Designing for Digital Wellbeing: A Research & Practice Agenda

Marta E. Cecchinato
Northumbria University
Newcastle upon Tyne, UK
m.cecchinato@northumbria.ac.uk

Sean Munson
University of Washington
Seattle, USA
smunson@uw.edu

Anja Thieme
Microsoft Research
Cambridge, UK
anthie@microsoft.com

John Rooksby
Northumbria University
Newcastle upon Tyne, UK
john.rooksby@northumbria.ac.uk

Kai Lukoff
University of Washington
Seattle, USA
kai1@uw.edu

Daniel Harrison
University College London
London, UK
daniel.harrison@ucl.ac.uk

Alexis Hiniker
University of Washington
Seattle, USA
alexisr@uw.edu

Luigina Ciolfi
Sheffield Hallam
University Sheffield, UK
l.ciolfi@shu.ac.uk

ABSTRACT

Traditionally, many consumer-focused technologies have been designed to maximize user engagement with their products and services. More recently, many technology companies have begun to introduce *digital wellbeing* features, such as for managing time spent and for encouraging breaks in use. These are in the context of, and likely in response to, renewed concerns in the media about technology dependency and even addiction. The promotion of technology abstinence is also increasingly widespread, e.g., via digital detoxes. Given that digital technologies are an important and valuable feature of many people's lives, digital wellbeing features are arguably preferable to abstinence.

CHI'19 Extended Abstracts, May 4-9, 2019, Glasgow, Scotland, UK.

ACM ISBN 978-1-4503-5971-9/19/05.
DOI: https://doi.org/10.1145/3290607.3298998

CCS CONCEPTS

• **General and reference** → *Design*

KEYWORDS

Digital wellbeing; addiction; meaningful interaction; user engagement.

ACM Reference format:

Cecchinato, M. E., Rooksby, J., Hiniker, A., Munson, S., Lukoff, K., Ciolfi, L., Thieme, A., & Harrison, D. 2019. Designing for Digital Wellbeing: A Research & Practice Agenda. In *CHI Conference on Human Factors in Computing Systems Extended Abstracts (CHI'19 Extended Abstracts), May 4-9, 2019, Glagsow, Scotland, UK.* ACM, New York, NY, USA. 4 pages. https://doi.org/10.1145/3290607.3298998

1 BACKGROUND

Technology can enhance wellbeing. For example, it can enhance social connectedness [1], support mental health [14] and provide enjoyment. Other benefits include allowing flexible working practices [4], for example to accommodate for caring responsibilities, as well as encouraging healthy lifestyles, such as doing more physical activity [5,13]. There are plenty of opportunities to leverage everyday technology to improve one's wellbeing and quality of life.

However, many people are dissatisfied with the amount of time they spend on their devices or the context in which they use them [9]. Some of these instances are out of necessity or shaped by external forces (e.g., expectations) [10] others are due to habit or boredom [12], or even fear of missing out [2]. The technologies themselves have long been designed to attract people's attention, for example via push notifications, video auto-play and gamification features. This has provided the benefit of allowing people to work more flexibly, but at the same time can translate into challenges when disconnecting from work [3]. Researchers have provided evidence of how mobile technology in particular can be overloading and distracting [16]. This has implications for our productivity, mental health, social connectedness, and the relationship between these aspects needs to be better understood.

1.1 Framing the problem

While many agree that highly engaging experiences can undermine people's desired patterns of use and digital wellbeing, it is not yet clear how to frame this challenge. The frames we adopt are important because they shape the problem space in which particular solutions can emerge. Potential frames include ones that are medicalized, user-oriented, or design-oriented.

1.1.1 Medical Perspective. From a medical perspective, some interactions with technology can be harmful and there have been long debates as to whether they should be considered addictions. The American Psychological Association (APA) recognizes Internet Gaming Disorder as a "condition for further study"[2]. Gambling disorders, including disordered use of internet gambling sites, are well recognized by the APA and others. Other behaviors are not recognized as addictions, yet are discussed as such in popular media and in research (e.g., "mobile email addiction" [15]). If patterns of technology use are recognized as clinical conditions, they will increasingly be treated in medical settings by medical professionals.

[2] http://www.psychologytoday.com/blog/here-there-and-everywhere/201407/internet-gaming-disorder-in-dsm-5

Should we use the term addiction?

