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THOUGHT PROVOKING IDEAS OF THE GLOBAL ESSAY COMPETITION 2023

Regulating the Addictive Technologies That Pervade Our Daily Lives

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#WelcomeToTheJungle

It is difficult to think of the technological progress that has elevated society to new levels of efficiency as a dangerous legacy. In fact, it is uncommon to hear technological progress discussed as a "legacy" at all. Those generations that grew up without easy access to digital technology see the use of smartphones as a defining characteristic of Generation Z (1995-2012) and Generation Alpha (2013-2025), but it is important to consider that smartphones themselves are products of the broader force of technological progress which younger generations have inherited. Generations Z and Alpha will be the first to grow up in a digital world and feel the developmental impacts of digital technology across the entire span of their lifetimes. In this paper I will illustrate the importance of thinking deeply about what it means to grow up in the constant company of a smartphone and propose regulatory solutions to mitigate the destructive consequences of ubiquitous technological dependency.

#LifeInTheJungle

It might be easy to write-off the unwelcome side effects of being constantly plugged-in as nuisances of modern life, but for children growing with smartphones, these side effects can define the way they form relationships and view the world. Studies have found consistent comorbidities between excessive smartphone use and mental issues including depression, anxiety, ADHD, loneliness, stress, reduced emotional processing, impulsivity, and lower integrity in regions of the brain associated with language and literacy (Wacks & Weinstein, 2021). Frequent smartphone use has been shown to

displace face-to-face social interactions, degrading users' family and peer relationships, and decreasing overall satisfaction with life (Fabio et al., 2022). All of these issues are arising on a global scale. In Ontario, Canada, mental distress has risen consistently alongside rates of smartphone use, findings paralleled by data from the United states (Abi-Jaoude et al., 2020). A Chinese study found that people who report dependency on their smartphones also tend to face difficulties focusing on work and suffer from low self-esteem, anxiety, and depression (Parasuraman et al., 2017). Studies in Australia and Europe found significant connections between smartphone use and sleep deprivation, resulting in irritability, anxiety, depression, low self-esteem, and difficulty with emotional regulation among users (Abi-Jaoude et al., 2020).

These observations are fueled by the combined power of the medium and the message. Technology developers intentionally design products to maximize sensory stimulation because they know that constant sensory input elicits feel-good chemicals like dopamine in the human brain (Scott Morton, 2021). So, the more stimulation they can induce, the more addictive their product and the more lucrative their business. Yet, for the user, the constant stimulation of their smartphone divides attention, increasing feelings of boredom and disconnect in their non-digital interactions, and creating dependency on their smartphone as their brain craves the rush of dopamine associated with greater sensory input (Wacks & Weinstein, 2021). As smartphone addiction increases, so does exposure to commonly frequented social media sites and other mobile applications, which additionally undermine the social-emotional stability of young users. A systematic review of 20 studies found that teenage girls reported negative moods after just 10 minutes of browsing facebook compared to control group participants who browsed a neutral website, supporting the association between social media use and feelings of inadequacy (Abi-Jaoude et al., 2020). Research also indicates a correlation between higher social media use and increased suicidal ideation among adolescents (Abi-Jaoude et al., 2020). When adolescents get their first smartphone and begin to use it, they are naturally pushed to form addictive patterns of behavior surrounding smartphone use (medium) (Yang et al., 2020). This addiction to sensory stimulation makes non-digital social engagement less enjoyable (Wacks & Weinstein, 2021), incentivizing further smartphone use, creating barriers to healthy socialization, and pushing youth to seek out social learning via digital platforms that may expose them to toxic, traumatic, or generally negative content during a key developmental period (message). All of this can contribute to mental health issues, poor academic performance, and reduced feelings of meaning in life both during and beyond adolescence (Abi-Jaoude et al., 2020). Smartphone addiction can be disproportionately destructive to the mental health, social learning, and academic performance of adolescents already suffering with mental illness or learning disabilities, as well as to female users who report more negative experiences regularly frequenting social media (Abi-Jaoude et al., 2020). Thus, the commonality of smartphone use/addiction not only carries the broad potential to impact entire generations, but could also serve to create new and expound on existing societal inequalities.

#StuckInTheJungle

Now more than ever, society must make a critical choice about how it will address smartphone use. Prior to the COVID-19 pandemic, smartphone use was already reaching record highs, with the number of smartphone users growing from 3.69 billion worldwide in 2016 to 5.29 billion in 2019. In post-pandemic years, smartphone use will continue its rapid growth, with projections anticipating 6.84 billion smartphone users in 2023 and 7.7 billion by 2027 ("Number of smartphone subscriptions worldwide," Statista, 2023). That translates, in today's numbers, to over 85% of the global population using smartphones. Not only is smartphone use growing, but so is smartphone addiction, worsened by the social conditions imposed by the COVID-19 pandemic. Research surveying screen time before and after the COVID-19 pandemic reported that 89% of respondents said they spent considerably more time on their smartphones during lockdown (Argarwal et al., 2022), with other studies reporting that screen time rose over 50% globally for youth 18 and older (Madigan et al., 2022).

