Executive Summary

Digital Life and Well-Being

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In today's digital era, the Internet has emerged as an integral part of many people's everyday life. Individuals constantly use digital devices for information, work, shopping, and entertainment, just to name a few. In the ongoing COVID-19 pandemic, the impact of digital device use has grown drastically after myriad countries have imposed national lockdown or stay-at-home orders. Many residents of these countries tend to rely on the Internet to communicate with their family members and friends who live apart. Moreover, teleworking in a "virtual office" has become a new norm for many employees.

Digital Life and Well-Being from the Users' Perspective

Most of us have stumbled upon at least one opinion column proclaiming that social media, smartphones, or the Internet are making us more lonely, depressed, and unhappy. The empirical evidence paints a much more nuanced picture. Digital devices can have both positive and negative effects on well-being, depending, rather obviously, on factors such as how much time we spend on them (Przybylski & Weinstein, 2017; Twenge & Campbell, 2019), how we use them (Escobar-Viera et al., 2018), when we use them (Kushlev et al., 2019), and why we use them (Cheng et al., 2019). Unsurprisingly, when such heterogeneous effects are put together, digital screens and media use predict about as much variation in well-being as eating potatoes or wearing glasses (Orben & Przybylski, 2019). In representative samples of adolescents (N = 355,358) from the United States and the United Kingdom, for example, screen time accounts for a net of 0.4% in well-being (Orben & Przybylski, 2019). Why, then, are we all so obsessed with "digital well-being"?¹

Quantity of digital use. Once we look beyond the net effects, we begin to see a much more interesting story. In fact, the relationship between digital screen time and well-being is curvilinear—some use predicts higher well-being than no use, but heavier use predicts increasingly lower well-being (Przybylski & Weinstein, 2017). The association of heavy use with lower well-being is both statistically and practically significant: Adolescents who spend 5 or more hours a day in front of their digital screens are twice as likely than light users to have attempted suicide (Twenge & Campbell, 2019). Similarly, studies on internet (Dong-Il et al.,

¹ Digital well-being—a term recently popularized by Google—is not yet a unique construct separate from well-being, but rather a convenient way of talking about the effects of digital technology on subjective well-being.

2008), smartphone (Kwon et al., 2018; Yildirim & Correia, 2015), and gaming addiction (Cheng, Cheung, & Wang, 2018) show that those who use digital devices compulsively are most at risk for poor mental health.

Notably, however, only a fraction of the population meets the criteria for problematic use: The global prevalence of internet addiction is estimated to be about 6% (Cheng & Li, 2014). This small group of outliers might be driving many of the negative associations between digital behavior and well-being found in the literature; thus, these associations might not apply to most people. In addition, longitudinal research suggests that the relationship between digital behavior and well-being is bidirectional: Poor well-being predicts greater subsequent use of social media and vice versa (Orben, Dienlin, & Przybylski, 2019). Clearly, much more experimental research is necessary to understand to what extent digital activities impact well-being.

Quality of digital use. The quantity of digital use is just one factor that influences how our digital lives relate to well-being. The quality of our digital use is another. First, the relationship depends on *what* we are doing on our digital devices. For example, are we passively browsing social media and watching videos or are we actively posting and engaging with others? Indeed, (inter)active digital use generally predicts higher well-being, whereas passive use predicts lower well-being (Escobar-Viera et al., 2018)—a finding consistent with evidence that active leisure (e.g., playing sports) is better for well-being than passive leisure (e.g., watching TV; Holder, Coleman, & Sehn, 2009; Smeets, Whillans, Bekkers, & Norton, 2019).

Secondly, the relationship between our digital activities and well-being depends on *when* we are using digital devices. As digital technology becomes ever more mobile, we must consider the opportunity costs of our digital use: What we miss out on by directing our attention to our screens (Kushlev & Leita, in press; c.f., Gibson, 1977). Experimental studies show, for example, that smartphone use diminishes well-being across a range of pleasant social activities—from spending time with one’s children (Kushlev & Dunn, 2019) to having dinner with friends (Dwyer, Kushlev, & Dunn, 2018). Such negative effects are not present, however, when people use their mobile phones to support their social interactions (McDaniel, Galovan, & Drouin, in press). Thus, checking our phones during dinner might lead us to miss out on the benefits of an engaged conversation, but using our phones to share something relevant might enhance the interaction and promote well-being.

Digital Life and Well-Being from the Practitioners’ Perspective

Despite the increasing importance of digital device use, many scholars and practitioners have expressed concerns about the problems with excessive use of digital devices that impair psychosocial functioning. Kimberly Young is a pioneer who identified and publicized the problem of Internet addiction. She founded the Center for Internet Addiction in 1995 and published *“Caught in the Net”* (Young, 1998), the first book about this problem. As online games have become popular, another notable problem is Internet gaming disorder, which is listed as a “condition for future study” in the DSM-5 (American Psychiatric Association, 2013). The American Psychiatric Association (2013) has advocated for more research into the emergent problem. Recently, Internet gaming disorder has been classified as a mental health condition by the World Health Organization, which has called for “increased public funding to investigate the disorder’s prevalence, prevention, and treatment.”

