-internet-addiction-with-funded-research.html.

Borter, G. 2019. The digital drug: Internet addiction spawns U.S. treatment programs. *Reuters*, January 27. https://www.reuters.com/article/us-usa-internet-addiction-feature/the-digital-drug-internet-addiction-spawns-u-s-treatment-programs-idUSKCN1PL0AG.

Bosker, B. 2016. The binge breaker. *Atlantic*, November. https://www.theatlantic.com/magazine/archive/2016/11/the-binge-breaker/501122/.

Brand, M., Young, K. S., & Laier, C. 2014. Prefrontal control and Internet addiction: A theoretical model and review of neuropsychological and neuroimaging findings. *Frontiers in Human Neuroscience*, 8: Article 375.

Breen, R. B., & Zimmerman, M. 2002. Rapid onset of pathological gambling in machine gamblers. *Journal of Gambling Studies*, 18(1): 31–43.

Browne, M., Hing, N., Rockloff, M., Russell, A. M. T., Greer, N., Nicoll, F., *et al.* 2019. A multivariate evaluation of 25 proximal and distal risk-factors for gambling-related harm. *Journal of Clinical Medicine*, 8: 509.

Byun, S., Ruffini, C., Mills, J. E., Douglas, A. C., Niang, M., Stepchenkova, S., *et al.* 2009. Internet addiction: Metasynthesis of 1996–2006 quantitative research. *Cyberpsychology and Behavior*, 12: 203–7.

Cabral, J. 2011. Is generation Y addicted to social media? *Elon Journal of Undergraduate Research in Communications*, 2(1): 5–14.

Çam, E., & Isbulan, O. 2012. A new addiction for teacher candidates: Social networks. *Turkish Online Journal of Educational Technology*, 11(3): 14–19.

Campbell, M. A. 2005. Cyber bullying: An old problem in a new guise? *Journal of Psychologists and Counsellors in Schools*, 15(1): 68–76.

Campbell, W. G. 2003. Addiction: A disease of volition caused by a cognitive impairment. *Canadian Journal of Psychiatry*, 48: 669–74.

Canan, F., Ataoglu, A., Nichols, L. A., Yildirim, T., & Ozturk, O. 2010. Evaluation of psychometric properties of the internet addiction scale in a sample of Turkish high school students. *Cyberpsychology, Behavior, and Social Networking*, 13: 317–20.

Cash, H., Rae, C. D., Steel, A. H., & Winkler, A. 2012. Internet addiction: A brief summary of reaserch and practice. *Current Psychiatry Reviews*, 8: 292–98.

Caulfield, M. 2019. Expressive business ethics. In J. Weber & D. M. Wasieleski (Eds.), *Business ethics*, vol. 3: 123–53. Bingley, UK: Emerald.

Cervellon, M. C., & Lirio, P. 2017. When employees don't "like" their employers on social media. *MIT Sloan Management Review*, 58(2): 63–70.

Chambers, R. A., Taylor, J. R., & Potenza, M. N. 2003. Developmental neurocircuitry of motivation in adolescence: A critical period of addiction vulnerability. *American Journal of Psychiatry*, 160: 1041–52.

Chen, W., & Lee, K.-H. 2013. Sharing, liking, commenting, and distressed? The pathway between Facebook interaction and psychological distress. *Cyberpsychology, Behavior, and Social Networking*, 16: 728–34.

Cheng, C., & Li, A. Y. 2014. Internet addiction prevalence and quality of (real) life: A meta-analysis of 31 nations across seven world regions. *Cyberpsychology, Behavior, and Social Networking*, 17: 755–60.

Cheng, Y. S., Tseng, P. T., Lin, P. Y., Chen, T. Y., Stubbs, B., Carvalho, A. F., *et al.* 2018. Internet addiction and its relationship with suicidal behaviors: A meta-analysis of multinational observational studies. *Journal of Clinical Psychiatry*, 79: Article 17r11761.

Chessen, M. 2018. The MADCOM future. In R. V. Yampolskiy (Ed.), *Artificial intelligence safety and security*, 1st ed.: 127–44. New York: Chapman and Hall/CRC.

Chou, C., Condron, L., & Belland, J. C. 2005. A review of the research on Internet addiction. *Educational Psychology Review*, 17: 363–88.

Conklin, C. A. 2006. Environments as cues to smoke: Implications for human extinction-based research and treatment. *Experimental and Clinical Psychopharmacology*, 14(1): 12–19.

Cooper, A., Morahan-Martin, J., Mathy, R. M., & Maheu, M. 2002. Toward an increased understanding of user demographics in online sexual activities. *Journal of Sex and Marital Therapy*, 28: 105–29.

Cornell, N. 2015. A third theory of paternalism. *Michigan Law Review*, 113: 1295–1336.

Coughlan, S. 2016. Safer Internet Day: Young ignore "social media age limit." *BBC News*, February 09. https://www.bbc.com/news/education-35524429.

Courtwright, D. T. 2019. *The age of addiction: How bad habits became big business*. Cambridge, MA: Harvard University Press.

Crouch, E. 2018. #TBT: Combating internet addiction in China. *That's Shanghai.* http://www.thatsmags.com/shanghai/post/14395/tbt-combating-internet-addiction-in-china.

Danley, J. 2005. Polishing up the Pinto: Legal liability, moral blame, and risk. *Business Ethics Quarterly*, 15: 205–36.

