Real-World Winds: Micro Challenges to Promote Balance Post Smartphone Overload

Nađa Terzimehić
LMU Munich
Munich, Germany
nadja.terzimehic@ifi.lmu.de

Julia Huber
LMU Munich
Munich, Germany
huber.ju@campus.lmu.de

Sarah Aragon-Hahner
LMU Munich
Munich, Germany
sarah.aragon-hahner@ifi.lmu.de

Sven Mayer
LMU Munich
Munich, Germany
info@sven-mayer.com

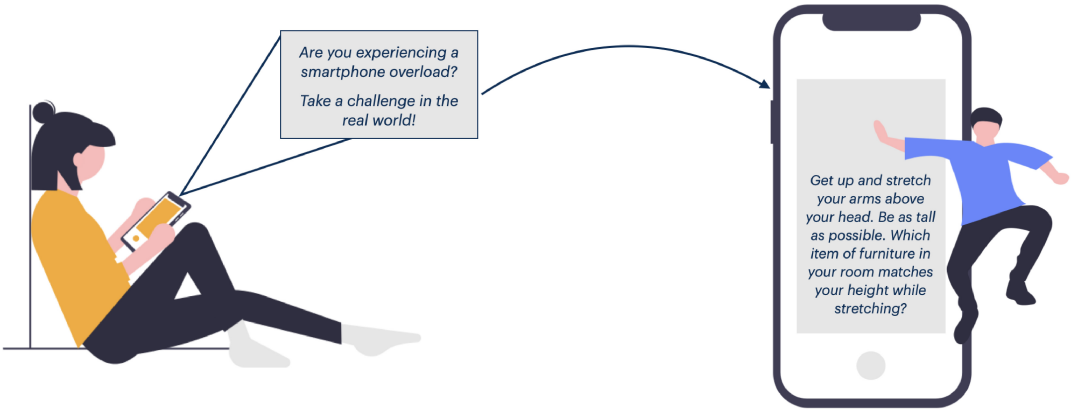


Figure 1: *Winds* are short, SMART challenges to be executed in the real, physical world. We implemented an Android app named *Real-World Winds* that tracks the user's smartphone use behavior and delivers *winds* upon smartphone overload detection. The user is then encouraged to leave their smartphone and perform a wind-challenge to re-balance their digital and physical presence.

ABSTRACT

We present and evaluate the concept of *winds* – micro challenges to be done in the physical world post-smartphone overload, to encourage exiting the digital smartphone tunnel and promote refreshing breaks from the digital realm. Whereas digital detox solutions are unsustainable in everyday life, current everyday interventions such as screen time reminders or app blockers can induce negative feelings in users. We hypothesize that *winds*, delivered by our mobile app *Real-World Wind (RWW)*, promote balance between the user's physical and digital activities, as well as engagement with the intervention. RWW tracks users' smartphone use behavior and distributes *winds* of five categories upon overload pattern detection. We evaluated the effectiveness of RWW in a week-long field study with 25 participants. Our findings show that winds foster a fun and engaging experience, and significantly promote balance between the digital and physical world post-smartphone overload. We discuss implications for future technology overload interventions.

CHI '24, May 11–16, 2024, Honolulu, HI, USA

ACM ISBN 979-8-4007-0330-0/24/05…$15.00
https://doi.org/10.1145/3613904.3642583

CCS CONCEPTS

• **Human-centered computing** → **Empirical studies in HCI**; **User studies**; **Field studies**; *Empirical studies in ubiquitous and mobile computing*.

KEYWORDS

smartphone overload, intervention, mobile app, micro challenges, behavior change, digital wellbeing, micro breaks, balance

ACM Reference Format:
Nađa Terzimehić, Julia Huber, Sarah Aragon-Hahner, and Sven Mayer. 2024. *Real-World Winds*: Micro Challenges to Promote Balance Post Smartphone Overload. In *Proceedings of the CHI Conference on Human Factors in Computing Systems (CHI '24), May 11–16, 2024, Honolulu, HI, USA.* ACM, New York, NY, USA, 16 pages. https://doi.org/10.1145/3613904.3642583

1 INTRODUCTION

The widespread adoption of smartphones enables people to stay connected to the digital world at all times, regardless of their location, time, or situation. This constant accessibility can lead to spending excessive time engaging with the content on smartphones, potentially resulting in an overwhelming amount of sensory input and information [62]. In such instances, users may find their interest and enthusiasm for their current activity waning [40, 70], but this is often disregarded. Quitting smartphone use to strike an inner balance with the physical world is a challenging problem that significantly impacts people's wellbeing [73].

Previous research work has utilized displaying in-the-moment smartphone use information [24, 41], temporarily discouraging [49], restricting [27, 64], or blocking smartphone use [9]. These approaches are disputed in both their effectiveness to change momentary smartphone use behavior (e.g., [24, 37]) and user-friendliness, potentially inducing shame within the user [53]. Moreover, balancing user's activities and values from their inner and surrounding real world with their smartphone use gets ignored, despite recent suggestions [11, 73] and promising effects in interventions [67, 76].

Instead of traditional informational pop-ups to quit smartphone use, we draw from research on life-technology balance [48, 67, 73] and daily challenges [18, 52, 71] to develop the concept of *winds*: micro challenges to encourage exiting the digital smartphone tunnel and regain real-world awareness in a joyful, non-judgmental and balanced way. Micro challenges provide specific, achievable, and measurable goals that can encourage fun and behavior change [13] towards larger goals [14]. We developed an Android app called *Real-World Wind* (RWW) to encourage exiting the digital tunnel and promote balance between the physical and digital world post-overload. The app tracks the user's smartphone use behavior and sends short challenges prompting completing an activity in the real world. We conducted an in-the-wild study with 25 participants over one week, testing the effectiveness of *winds*. During the study, users got five different *winds*: *physical exercise*, *mental exercise*, *relaxation*, *organizing task* and *social activity*. We evaluate participant's enjoyment in executing the challenges, their perceived life-smartphone balance (LSB), i.e., balance between digital and real-world activities, and system usability.

Participants executed 693 challenge-featured interactions within the RWW app, of which 449 were completed challenges. Our results show that there is a significant difference in the challenge categories encouraging balance, enjoyment, and overall wellbeing. Although the least challenges were completed from the *social activity* category, our findings reveal the category achieving the highest score in promoting balance and enjoyment. Our analysis suggests that *winds* significantly improve users' perceived LSB after the one-week field deployment.

Our contribution is threefold:

Conceptual We develop *winds*, SMART challenges of five types of activity, to encourage balance and provide enjoyment post-smartphone overload.

System We present the design and implementation of RWW, a smartphone app that delivers *winds*.

Empirical We present empirical evidence that discouraging smartphone use by fostering real-world activities leads to improved perception of LSB.

2 RELATED WORK

We present related work in terms of causes and effects of smartphone overload and current HCI solutions on how to mitigate the impeding effects. These findings informed our decision to employ challenges and their effectiveness in other wellbeing domains.

2.1 Smartphone Overload: Cause and Effect

Smartphone overload increasingly receives attention in current media and research channels [53]. Several research works [16, 53] consider smartphone overload as the momentary experience emerged from frequent use (i.e., checking habit [50]) or excessive use (i.e., prolonged screen time [12]) of smartphones amplified from fast access and availability to constant information and communication (e.g., private messages, news updates or dynamic information from smartphone apps) [16, 19]. Smartphone overload might result in users experiencing digital stress [55], anxiety [16, 19, 53, 55] (i.e., nomophobia [75], fear of missing out [54]) and even burnout [56] in the long term. Smartphones are the major information technology devices and people feel the urge to adapt to them to "keep up with the times," overdependence on the smartphone may lead to compulsive usage and enhance users' digital stress [33]. Other impending physiological and psychological consequences include temporary blurred vision and pain in the wrists or neck [30], as well as fatigue, tired eyes, headaches or eroded sleep quality in the long term [10]. In this context, some smartphone users might suffer under an *"inhibit[ed] capacity to process information efficiently or use information effectively"* [62], potentially resulting in absentminded patterns of smartphone use that correlate with inattention in everyday life [44]. The more information sources, such as text messages or other notifications, come together, the greater the disruptive effect of such an overload [20, 62] on the user's everyday life activities [16]. Further findings suggest content-based overload, in particular after consuming social media content [20]. The predominant short, yet frequent smartphone sessions [50] as an overload source can lead to slight annoyance [44], subjective distress, or functional impairment [34]. Other studies suggest smartphone overload to go hand-in-hand with users experiencing a loss of sense of time [32].

These findings suggest both psychological and physiological negative consequences of smartphone overload on the user's wellbeing. We aim to counteract these consequences with a novel concept of *winds*, delivered via a mobile app. Winds, compared to current technological strategies (that we explain in the following subsection), not only encourage termination of smartphone use but, moreover, encourage performing a short activity, i.e., break in the physical world. Whereas breaks, in particular ones that include physical activity, showcase great benefits for knowledge workers, i.e., workers exposed to digital sources for a great fraction of their work-day [59], the potential of non-digital breaks is yet to be investigated in terms of mitigating smartphone overload symptoms. This is where the concept of *winds* comes into place: we investigate not only the efficacy of winds itself, but also the differences in challenge categories (i.e., *physical, mental, organizing, social,* and *relaxation*) on providing refreshing and enjoyable breaks post smartphone-overload.

2.2 Tackling Smartphone Overload in HCI

Both the market and academia have acknowledged the need to tackle the growing issue of smartphone overuse, overload included. Google Digital Wellbeing[1] and Apple Screen Time[2] now come preinstalled on smartphones to track the user's smartphone use for monitoring, understanding, and limiting its use [46]. Such tools

[1] https://wellbeing.google/
[2] https://support.apple.com/en-us/HT208982

encourage users' self-reflection to make informed decisions about their smartphone use behavior [53]. The industry also supports further developments in the area — Google introduced Digital Wellbeing Experiments[3] and Apple's Screen Time API[4] allowing users can set daily individual limits for specific apps and get a notification when the limit is reached. Users have the choice of adhering, extending or completely ignoring the time limit. Prasad and Quinones [53] showed that almost half of the participants tend to ignore the Screen Time pop-ups with a frequency of often or always, thus continuing using the smartphone. Other studies [24, 49] report digital nudges such as reminders of time spent [24], countdowns [35] or vibrations of increasing intensity after a certain interaction duration [49] to effectively encourage exiting the digital tunnel, with washed out effects after removing the intervention [49]. The GoalKeeper study [26] developed interventions of several intensity levels from least restrictive to blocking, finding that the best compromise between user experience and intervention level lies in locking the smartphone and making it inaccessible for some time after a certain amount of active screen time. Another study suggests similar findings, that if the restricting functionality can be easily bypassed with one click, the intervention does not prevent the user from constantly checking their device [46]. The app store is full of digital wellbeing apps that support concerned users with blockers, timers, or motivational features [46] to mitigate smartphone overload. Although blocking out distracting factors, such as phone notifications [43], can increase productivity and focus, current approaches fail at promoting the formation of new habits [46]. Moreover, telling the user to stop using their smartphone can induce negative emotions, e.g., guilt and shame, if the user is unable to adhere to the set limits [53, 60]. As an alternative, other studies incorporate positive reinforcement such as rewards for not using an app longer than intended [53] or societal incentives [60]. An exemplary app is Forest[5], with which users plant virtual and physical trees for the time they consciously do not use their smartphones.