What is most important to consider is that, after such a sharp rise in use, cutting down on screen time is not easy. Smartphones are more habit-forming and addictive compared to laptops or tablets due to their easy accessibility, with high-frequency users reporting greater dependency and even experiencing symptoms of withdrawal when "unplugged," including anxiety and distress (Oulasvirta et al., 2012). Yet, a large contributor to smartphone dependency lies beyond the screen of the phone itself. For youth, "unplugging" from smartphones is made even more difficult by pervasive societal dependency. Although smartphone users may experience feelings of discomfort or distress without access to their device as a product of its addictive design, these feelings may subside after a few days. What does not subside, though, is the social pressure to pick the phone back up. When everyone in society is collectively addicted to smartphones, including adolescents' parents and peers, being disconnected from their smartphone carries critical social consequences that can impact their ability to relate to and keep up with the world around them (Parasuraman et al., 2017). Today, quitting a smartphone is like going on a diet in a society where going out to brunch is a cornerstone of social interaction. Not only must the dieter reject the temptation of food, but also have enough courage to resist the social ramifications of reducing consumption.

#RegulatingTheJungle

Legal scholarship describes a theory on how critical windows of opportunity for the regulation of technologies close. Step 1, closure & invisibility: producers and users become satisfied with design, and debates on aspects of design disappear. Step 2, entrenchment: social norms and business interests surrounding a specific technology become commonplace, facilitated by invisibility. Step 3, Regulatory resistance: regulatory bodies resist early intervention and adopt a "wait and see" approach supported by broader cultural attitudes (Bernstein, 2022).

In the case of the smartphone, there was a period of introduction where both developers and consumers explored different options for product design and use. Eventually, both developers and consumers were satisfied, and the window of opportunity for regulation began to shut as the addictive features of smartphones became normalized facets of their design. Both users and developers continued to produce and use

smartphones without questioning their features, catapulting the smartphone into a period of invisibility where society embraced its usefulness and pleasurability. The addictive nature of the smartphone extended its invisibility, and by the time studies critiquing smartphone use emerged, social norms and business interests had already become entrenched. The broader cultural norm of celebrating technological progress contributed to policymakers' decision to resist early intervention and adopt a "wait and see" approach. Lack of early regulation allowed smartphone overuse to become even more ubiquitous and its consequences overlooked, a legacy inherited by younger generations (Bernstein, 2022).

Society has already missed a window of opportunity to regulate addictive technologies, but thanks to the COVID-19 pandemic, a new window may be opening. As people were forced to stay inside and increase their daily screen time, the negative health effects of smartphone overuse became less invisible. Furthermore, the conditions of social disruption imposed by the pandemic helped to unsettle the entrenched social norms and business interests which had long facilitated the invisibility of smartphone addiction (Bernstein, 2022). Now more than ever, governments suddenly have the opportunity to enact more effective and proactive regulation. In addition, businesses and social organizations can also capitalize on this new window of opportunity and facilitate change by reconsidering common norms of technology use in spaces like workplaces and schools.

On the regulatory level, governments must finally go beyond antitrust laws to create more impactful change, considering policy options like warning labels, feature bans, and counter-addictive requirements. Warning labels can be applied to addictive personal technologies such as the smartphone just as they are applied to tobacco products, drastically reducing the potential for invisibility and entrenchment (Langvardt, 2019). Governments can also harness the growing wealth of literature on the addictive features of technology to restrict the use of these specific design strategies, minimizing the inherently addictive nature of handheld technology. This solution is already being pursued on the international level, with regulators across the globe taking significant strides in criminalizing "loot boxes," in-game features that mimic slot machines (Langvardt, 2019). Feature bans can go beyond this minimal level though, targeting the design of notifications, application landing pages, and various other aesthetic features that are strategically built to keep users plugged-in for as long and frequently as possible. An offshoot to the idea of feature bans is counter-addictive design requirements, which can be used by regulators to force tech developers to include addiction-minimizing features in their devices/applications. Such requirements will offer users more freedom to decide how long they spend on their personal devices, and may look like notifications informing users of screen time, screen time locks that cannot be turned off, or limits on the infinite scroll, like and comment, and post features of social media platforms (Langvardt, 2019).

On the social level, organizations including businesses and educational institutions can help protect users from addictive technologies by reevaluating their own common practices. Businesses and employers may consider the role that personal technology plays in their

workplace culture and build into their workplace culture more freedom of choice. For example, employers may take a closer look at the digital platforms they require employees to use and consider transitioning to applications that include fewer addictive features, in addition to protecting employees' rights to ignore work related notifications after hours (Dery & MacCormick, 2012). Educational institutions can also play an important role in combating technological addiction, and can consider hosting trainings for teachers on the effects of technology on mental and physical health, going beyond common critiques of social media and looking at the specific design features that facilitate technological addiction. This may push teachers, in their individual practice, to reconsider the various platforms they ask students to use for educational purposes, and even incorporate responsible technology education in their curricula or ban phones in their classrooms (Abi-Jaoude et al., 2020) (Yang et al., 2020). As social education on technological addiction and its consequences spreads, individuals will be better equipped and empowered to choose what type of relationship with technology is right for them.