Davidow, B. 2012. *Exploiting the neuroscience of internet addiction. Atlantic*, July 18. https://www.theatlantic.com/health/archive/2012/07/exploiting-the-neuroscience-of-internet-addiction/259820/.

Davis, R. A. 2001. A cognitive-behavioral model of pathological Internet use. *Computers in Human Behavior*, 17: 187–95.

de Marneffe, P. 2006. Avoiding paternalism. *Philosophy and Public Affairs*, 34: 68–94.

Drummond, D. C., Cooper, T., & Glautier, S. P. 1990. Conditioned learning in alcohol dependence: Implications for cue exposure treatment. *British Journal of Addiction*, 85: 725–43.

Dubicka, B., & Theodosiou, L. 2020. *Technology use and the mental health of children and young people*, CR225 ed. London: Royal College of Psychiatrists.

Du Plessis, G. 2012. Toward an integral model of addiction: By means of integral methodological pluralism and metatheoretical and integrative conceptual framework. *Journal of Integral Theory and Practice*, 7(3): 1–24.

Durkee, T., Kaess, M., Carli, V., Parzer, P., Wasserman, C., Floderus, B., *et al.* 2012. Prevalence of pathological internet use among adolescents in Europe: Demographic and social factors. *Addiction*, 107: 2210–22.

Elphinston, R. A., & Noller, P. 2011. Time to face it! Facebook intrusion and the implications for romantic jealousy and relationship satisfaction. *Cyberpsychology, Behavior, and Social Networking*, 14: 631–35.

Eyal, N. 2014. *Hooked: How to build habit-forming products*. London: Penguin.

Fakhoury, M. 2014. The addicted human brain: An overview of imaging studies and their treatment implications. *Open Access Library Journal*, 1: e1033.

Fitzpatrick, C., Burkhalter, R., & Asbridge, M. 2019. Adolescent media use and its association to wellbeing in a Canadian national sample. *Preventive Medicine Reports*, 14: 1–6.

Fogg, B. J. 2003. *Persuasive technology: Using computers to change what we think and do*. San Francisco: Morgan Kaufmann.

Gamez, M. 2014. Depressive symptoms and problematic internet use among adolescents: An analysis of the longitudinal relationships from the cognitive-behavioral model. *Cyberpsychology, Behavior, and Social Networking*, 11: 714–19.

Giri, A. K. 2000. Rethinking human well-being: A dialogue with Amartya Sen. *Journal of International Development*, 12: 1003–18.

Goldstein, D. G., Johnson, E. J., Herrmann, A., & Heitmann, M. 2008. *Nudge your customers toward better choices*. Harvard Business Review, December.

Goldstein, R. Z., & Volkow, N. D. 2011. Dysfunction of the prefrontal cortex in addiction: Neuroimaging findings and clinical implications. *Nature Reviews Neuroscience*, 12 (11): 652–69.

Grant, J. E., & Chamberlain, S. R. 2014. Impulsive action and impulsive choice across substance and behavioral addictions: Cause or consequence? *Addictive Behaviors*, 39: 1632–39.

Grant, J. E., Potenza, M. N., Weinstein, A., & Gorelick, D. A. 2010. Introduction to behavioral addictions. *American Journal of Drug and Alcohol Abuse*, 36: 233–41.

Griffiths, M. 1998. Internet addiction: Does it really exist? In J. Gackenbach (Ed.), *Psychology and the internet: Intrapersonal, interpersonal, and transpersonal implications*: 61–75. Cambridge, MA: Academic Press.

Griffiths, M. 2005. A "components" model of addiction within a biopsychosocial framework. *Journal of Substance Use*, 10: 191–97.

Griffiths, M. D. 2018. Adolescent social networking: How do social media operators facilitate habitual use? *Education and Health*, 36(3): 66–69.

Griffiths, M. D., Kuss, D. J., & Demetrovics, Z. 2014. Social networking addiction: An overview of preliminary findings. In K. P. Rosenberg & L. C. Feder (Eds.), *Behavioral addictions: Criteria, evidence, and treatment*: 119–41. New York: Academic Press.

Griffiths, M. D., Szabo, A., & Terry, A. 2005. The exercise addiction inventory: A quick and easy screening tool for health practitioners. *British Journal of Sports Medicine*, 39 (6): e30.

Ha, J. H., Yoo, H. J., Cho, I. H., Chin, B., Shin, D., & Kim, J. H. 2006. Psychiatric comorbidity assessed in Korean children and adolescents who screen positive for internet addiction. *Journal of Clinical Psychiatry*, 67: 821–26.

Hammond, C. J., Mayes, L. C., & Potenza, M. N. 2014. Neurobiology of adolescent substance use and addictive behaviors: Prevention and treatment implications. *Adolescent Medicine: State of the Art Reviews*, 25(1): 15–32.

Han, D. H., Bolo, N., Daniels, M. A., Arenella, L., Lyoo, I. K., & Renshaw, P. F. 2011. Brain activity and desire for internet video game play. *Comprehensive Psychiatry*, 52: 88–95.

Harris, T. 2018. *The need for a new design ethics.* http://www.tristanharris.com/the-need-for-a-new-design-ethics/, accessed December 5, 2018.

Harris, T. 2019. *Optimizing for engagement: Understanding the use of persuasive technology on internet platforms.* https://www.commerce.senate.gov/services/files/96E3A739-DC8D-45F1-87D7-EC70A368371D.