The listed works aim to target smartphone use behavior with information from the digital world only, thereby ignoring the context of the smartphone interaction. Additionally, their focal interest lies in reducing overall smartphone use time-wise. On the contrary, more recent studies [11, 58, 67, 76] employ the principle of reflection on the user's current inner and outer contexts besides the smartphone, such as self-affirmation [76], new habit formation [58], or awareness of the current activity in the physical world [11, 67] – with promising effects on the user's smartphone use behavior [67, 76]. Moreover, Terzimehić and Aragon-Hahner [65] suggest that, after smartphone sessions of more than 10 minutes, users want to engage in activities that are disconnected from the digital world.

We align with the latter corpus of related works by seizing the user's environmental and inner context in which the smartphone is used and utilizing it as input for *winds*: SMART challenges for the physical world post smartphone overload. The goal of *winds* is of a momentary nature in contrast to long-term smartphone behavior change (especially in contrast to the dominant current of reducing smartphone use time). The activity prompt embodied within a wind encourages exiting the digital tunnel to provide a momentary, refreshing break and to re-gain balance of the user's digital and physical presence. In the following section, we address the potential of small challenges in other behavioral domains.

2.3 Engaging with Small Challenges

Interventions such as reminders, hints, or challenges are an effective way to promote various aspects of wellbeing [13]. Challenges are small, attainable goals – if specific towards a concrete goal, people will put in the most effort to achieve that particular goal [36]. Specific and short challenges remove ambiguity about whether and when goals are attained. As such, they stimulate motivation and enjoyment [13] after being executed. The use of challenges has been explored in various research projects and market products.

Physical activity trackers greatly employ challenges, e.g., take 250 steps every hour[6]. Such targets are effective when tracking is easy to manage and feedback remains constant [14]. Yet, a broader set of interesting challenges may support greater engagement and learning opportunities over time [14, 18, 29]. Focusing on different tasks and getting one's mind off the current activity, instead of always engaging with the same thing, is a key step in achieving improved mental health. Taking breaks independent of the user's current task can have a positive impact on mental wellbeing and productivity [17]. Furthermore, breaks should not be too long (especially in work-related contexts), as this can have a negative effect on the user's relaxation – a too-long absence from important tasks creates stress and anxiety [17] and may hinder engagement with the challenge. As a result, we decided to keep *winds* short, so users perceive low to no pressure levels to get back to another ongoing activity. Epstein et al. [17] also showed that many breaks are either digital, such as checking email or visiting social media (which is contradictory to combating digital overload), or related to necessities, such as going to the bathroom or getting a snack. Yet, an unfamiliar task might be exciting and thus motivate a user to take a break. Stawarz et al. [63] show that unique and new challenges increase a person's mindfulness and engagement, even if the task was not completed. Our approach includes a diverse and unique pool of challenges. We make the assumption that the right challenge might cause a user to further engage in an activity, e.g., making your bed motivates one to keep the whole room clean as well. Finally, Epstein et al. [18] show that challenges should have a certain level of specificity, as it makes willingness to engage most likely. 'Turn off your smartphone and relax' is less specific than 'Make yourself a bath and enjoy for 10 minutes' – as such, it might be perceived as discouraging and quickly dismissed because of the extra effort needed in designing the relaxing activity.

For example, in the app *21 Days Challenge*[7], users can choose a category, such as productivity or studying, and then receive one challenge on the topic each day, for 21 days. *Fabulous*[8], an app with over 10 million downloads, allows users to create routines for parts of the day. An evening routine, for example, consists of listening to relaxing music, calling a loved one, writing in a diary, and drinking tea. Even though *Fabulous* suggests some concrete activities to

[3]https://experiments.withgoogle.com/collection/digitalwellbeing
[4]https://www.apple.com/ios/ios-15-preview/features/
[5]Forest, https://www.forestapp.cc/
[6]https://blog.fitbit.com/step-challenges/
[7]https://play.google.com/store/apps/details?id=com.limatech.dayschallenge.dayschallenge&hl=en&gl=US
[8]https://play.google.com/store/apps/details?id=co.thefabulous.app&hl=en&gl=US

put into a routine, the app and similar ones are essentially to-do lists. These can often feel like a chore and could be ignored after some time [28], especially since routines have a habit of being repeated regularly and the need for a written down plan decreases fast. Incidentally, *Fabulous* also suggests to *"digital detox for an hour"* but does not specify or propose what that time could be spent on instead. RWW does not include mandatory upfront planning or to-do lists, although users can add their own challenges.

To address the barrier that interventions can be perceived as judgmental, contributing to abandonment, we build upon prior research [5, 18] that suggesting activities may not need to be prescriptive, e.g., *"Time to leave your smartphone!"*, to promote balance. Instead, we design and evaluate non-judgmental, smartphone-independent tasks to be executed in the real world, aligning with celebratory technology to foster positive interaction [22].

That being said, we designed *winds* to be SMART goals: *Specific*, *Measurable*, *Achievable*, *Relevant* and *Timely*[9], iteratively developed, extended and evaluated within a field-study that we describe in the following sections.

3 *REAL-WORLD WIND*

To evaluate *winds* for balance and enjoyment, we developed the mobile app RWW. The app is written in Kotlin for Android. Instead of blocking access to the device or some of its services after a certain smartphone use behavior pattern has been detected, such as in Apple's app limits[10] or proposed in a previous research study [24], RWW encourages users to break out of the digital tunnel by performing a short challenge in the real world.

Overall Workflow. The app's workflow, with its main screens and actions, is presented in Figure 2. S2 reflects the app's home screen when no challenge is active. The app activates a challenge in two cases: either if the user manually requests one (see A1) or automatically by the system, via a notification (see S1). In the first case, users can proactively ask for a challenge by pressing the blue flag button on the main screen (see A1 in the upper part of S2). In the second case, the app detects an overload based on the user's smartphone use behavior and, as a result, triggers a challenge notification (see S1). More details on how the overload detection works are described further below. Following, in both cases, the app delivers a random challenge from a list of 87 activities to perform in the real world (see Appendix A). The active challenge gets displayed in the upper part of the home screen, replacing the challenge request button, as in S3 in Figure 2. The user can then choose to complete a challenge by providing a reply (see A2), either in the app's home screen as in S3 or directly in the notification (see A2 in S1). The user can also decide to cancel (see A3) or exchange (see A4) a challenge. Canceling nullifies an active challenge and returns to the default layout when no challenge is active within the app (see S2 in Figure 2). Exchanging provides a new, randomly selected, challenge. These features were added to identify uninteresting or unsuitable challenges and understand users' circumstances when requesting a challenge. Information about canceled or exchanged challenges is not displayed on the main overview screen, following the principles of celebratory technology to rather emphasize achievements [22]. Additional, optional features include snoozing overload detection with A5 and adding one own's challenges. With A5, users can set a certain time frame to snooze the overload detection, that is, to receive no challenges in the set time. By executing A6, users are able to add their own challenges in S4.

Table 1: Example challenges presented in the study.

Category	Example Challenge	#
Physical Exercise	*"Get up and stretch your arms above your head. Try to be as tall as possible. Which item of furniture in your room matches your height while stretching?"*	20
Mental Exercise	*"Search for the most colorful item in your room. How many colors are there?"*	22
Relaxation	*"Open the window and identify three different sounds outside. What sounds did you hear?"*	15
Organizing Task	*"Think of recent purchases. Are there any bills that you have to pay?"*	18
Social Activity	*"Think of a funny experience and talk about it with a person you associate the experience with. Does the person add up something to that memory?"*	12
	Total	**87**

Challenges' Categorisation. Related work shows that individualized challenges, shaped specifically for the user's own needs and goals, increase the user's motivation [18]. As a result, we clustered the challenges into five categories: *physical exercise, mental exercise, relaxation, organizing task*, or *social activity*. To minimize in-app time upon overload, a random challenge is suggested first. Table 1 presents some exemplary challenges and their count across categories. The full list of challenges is available in Appendix A.

Creating Challenges. The user can also create their own challenges and assign them to one of the predefined categories for better organization. The floating button A6 will bring the user to the screen S4, see Figure 2. The added challenges are marked in the system with the flag *Personalized*, to enable subsequent filtering after user's own challenges.

Deleting Challenges. The app offers the option to *always hide* a challenge, which is equivalent to deleting the challenge from the database. To ensure usability, this action is reversible.

Push Notifications to Deliver Challenges. RWW pushes challenge notifications when it suspects an overload based on the user's smartphone use behavior (see S1 in Figure 2), similar to related work [13, 52]. These notifications include a random challenge and three action buttons *Cancel* A3, *Exchange* A4 and *Reply* A2. The action buttons stand for the actions of canceling, exchanging and completing a challenge, respectively. To encourage a conscious consideration of the detected smartphone overload, we used a sticky notification, i.e., the notification disappears from the user's home screen only after responding in one of the three ways described above. A notification is sent after 12 minutes of uninterrupted screen time or if more than five unlocks were detected within 30

[9]https://www.mindtools.com/a4wo118/smart-goals
[10]https://www.theverge.com/2018/9/17/17870126/ios-12-screen-time-app-limits-downtime-features-how-to-use

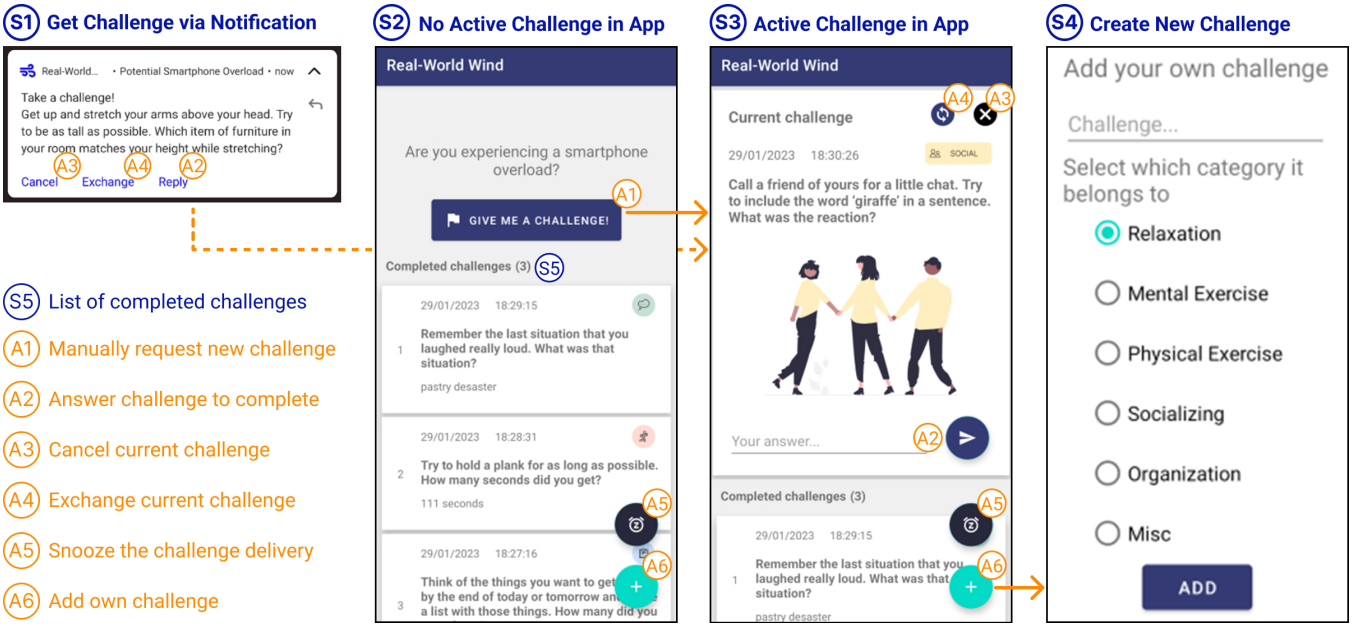


Figure 2: The schematic overview of the *Real-World Wind* application, with its five screens (S1-S5) and dedicated actions (A1-A6).

minutes (i.e., two unlocks in more than 4x7 minutes in 30 minutes). The latter follows findings from a related study [69] that frequent unlocks, within a short time-frame, can also precede smartphone overload – regardless of the amount of active screen time.