The choice of terms to frame the problem is important. If framed as addiction, digital behaviors become pathologized and may be treated by removing or reducing exposure to the substance, or in this case, the technology.

In the UK, the National Health Service is launching the first Internet addiction clinic later this year[1]. This idea is not new: reSTART, a private clinic in Seattle offers rehab programs for anyone with technology addictions, such as for games, Internet use, and smartphone addiction [1] . Similar government-funded initiatives to treat "internet addicted children" exist in South Korea[1] and China[1]. Research on the effectiveness of these centres has yet to be published.

However, how these are defined and designed is something that needs to be explored further. In this one-day workshop we welcome both industry and academic participants to discuss what digital wellbeing means, who is responsible for it, and whether and how we should design for it going forward.

However, medicalizing the problem is not the only way to frame it. Clinical standards for addiction will likely exclude technology (over)use that harms wellbeing but does not cause *severe* life problems. Moreover, removing or reducing technology use altogether is not a sustainable solution in a world of ubiquitous computing and interconnectedness. Paradoxically, it could lead to other problems such as social isolation or even loss of employment.

1.1.2 User Perspective. Another way of framing the issue is with respect to self-determination. The perceived loss of autonomy and control over how technology is used is a common denominator in problematic use of technology. When users lack control or self-regulation, this can lead to negative experiences such as dissatisfaction [9] or even stress, for example as a result of expectations of constant availability for work [11]. In this case, some of the workarounds to these issues come from users themselves, who more or less successfully find ways to take back control of their technology [3]. However, some individual strategies may not be considered universally healthy or sustainable.

Framing overuse as a question of self-determination also discounts the role of the designer in fostering engagement and places the burden of change on the user. Prior work suggests that designers can systematically manipulate the extent to which users are able to exercise self-control [6], suggesting that the self-determination framing is an incomplete description of the problem.

1.1.3 Design Perspective. Other solutions come from those who design these technologies. More recently, large tech companies have started proposing *digital wellbeing* features to help people self-manage their screen time: Apple, Facebook and Google have all introduced a form of timer for apps so users can track when, and for how long, they spend time on apps and devices. HCI researchers have investigated further strategies for managing screen time with tools such as Lock n' Lol [7] and MeTime [17]. Many of these features follow design patterns developed in personal informatics tools that support self-management of physical activity, chronic conditions, and other goals [8]. However, the relationship between how we spend time on our devices, how we regulate and customize them, and our wellbeing, needs further attention.

The addition of these new features to help people control their technology use underlines the importance and timeliness of rethinking how engagement is measured. Technology companies dependent on advertisement revenue have organizational incentives to maximize the amount of time a user spends in an app, to increase the ads they see and the resulting revenue. Tech corporations seeking to promote more meaningful and less passive interactions may need to rethink their economic model. This work requires understanding the linkage between meaningfulness of interactions and revenue models, and the identification of metrics that are relevant to users, to designers, and business models. Additionally, research is needed to understand the benefits and limitations of personal informatics techniques managing technology use and how they fit among other design approaches.

Example questions we will address during the workshop:

1. How exactly should digital wellbeing features be designed?

2. What do we consider digital wellbeing to be and is there a shared understanding of it?

3. How do we evidence the effectiveness of digital wellbeing features?

4. Where do responsibilities lie when it comes to potentially problematic patterns of use?

1.2 Design Challenges

How people use technology differs between individuals and depends on many factors such as occupation [3], personal preference [4], (social) context of use [9]. How a child interacts with a device is different from how a marketing employee uses it, or a CEO, or a university student. Therefore, moving beyond the underlying assumption that people spend too much time on their devices, we argue that, as researchers and practitioners, we have a responsibility to help people recognize both healthy and unhealthy patterns of use for their individual goals and make appropriate decisions for themselves and their context. Making people more aware of their habits is only part of the solution; as a community, we must also support people with a range of tools for addressing their challenges.

There is a growing interest in understanding how to support more meaningful interactions with technology that allow users to be in control and better self-manage their use to limit any potential negative effects and achieve their goals. How this can happen is something that needs to be explored further.

1.3 Workshop aims

To identify promising research directions, through this one-day workshop we will bring together researchers and practitioners to debate these issues. In doing so, our aim is to critically unpack what digital wellbeing means and what are the challenges around designing technology for meaningful interactions. In particular, we are interested in discussing how responsibility is distributed among the users, the researchers and the practitioners, and by doing so, explore alternative ways of measuring engagement with technology.