Harris Poll. 2017. *Number of employers using social media to screen candidates at all-time high, finds latest CareerBuilder study.* CareerBuilder, June 15. http://press.careerbuilder.com/2017-06-15-Number-of-Employers-Using-Social-Media-to-Screen-Candidates-at-All-Time-High-Finds-Latest-CareerBuilder-Study.

Healy, K. 2010. *Last best gifts: Altruism and the market for human blood and organs*. Chicago: University of Chicago Press.

Heyman, G. 2009. *Addiction: A disorder of choice*. Cambridge, MA: Harvard University Press.

Heyman, G. M. 2013. Addiction and choice: Theory and new data. *Frontiers in Psychiatry*, 4: Article 31.

Holden, C. 2001. "Behavioral" addictions: Do they exist? *Science*, 294: 980–82.

Holden, C. 2010. Behavioral addictions debut in proposed DSM–V. *Science*, 327: 935.

Hou, H., Jia, S., Hu, S., Fan, R., Sun, W., Sun, T., & Zhang, H. 2012. Reduced striatal dopamine transporters in people with internet addiction disorder. *Journal of Biomedicine and Biotechnology*, 2012: 1–5.

Huang, C. 2017. Time spent on social network sites and psychological well-being: A meta-analysis. *Cyberpsychology, Behavior, and Social Networking*, 20: 346–54.

Huey, L. 2015. This is not your mother's terrorism: Social media, online radicalization and the practice of political jamming. *Journal of Terrorism Research*, 6(2): 1–16.

Hunt, M. G., Marx, R., Lipson, C., & Young, J. 2018. No more FOMO: Limiting social media decreases loneliness and depression. *Journal of Social and Clinical Psychology*, 37: 751–68.

Ismail, A. B., & Zawahreh, N. 2017. Self control and its relationship with the internet addiction among a sample of Najran University students. *Journal of Education and Human Development*, 6: 174–86.

Jackson, N. 2011. United Nations declares internet access a basic human right. *Atlantic*, June 3. https://www.theatlantic.com/technology/archive/2011/06/united-nations-declares-internet-access-a-basic-human-right/239911/.

Jordan, C. J., & Andersen, S. L. 2017. Sensitive periods of substance abuse: Early risk for the transition to dependence. *Developmental Cognitive Neuroscience*, 25: 29–44.

Judd, T. 2014. Making sense of multitasking: The role of Facebook. *Computers and Education*, 70: 194–202.

Junco, R. 2012. Too much face and not enough books: The relationship between multiple indices of Facebook use and academic performance. *Computers in Human Behavior*, 28: 187–98.

Karapetsas, A. V., Karapetsas, V. A., Zygouris, N. C., & Fotis, A. I. 2015. Internet addiction and loneliness. *Encephalos*, 52: 4–9.

Karim, R., & Chaudhri, P. 2012. Behavioral addictions: An overview. *Journal of Psycho-active Drugs*, 44: 5–17.

Karpinski, A. C., Kirschner, P. A., Ozer, I., Mellott, J. A., & Ochwo, P. 2013. An exploration of social networking site use, multitasking, and academic performance among United States and European university students. *Computers in Human Behavior*, 29: 1182–92.

Kim, H. S., & Hodgins, D. C. 2018. Component model of addiction treatment: A pragmatic transdiagnostic treatment model of behavioral and substance addictions. *Frontiers in Psychiatry*, 9(406).

Kim, Y., Park, J. Y., Kim, S. B., Jung, I. K., Lim, Y. S., & Kim, J. H. 2010. The effects of internet addiction on the lifestyle and dietary behavior of Korean adolescents. *Nutrition Research and Practice*, 4: 51–57.

King, D. L., & Delfabbro, P. H. 2018. The concept of "harm" in internet gaming disorder. *Journal of Behavioral Addictions*, 7: 562–64.

King, D. L., Delfabbro, P. H., Griffiths, M. D., & Gradisar, M. 2011. Assessing clinical trials of internet addiction treatment: A systematic review and CONSORT evaluation. *Clinical Psychology Review*, 31: 1110–16.

Kirschner, P. A., & Karpinski, A. C. 2010. Facebook and academic performance. *Computers in Human Behavior*, 26: 1237–45.

Knowledge@Wharton. 2019. *The impact of social media: Is it irreplaceable?* https://knowledge.wharton.upenn.edu/article/impact-of-social-media/.

Ko, C. H., Liu, G. C., Hsiao, S., Yen, J. Y., Yang, M. J., Lin, W.-C., *et al.* 2009. Brain activities associated with gaming urge of online gaming addiction. *Journal of Psychiatric Research*, 43: 739–47.

Ko, C. H., Liu, G. C., Yen, J. Y., Yen, C. F., Chen, C. S., & Lin, W.-C. 2013. The brain activations for both cue-induced gaming urge and smoking craving among subjects comorbid with internet gaming addiction and nicotine dependence. *Journal of Psychiatric Research*, 47: 486–93.

Ko, C.-H., Yen, C.-F., Yen, C.-N., Yen, J.-Y., Chen, C.-C., Yen, C.-N., *et al.* 2005. Screening for internet addiction: An empirical study on cut-off points for the Chen Internet Addiction Scale. *Kaohsiung Journal of Medical Sciences*, 21: 545–51.