Snoozing Challenges. To mitigate overload notifications in cases of intentionally longer smartphone use [2, 7], we added a snooze function as a floating button on the main screen, see A5 in Figure 2. The user must activate the snooze function that prevents overload notifications from appearing for the time determined by the user.

Additional Functionality Relevant for Study Execution. For data collection purposes, we implemented an Experience Sampling (ES) questionnaire on user's life-technology balance after completing a challenge (4-point Likert-scale from *very unbalanced* to *very balanced*), that is, on reasons for canceling or exchanging a challenge. RWW uses a foreground service[11] to remain running, even if completely closed. We used this service to enable constant data collection on lock and unlock events (i.e., to record the duration of a smartphone session), as well as the apps used within a session. We accompanied the foreground service with a permanent notification on the smartphone's lock screen that cannot be swiped away, serving as reminder and a quick way to report overloads.

4 FIELD STUDY

4.1 Procedure

We evaluated winds within a RWW field deployment of one week. A pre- and post-survey accompanied the field deployment. We recruited participants for the field study via an online newsletter, social media, and convenience sampling. The study's advertisement implied using *"an Android App called Real-World Winds that assigns small tasks in the physical world after spending some time with your smartphone."* All interested parties were sent an email containing more information on the study procedure and the link to the pre-study survey. The survey contained a download link for the app and further instructions, including an on-boarding video, at the end. Each participant received a unique ID at the beginning of the study for anonymization and data tracking purposes.

After completing the initial survey and installing the app, we asked participants to regularly check the existence of the continuous notification[12], and if gone, to restart the app. In addition, the app reminded participants once a day to check if the app is running and restart it if necessary. To ensure smooth interaction, participants were asked to turn off their battery optimization[13] and leave the app in the recent-apps section. Apart from these checks, we instructed participants to use their smartphone as they normally would and to respond to overload notifications in whatever way they wished and could.

After one week, participants were sent the off-boarding questionnaire link. To be included in our participants' pool and receive a 15€ compensation, participants had to fill out both questionnaires, leave the RWW app running on their smartphone for a week and complete at least two challenges.

4.2 Participants

Initially, 36 people expressed interest by filling out the first questionnaire. Of these, 25 participants met the listed inclusion criteria. An overview of the participants' demographics, including gender, age, and profession, can be found in Table 2.

[11] https://developer.android.com/guide/components/foreground-services

[12] the notification indicates whether the foreground service of the app is still running and thus whether the app is running

[13] Android Developers: Optimize for Doze and App Standby, https://developer.android.com/training/monitoring-device-state/doze-standby

Table 2: Overview of the participants' demographics.

	Demographics
Gender	13 male, 11 female, 1 non-binary
Age	M = 25 yrs, std = 5, min = 19, max = 41
Profession	14 students, 3 engineers, 2 software developers, 6 other
Total	**N=25**

4.3 Data Collection & Evaluation Metrics

We collected data through usage logs, pre- and post-study questionnaires, as well as in-app ES questionnaires.

4.3.1 Usage Logs. We collected data on general smartphone and RWW use, such as time since smartphone unlock, last used apps (for overload contextualization), and timestamps on when a challenge was added, opened, and completed (for descriptive RWW statistics). Furthermore, we tracked the chosen challenge categories, snooze timers, and received notifications (without challenges).

4.3.2 Questionnaires. We distributed a pre- and post-survey before and after RWWs field deployment as questionnaires via email at the appropriate times relative to each participant's start date.

Life-Smartphone Balance (pre & post). We developed seven 7-point Likert scale items (from *strongly disagree* to *strongly agree*) to reflect on user's own smartphone use behaviors and its effect on their everyday life activities:

- Q1 **Too Much Time:** *I spend too much time using my smartphone.*
- Q2 **Right Reasons:** *I use my smartphone for the right reasons.*
- Q3 **In Control:** *I feel in control of my smartphone usage.*
- Q4 **Successfully Perform:** *I successfully perform my activities in the real world, regardless of the presence of my smartphone.*
- Q5 **Difficult Stay:** *I find it difficult to stay in the moment when my smartphone is nearby.*
- Q6 **Satisfied LSB:** *I am satisfied with my LSB.*
- Q7 **Successfully Balance:** *I successfully balance my real-world and digital activities.*

Challenge-Specific (post). Participants ranked the challenges' categories by their effectiveness in establishing balance and enjoyment, with a brief open-end text justification for first and last place. We asked about motivation, difficulty, and enjoyment of challenge execution, as well as real-world awareness and general wellbeing after performing a challenge using 7-point Likert-scale items.

We investigated the overall effectiveness of challenges in *encouraging balance* using the following five, 7-point, Likert-scale questions (from *strongly disagree* to *strongly agree*) in the end questionnaire:

- Q8 **Combating:** *The challenges are an effective way of combating smartphone overload.*
- Q9 **Increased Awareness:** *The challenges increased my real-world awareness.*
- Q10 **Helped Balance:** *The challenges helped me balance my real and digital activities.*
- Q11 **Back to Real World:** *I found back into the real world after fulfilling a challenge.*
- Q12 **Improved Wellbeing:** *The challenges helped me improve my wellbeing.*

To analyze user's *enjoyment* in engaging with winds, we employed the following five, 7-point, Likert-scale questions (from *strongly disagree* to *strongly agree*):

- Q13 **Motivation:** *I was motivated to do the challenges from RWW.*
- Q14 **Enjoyment:** *I enjoyed doing the challenges from RWW.*
- Q15 **Boredom:** *I felt bored while doing the challenges.*
- Q16 **Happiness:** *I felt happy after doing the challenges.*
- Q17 **Annoyance:** *I felt annoyed after doing the challenges*

System Usability Scale (post). We employed the System Usability Scale (SUS) [4, 8] to rate the overall usability of RWW (Q18-Q28). We additionally asked participants to evaluate the appropriateness of the timing of the notification (Q29) on a 7-point Likert scale.

Open Feedback (post). The post-questionnaires concluded with an open field for further comments and findings about the study.

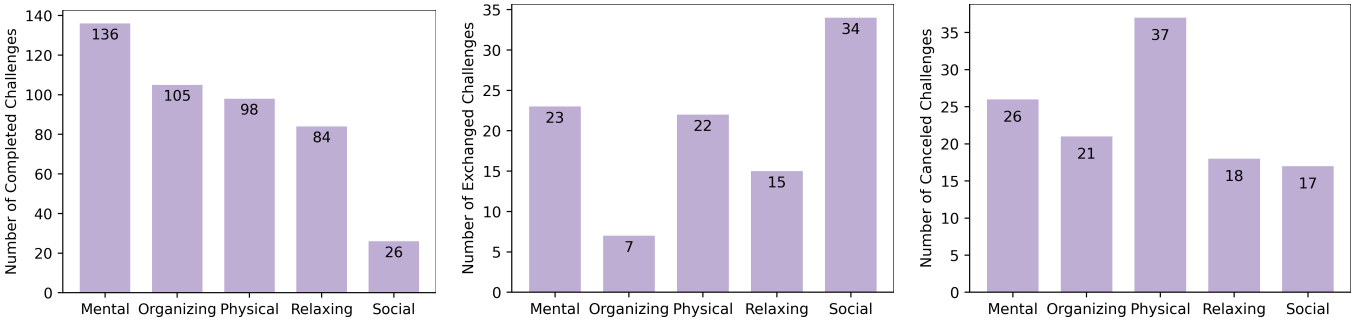
4.3.3 In-App Experience Sampling. During RWW's field deployment, the app probed users to shortly self-report their thoughts or feelings after the events of completing, deleting, adding, or exchanging a challenge using the ES method [72]. We acknowledge the increase in user burden in this case. However, we wanted to collect in-the-moment experiences of the challenges in order to minimize washout effects.

The *Complete* questionnaire contains seven 5-point Likert scales to collect user's feelings and perceptions after completing a challenge. These include *Annoyance* (Q30), *Awareness* (Q31), *Balance* (Q32), *Boredom* (Q33), *Enjoyment* (Q34), *Happiness* (Q35) and overall *wellbeing* (Q36). This enables us to evaluate the challenges' effectiveness in mitigating overload effects. We further asked for the user's location, i.e., whether *"at work"*, *"outside"*, *"at home"*, or *"other"*. We included the location question to provide a broader contextual understanding of smartphone overload.

The questionnaires for the *Exchange* and *Cancel* actions are almost identical – the *Cancel* dialog contains a checkbox to indicate the incorrect timing of the overload notification, stating that they do not feel an overload at that particular moment. Otherwise, the questionnaire probes the reason for exchanging or canceling the challenges from a list of potential reasons and an Other option. We included this explanation to examine the (in)appropriateness of certain challenge categories in different contexts.

5 ANALYSIS & RESULTS

We report descriptive findings on the usability and overall use of RWW, followed by quantitative results on the perceived LSB before and after using RWW. We then disclose both quantitative and qualitative findings about participants' perception of challenges and the differences between challenge categories. We conclude the section with feedback on the timing of the overload detection, a theme that was prominent in our participants' responses.



(a) Completed Challenges **(b) Exchanged Challenges** **(c) Canceled Challenges**

Figure 3: Number of *completed*, *exchanged*, and *canceled* challenges across the five challenge categories.

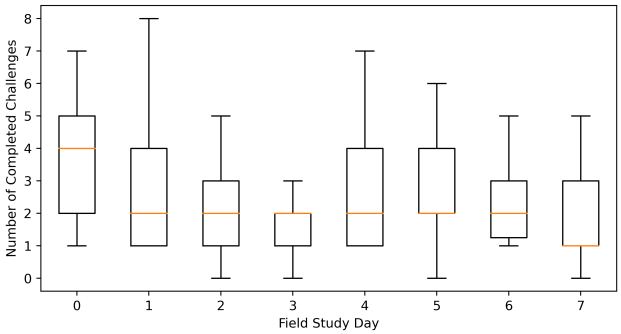


Figure 4: Boxplots showing the number of completed challenges for every day of the field study.

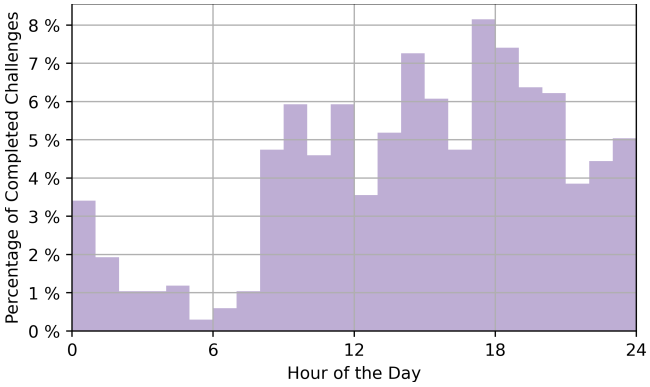
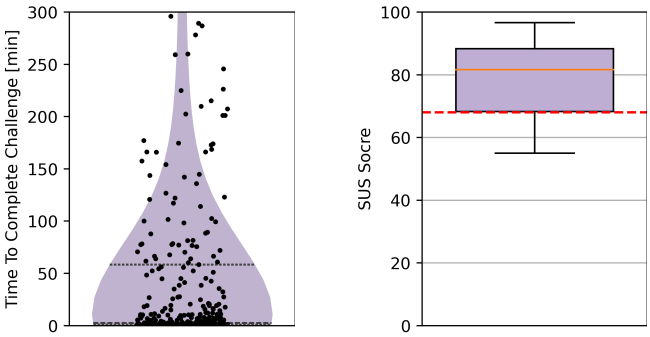


Figure 5: Percentage breakdown of the average number of completed challenges relative to the number of completed challenges within a day, presented hourly within 24 hours.