We believe this will make a significant contribution to the HCI community by ensuring that we continue to understand, design, and evaluate interactions that foster wellbeing. CHI has a long tradition of focusing on health issues. This workshop would broaden the scope and liven the existing debate on wellbeing around technology use. Furthermore, the workshop themes touch upon other important current topics in the HCI community: for example, the practices of technology use by highly mobile workers; the design of serious games; the challenge of empowering end-users to adapt and appropriate personal technologies. Speaking to the theme of this year's conference, "weaving the threads of CHI", CHI is the best opportunity to bring together academic and industry research in the area of digital wellbeing and interaction design.

3 WEBSITE

The workshop website will be accessible here: https://digitalwellbeingworkshop.wordpress.com/. The website will be used to advertise the workshop, host the accepted submissions and provide information such as program of the day. It will also be used after the workshop to engage with the broader community.

2 ORGANISERS

The organizers are a mix of senior and junior researchers from academia and industry. They have a wide range of expertise around the topic of wellbeing and a track record of running successful workshops.

Marta E. Cecchinato (*main contact person*) is a Lecturer in HCI at Northumbria University. She researches the impact that mobile technologies have on people's productivity and wellbeing, especially around work-life balance. Her work emphasizes understanding strategies that people put into place through technology to increase their sense of control and reduce negative effects such as stress. She has experience in running research workshops and helping organizing CHI as Technical Program Chair assistant in 2018.

John Rooksby is a Lecturer in Computer & Information Sciences at Northumbria University. His research focuses on everyday user-experiences with technology, particularly in the context of digital health and wellbeing. His prior work has considered personal tracking of screen time, and more recently he has been focusing on technology and mental health. He has experience in organizing interdisciplinary workshops, including prior workshops at CHI on personal tracking, and the latest research workshop focusing on technology, physical activity and mental health.

Alexis Hiniker is an Assistant Professor in HCI for Social Good at the University of Washington Information School. She studies the ways in which consumer-facing technologies exploit and manipulate their users and the design of more respectful alternatives, particularly for children. She has conducted a number of studies to understand compulsive device use, and she has designed, built, and evaluated several systems to promote digital self-regulation.

Sean Munson is an Associate Professor of Human Centered Design & Engineering at the University of Washington. His research focuses on how people interact with personal data to make sense of themselves and help achieve their goals. Previously, Sean has studied how people engage with diverse political information online and how image search results can affect people's perceptions of genders in different professions. In his research, teaching, and service, Sean works to connect researchers and practitioners in the HCI and health communities.

Kai Lukoff is a PhD student in Human Centered Design & Engineering at the University of Washington. He researches how to leverage psychology to design technologies that foster health and well-being. He has published on what kinds of smartphone use cases people find to be meaningful or not. His current research addresses how people can architect their physical and digital environment to align their smartphone use with their values. He also understands the industry perspective, with 6 years of experience as a product manager at mobile internet startups.

Luigina Ciolfi is Professor of Human Centred Computing at Sheffield Hallam University. Her research focuses on people's experience of technology in the physical world, notions of space and place and situated conduct, and practices of mobility in context. She is interested in exploring the digitally-mediated practices and experiences of workers in the collaborative economy. She is an expert workshop organizer and facilitator, having run successful workshops at CHI, CSCW, PDC, ECSCW, Communities and Technologies, and COOP international conferences.

Anja Thieme is a HCI Researcher at Microsoft Research Cambridge. She creates and studies novel applications and interaction techniques that can positively transform people's social and emotional lives – independent of socio-economic background, personal ability or age. She successfully (co-)organized 8 workshops, including two on wellbeing for DIS 2012 + CHI 2015; and was a guest editor for the IJHCS 2014 Special Issue on 'Designing for emotional wellbeing'.

Daniel Harrison is a PhD student at the University College London Interaction Centre, working on how people integrate and use tracking technologies in their everyday lives. His particular interest is in understanding people's situated, long term use of personal informatics systems and how this changes over time. He was previously a co-organizer of the Ubicomp'15 Sencity 2 workshop.