Ko, C. H., Yen, J. Y., Chen, C. C., Chen, S. H., & Yen, C. F. 2005. Proposed diagnostic criteria of internet addiction for adolescents. *Journal of Nervous and Mental Disease*, 193: 728–33.

Ko, C. H., Yen, J. Y., Yen, C. F., Chen, C. S., & Chen, C. C. 2012. The association between internet addiction and psychiatric disorder: A review of the literature. *European Psychiatry*, 27: 1–8.

Koc, M., & Gulyagci, S. 2013. Facebook addiction among Turkish college students: The role of psychological health, demographic, and usage characteristics. *Cyberpsychology, Behavior, and Social Networking*, 16: 279–84.

Kojima, R., Sato, M., Akiyama, Y., Shinohara, R., Mizorogi, S., Suzuki, K., *et al.* 2019. Problematic internet use and its associations with health-related symptoms and lifestyle habits among rural Japanese adolescents. *Psychiatry and Clinical Neurosciences*, 73: 20–26.

Konnikova, M. 2014. Is internet addiction a real thing? *New Yorker*, November 26. https://www.newyorker.com/science/maria-konnikova/internet-addiction-real-thing.

Koo, C., Wati, Y., Lee, C. C., & Oh, H. Y. 2011. Internet-addicted kids and South Korean government efforts: Boot-Camp case. *Cyberpsychology, Behavior, and Social Networking*, 14: 391–94.

Koob, G. F., & Simon, E. J. 2009. The neurobiology of addiction: Where we have been and where we are going. *Journal of Drug Issues*, 39: 115–32.

Koukia, E., Mangoulia, P., & Alexiou, E. 2014. Internet addiction and psychopathological symptoms in Greek university students. *Journal of Addictive Behaviors, Therapy, and Rehabilitation*, 3: 1–5.

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. 1998. Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist*, 53: 1017–31.

Kross, E., Verduyn, P., Demiralp, E., Park, J., Lee, D. S., Lin, N., *et al.* 2013. Facebook use predicts declines in subjective well-being in young adults. *PLoS ONE*, 8(8): e69841.

Kuss, D. J., & Griffiths, M. D. 2011. Online social networking and addiction—a review of the psychological literature. *International Journal of Environmental Research and Public Health*, 8: 3528–52.

Kuss, D. J., & Griffiths, M. D. 2012. Internet and gaming addiction: A systematic literature review of neuroimaging studies. *Brain Sciences*, 2: 347–74.

Kuss, D. J., Griffiths, M. D., & Binder, J. F. 2013. Internet addiction in students: Prevalence and risk factors. *Computers in Human Behavior*, 29: 959–66.

Kuss, D. J., Shorter, G. W., van Rooij, A. J., Griffiths, M. D., & Schoenmakers, T. M. 2014. Assessing internet addiction using the parsimonious internet addiction components model—a preliminary study. *International Journal of Mental Health and Addiction*, 12: 351–66.

Lam, L., & Peng, Z. 2010. Effect of pathological use of the internet on adolescent mental health: A prospective study. *Archives of Pediatrics and Adolescent Medicine*, 164: 901–6.

Lanier, J. 2018. *Ten arguments for deleting your social media accounts*. New York: Henry Holt.

Lee, D., Hosanagar, K., & Nair, H. S. 2018. Advertising content and consumer engagement on social media: Evidence from Facebook. *Management Science*, 64: 5105–31.

Leeman, R. F., & Potenza, M. N. 2013. A targeted review of the neurobiology and genetics of behavioural addictions: An emerging area of research. *Canadian Journal of Psychiatry*, 58: 260–73.

Lemmens, J. S., Valkenburg, P. M., & Peter, J. 2009. Development and validation of a game addiction scale for adolescents. *Media Psychology*, 12: 77–95.

Leshner, A. I. 1997. Addiction is a brain disease, and it matters. *Science*, 278: 45–47.

Leslie, I. 2016. The scientists who make apps addictive. *The Economist*, October 20. https://www.economist.com/1843/2016/10/20/the-scientists-who-make-apps-addictive/.

Levine, H. G. 1978. The discovery of addiction: Changing conceptions of habitual drunkenness in America. *Journal of Studies on Alcohol*, 39: 143–74.

Li, C., Dang, J., Zhang, X., Zhang, Q., & Guo, J. 2014. Internet addiction among Chinese adolescents: The effect of parental behavior and self-control. *Computers in Human Behavior*, 41: 1–7.

Li, J., Mo, P., Lau, J., Su, X., Zhang, X., Anise, M. S., *et al.* 2018. Online social networking addiction and depression: The results from a large-scale prospective cohort study in Chinese adolescents. *Journal of Behavioral Addictions*, 7: 686–96.

Lorenz, R. C., Krüger, J. K., Neumann, B., Schott, B. H., Kaufmann, C., Heinz, A., *et al.* 2013. Cue reactivity and its inhibition in pathological computer game players. *Addiction Biology*, 18: 134–46.

Lu, L., Xu, N.-J., Ge, X., Yue, W., Su, W.-J., Pei, G., *et al.* 2002. Reactivation of morphine conditioned place preference by drug priming: Role of environmental cues and sensitization. *Psychopharmacology*, 159: 125–32.

Luxton, D. D., June, J. D., & Fairall, J. M. 2012. Social media and suicide: A public health perspective. *American Journal of Public Health*, 102: S195–S200.

Manjoo, F. 2018. It's time for Apple to build a less addictive iPhone. *New York Times*, January 17. https://www.nytimes.com/2018/01/17/technology/apple-addiction-iphone.html.