5.1 Overall *Real-World Wind* Usage

Over the one-week study, the RWW app recorded 693 challenge-featured[14] interactions. 69% of the interactions were triggered by an overload notification ($n = 477$). Moreover, participants used the *Snooze* feature 83 times. Participants completed 449 challenges, that is, 18 challenges daily on average ($SD = 10.7$, $min = 4$, $max = 44$). Figure 3a shows the distribution of completed challenges across the categories, with most completed challenges, 30% ($n = 136$), being of the *Mental* category. Figure 4 shows how the number of completed challenges changed over the daily course of the study. After an initial spike, the median number of completed challenges stabilizes at two challenges per day beginning on day 2 of the study. In addition, over the course of a 24-hour window, most challenges were completed between 5 and 7 pm (see Figure 5). The median time it took participants to complete a challenge was 2.6 minutes (see Figure 6a). Whereas 26 participants exchanged 101 challenges in total, most of which were of the *Social* category (37%, see Figure 3b), 23 participants canceled 119 challenges, with dominant 31% being of the *Physical* category (see Figure 3c). Participants added three challenges and deleted eight challenges in total. Table 3 depicts the descriptive statistics on the app interactions.

[14] challenge completed, exchanged, canceled, deleted, added or open



(a) Response Time **(b) SUS**

Figure 6: a) Distribution of the response time to a challenge. b) The results of the SUS

5.2 System Usability Score

Our participants gave the RWW app an average SUS score of 78.3 ($SD = 12.4$, $min = 55.0$, $max = 96.7$; see Figure 6b), which is rated as *"good"*. The first SUS-item probes user's willingness to continue using the system on a 7-point Likert scale. Participants express slight enthusiasm to continue using RWW ($\tilde{x} = 5$).

Table 3: Descriptive statistics on the three actions of completing, canceling, and exchanging challenges per participant.

	mean	std	min	25%	50%	75%	max
Completed	17.96	10.67	4	13	15	21	44
Cancelled	4.76	5.27	0	0	3	9	17
Exchanged	4.04	4.49	0	1	3	5	17

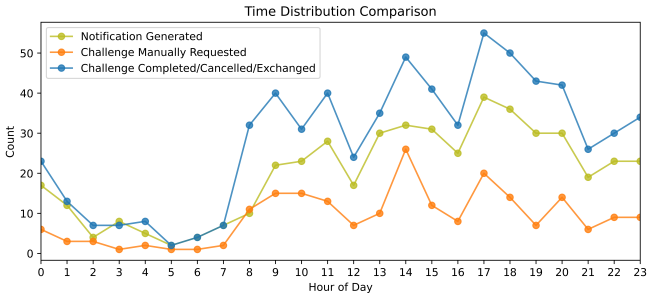


Figure 7: Three lines that illustrate the number of challenges generated through notifications (depicted by the green trendline), the quantity of challenges manually requested (indicated by the orange line), and the quantity of response patterns involving challenge replies, cancellations, or exchanges (shown with blue line), over a 24-hour time frame. App engagement reaches a smaller zenith around 2 pm and experiences a peak between 5 and 7 pm.

5.3 Context of Challenge Execution

5.3.1 Time of the Challenge. Figure 7 shows the daily distribution of challenges in comparison of the overload notification and the completion response. The difference in red and blue peaks presents challenges users added themselves. The figure shows a quick response time (x-axis shift of the peaks).

5.3.2 Location of Challenge. After completing a challenge, we asked participants to provide their location context, i.e., whether at *home*, *outside*, *at work*, or other. Participants indicated *home* as their location in 62.1% of completed challenges ($n = 279$). Work and outside were reported almost equally, 67 and 70 times, respectively. In the remaining 42 challenges, participants reported university or public transport related locations.

5.4 Before and After: Perceived LSB

We compare LSB scores before and after the one-week field deployment of RWW (i.e., pre- and post-study). We calculate a summarizing score with *strongly disagree* being a one and *strongly agree* a seven. Questions 1 and 5 are reverted. The average score before starting the study was 26.96 ($SD = 7.15$, $min = 17$, $max = 40$).

The average scores after completing the study were 31.44 ($SD = 7.37$, $min = 20$, $max = 45$). This means that RWW manages to increase participants' perceived LSB by 16.6%. A Wilcoxon test shows a statistically significant difference ($Z = 85$, $p < .036$) before and after using RWW for a week. Figure 8 shows the pre-post difference across all seven Likert-scale questions.

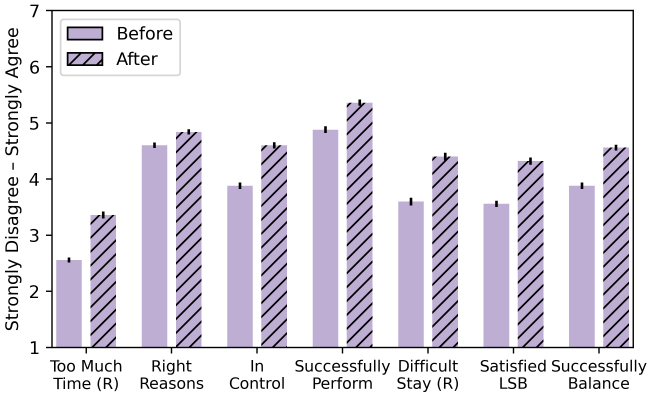


Figure 8: An analysis of participants' answers to the questions on LSB (Q1-Q7), both before and after using the RWW app for a week. The results indicate an increasing trend of participant's life-smartphone balance across all seven questions after using RWW.

5.5 Effectiveness & Enjoyment of Challenges

We investigated the overall effectiveness of challenges in encouraging balance and the enjoyment in executing them. Both for *effectiveness* (see Figure 9) and *enjoyment* (see Figure 10), participants' median of responses to the positively-framed questions is at slight agreement or better. The median value for the negative questions on boredom and annoyance in the *enjoyment* set of questions is at slight disagreement or worse.

The enjoyment of the challenges is reflected in the statements of 68% of the participants ($n = 17$), mostly due to the creative and versatile nature of the challenges: *"[The challenges] were very innovative and were fun to do for relaxing. I loved most of the challenges and they all were almost feasible"* (P2) and *"The challenges itself were very well constructed and had a big variety of challenges I could choose of"* (P5).

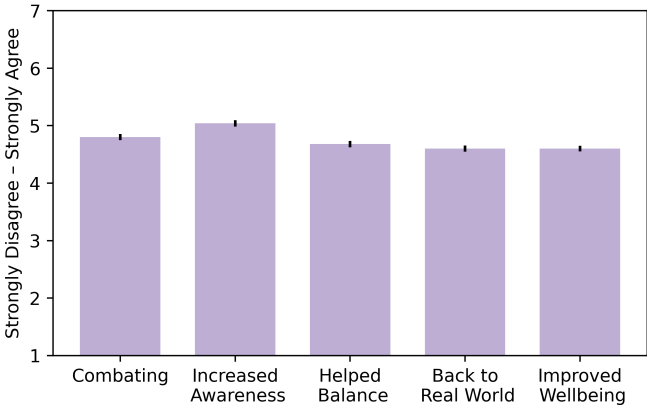


Figure 9: Perceived Effectiveness (Q8-Q12) after using the RWW app for one week. Error bars depict standard errors.

Figure 10: Perceived Enjoyment (Q13-Q17) after using the RWW app for one week. Error bars depict standard errors.

5.6 Differences in Challenge Categories

5.6.1 Quantitative Results. We analyzed differences in challenge categories by inspecting answers to both post-challenge experience sampling questionnaires, as well as the post-study subjective ranking of challenge categories. A series of Kruskal-Wallis tests on the answers from the ES-questionnaires (Q30-Q36) show that there is a significant influence of the category on perceived *Awareness* ($H = 15.86$, $p = .0032$), *Balance* ($H = 17.43$, $p = .0015$), *Enjoyment* ($H = 18.87$, $p < .001$) and *Happiness* ($H = 21.90$, $p < .001$) after executing a challenge, see Figure 11.

Following, we asked participants to rank the encountered challenge categories according to the criteria of *effectiveness* in encouraging digital and physical balance and *enjoyment* in accomplishing it. We calculated a ranked score (between 1 for lowest and 5 for highest) for every category in both criteria, with the highest ranked category receiving five points and the lowest one point. Participants ranked the category *Physical* highest ($M = 3.39$, $SD = 1.35$), when it comes to its effectiveness in encouraging balance between the digital and physical world. 13 participants gave the highest ranking, which was the maximum. The category is followed in descending order by the *Relaxation* ($M = 3.29$, $SD = 1.3$), *Mental* ($M = 3.09$, $SD = 1.29$) and *Organizing Task* ($M = 2.77$, $SD = 1.5$). *Social Activity* was ranked in last place ($M = 2.17$, $SD = 1.25$). The results of ranking the *enjoyment* of categories suggest a slightly different result, with the categories *Mental* ($M = 3.66$, $SD = 1.11$) and *Physical* ($M = 3.29$, $SD = 1.45$) switching places to highest ranked and third ranked, respectively. The similar rankings for both criteria might be explained by 13 participants indicating equal reasoning for the ranking, resulting in their mirrored rankings for both criteria.

5.6.2 Qualitative Feedback. Participants' statements reflect these rankings. Nine participants praised the *Physical* category for helping them get back in touch with the real, physical world. For P7, a physical challenge is *"an easier and faster distraction [than doing mental things]"* from the digital activity. P1 reported learning about themselves: *"After performing the physical tasks, I was always very relieved because they took me completely out of the digital world. My presence, both physically and mentally, was stronger after the challenge in the present. After a week, one learned to better feel one's body and needs and, above all, to pay attention to them"* (P1).

The *Mental* and *Relaxation* categories were praised for promoting attentiveness and their easiness and feasibility of execution. However, some participants had difficulties concentrating on the task and accepting the void, which did not help balance the real and digital world.

Opinions on the *Organizing Task* category are extremely split. Eight participants ranked the category first, for providing tangible real-world activities such as throwing garbage or grocery shopping. These, in turn, raised participants' feeling of productivity, potentially motivating them to do more tasks. On the contrary, participants who ranked the category low did not experience a necessity to break out of the digital tunnel to do execute some of these activities, as P1 says *"I didn't feel like I needed to exert myself and move around to complete tasks, or that I should block out digital content for longer"*. Three participants felt such challenges as an additional obligation rather than a needed break.

Participants had an undivided opinion on the *Social Activity* category, ranking it last. The listed reasons were the contextual inability, increased effort for introverted individuals, and trauma issues. *"Social activity challenges usually has something to do with calling a friend or talking to someone, which is not usually realistic at night or in public or in the class"* (P24).

5.7 Other Feedback: Overload Detection

We report on other prominent feedback we received, which predominantly evolves around the delivery of the overload notification. Currently, RWW sends a push notification after twelve minutes of active screen time or six unlocks within half an hour, prompting the user to perform a challenge. 68.7% of the interactions with challenges (477 of 693) were triggered by a notification, out of which 328 were *screen time* based, and 149 were *unlocks* based. 73.8% ($n = 144$ of 195) of the completed *screen time* triggered challenges were executed at home, compared to 43.4% ($n = 40$ of 92) of the completed *unlocks* triggered challenges.