In response to these calls for scientific research on these emergent problems, an avalanche of studies have been conducted to examine the impact of Internet addiction and Internet gaming disorder on various mental health issues. Both problems are found to be associated with psychological and psychiatric disorders, such as social anxiety (e.g., Cole & Hooley, 2013; Sigerson et al., 2017), depression (e.g., Brunborg et al., 2014; Lai et al., 2015), and attention deficit hyperactivity disorder (e.g., Andreassen et al., 2016; Hyun et al., 2015). A multinational meta-analysis indicates moderately strong positive associations between symptoms of Internet gaming disorder and mental health problems across 20 countries, indicating the universality of this emergent problem (Cheng et al., 2018). However, most existing studies are conducted in more economically developed countries with a relatively high Internet penetration rates. More studies are needed in countries that are less economically developed.

Another multinational meta-analysis reveals that the global prevalence of Internet addiction is 6%, but considerable cross-national variations have been identified (Cheng & Li, 2014). Among the seven world regions studied, the highest prevalence is found in the Middle East (11%) while the lowest is found in Northern and Western Europe (3%). More importantly, the prevalence of Internet addiction is inversely related to both subjective appraisals of life satisfaction and objective quality-of-life indicators. These multinational findings indicate that information technology addiction can compromise users' quality of life.

The inverse relationship between information technology addiction and quality of life can be explained by *escaping the self theory* (Baumeister, 1991), which postulates that when individuals realize that real-life outcomes are falling short of their expectations, they experience unpleasant thoughts and feelings. Hence, these individuals are motivated to evade such psychological discomfort by spending more time on the Internet. In line with this theory, findings have shown that individuals with Internet addiction are characterized by both avoidant and inflexible coping styles (Cheng et al., 2015; Li et al., 2016).

In the current literature, much research effort has been committed to investigate the problems brought about by excessive use of digital devices. Studies in this area have generally espoused a "problem-oriented" approach that focuses on psychological risks posed by excessive digital device use, ignoring the benefits generated from such use. Technological advancement no doubt brings considerable efficiency, convenience, and fun to people's daily lives, and such benefits and resources should receive greater scholarly attention. For instance, online social network sites (SNS) such as Facebook and Twitter have become an agora for social interactions. Studies have shown that SNS can constitute a reservoir of social capital (Cheng et al., 2019). Specifically, SNS fosters opportunities for social interactions without geographical and time constraints, and their users can make new friends and acquire online social resources through interactions in the cyber space (e.g., Desjarlais & Willoughby, 2010; Leong et al., 2016). More research attention should thus be devoted to resources derived from optimal use of digital devices.

Although many online games have been criticized for their violent and explicit content, more discussion should be dedicated to an alternative, albeit small, cluster of games that enrich game players' life and bolster their psychological well-being. For instance, the location-based mobile game Pokémon Go is beneficial for encouraging game players to leave their refuge in the cyber world. To play this game well, players need to actively explore diverse areas in their neighborhood and interact with other people. Empirical evidence has shown that Pokémon Go players who communicate and self-disclose more frequently with other players tend to accrue more social capital (Sung et al., 2017), attesting the psychological benefits of this popular game.

Future Directions

Scholars and mental health professionals are recommended to espouse a positive approach that focuses on the benefits and resources brought about by digital device use. As daily Internet use is inevitable in the digital era, healthy digital use may involve the maintenance of a *balanced cyber-real lifestyle*, which *fosters digital well-being*. A balanced cyber-real lifestyle can be operationalized by both quantity (e.g., duration, type of online activities) and quality (e.g., self-control, life enrichment) of digital life. To maintain a *healthy quantity of digital life*, individuals may be apt to devote adequate time to both online and offline activities, and actively engage in constructive online behaviors (e.g., social networking, advice seeking) rather than risky online behaviors (e.g., cyberbullying, sexting). To maintain a *healthy quality of digital life*, individuals should exercise self-control for maintaining optimal use of digital devices, and they can also purposely use such devices to build a flourishing life (e.g., the "rich-get-richer" effect of SNS use; C. Cheng et al., 2019).

Measuring the *quantity and quality of digital technology use* in representative samples across the globe is an important next step in understanding the costs and benefits of digital technology for well-being. As digital technology continues to penetrate populations across the globe and pervade people's daily lives, it is essential that international polls, such as the Gallup World Poll, begin quantifying digital use (rather than simply

measuring ownership or access). Adding questions on digital use need not significantly increase participant burden: Single-time, single-item subjective estimates of phone use, for example, predict objective screen time better than lengthy validated scales of problematic phone use (Ellis, Davidson, Shaw, & Geyer, 2019). Although people systematically underestimate their technology use, this bias is consistent across most individuals (Ellis et al., 2019; Wilcockson, Ellis, & Shaw, 2018), and thus is unlikely to meaningfully impact effect sizes.

Still, as we have seen, a single measure of time spent across all digital devices will be insufficient in elucidating the costs and benefits of digital use. Based on the existing evidence, we recommend measuring time spent on (1) predominant media, such as social media and online video, and on (2) predominant devices, such as (smart)phones. To measure the quality of use, subsamples in each country can be asked a question about how, when, or why they used digital technology. To facilitate the integration of such questions in polling, we provide a sampling of questions on the Open Science Framework:

https://osf.io/jsrpy/?view_only=28fd94713bc747a191f65c67cf9fbe04.

Finally, future surveys and studies are encouraged to explore the following important research questions that will contribute to knowledge advancement on the novel construct of *digital well-being*:

- What is digital well-being and how to measure it?
- How to define an optimal use of digital devices and how can an optimal level be achieved?
- Can we measure quality of digital life in the same way as we measure quality of (real) life?
- How can we maintain a balance between our digital and offline lives?

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