Catch 22? Designing tech to help you wean off tech

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Abstract
This paper describes ScreenBlur, a phone application designed to help its users become more aware of how they spend their time on the phone. The application adjusts the brightness of the screen based on the user's choices: when using some apps, the brightness decreases for others it increases. Ten volunteers installed and used the application for 2-3 weeks. I present an initial analysis of the pre- and post usage interviews.

Author Keywords
Mobile well-being; screen time; addiction; awareness; ambivalence; habits; app design.

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous;

Introduction
Anecdotally, people often expose ambivalence towards their phones: they love and hate them at the same time. Typically, the love part has to do with self-expression, staying in touch with others, being able to access any corners of the web and to use all kinds of apps, games, etc. The hate part relates to feeling overwhelmed by all the news, notifications,

interruptions, being reachable and accountable at all times, fear of missing out, etc.

Ambivalence is at the root of addiction. An addict wants to stop but s/he can't. Studies in neurology have shown that the mechanisms of addiction (dopamine networks in the brain) when it comes to smartphones are no different than the hard-drug physical kind [2]. From this perspective, the ambivalence people might feel towards their phones is not surprising.

The study presented here takes this ambivalence as it's starting point. It aims to investigate how this ambivalence manifests in practice, what copying strategies people use, and whether and how technology itself might be of help in this arena. To study these topics we designed an app that would help people gain more awareness about how they use their phones.

ScreenBlur

ScreenBlur[1] is an Android app that helps its users gain awareness of their phone usage and to give them more control over how they use it. In this day and age, most of us have a love-hate relationship with mobile technologies: we love being connected and able to access information anytime and anywhere, but at the same time we hate the constant interruptions, distractions, and time wasting that comes with it. Sometimes we pick up the phone to check the time and yet an hour later we might still be on it. To gain awareness in the moment, we have designed ScreenBlur an app that changes the brightness of the screen according to user specifications: for the apps the user wants to use less the brightness of the screen decreases with usage time until the phone becomes unusable; for the apps he or she wants to use more, the brightness increases with usage; if the user doesn't use the phone, the brightness gradually returns to the default setting.

[1] The name is somewhat misleading and it reflects our initial intention to blur the displayed image on the screen. However, this turned out to be more complex technically than we had expected. For our purpose of gaining awareness, changing the brightness of the screen turned out to be good enough.

User Study

The user study consisted of 10 participants (6 female, 4 male; ages 26 to 57), who used the apps over a period of 3 weeks. We interviewed them before installing the apps and after the use period. The participants were recruited using word of mouth, posters and emails targeting people who are interested in understanding better their relationship with their phones and/or who might want to change that relationship.

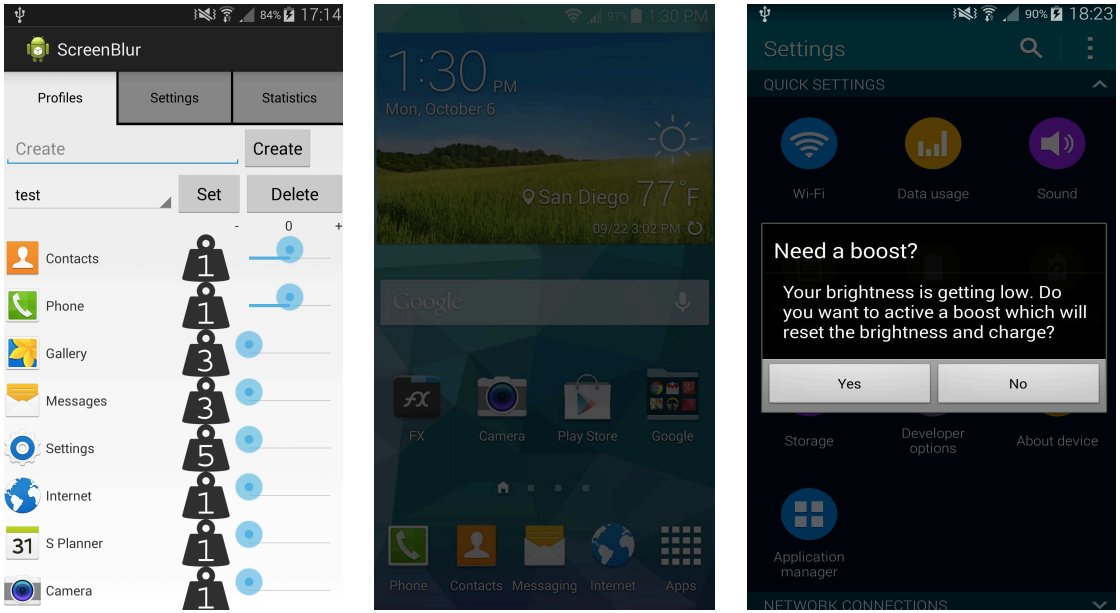

Figure 1: ScreenBlur screenshots: the set up page appears when the app is launched; the app runs in the background, the only effect is the changing brightness of the screen display; when the brightness goes all the way down, the user has the choice to reset the brightness to normal if that's allowed from the settings.

Findings

As expected, using the app increased the participants' awareness of their time on the phone. As a corollary, it also increased their awareness of their rhythms of phone usage, problems pertaining to over-use, as well as their affective reactions to phone time.

The Affective Landscape of Phone Usage

Our participants' responses and discussions during the interviews were saturated with affective references and qualifiers. These include: anxiety, compulsive checking, mindless consumption of online media, guilt (both of use and non-use), lonely, or simply not feeling good ("I don't actually feel good after an hour on Instagram", Karen, 26yo); happy, exhilarated, content, connected, relaxed, and entertained. Interestingly, there were instances where users reported tensions brought about by using the phone during dinner: torn between the guilt of ignoring your partner who cooked dinner and the (perceived) duty to check and respond to work email. This finding is consistent with precious work on inhabiting different subject positions at the

same time (in this case: spouse and worker) and the tensions between those in terms of appropriate technology use [1].

Usage Problems

Addiction was a term that came up often in the interviews. None of the participants thought that they are addicted to their phones; however, all of them think that others (usually, unspecified others) are addicted. Some of them confessed that people close to them believe that they are addicted. Also, a small number consider themselves addicted to a particular app (e.g., Sugar Crash, Snapchat). Generally, our participants didn't think they had problems overall; it was simply problematic instances of use (at home during dinner, private phone calls at work while clients were around)—these had to do with a perceived lack of self-control: they don't want to do it but can't help themselves.

There are three points I want to make here that need further investigation:

- problem for whom? others and/or self.
- problematic overall patterns or just problematic instances
- the relationship between perceived self control and problematic use

Can technology help?

The ways in which the volunteers used our app suggests that people who have self control don't need help from technology, maybe just gentle reminders; the others need the help but also lack the will power to stick to it and not override the technology in the moment. We thus seem to be in a catch 22 situation. My sense is that we need to think more holistically about this phenomenon to include structural issues such as the interplay between technologies, society and perceptions of time, e.g. the acceleration of time in digital capitalism [3].

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