Participants canceled 119 challenges. In almost 50% of cancellations, study subjects stated not feeling an overload ($n = 61$ of 119 canceled challenges). Figure 12 shows the distribution of the reasons for canceling or exchanging challenges, with *"current circumstances allowing no challenge execution"* being the most often. We probed participants on their perception of the notification's correct timing (Q29), i.e., whether the notification overlapped their subjective feeling of smartphone overload. Whereas 13 participants agreed with the notification's timing, the majority ($n = 19$) disagreed ($\tilde{x} = 3$). These participants stated that the notifications came either *too early* ($n = 4$) or *too late* ($n = 3$). Another six participants criticized the high frequency (i.e., too many notifications in a short time, *"in a row"*). This refers to situations when, for example, one returned to the smartphone after completing a challenge, and a further notification came a little later. However, subsequent notifications within the same session were found to be annoying. Several users were texting with friends, after which the smartphone mistakenly suspected an overload due to the high frequency of unlocks. Fifteen participants addressed the notifications' unsuitability, suggesting

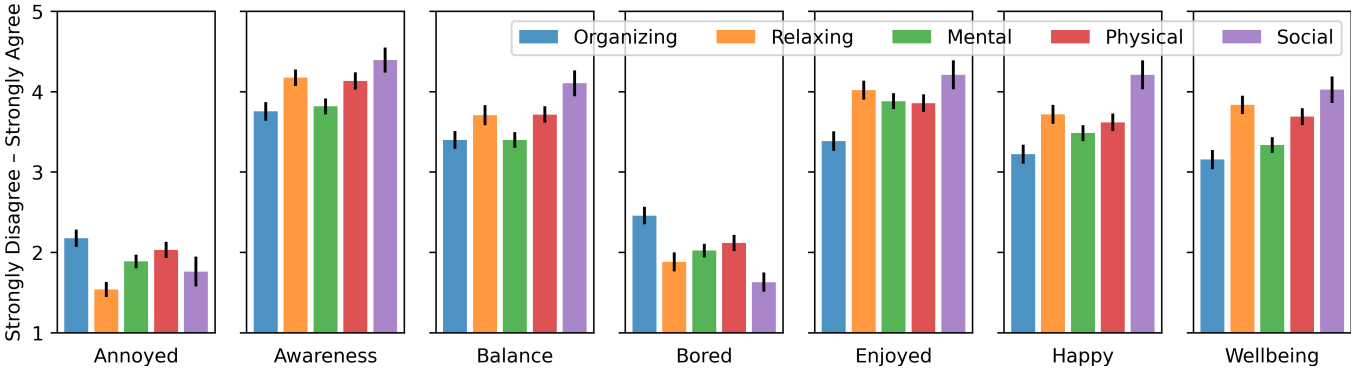


Figure 11: Results from the post-challenge-completion experience sampling questionnaires (Q30-Q36) across the five categories, for enjoyment (annoyed, bored, enjoyed, happy), balance (awareness and balance), and overall wellbeing.

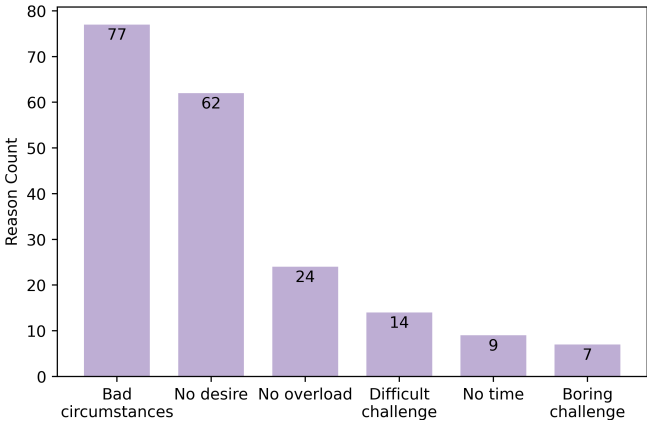


Figure 12: Distribution of the most frequently cited reasons why challenges were canceled or exchanged.

content-based triggers as an alternative: *"The situations w[]ere often wrong. It[']s not an overload, when you [do] something i[m]portant [on the smartphone]"* (P11). Other positive examples of smartphone use include phone calls, work, and university-related activities, cooking, voice messages, e-book reading, or texting friends.

Furthermore, participants recommended more individually tailored criteria for notification triggering: *"I think there is no one-size-fits-all solution to smartphone overload. There are so many things to use a smartphone for, and everybody has a different mixture of use cases. It makes a difference whether [I] opened my phone ten times in a minute in order to take a pictur[e] or [I] opened it in order to look at Instagram"* (P8). Customization was suggested as a potential solution, e.g., a *"whitelist"* (P24) of apps excluded from overload tracking. Yet, P8 compares RWW to current solutions positively: *"After all, I think this app is a good start. For me, it certainly worked better than most* digital wellbeing *features on my phone."*

6 DISCUSSION

Overall, we show the potential for short, non-judgmental, and uncommon challenges to tackle smartphone overload. People can obtain benefits such as enjoyment and post-overload balance between real and digital activities, with the challenge category significantly contributing to these metrics. A digital challenge distribution channel performs well in encouraging balance due to its applicability in different contexts and its low-burden setup. However, more research is needed in assessing the correct timing of challenge delivery and evaluating balance. Following, we discuss comfort with these activities and future opportunities for winds.

6.1 Winds for (Leaving) the Comfort Zone

Participants ranked challenge categories for the criteria of enjoyment and effectiveness in encouraging balance similarly, except for the categories *mental* and *physical* exercise. According to qualitative statements, the category *physical exercise* offers the clearest cut between the digital and physical world, but there are people to whom a sudden physical movement is way out of their comfort zone. On the other hand, *mental* provides the highest enjoyment, but some participants find it difficult to tackle the void of doing *"nothing"*. Nowadays, many people acquire behaviors that fill the smallest gaps of time with *something*. The presence of a smartphone makes filling this void easy because the internet and information from all over the world are consistently within reach. It rarely makes people feel good, though [61]. The fact that people ranked *relaxation* and *mental* high suggests that people might miss having time to do nothing or to practice some idle time.

Organizing tasks were generally more unpopular and ineffective in achieving balance, as many organizing tasks have moved to the digital world (e.g., creating to-do lists and managing appointments). Yet, some participants' statements point to a snowballing effect: once the initial spark of starting an uncomfortable task, such as cleaning, is ignited, participants feel motivated to do more. Thus, organizational winds potentially encourage initial achievements that foster further motivation.

Social activities were the least popular with participants, as half of them ranked it last and exchanged most challenges of this category. Tasks in this category often involve proactively checking in with a friend or family member, meaning the agency of the challenge execution was not in participants' hands only anymore – they make themselves dependent on the cooperation of a contact. For many participants, this was a too big intrusion of their comfort zone, adding stress for introverts or people who have a hard time with social interactions. Yet, one participant praised the category for specifically encouraging leaving their comfort zone. Indeed, once completed, *Social Activity* challenges promote the highest enjoyment, happiness, and balance (compared to other categories), aligning with the long-term study on happiness[15] that sound social relationships are most important for people's happiness. Uncomfortable interactions, actions, and feedback can create comparably powerful experiences as pragmatic or enjoyable interactions, as previous research work suggests [6], even if this seems contradictory at first.

6.2 Contextual and Content-Dependent Challenge Delivery

We sought to design winds to be specific, achievable, and delivered just-in-time post smartphone-overload. For simplicity reasons, we designed push notifications to fire after 12 minutes or after six unlocks within half an hour. Although participants engaged with winds, our results suggest participants canceling challenges that were falsely suspenseful as overloads, context-inconvenient, or too frequent. Qualitative statements, as well as the challenge cancellation rates, point to the necessity of a different, more context- and content-centric, metric. Indeed, related work (e.g., Lukoff [38]) argues not all screen time is of the same quality. In particular, users struggle with passive, unintentional content consumption on their smartphones [74]. Current studies thus suggest interventions on blacklisted apps [46] or in-app features [11], better yet, if context-dependent [25]. Moreover, the success of RWW depends not solely on user's desire to (dis)engage with their smartphones. In some work situations, smartphone use is required – or there exists a dire family matter that requires communication. When smartphone use is necessary, RWW currently does not detect such scenarios, leaving ample space for either more systemic interventions in, e.g., the workplace [1], or context- and content-appropriateness, also known as just-in-time interventions [47]. To some extent, we aimed to tackle this issue by incorporating the *Snooze* feature, i.e., opting out of the challenge delivery. Although used to some extent in our field study, participants suggested not always remembering to turn the feature on, i.e., although it aimed at increasing the user's sense of agency, it increased the burden on the user's side. Given the high amount of available sensors in the smartphone that can deduce context, challenges could, as such, be delivered only in context-appropriate cases (e.g., Apple's Focus feature adapts the smartphone based on the context of use, with a similar proposition emerging in research too [66]). Yet, most of the challenges were delivered and asked for at home. In that case, the delivery of challenges could be more fine-tuned to, e.g., detecting boredom [51] or if the user is falling down a negative mobile phone rabbit hole [68], among others. Varying (or blocking) challenges to match people's everyday life events might benefit engagement and further support playful approaches to promoting balance [18, 21].

Then there is the matter of consumed content. For example, if the user frequently unlocks their smartphone to engage in back-and-forth messaging, *winds* could be delivered only if the starting app is not messaging. Related research work suggests a moderate use of app reminders, as they tend to create dependency on the app [57, 63]. However, given the increasing level of weaving digital technology into our daily lives, we question whether it is generally *"bad"* to create a dependency if it enhances offline activities? Communication nowadays is unimaginable without digital technology, and yet, it is one of the most valued features. Further research could explore the user relationship and perception of *winds* over time.

6.3 Ensuring Novelty and Playfulness, but not by the User

Some features of the improved RWW app have hardly been applied, although we assumed that the ability for participants to create their own overload-tackling methods would foster their sense of agency.

Adding and *deleting* a challenge, as well as *snoozing*, were at the user's close reach with buttons on the main screen of the app. Despite the evaluated transparency of the app as high and an onboarding video, they were not extensively used. Only two participants added their own challenges. One participant stated to have taken the time to think about their own challenges if they had used the app for a longer period of time. Users do not necessarily want to take extra time to think of something that the app already offers from the outset [3, 42]. In particular, in the beginning, there is a certain level of curiosity to inspect which challenges the app will suggest [18]. Yet, to foster novelty and playfulness, similar apps should not rely on the user, but rather include it by system design. 121 *exchange* reactions came in as a response to the initial challenges. In barely one-third of the exchanges, participants indicated that they would like to be given another *random* challenge. In 71 cases, they indicated specific category wishes, expressing a need – to a certain extent – for personalization. Further studies could explore the optimal ratio of (un)comfortable and playful challenges.

At this point, we want to address the somewhat contradiction we impose with RWW: we advocate for engagement with the app, while at the same time arguing for disengagement from the smartphone. However, we do not sustain engagement with the app for the sake of sole app engagement but rather to encourage playful engagement with the user's surrounding physical or inner mental world.

6.4 Life-Smartphone Balance as Evaluation Metric

As technology use continues to increase in the digital age, there is a growing need to redefine what can be considered as appropriate or excessive smartphone use [31]. Recent related work advocates designing for a balance of technology use and everyday life activities [73], such as purposeful use or use to support social connections [48]. We thus opted to go for life-smartphone balance and enjoyment, i.e., the interaction's hedonic quality [45]. However, current subjective smartphone use scales, for the most part, focus on the

[15] https://www.youtube.com/watch?v=8KkKuTCFvzI&ab_channel=TED

negative aspects of technology use [23]. We thus employed a set of questions, similar as in [66], that are based on 1) the mutual influence of technology use and users' real-world activities [48, 67, 73], 2) users' sense of agency and autonomy over technology use [39], and 3) (the classic) smartphone use screen time. As per similar suggestion in [66], validating such scale would be of benefit for the HCI community.