Marks, I. 1990. Behavioural (non-chemical) addictions. *British Journal of Addiction*, 85: 1389–94.

Mayer, R. 2007. What's wrong with exploitation? *Journal of Applied Philosophy*, 24: 137–50.

McLellan, A. T., Lewis, D. C., O'Brien, C. P., & Kleber, H. D. 2000. Drug dependence, a chronic medical illness implications for treatment, insurance, and outcomes evaluation. *Journal of the American Medical Association*, 284: 1689–95.

McNamee, R. 2018. I was Mark Zuckerberg's mentor. Today I would tell him: your users are in peril. *Guardian*, January 13. https://www.theguardian.com/technology/2018/jan/13/mark-zuckerberg-tech-addiction-investors-speak-up.

McNamee, R. 2019. *Zucked*. New York: Penguin Press.

Meerloo, J. A. M. 1954. Television addiction and reactive apathy. *Journal of Nervous and Mental Disease*, 120: 290–91.

Mehroof, M., & Griffiths, M. D. 2010. Online gaming addiction: The role of sensation seeking, self-control, neuroticism, aggression, state anxiety, and trait anxiety. *Cyberpsychology, Behavior, and Social Networking*, 13: 313–16.

Menon, N. 2002. Universalism without foundations? *Economy and Society*, 31: 152–69.

Miller, R. W. 2010. *Globalizing justice: The ethics of poverty and power*. Oxford: Oxford University Press.

Morgans, J. 2017. Your addiction to social media is no accident. *Vice*, May 19. https://www.vice.com/en_us/article/vv5jkb/the-secret-ways-social-media-is-built-for-addiction.

Newport, C. 2019. *Digital minimalism: On living better with less technology*. London: Penguin.

Niaura, R. 2000. Cognitive social learning and related perspectives on drug craving. *Addiction*, 95: 155–63.

Niaura, R. S., Rohsenow, D. J., Binkoff, J. A., Monti, P. M., Pedraza, M., & Abrams, D. B. 1988. Relevance of cue reactivity to understanding alcohol and smoking relapse. *Journal of Abnormal Psychology*, 97: 133–52.

Nichols, L. A., & Nicki, R. 2004. Development of a psychometrically sound internet addiction scale: A preliminary step. *Psychology of Addictive Behaviors*, 18: 381–84.

Nussbaum, M. C. 1997. Capabilities and human rights. *Fordham Law Review*, 6: 273–300.

Nussbaum, M. C. 2000a. *Women and human development: The capabilities approach*. Cambrige: Cambridge University Press.

Nussbaum, M. C. 2000b. Aristotle, politics, and human capabilities: A response to Antony, Arneson, Charlesworth, and Mulgan. *Ethics*, 111: 102–40.

Nussbaum, M. C. 2001. Disabled lives: Who cares? *New York Review of Books*, 34–37.

Nussbaum, M. C. 2003. Capabilities as fundamental entitlements: Sen and social justice. *Feminist Economics*, 9(2–3): 33–59.

Nussbaum, M. C. 2007. *Frontiers of justice: Disability, nationality, species membership*. Cambridge, MA: Harvard University Press.

Nussbaum, M. C. 2011a. *Creating capabilities: The human development approach*. Cambridge, MA: Harvard University Press.

Nussbaum, M. C. 2011b. Capabilities, entitlements, rights: Supplementation and critique. *Journal of Human Development and Capabilities* 12(1): 23–37.

Nussbaum, M. C. 2019. *The cosmopolitan tradition: A noble but flawed ideal*. Cambridge, MA: Belknap Press of Harvard University Press.

Odgers, C. L., & Jensen, M. R. 2020. Annual research review: Adolescent mental health in the digital age—facts, fears, and future directions. *Journal of Child Psychology and Psychiatry*, 61: 336–48.

Olowu, A. O., & Seri, F. O. 2012. A study of social network addiction among youths in Nigeria. *Journal of Social Science and Policy Review*, 4: 62–71.

Olsen, C. M. 2011. Natural rewards, neuroplasticity, and non-drug addictions. *Neuropharmacology*, 6: 1109–22.

O'Neill, J. 2013. *Markets, deliberation and environment*. New York: Routledge.

Orben, A., & Przybylski, A. K. 2019. The association between adolescent well-being and digital technology use. *Nature Human Behavior*, 3: 173–82.

Özdemir, Y., Kuzucu, Y., & Ak, S. 2014. Depression, loneliness, and Internet addiction: How important is low self-control? *Computers in Human Behavior*, 34: 284–90.

Park, B., Han, D. H., & Roh, S. 2017. Neurobiological findings related to Internet use disorders. *Psychiatry and Clinical Neurosciences*, 71: 467–68.

Pickard, H., Ahmed, S. H., & Foddy, B. 2015. Alternative models of addiction. *Frontiers in Psychiatry*, 6: 20.

Pies, R. 2009. Should DSM-V designate "Internet Addiction" a mental disorder? *Psychiatry*, 6(2): 31–37.

Pogge, T. W. 2002. Can the capability approach be justified? *Philosophical Topics*, 302: 167–228.

Pogge, T. 2010. A critique of the capability approach. In H. Brighouse & I. Robeyns (Eds.), *Measuring justice: Primary goods and capabilities*: 17–60. Cambridge: Cambridge University Press.