#EscapingTheJungle

The problem is not that technologies like the smartphone exist, the problem is the lack of choice. By regulating smartphones in ways that highlight and minimize their addictive potential, governments can empower their citizens to make freer and more informed choices. By mitigating the addictive nature of smartphones through workplace and classroom reform, bosses, teachers, and advocates can further enact change by promoting new norms of mindfulness and balance in relation to personal technology. Young generations deserve to choose the way they want personal technologies to impact their lives, but, without regulatory and social change, that freedom of choice will always remain just out of reach. Right now, society has the opportunity to challenge the problematic assumption that technological progress must be embraced and to imbue humanity's relationship with technology with a greater degree of autonomy. We must be careful not to waste it, because smartphones are only the beginning.

References

Abi-Jaoude, Elia; Karline Treurnicht Naylorl; & Antonio Pignatiello. “Smartphones, social media use, and youth mental health.” Canadian Medical Association Journal, February 10, 2020. Retrieved from Smartphones, social media use and youth mental health | CMAJ.

Agarwal, Richa; Alka Tripathi; & Mohit Argarwal. “Effect of increased screen time on eyes during COVID-19 pandemic.” Journal of Family Medicine and Primary Care, July, 2022. Retrieved from Effect of increased screen time on eyes during COVID-19 pand... : Journal of Family Medicine and Primary Care (lww.com).

Bernstein, Gaia. “A Window of Opportunity to Regulate Addictive Technologies.” Wisconsin Law Review, November 21, 2022.Retrieved from A Window of Opportunity to Regulate Addictive Technologies – Wisconsin Law Review – UW–Madison

Dery, Christine & Judith MacCormick. “Managing Mobile Technology: The Shift from Mobility to Connectivity.” MIS Quarterly Executive, vol. 11, 2012. Retrieved from (PDF) Managing Mobile Technology: The Shift from Mobility to Connectivity (researchgate.net)

Fabio, Rosa A.; Alessia Stracuzzi; & Riccardo Lo Faro. “Problematic Smartphone Use Leads to Behavioral and Cognitive Self-Control Deficits.” International Journal of Environmental Research and Public Health, 2022. Retrieved From https://www.mdpi.com/1660-4601/19/12/7445/pdf.

Langvardt, Kyle. “Regulating Habit-Forming Technology.” Fordham Law Journal, vol. 8, no. 1, 2019. Retrieved from Regulating Habit-Forming Technology (fordham.edu).

Madigan, Sheri; Rachel Eirich; Pablo Pador; Brae A. McArthur; & Ross D. Neville. “Assessment of Changes in Child and Adolescent Screen Time During the COVID-19 Pandemic: A Systematic Review and Meta-Analysis.” JAMA Pediatrics, November 7, 2022. Retrieved from Assessment of Changes in Child and Adolescent Screen Time During the COVID-19 Pandemic: A Systematic Review and Meta-analysis | Adolescent Medicine | JAMA Pediatrics | JAMA Network.

“Number of smartphone subscriptions worldwide from 2016 to 2021, with forecasts from 2022 to 2027.” Statista, 2023. Retrieved from Mobile network subscriptions worldwide 2028 | Statista

Oulasvirta, Antti; Tye Rattenbury; Lingyi Ma; & Eeva Raita. “Habits make smartphone use more pervasive.” Personal and Ubiquitous Computing, 2012, pp. 105-114. Retrieved from Habits make smartphone use more pervasive | SpringerLink.

Parasuraman, Subramani; Aaseer Thamby Sam; Stephanie Wong Kah Yee; & Lee Yu Ren. “Smartphone usage and increased risk of mobile phone addiction: a concurrent study.” International Journal of Pharmaceutical Investigation, vol. 7, 2017, pp. 125-

131.Retrieved from Smartphone usage and increased risk of mobile phone addiction: A concurrent study - PMC (nih.gov).

Scott Morton, Fiona M. “Social Media is Addictive. Do Regulators Need to Step In?” Yale Insights, June 8, 2021. Retrieved from Social Media Is Addictive. Do Regulators Need to Step In? | Yale Insights.

Wacks, Yehuda & Aviv M. Weinstein. “Excessive Smartphone Use Is Associated With Health Problems in Adolescents and Young Adults.” Front. Psychiatry, vol. 12, May 28, 2021. Retrieved from Frontiers | Excessive Smartphone Use Is Associated With Health Problems in Adolescents and Young Adults (frontiersin.org).

Yang, Jiaxin; Xi Fu; Xiaoli Liao; & Yamin Li. “Association of problematic smartphone use with poor sleep quality, depression, and anxiety: A systematic review and meta-analysis.” Psychiatry Research, vol. 284, February, 2020. Retrieved from Association of problematic smartphone use with poor sleep quality, depression, and anxiety: A systematic review and meta-analysis - ScienceDirect.