6.5 Limitations

Our sample does not represent the general public, reflecting the young adult population. This population, however, has shown to be more prone to problematic smartphone use [15].

Based on the one-week use of RWW in our study, we cannot tell how the use of RWW would develop for an extended period nor how it could affect participants in the long run. The role of RWW is rather to be considered an in-the-moment inspiration: to empower users to successfully disengage from their smartphones and follow their tasks and aspirations outside, in the physical world.

7 CONCLUSION

This paper presents and evaluates the concept of *winds*, SMART challenges in five categories: *physical* and *mental exercise*, *relaxation*, *social activity* and *organizing task*, that foster balance and enjoyment post potential smartphone-overload. Winds encourage users to exit the momentary digital tunnel and do a short activity in the real world. To deliver *winds*, we developed *Real-World Wind*, a mobile app that tracks user's smartphone use behavior and delivers challenges on overload assumption. We found that the challenge category significantly influences user's perceived effectiveness and enjoyment of challenges encouraging balancing between digital and real-world activities. We contribute a smartphone overload intervention system that prompts users to act outside of their phone in a playful, non-judgmental, and unforeseen way. Focus on the physical world, which the smartphone is part of, has the potential to empower users to act more balanced about both their smartphone use and the contexts it happens.

8 OPEN SCIENCE

The paper's supplemental material is openly available for researchers on GitHub[16].

ACKNOWLEDGMENTS

We would like to thank Christian-Maurice Marx for his involvement in the early stages of the app prototype and Carina Ressmann for her ideas on challenges.

REFERENCES

[1] Daniel A. Adler, Emily Tseng, Khatiya C. Moon, John Q. Young, John M. Kane, Emanuel Moss, David C. Mohr, and Tanzeem Choudhury. 2022. Burnout and the Quantified Workplace: Tensions around Personal Sensing Interventions for Stress in Resident Physicians. *Proc. ACM Hum.-Comput. Interact.* 6, CSCW2, Article 430 (nov 2022), 48 pages. https://doi.org/10.1145/3555531

[2] Suliman S Aljomaa, Mohammad F Al Qudah, Ismael S Albursan, Salaheldin F Bakhiet, and Adel S Abduljabbar. 2016. Smartphone addiction among university students in the light of some variables. *Computers in Human Behavior* 61 (2016), 155–164. https://doi.org/10.1016/j.chb.2016.03.041

[3] Paritosh Bahirat, Martijn Willemsen, Yangyang He, Qizhang Sun, and Bart Knijnenburg. 2021. Overlooking Context: How do Defaults and Framing Reduce Deliberation in Smart Home Privacy Decision-Making?. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. ACM, Yokohama Japan, 1–18. https://doi.org/10.1145/3411764.3445672

[4] Aaron Bangor, Philip Kortum, and James Miller. 2009. Determining what individual SUS scores mean: Adding an adjective rating scale. *Journal of usability studies* 4, 3 (2009), 114–123.

[5] Eric P.S. Baumer, Sherri Jean Katz, Jill E. Freeman, Phil Adams, Amy L. Gonzales, John Pollak, Daniela Retelny, Jeff Niederdeppe, Christine M. Olson, and Geri K. Gay. 2012. Prescriptive Persuasion and Open-Ended Social Awareness: Expanding the Design Space of Mobile Health. In *Proceedings of the ACM 2012 Conference on Computer Supported Cooperative Work* (Seattle, Washington, USA) *(CSCW '12)*. Association for Computing Machinery, New York, NY, USA, 475–484. https://doi.org/10.1145/2145204.2145279

[6] Steve Benford, Chris Greenhalgh, Gabriella Giannachi, Brendan Walker, Joe Marshall, and Tom Rodden. 2012. Uncomfortable Interactions. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (Austin, Texas, USA) *(CHI '12)*. Association for Computing Machinery, New York, NY, USA, 2005–2014. https://doi.org/10.1145/2207676.2208347

[7] Mads Bødker, Gregory Gimpel, and Jonas Hedman. 2014. Time-out/time-in: The dynamics of everyday experiential computing devices. *Information Systems Journal* 24, 2 (2014), 143–166. https://doi.org/10.1111/isj.12002

[8] John Brooke et al. 1996. SUS-A quick and dirty usability scale. *Usability evaluation in industry* 189, 194 (1996), 4–7.

[9] Nancy A. Cheever, Larry D. Rosen, L. Mark Carrier, and Amber Chavez. 2014. Out of sight is not out of mind: The impact of restricting wireless mobile device use on anxiety levels among low, moderate and high users. *Computers in Human Behavior* 37 (Aug. 2014), 290–297. https://doi.org/10.1016/j.chb.2014.05.002

[10] Lee M Cheung and Wing S Wong. 2011. The effects of insomnia and internet addiction on depression in Hong Kong Chinese adolescents: an exploratory cross-sectional analysis. *Journal of sleep research* 20, 2 (2011), 311–317. https://doi.org/10.1111/j.1365-2869.2010.00883.x

[11] Hyunsung Cho, DaEun Choi, Donghwi Kim, Wan Ju Kang, Eun Kyoung Choe, and Sung-Ju Lee. 2021. Reflect, Not Regret: Understanding Regretful Smartphone Use with App Feature-Level Analysis. *Proc. ACM Hum.-Comput. Interact.* 5, CSCW2, Article 456 (oct 2021), 36 pages. https://doi.org/10.1145/3479600

[12] Matthew A Christensen, Laura Bettencourt, Leanne Kaye, Sai T Moturu, Kaylin T Nguyen, Jeffrey E Olgin, Mark J Pletcher, and Gregory M Marcus. 2016. Direct measurements of smartphone screen-time: relationships with demographics and sleep. *PloS one* 11, 11 (2016), e0165331. https://doi.org/10.1371/journal.pone.0165331

[13] Nathan K Cobb and Josée Poirier. 2014. Effectiveness of a multimodal online well-being intervention: a randomized controlled trial. *American journal of preventive medicine* 46, 1 (2014), 41–48. https://doi.org/10.1016/j.amepre.2013.08.018

[14] Sunny Consolvo, Katherine Everitt, Ian Smith, and James A. Landay. 2006. Design Requirements for Technologies That Encourage Physical Activity. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (Montréal, Québec, Canada) *(CHI '06)*. Association for Computing Machinery, New York, NY, USA, 457–466. https://doi.org/10.1145/1124772.1124840

[15] Sándor Csibi, Mark D Griffiths, Zsolt Demetrovics, and Attila Szabo. 2021. Analysis of problematic smartphone use across different age groups within the 'components model of addiction'. *International Journal of Mental Health and Addiction* 19, 3 (2021), 616–631. https://doi.org/10.1007/s11469-019-00095-0

[16] Kadir Demirci, Mehmet Akgönül, and Abdullah Akpinar. 2015. Relationship of smartphone use severity with sleep quality, depression, and anxiety in university students. *Journal of behavioral addictions* 4, 2 (2015), 85–92. https://doi.org/10.1556/2006.4.2015.010

[17] Daniel A. Epstein, Daniel Avrahami, and Jacob T. Biehl. 2016. Taking 5: Work-Breaks, Productivity, and Opportunities for Personal Informatics for Knowledge Workers. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (San Jose, California, USA) *(CHI '16)*. Association for Computing Machinery, New York, NY, USA, 673–684. https://doi.org/10.1145/2858036.2858066

[18] Daniel A. Epstein, Felicia Cordeiro, James Fogarty, Gary Hsieh, and Sean A. Munson. 2016. Crumbs: Lightweight Daily Food Challenges to Promote Engagement and Mindfulness. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (San Jose, California, USA) *(CHI '16)*. Association for Computing Machinery, New York, NY, USA, 5632–5644. https://doi.org/10.1145/2858036.2858044

[19] Anthony Faiola, Haleh Vatani, and Preethi Srinivas. 2018. The impact of smartphone use on the psychosocial wellness of college students. In *International Conference on Digital Transformation and Global Society (DTGS'18)*. Springer, Cham, 264–276. https://doi.org/10.1007/978-3-030-02846-6_21

[20] Yuanyuan Feng and Denise E Agosto. 2017. The experience of mobile information overload: struggling between needs and constraints. *Information Research* 22, 2 (2017), 18. http://InformationR.net/ir/22-2/paper754.html.

[21] Rúben Gouveia, Evangelos Karapanos, and Marc Hassenzahl. 2015. How Do We Engage with Activity Trackers? A Longitudinal Study of Habito. In *Proceedings of*

[16] https://github.com/mimuc/chi24-rww

the 2015 ACM International Joint Conference on Pervasive and Ubiquitous Computing (Osaka, Japan) *(UbiComp '15)*. Association for Computing Machinery, New York, NY, USA, 1305–1316. https://doi.org/10.1145/2750858.2804290

[22] Andrea Grimes and Richard Harper. 2008. Celebratory technology: new directions for food research in HCI. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (Florence, Italy) *(CHI '08)*. Association for Computing Machinery, New York, NY, USA, 467–476. https://doi.org/10.1145/1357054.1357130

[23] Bethany Harris, Timothy Regan, Jordan Schueler, and Sherecce A. Fields. 2020. Problematic Mobile Phone and Smartphone Use Scales: A Systematic Review. *Frontiers in Psychology* 11 (2020), 672. https://doi.org/10.3389/fpsyg.2020.00672

[24] Alexis Hiniker, Sungsoo (Ray) Hong, Tadayoshi Kohno, and Julie A. Kientz. 2016. *MyTime: Designing and Evaluating an Intervention for Smartphone Non-Use*. Association for Computing Machinery, New York, NY, USA, 4746–4757. https://dl.acm.org/doi/10.1145/2858036.2858403

[25] Inyeop Kim, Hwarang Goh, Nematjon Narziev, Youngtae Noh, and Uichin Lee. 2020. Understanding User Contexts and Coping Strategies for Context-Aware Phone Distraction Management System Design. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.* 4, 4, Article 134 (Dec. 2020), 33 pages. https://doi.org/10.1145/3432213

[26] Jaejeung Kim, Hayoung Jung, Minsam Ko, and Uichin Lee. 2019. GoalKeeper: Exploring Interaction Lockout Mechanisms for Regulating Smartphone Use. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol.* 3, 1, Article 16 (mar 2019), 29 pages. https://doi.org/10.1145/3314403

[27] Jaejeung Kim, Joonyoung Park, Hyunsoo Lee, Minsam Ko, and Uichin Lee. 2019. LocknType: Lockout Task Intervention for Discouraging Smartphone App Use. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (Glasgow, Scotland Uk) *(CHI '19)*. Association for Computing Machinery, New York, NY, USA, 1–12. https://doi.org/10.1145/3290605.3300927

[28] Geza Kovacs, Drew Mylander Gregory, Zilin Ma, Zhengxuan Wu, Golrokh Emami, Jacob Ray, and Michael S. Bernstein. 2019. Conservation of Procrastination: Do Productivity Interventions Save Time Or Just Redistribute It?. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (Glasgow, Scotland Uk) *(CHI '19)*. Association for Computing Machinery, New York, NY, USA, 1–12. https://doi.org/10.1145/3290605.3300560

[29] Pei-Yi (Patricia) Kuo and Michael S. Horn. 2017. Daily Challenges for Sustainable Lifestyles: Design Implications from a Mobile Intervention Study. In *Proceedings of the 2017 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2017 ACM International Symposium on Wearable Computers* (Maui, Hawaii) *(UbiComp '17)*. Association for Computing Machinery, New York, NY, USA, 635–641. https://doi.org/10.1145/3123024.3124425

[30] Min Kwon, Joon-Yeop Lee, Wang-Youn Won, Jae-Woo Park, Jung-Ah Min, Changtae Hahn, Xinyu Gu, Ji-Hye Choi, and Dai-Jin Kim. 2013. Development and validation of a smartphone addiction scale (SAS). *PloS one* 8, 2 (2013), e56936.