Powell, B., & Zwolinski, M. 2012. The ethical and economic case against sweatshop labor: A critical assessment. *Journal of Business Ethics*, 107: 449–72.

Price, C. 2018. The secret ways social media is built to be addictive (and what you can do to fight back). *BBC Science Focus Magazine*, October 29. https://www.sciencefocus.com/future-technology/trapped-the-secret-ways-social-media-is-built-to-be-addictive-and-what-you-can-do-to-fight-back/.

PwC. 2018. *IAB internet advertising revenue report.* Corporate report.

Rader, E., & Gray, R. 2015. Understanding user beliefs about algorithmic curation in the Facebook news feed. *In* Proceedings of the 33rd annual ACM Conference on Human Factors in Computing Systems*: 173–82*. New York: Association for Computing Machinery.

Radhamani, K., & Arulsamy, S. 2012. Relationship between internet addiction and loneliness among college students. *Mangalmay Journal of Education and Pedagogy*, 3(1): 64–70.

Ramesh Masthi, N. R., Pruthvi, S., & Phaneendra, M. S. 2018. A comparative study on social media usage and health status among students studying in pre-university colleges of urban Bengaluru. *Indian Journal of Community Medicine*, 43: 180–84.

Raudsepp, L., & Kais, K. 2019. Longitudinal associations between problematic social media use and depressive symptoms in adolescent girls. *Preventive Medicine Reports*, 15: 1–5.

Rideout, V., & Robb, M. B. 2019. *The Common Sense census: Media use by tweens and teens, 2019*. San Francisco: Common Sense Media.

Robbins, T. W., & Clark, L. 2015. Behavioral addictions. *Current Opinion in Neurobiology*, 30: 66–72.

Robeyns, I. 2016. The capability approach. In E. N. Zalta (Ed.), *Stanford encyclopedia of philosophy*, Winter 2016 ed. https://plato.stanford.edu/archives/win2016/entries/capability-approach/.

Rogers, W., Mackenzie, C., & Dodds, S. 2012. Why bioethics needs a concept of vulnerability. *IJFAB: International Journal of Feminist Approaches to Bioethics*, 5(2): 11–38.

Ronson, J. 2015. *So you've been publicly shamed*. London: Picador.

Rosenberg, K. P., & Feder, L. C. 2014. *An introduction to behavioral addictions.* Behavioral Addictions: Criteria, Evidence, and Treatment*: 1–17*. New York: Academic Press.

Rosenthal, R. N., & Taintor, Z. C. 2014. Microprocessor abuse and internet addiction. In R. K. Ries, D. A. Fiellin, S. C. Miller, & R. Saitz (Eds.), *The ASAM principles of addiction medicine*, 5th ed.: 980–90. Den Rijn, Netherlands: Wolters Kluwer.

Ryding, F. C., & Kaye, L. K. 2018. "Internet addiction": A conceptual minefield. *International Journal of Mental Health and Addiction*, 16: 225–32.

Samaha, M., & Hawi, N. S. 2016. Relationships among smartphone addiction, stress, academic performance, and satisfaction with life. *Computers in Human Behavior*, 57: 321–25.

Sampasa-Kanyinga, H., & Lewis, R. F. 2015. Frequent use of social networking sites is associated with poor psychological functioning among children and adolescents. *Cyberpsychology, Behavior, and Social Networking*, 18: 380–85.

Sample, R. J. 2003. *Exploitation: What it is and why it's wrong*. New York: Rowman and Littlefield.

Satici, S. A., & Uysal, R. 2015. Well-being and problematic Facebook use. *Computers in Human Behavior*, 49: 185–90.

Schaler, J. 2000. *Addiction is a choice*. Chicago: Open Court.

Schou, J., & Farkas, J. 2016. Algorithms, interfaces, and the circulation of information: Interrogating the epistemological challenges of Facebook. *KOME: An International Journal of Pure Communication Inquiry*, 4(1): 36–49.

Schüll, N. D. 2014. *Addiction by design: Machine gambling in Las Vegas*. Princeton, NJ: Princeton University Press.

Sen, A. 1985. *Commodities and capabilities*. Amsterdam: North-Holland.

Sen, A. 1992. *Inequality reexamined*. Oxford: Oxford University Press.

Sen, A. 1999. *Development as freedom*. Oxford: Oxford University Press.

Setiya, K. 2018. Intention. In E. N. Zalta (Ed.), *The Stanford encyclopedia of philosophy*, Fall 2018 ed. https://plato.stanford.edu/archives/fall2018/entries/intention/.

Shaffer, H. J. 1997. The most important unresolved issue in the addictions: Conceptual chaos. *Substance Use and Misuse*, 32: 1573–80.

Shaffer, H. J., LaPlante, D. A., LaBrie, R. A., Kidman, R. C., Donato, A. N., & Stanton, M. V. 2004. Toward a syndrome model of addiction: Multiple expressions, common etiology. *Harvard Review of Psychiatry*, 12: 367–74.

Shakya, H. B., & Christakis, N. A. 2017. Association of Facebook use with compromised well-being: A longitudinal study. *American Journal of Epidemiology*, 185: 203–11.

Shaw, M., & Black, D. W. 2008. Internet addiction. *CNS Drugs*, 22: 353–65.

Shiffrin, S. V. 2000. Paternalism, unconscionability doctrine, and accommodation. *Philosophy and Public Affairs*, 29: 205–50.