Time	Activity
09:00	Welcome and introductions
09:15	Group A presentations + discussion
10:00	Group B presentations + discussion
10:45	Coffee break
11:15	Synopsis session
12:30	Lunch break
14:00	Group activity
15:30	Coffee break
16:00	Next steps and dissemination plan
17:00	Workshop ends
20:00 approx.	*Optional workshop dinner*

Table 1. Workshop Agenda

3.1 Pre-workshop plans

Our collective expertise makes us well placed to solicit contributions through our large network of collaborators and beyond our immediate peer group. We will advertise the workshop through leading HCI mailing lists, social media and by direct invitation.

Our aim is to attract 15-20 researchers, designers, and practitioners with various expertise, and interests in the subject. Interested participants should submit a 2-4 page position paper, using the CHI Extended Abstracts format, presenting findings from one's own research or a think-piece to aid discussion of the broader implications during the workshop. Submissions should also include the authors' definition of digital wellbeing, and include at least one speculative paragraph on how digital wellbeing will evolve in the next 10-15 years.

Acceptance will be based on quality and relevance to our themes, prioritizing diversity of experiences. Submission will be reviewed by the organizers and where necessary, by invited external reviewers, depending on the quantity and subject area. As members of large multidisciplinary institutions, we can draw on wide range of expertise.

3.2 Workshop structure

Table 1 gives an overview of the one-day workshop agenda. In the first half of the day, we will focus on unpacking some of the key themes of the workshop. After a brief introduction, participants will give a 3-minute presentation of their work, followed by a group discussion. We will group presentations based on common themes if at all possible, and structure the discussions around two topics: firstly, we will discuss what we mean by digital wellbeing; secondly, we will focus on the roles and responsibilities of users, researchers and practitioners. To aid the discussions, participants will be asked to share their own definitions of digital wellbeing and how they see it evolve over time. After a coffee break, we will then come together to identify emerging themes for understanding and designing for digital wellbeing.

In the second half of the workshop (after lunch), we will organize participants into smaller groups and carry out design exercises for designing for digital wellbeing. Through these exercises, participants will be asked to rethink whether digital wellbeing features should be layered on top of existing features that promote engagement, and when should they instead re-examine or re-design the features that promote engagement themselves. We will provide all materials for these design exercises. Following a coffee break, we will come together as a group again to review the designs and the outcomes of the day in relation to the workshop's goals. Finally, we will discuss next steps for digital wellbeing research and dissemination plans for the workshop.

3.3 Post-workshop plans

We hope the workshop can be a venue to nurture a community and potential future collaborations among attendees. We will start by summarizing the ideas and themes discussed on the day in a blog post on the workshop website to engage the broader community.

We are also interested in submitting an article based on the emerging themes from the workshop for a SIGCHI member publication, such as ACM Interactions magazine, to sensitize other researchers and practitioners to *digital wellbeing* issues and point towards future directions in the area.

During the workshop we will discuss the possibility of organizing a special issue on Digital Wellbeing in the Journal of Human-Computer Interaction to which workshop participants will be invited to submit. Details will be posted on the website and the call will be open to other interested researchers in the community.

3.4 Call for participation

Traditionally, many consumer-focused technologies have been designed to maximize user engagement with their products and services. More recently, many technology companies have begun to introduce digital wellbeing features, including features for managing time spent and for encouraging breaks in use. These are in the context of, and likely in response to, renewed concerns in the media about technology dependency and even addiction. The promotion of technology abstinence is also increasingly widespread, e.g., via digital detoxes. Given that digital technologies are an important and valuable feature of many people's lives, digital wellbeing features are arguably preferable to abstinence. How these are defined and designed is something that needs to be explored further.

The aim of this one-day workshop is to investigate how we should be rethinking of digital interactions to support users in making meaningful and considered decisions. We do so by bringing together both industry and academic participants to discuss what digital wellbeing means, who is responsible for it, and whether and how we should design for it going forward.

Authors should submit a 2-4 page position paper (including references) using the CHI Extended Abstracts format, by emailing marta.cecchinato@northumbria.ac.uk by 4th February 2019. Papers should engage with the workshop topic, by either presenting initial findings or proposing new ideas around digital wellbeing. Acceptance will be based on quality, relevance and diversity and will be communicated by 22nd February 2019. At least one author of each paper must register to attend both the workshop and at least one day of the main conference.

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