[31] Simone Lanette and Melissa Mazmanian. 2018. The Smartphone "Addiction" Narrative is Compelling, but Largely Unfounded. In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems* (Montreal QC, Canada) *(CHI EA '18)*. Association for Computing Machinery, New York, NY, USA, 1–6. https://doi.org/10.1145/3170427.3188584

[32] Heyoung Lee, Heejune Ahn, Trung Giang Nguyen, Sam-Wook Choi, and Dae Jin Kim. 2017. Comparing the self-report and measured smartphone usage of college students: a pilot study. *Psychiatry investigation* 14, 2 (2017), 198. https://doi.org/10.4306/pi.2017.14.2.198

[33] Yu-Kang Lee, Chun-Tuan Chang, You Lin, and Zhao-Hong Cheng. 2014. The dark side of smartphone usage: Psychological traits, compulsive behavior and technostress. *Computers in Human Behavior* 31 (2014), 373–383. https://doi.org/10.1016/j.chb.2013.10.047

[34] Yu-Hsuan Lin, Yu-Cheng Lin, Yang-Han Lee, Po-Hsien Lin, Sheng-Hsuan Lin, Li-Ren Chang, Hsien-Wei Tseng, Liang-Yu Yen, Cheryl CH Yang, and Terry BJ Kuo. 2015. Time distortion associated with smartphone addiction: Identifying smartphone addiction via a mobile application (App). *Journal of psychiatric research* 65 (2015), 139–145.

[35] Markus Löchtefeld, Matthias Böhmer, and Lyubomir Ganev. 2013. AppDetox: helping users with mobile app addiction. In *Proceedings of the 12th International Conference on Mobile and Ubiquitous Multimedia* (Luleå, Sweden) *(MUM '13)*. Association for Computing Machinery, New York, NY, USA, Article 43, 2 pages. https://doi.org/10.1145/2541831.2541870

[36] Edwin A Locke and Gary P Latham. 2002. Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American psychologist* 57, 9 (2002), 705. https://doi.org/10.1037/0003-066X.57.9.705

[37] Karina Loid, Karin Täht, and Dmitri Rozgonjuk. 2020. Do pop-up notifications regarding smartphone use decrease screen time, phone checking behavior, and self-reported problematic smartphone use? Evidence from a two-month experimental study. *Computers in Human Behavior* 102 (2020), 22–30. https://doi.org/10.1016/j.chb.2019.08.007

[38] Kai Lukoff. 2019. Digital wellbeing is way more than just reducing screen time. https://uxdesign.cc/digital-wellbeing-more-than-just-reducing-screen-time-46223db9f057

[39] Kai Lukoff, Ulrik Lyngs, Himanshu Zade, J. Vera Liao, James Choi, Kaiyue Fan, Sean A. Munson, and Alexis Hiniker. 2021. How the Design of YouTube Influences User Sense of Agency. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (Yokohama, Japan) *(CHI '21)*. Association for Computing Machinery, New York, NY, USA, Article 368, 17 pages. https://doi.org/10.1145/3411764.3445467

[40] Ludmila Lupinacci. 2021. 'Absentmindedly scrolling through nothing': liveness and compulsory continuous connectedness in social media. *Media, Culture & Society* 43, 2 (2021), 273–290.

[41] Ulrik Lyngs, Kai Lukoff, Petr Slovak, William Seymour, Helena Webb, Marina Jirotka, Jun Zhao, Max Van Kleek, and Nigel Shadbolt. 2020. *'I Just Want to Hack Myself to Not Get Distracted': Evaluating Design Interventions for Self-Control on Facebook*. Association for Computing Machinery, New York, NY, USA, 1–15. https://dl.acm.org/doi/10.1145/3313831.3376672

[42] Wendy E. Mackay. 1991. Triggers and barriers to customizing software. In *Proceedings of the SIGCHI conference on Human factors in computing systems Reaching through technology - CHI '91*. ACM Press, New Orleans, Louisiana, United States, 153–160. https://doi.org/10.1145/108844.108867

[43] Gloria Mark, Shamsi Iqbal, and Mary Czerwinski. 2017. How blocking distractions affects workplace focus and productivity. In *Proceedings of the 2017 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2017 ACM International Symposium on Wearable Computers* (Maui, Hawaii) *(UbiComp '17)*. Association for Computing Machinery, New York, NY, USA, 928–934. https://doi.org/10.1145/3123024.3124558

[44] Jeremy Marty-Dugas, Brandon CW Ralph, Jonathan M Oakman, and Daniel Smilek. 2018. The relation between smartphone use and everyday inattention. *Psychology of Consciousness: Theory, Research, and Practice* 5, 1 (2018), 46. https://doi.org/10.1037/cns0000131

[45] Elisa D. Mekler and Kasper Hornbæk. 2016. Momentary Pleasure or Lasting Meaning? Distinguishing Eudaimonic and Hedonic User Experiences. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (San Jose, California, USA) *(CHI '16)*. Association for Computing Machinery, New York, NY, USA, 4509–4520. https://doi.org/10.1145/2858036.2858225

[46] Alberto Monge Roffarello and Luigi De Russis. 2019. The Race Towards Digital Wellbeing: Issues and Opportunities. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (Glasgow, Scotland Uk) *(CHI '19)*. Association for Computing Machinery, New York, NY, USA, 1–14. https://doi.org/10.1145/3290605.3300616

[47] Inbal Nahum-Shani, Shawna N Smith, Bonnie J Spring, Linda M Collins, Katie Witkiewitz, Ambuj Tewari, and Susan A Murphy. 2017. Just-in-Time Adaptive Interventions (JITAIs) in Mobile Health: Key Components and Design Principles for Ongoing Health Behavior Support. *Annals of Behavioral Medicine* 52, 6 (12 2017), 446–462. https://doi.org/10.1007/s12160-016-9830-8

[48] Minh Hao Nguyen, Moritz Büchi, and Sarah Geber. 2022. Everyday disconnection experiences: Exploring people's understanding of digital well-being and management of digital media use. *New Media & Society* (2022), 14614448221105428. https://doi.org/10.1177/14614448221105428

[49] Fabian Okeke, Michael Sobolev, Nicola Dell, and Deborah Estrin. 2018. Good vibrations: can a digital nudge reduce digital overload?. In *Proceedings of the 20th International Conference on Human-Computer Interaction with Mobile Devices and Services*. ACM, Barcelona Spain, 1–12. https://doi.org/10.1145/3229434.3229463

[50] Antti Oulasvirta, Tye Rattenbury, Lingyi Ma, and Eeva Raita. 2012. Habits make smartphone use more pervasive. *Personal and Ubiquitous computing* 16, 1 (2012), 105–114. https://doi.org/10.1007/s00779-011-0412-2

[51] Martin Pielot, Tilman Dingler, Jose San Pedro, and Nuria Oliver. 2015. When Attention is Not Scarce - Detecting Boredom from Mobile Phone Usage. In *Proceedings of the 2015 ACM International Joint Conference on Pervasive and Ubiquitous Computing* (Osaka, Japan) *(UbiComp '15)*. Association for Computing Machinery, New York, NY, USA, 825–836. https://doi.org/10.1145/2750858.2804252

[52] Josée Poirier, Nathan K Cobb, et al. 2012. Social influence as a driver of engagement in a web-based health intervention. *Journal of medical Internet research* 14, 1 (2012), e1957. https://doi.org/10.2196/jmir.1957

[53] Aarathi Prasad and Asia Quinones. 2020. Digital Overload Warnings - "The Right Amount of Shame"?. In *Human-Computer Interaction. Human Values and Quality of Life*. Springer International Publishing, Cham, 117–134. https://doi.org/10.1007/978-3-030-49065-2_9

[54] Andrew K Przybylski, Kou Murayama, Cody R DeHaan, and Valerie Gladwell. 2013. Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in human behavior* 29, 4 (2013), 1841–1848.

[55] TS Ragu-Nathan, Monideepa Tarafdar, Bhanu S Ragu-Nathan, and Qiang Tu. 2008. The consequences of technostress for end users in organizations: Conceptual development and empirical validation. *Information systems research* 19, 4 (2008), 417–433. https://doi.org/10.1287/isre.1070.0165

[56] Leonard Reinecke, Stefan Aufenanger, Manfred E Beutel, Michael Dreier, Oliver Quiring, Birgit Stark, Klaus Wölfling, and Kai W Müller. 2017. Digital stress over the life span: The effects of communication load and internet multitasking on perceived stress and psychological health impairments in a German probability sample. *Media Psychology* 20, 1 (2017), 90–115. https://doi.org/10.1080/15213269.