Siegel, S. 1999. Drug anticipation and drug addiction. The 1998 H. David Archibald lecture. *Addiction*, 94: 1113–24.

Simone, S. 2018. The formula for phone addiction might double as a cure. *Wired*, February 1. https://www.wired.com/story/phone-addiction-formula/.

Skog, O.-J. 2003. Addiction: Definitions and mechanisms. In N. Heather & R. E. Vuchinich (Eds.), *Choice, behavioural economics and addiction*: 157–82. Oxford: Pergamon.

Snyder, J. 2010. Exploitation and sweatshop labor: Perspectives and issues. *Business Ethics Quarterly*, 20: 187–213.

Snyder, J. 2013. Exploitation and demeaning choices. *Politics, Philosophy, and Economics*, 12: 345–60.

Snyder, S. M., Li, W., O'Brien, J. E., & Howard, M. O. 2015. The effect of US university students' problematic internet use on family relationships: A mixed-methods investigation. *PloS ONE*, 10(12): e0144005.

Spada, M. M. 2014. An overview of problematic internet use. *Addictive Behaviors*, 39(1): 3–6.

Stafford, T. 2006. Why email is addictive (and what to do about it). *Mindhacks*, September 19. https://mindhacks.com/2006/09/19/why-email-is-addictive-and-what-to-do-about-it/.

Stanton, E. A. 2007. *The human development index: A history.* PERI Working Paper no. 85.

Sunstein, C. R. 2017. *#Republic: Divided democracy in the age of social media*. Princeton, NJ: Princeton University Press.

Sunstein, C. R., & Thaler, R. H. 2008. *Nudge: Improving decisions about health, wealth, and happiness*. New Haven, CT: Yale University Press.

Sussman, S., & Moran, M. B. 2013. Hidden addiction: Television. *Journal of Behavioral Addictions*, 2: 125–32.

Tao, R., Huang, X., Wang, J., Zhang, H., Zhang, Y., & Li, M. 2010. Proposed diagnostic criteria for internet addiction. *Addiction*, 105: 556–64.

Taylor, J. S. 2005. *Personal autonomy: New essays on personal autonomy and its role in contemporary moral philosophy*. Cambridge: Cambridge University Press.

Thatcher, A., & Goolam, S. 2005. Development and psychometric properties of the Problematic Internet Use Questionnaire. *South African Journal of Psychology*, 35: 793–809.

Thompson, S. J. 1996. Internet connectivity: Addiction and dependency study. *Penn State McNair Journal*, 3: 137–54.

Tian, M., Chen, Q., Zhang, Y., Du, F., Hou, H., Chao, F., *et al.* 2014. PET imaging reveals brain functional changes in internet gaming disorder. *European Journal of Nuclear Medicine and Molecular Imaging*, 41: 1388–97.

Tromholt, M. 2016. The Facebook experiment: Quitting Facebook leads to higher levels of well-being. *Cyberpsychology, Behavior, and Social Networking*, 19: 661–66.

Twenge, J. M., Joiner, T. E., Rogers, M. L., & Martin, G. N. 2017. Increases in depressive symptoms, suicide-related outcomes, and suicide rates among U.S. adolescents after 2010 and links to increased new media screen time. *Clinical Psychological Science*, 6: 3–17.

Twenge, J. M., Martin, G. N., & Campbell, W. K. 2018. Decreases in psychological well-being among American adolescents after 2012 and links to screen time during the rise of smartphone technology. *Emotion*, 18: 765–80.

University of Guelph. 2019. Why environmental cues make drug addiction extra hard to beat. *Science Daily.* https://www.sciencedaily.com/releases/2019/02/190227124848.htm.

US Senate. 2019. *SMART Act.* 116th Cong., 1st sess. https://www.hawley.senate.gov/sites/default/files/2019-07/Social-Media-Addiction-Reduction-Technology-Act.pdf.

Valdman, M. 2009. A theory of wrongful exploitation. *Philosophers' Imprint*, 9(6): 1–14.

van den Eijnden, R., Meerkerk, G., Vermulst, A., Spijkerman, R., & Engels, R. 2008. Online communication, compulsive internet use, and psychosocial well-being among adolescents: A longitudinal study. *Developmental Psychology*, 44: 655–65.

van Dijk, J. A. G. M. 2006. Digital divide research, achievements and shortcomings. *Poetics*, 34: 221–35.

Vannucci, A., Flannery, K. M., & Ohannessian, C. M. 2017. Social media use and anxiety in emerging adults. *Journal of Affective Disorders*, 207: 163–66.

Volkow, N. D., & Koob, G. 2015. Brain disease model of addiction: Why is it so controversial? *The Lancet Psychiatry*, 2: 677–79.

Volkow, N. D., Koob, G. F., & McLellan, A. T. 2016. Neurobiologic advances from the brain disease model of addiction. *New England Journal of Medicine*, 374: 363–71.

Vrousalis, N. 2018. Exploitation: A primer. *Philosophy Compass*, 13(2): e12486.

Walker, M. B. 1989. Some problems with the concept of "gambling addiction": Should theories of addiction be generalized to include excessive gambling? *Journal of Gambling Behavior*, 5: 179–200.

Wang, C., Lee, M. K. O., & Hua, Z. 2015. A theory of social media dependence: Evidence from microblog users. *Decision Support Systems*, 69: 40–49.