2015.1121832
[57] Ian Renfree, Daniel Harrison, Paul Marshall, Katarzyna Stawarz, and Anna Cox. 2016. Don't Kick the Habit: The Role of Dependency in Habit Formation Apps. In *Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems* (San Jose, California, USA) *(CHI EA '16)*. Association for Computing Machinery, New York, NY, USA, 2932–2939. https://doi.org/10.1145/2851581.2892495
[58] Alberto Monge Roffarello and Luigi De Russis. 2021. Understanding, Discovering, and Mitigating Habitual Smartphone Use in Young Adults. *ACM Trans. Interact. Intell. Syst.* 11, 2, Article 13 (jul 2021), 34 pages. https://doi.org/10.1145/3447991
[59] Anna Rudnicka, Dave Cook, Marta E. Cecchinato, Sandy J. J. Gould, Joseph W. Newbold, and Anna L. Cox. 2022. The End of the Active Work Break? Remote Work, Sedentariness and the Role of Technology in Creating Active Break-Taking Norms. In *Proceedings of the 1st Annual Meeting of the Symposium on Human-Computer Interaction for Work* (Durham, NH, USA) *(CHIWORK '22)*. Association for Computing Machinery, New York, NY, USA, Article 1, 13 pages. https://doi.org/10.1145/3533406.3533409
[60] Desirée Schmuck. 2020. Does digital detox work? Exploring the role of digital detox applications for problematic smartphone use and well-being of young adults using multigroup analysis. *Cyberpsychology, Behavior, and Social Networking* 23, 8 (2020), 526–532. https://doi.org/10.1089/cyber.2019.0578
[61] Fuschia M Sirois and Natalia Tosti. 2012. Lost in the moment? An investigation of procrastination, mindfulness, and well-being. *Journal of Rational-Emotive & Cognitive-Behavior Therapy* 30 (2012), 237–248. https://doi.org/10.1007/s10942-012-0151-y
[62] Arielle C. Smith, Lauren A. Fowler, Andrea K. Graham, Beth K. Jaworski, Marie-Laure Firebaugh, Grace E. Monterubio, Melissa M. Vázquez, Bianca DePietro, Shiri Sadeh-Sharvit, Katherine N. Balantekin, Naira Topooco, Denise E. Wilfley, C. Barr Taylor, and Ellen E. Fitzsimmons-Craft. 2021. Digital Overload among College Students: Implications for Mental Health App Use. *Social Sciences* 10, 8 (2021). https://doi.org/10.3390/socsci10080279
[63] Katarzyna Stawarz, Anna L. Cox, and Ann Blandford. 2015. Beyond Self-Tracking and Reminders: Designing Smartphone Apps That Support Habit Formation. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems* (Seoul, Republic of Korea) *(CHI '15)*. Association for Computing Machinery, New York, NY, USA, 2653–2662. https://doi.org/10.1145/2702123.2702230
[64] Trine Syvertsen and Gunn Enli. 2020. Digital detox: Media resistance and the promise of authenticity. *Convergence* 26, 5-6 (Dec. 2020), 1269–1283. https://doi.org/10.1177/1354856519847325
[65] Nađa Terzimehić and Sarah Aragon-Hahner. 2022. I Wish I Had: Desired Real-World Activities Instead of Regretful Smartphone Use. In *Proceedings of the 21st International Conference on Mobile and Ubiquitous Multimedia* (Lisbon, Portugal) *(MUM '22)*. Association for Computing Machinery, New York, NY, USA, 47–52. https://doi.org/10.1145/3568444.3568465
[66] Nađa Terzimehić, Fiona Draxler, Mariam Ahsanpour, and Albrecht Schmidt. 2023. Implicit Smartphone Use Interventions to Promote Life-Technology Balance: An App-Market Survey, Design Space and the Case of Life-Relaunched. In *Proceedings of Mensch Und Computer 2023*. Association for Computing Machinery, New York, NY, USA, 237–249. https://doi.org/10.1145/3603555.3603578
[67] Nađa Terzimehić, Luke Haliburton, Philipp Greiner, Albrecht Schmidt, Heinrich Hussmann, and Ville Mäkelä. 2022. MindPhone: Mindful Reflection at Unlock Can Reduce Absentminded Smartphone Use. In *Proceedings of the 2022 ACM Designing Interactive Systems Conference* (, Virtual Event, Australia,) *(DIS '22)*. Association for Computing Machinery, New York, NY, USA, 1818–1830. https://doi.org/10.1145/3532106.3533575
[68] Nađa Terzimehić, Florian Bemmann, Miriam Halsner, and Sven Mayer. 2023. A Mixed-Method Exploration into the Mobile Phone Rabbit Hole. *Proc. ACM Hum.-Comput. Interact.* 7, MHCI, Article 194 (sep 2023), 29 pages. https://doi.org/10.1145/3604241
[69] Chad Tossell, Philip Kortum, Clayton Shepard, Ahmad Rahmati, and Lin Zhong. 2015. Exploring Smartphone Addiction: Insights from Long-Term Telemetric Behavioral Measures. *International Journal of Interactive Mobile Technologies (iJIM)* 9, 2 (Mar. 2015), pp. 37–43. https://doi.org/10.3991/ijim.v9i2.4300
[70] Jonathan A. Tran, Katie S. Yang, Katie Davis, and Alexis Hiniker. 2019. Modeling the Engagement-Disengagement Cycle of Compulsive Phone Use. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (Glasgow, Scotland Uk) *(CHI '19)*. Association for Computing Machinery, New York, NY, USA, 1–14. https://doi.org/10.1145/3290605.3300542
[71] Christopher C Tsai, Gunny Lee, Fred Raab, Gregory J Norman, Timothy Sohn, William G Griswold, and Kevin Patrick. 2007. Usability and feasibility of PmEB: a mobile phone application for monitoring real time caloric balance. *Mobile networks and applications* 12 (2007), 173–184. https://doi.org/10.1007/s11036-007-0014-4
[72] Niels van Berkel, Denzil Ferreira, and Vassilis Kostakos. 2017. The Experience Sampling Method on Mobile Devices. *ACM Comput. Surv.* 50, 6, Article 93 (dec 2017), 40 pages. https://doi.org/10.1145/3123988
[73] Mariek M P Vanden Abeele. 2020. Digital Wellbeing as a Dynamic Construct. *Communication Theory* 31, 4 (10 2020), 932–955. https://doi.org/10.1093/ct/qtaa024
[74] Philippe Verduyn, David Seungjae Lee, Jiyoung Park, Holly Shablack, Ariana Orvell, Joseph Bayer, Oscar Ybarra, John Jonides, and Ethan Kross. 2015. Passive Facebook usage undermines affective well-being: Experimental and longitudinal evidence. *Journal of Experimental Psychology: General* 144, 2 (2015), 480. https://doi.org/10.1037/xge0000057
[75] Victoria Waldersee. 2019. Could you live without your smartphone? https://yougov.co.uk/topics/technology/articles-reports/2019/03/08/could-you-live-without-your-smartphone
[76] Xuhai Xu, Tianyuan Zou, Han Xiao, Yanzhang Li, Ruolin Wang, Tianyi Yuan, Yuntao Wang, Yuanchun Shi, Jennifer Mankoff, and Anind K Dey. 2022. TypeOut: Leveraging Just-in-Time Self-Affirmation for Smartphone Overuse Reduction. In *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems* (New Orleans, LA, USA) *(CHI '22)*. Association for Computing Machinery, New York, NY, USA, Article 442, 17 pages. https://doi.org/10.1145/3491102.3517476

A LIST OF CHALLENGES USED IN FIELD STUDY

Relaxation

(1) Close your eyes and think of your last vacation for a minute. What do you see? How do you feel?
(2) Sit back, take a sip of water, close your eyes and imagine something you are grateful for. What is it?
(3) Get up, stretch yourself, open a window and take a deep breath. What does the air smell like?
(4) Get yourself something to drink, e.g. water or tea, and drink a few sips with your eyes closed. What does the liquid feel like?
(5) Grab a book and read for 5 minutes. How many pages did you read?
(6) Open the window and identify three different sounds outside. What sounds did you hear?
(7) Get up, close your eyes and imagine being in your favourite spot in nature. What do you hear, see, sense? Breathe deeply.
(8) Look outside your window for an animal. What animal do you see?
(9) Close your eyes and listen to your body. Do you have tensions, if so, where? Think of some stretching exercises for those regions.
(10) See if there is a newspaper or magazine around and browse through it. What is the headline that caught you most?
(11) Go and cook yourself a cup of tea. What flavour did you choose?
(12) Close your eyes and think about the following question: What would you long for right now?
(13) Open the window and take a look outside. Name 5 things you can see, 4 things you can hear, 3 things you can physically feel, 2 things you can smell, and 1 thing that you can be grateful for today.
(14) For one minute, inhale through the left nostril and exhale through the right nostril. Did an image pop into your head?
(15) Mentally go to a place where you would like to spend your vacation. Think about a text for a postcard. What is on the front of the postcard?

Mental

(1) Look around your room for a book. Which was the last book you read? When was it?
(2) Look for your favorite item in your apartment. Why is it your favorite item?

(3) Search for the most colorful item in your room. How many colors are there?
(4) Look around in your room and find 3 things that have the colour green. What things did you see?
(5) Name three things around you that have the color of your shirt.
(6) Find a CD or an old playlist, and turn on the first song. What memories did this song bring back?
(7) Find a piece of paper and a pencil and draw a small picture of an animal. What animal did you draw?
(8) Draw a picture of a fruit-man. Which fruit did you choose and what was his special feature?
(9) Think about your last big success. What did you enjoy most?
(10) Find three things in the space around you that bring you joy. Which things did you find and why?
(11) Look around in your room and try to find 3 objects that form a rectangular triangle. What objects did you find?
(12) Think about what your favorite fruit is. Which dish with this fruit do you like to eat the most?
(13) Remember the last situation where you laughed really loud. What was that situation?
(14) Imagine you can invent a new fantasy animal. What would it look like and what sounds does it make?
(15) Close your eyes and think of your last meal. What did you like most about it?
(16) Think back. When was the last time you did something for the first time?
(17) Grab any book that you can find and read page 10, what is the last word of the page?
(18) Think back. What made you feel good this month?
(19) Try to solve this math problem without a calculator: 12*34. What result do you get?
(20) Think back. What three feelings dominated this month?
(21) Think of a computer game that you enjoyed playing. Try to remember as many characters as possible. How many names do you remember and what game did you have in mind?
(22) Go through the alphabet in reverse. How many mistakes did you make?

Physical

(1) Stand up, leave the room, close the door behind you. How many doors do you see in front of you?
(2) Get up and stretch your arms above your head. Try to be as tall as possible. Which item of furniture in your room matches your height while stretching?
(3) Stand up and go to the kitchen. Count the mugs in your cupboard. How many mugs did you count?
(4) Go outside and take a photo of something red or with dots. What item did you take a picture of?
(5) Stand up and keep walking for one minute. Do not look at your smartphone. How many steps did you make?
(6) Try to balance on your right leg for as long as possible. How long did you manage?
(7) Get as far as your room allows away from your computer. Estimate the distance in metres.
(8) Dance to your favourite playlist for 3 minutes straight. Which song did you dance to?
(9) Step outside and look at the sky. What did the form of the cloud remind you of?
(10) Go to the other side of the room. How many steps did it take?
(11) Walk around and touch something blue. Do you feel blue, too?
(12) Try to hold a plank for as long as possible. How many seconds did you get?
(13) Go to your fridge, open it and look at the top shelf. What do you see first?
(14) Go to your kitchen and count your cutlery. How many spoons did you find?
(15) Stretch your back through and sit straight for one minute. How often did you breathe in?
(16) Bottle flip challenge! Fill a bottle 1/3 with water, close the bottle and try to throw it on the table so that it stops. How many attempts did it take you?
(17) Throw an eraser (or similar) up in the air and catch it. How many times can you do it without it falling down?
(18) Go into every room in your apartment and name the objects you recognise first.
(19) Stand up and look how far you can rotate to the left and then to the right, while your feet are stable. In which direction can you rotate more?
(20) Do 10 stretching exercises. Which parts of your body did you use first and which last?

Social Activities

(1) Call a friend of yours for a little chat. What is the third sentence they have said?
(2) In the meeting, did you wonder, how one specific person was doing? If appropriate, write them a short message asking how they are.
(3) Walk around and ask the second person you see what they are working on!
(4) Call a family member for a little chat. How did they greet you?
(5) Call a friend of yours for a little chat. Try to include the word 'giraffe' in a sentence. What was the reaction?
(6) Call a friend of yours for a little chat. Try to include the word 'dragon' in a sentence. How long did it take you?
(7) Think of a dear person you would like to see again and suggest a reunion to this person. What will you be doing?
(8) Call a friend or a family member and ask how they are. How was their reaction when they heard your voice?
(9) Think of a funny experience and talk about it with a person you associate with it. Does the person add up something to that memory?
(10) Did somebody do something nice for you recently? Tell that person that you are thankful for that. How did they react?
(11) Go and find your pet. Engage with him/her. If you don't have a pet, find a stuffed animal and cuddle it. Which animal did you engage with?
(12) Walk around until you see a person. Smile at this person. How long did it take you to find a person?

Organizing Task

(1) Have a look into the fridge. Is there something missing?

(2) Think of your next week. How often will you cook at home?
(3) Go to the kitchen. How many things can you tidy up?
(4) Have a look at your laundry. What kind of laundry do you have to do next?
(5) Think of your next trip. What things do you absolutely have to pack?
(6) Think of recent purchases. Are there any bills that you have to pay?
(7) Have a look at your toilet paper roles. How many are left? Should you go buy some soon?
(8) See if you need to take out the trash. Which trash can was full?
(9) Look at your bedding. What color do you want to cover it with next?
(10) Think about your next month. Which thing do you definitely want to tackle?
(11) Think about your next month. How can you support yourself more in the next month?
(12) Think about which of the people you care about has a birthday next. Do you already have an idea for the gift and where are you going to buy it?
(13) Close your eyes and think of what you would like to eat next. What has to be the first step in order to eat that?
(14) What do you want to cook next? Take a slip of paper and note down what you need for that.
(15) Think of the things you want to get done by the end of today or tomorrow and make a list with those things. How many did you note down?
(16) Go outside and check if there is any item in your mailbox. How many items are there?
(17) Take your notepad and write down what you need from your next grocery shopping trip. What was the second thing that came into your mind?
(18) Think about which of the people you care about has a birthday next. What cake would you bake for that person and what do you need for it?