Ward, A. F., Duke, K., Gneezy, A., & Bos, M. W. 2017. Brain drain: The mere presence of one's own smartphone reduces available cognitive capacity. *Journal of the Association for Consumer Research*, 2: 140–54.

Weinstein, A., & Lejoyeux, M. 2010. Internet addiction or excessive internet use. *American Journal of Drug and Alcohol Abuse*, 36: 277–83.

Wertheimer, A. 1996. *Exploitation*. Princeton, NJ: Princeton University Press.

West, R., & Brown, J. 2013. *Theory of addiction*. Hoboken, NJ: John Wiley.

Williams, J. 2018. *Stand out of our light: Freedom and resistance in the attention economy*. Cambridge: Cambridge University Press.

Wolniczak, I., Cáceres-DelAguila, J. A., Palma-Ardiles, G., Arroyo, K. J., Solís-Visscher, R., Paredes-Yauri, S., *et al.* 2013. Association between Facebook dependence and poor sleep quality: A study in a sample of undergraduate students in Peru. *PloS ONE*, 8(3): e59087.

Wolter, M., Huff, E., Speigel, T., Winters, B. D., & Leri, F. 2019. Cocaine, nicotine, and their conditioned contexts enhance consolidation of object memory in rats. *Learning and Memory*, 26(2): 46–55.

Wood, A. 1995. Exploitation. *Social Philosophy and Policy*, 12: 136–58.

Wood, A. 2005. Exploitation. In T. Honderich (Ed.), *The Oxford companion to philosophy*, 2nd ed.: 283–84. Oxford: Oxford University Press.

Wood, A. 2016. Unjust exploitation. *Southern Journal of Philosophy*, S1(54): 92–108.

World Health Organization. 2018. International statistical classification of diseases and related health problems (ICD-11), *11th rev*. Geneva: World Health Organization.

Wu, A. M. S., Cheung, V. I., Ku, L., & Hung, E. P. W. 2013. Psychological risk factors of addiction to social networking sites among Chinese smartphone users. *Journal of Behavioral Addictions*, 2: 160–66.

Wu, T. 2016. *The attention merchants: The epic scramble to get inside our heads*. New York: Alfred A. Knopf.

Yau, Y. H. C., & Potenza, M. N. 2015. Gambling disorder and other behavioral addictions: Recognition and treatment. *Harvard Review of Psychiatry*, 23: 134–46.

Yen, J.-Y., Ko, C.-H., Yen, C.-F., Wu, H.-Y., & Yang, M.-J. 2007. The comorbid psychiatric symptoms of Internet addiction: Attention deficit and hyperactivity disorder (ADHD), depression, social phobia, and hostility. *Journal of Adolescent Health*, 41: 93–98.

Yen, J.-Y., Yen, C.-F., Chen, C.-S., Tang, T.-C., & Ko, C.-H. 2009. The association between adult ADHD symptoms and internet addiction among college students: The gender difference. *Cyberpsychology and Behavior*, 12: 187–91.

Young, K. S. 1996. Psychology of computer use: XL. Addictive use of the Internet—a case that breaks the stereotype. *Psychological Reports*, 79: 899–902.

Young, K. S. 1998a. *Caught in the net: How to recognize the signs of internet addiction— and a winning strategy for recovery*. New York: John Wiley.

Young, K. S. 1998b. Internet addiction: The emergence of a new clinical disorder. *Cyberpsychology and Behavior*, 1: 237–44.

Young, K. S. 2004. Internet addiction: A new clinical phenomenon and its consequences. *American Behavioral Scientist*, 48: 402–15.

Young, K. S., & de Abreu, C. N. (Eds.). 2011. *Internet addiction: A handbook and guide to evaluation and treatment*. Hoboken, NJ: John Wiley.

Young, K., Pistner, M., O'Mara, J., & Buchanan, J. 1999. Cyber disorders: The mental health concern for the new millennium. *CyberPsychology and Behavior*, 2: 475–79.

Young, K. S., & Rogers, R. C. 1998. The relationship between depression and Internet addiction. *CyberPsychology and Behavior*, 1(1): 25–28.

Yücel, M., Carter, A., Harrigan, K., van Holst, R. J., & Livingstone, C. 2018. Hooked on gambling: A problem of human or machine design? *The Lancet Psychiatry*, 5: 20–21.

Zaremohzzabieh, Z., Samah, B. A., Omar, S. Z., Bolong, J., & Kamarudin, N. A. 2014. Addictive Facebook use among university students. *Asian Social Science*, 10: 107–16.

Zhang, W. 2012. The influence of sports about internet addiction on teenagers' health in different dimensions. *In* Knowledge discovery and data mining*: 739–34*. Berlin: Springer.

Zink, J., Belcher, B., Kechter, A., Stone, M., & Leventhal, A. 2019. Reciprocal associations between screen time and emotional disorder symptoms during adolescence. *Preventive Medicine Reports*, 13: 281–88.

Zwolinski, M. 2008. The ethics of price gouging. *Business Ethics Quarterly*, 18: 347–78.

Zwolinski, M. 2009. Dialogue on price gouging: Price gouging, none-worseness, and distributive justice. *Business Ethics Quarterly*, 19: 295–306.

Zwolinski, M., & Wertheimer, A. 2017. Exploitation. In E. N. Zalta (Ed.), *The Stanford encyclopedia of philosophy*, Summer 2017 ed. https://plato.stanford.edu/archives/sum2017/entries/exploitation/.

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