AppDetox: Helping Users with Mobile App Addiction

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ABSTRACT

With the increasing adoption of smartphones also a problematic phenomena become apparent: People are changing their habits and become addicted to different services that these devices provide. In this paper we present *AppDetox*: an app that allows users to purposely create rules that keep them from using certain apps. We describe our deployment of the app on a mobile application store, and present initial findings gained through observation of about 11,700 users of the application. We find that people are rather rigorous when restricting their app use, and that mostly they suppress use of social networking and messaging apps.

Keywords

Technology addiction; apps; digital detox; smartphone use.

Categories and Subject Descriptors

H.5.m. [**Information Interfaces and Presentation (e.g. HCI)**]: Miscellaneous

1. INTRODUCTION & RELATED WORK

With smartphones becoming ubiquitous devices that provide us with a huge variety of always-online services for daily life, we have also started to adapt our behavior to our digital companions: Oulasvirta et al. [5] describe a *checking habit* (*"brief, repetitive inspection of dynamic content"*), which contributes a large part of overall usage and is triggered by contextual cues. They relate such habits to mental disorders, but leave open whether smartphone habits are addictions or enablers of multitasking. Ames [1] investigated the technosocial lives of colleague students and finds that they—despite being rather tech-savvy and *"digital natives"*—actively set limits to their own smartphone use, and disconnect from their devices due to stress and the increased cognitive load of constantly being connected. King et al. [4] investigate the disorder of people being afraid of having lost their phones, called *Nomophobia* (no-more phone phobia), and consider that it might indicate other social disorders. Butt et al. [2] relate psychological theory about personality to patterns of mobile phone use. Interestingly, they find that disagreeable extraverts spent more time customizing their phones appearance. Chittaranjan et al. [3] contribute to the same line of research, and investigate the personality traits that can be concluded from smartphone logging data. Salehan and Negahban [6] investigate the mobile addiction on social networks. Shin and Dey [7] present a model to detect when smartphone use becomes problematic in this line of thinking.

While our community is beginning to understand the phenomenon of smartphone addiction and its implications, however, so far there is no "medication" available for people to control their addiction. Therefore in this poster we present *AppDetox*: a mobile app that helps people to control their personal application usage. We released *AppDetox* to the Google Play Store and studied what rules our users created to constrain their personal smartphone usage, and how they break with their rules. This poster summarizes our early findings.

2. APPDETOX APPLICATION

AppDetox allows users to create three different types of rules to restrict their usage of a selected app: The first one *TimeOfDay*, would make it impossible for them to open the selected app at specific daytimes (Figure 1a). The second type of rule would restrict the selected app at all times (*Forever*) and the last one allows the user create a *Countdown*-timer during which the app is restricted. Additionally to creating rules users have three views: one for maintaining the list of all their created rules (Figure 1b), one showing all breaks of these rules (Figure 1c), and one showing all their installed apps with usage statistics.

If the user wants to start an app, for which a rule is set, this app will automatically be closed and he will get a short notification that he is not able to start it due to a rule. This is implemented as an Android background service: it tracks the currently running app and if a rule is set for this app, *AppDetox* automatically closes it and opens the previous one.

3. PRELIMINARY USER STUDY

We released our app to the Google Play Store. We monitored usage of the app as well as creations and breaks of rules using the Flurry[1] framework. From February to October 2013 we were able to collect data from about 11,700 users (48.21% male, 51.79% female), with 20.4% aged 13-17, 29% 18-24, 14.5% 25-34, 17.2% 35-54, 18.9% 55 and older; most of them residing in Asia (53.5%), North America (16.5%) and Europe (14.5%).[2] Data collection was done fully anonymized.

[1] http://www.flurry.com/

[2] Projected estimates provided through Flurry.

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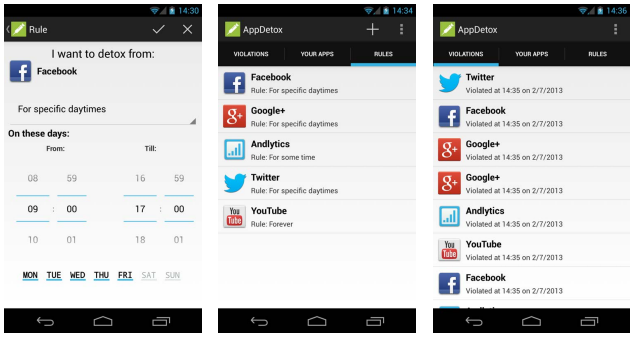

a) Rule creation b) Rules created c) Rule violations

Figure 1: Screenshots of the *AppDetox* application.

3.1 Results and Discussion

Overall users created 11,278 different rules for apps and they broke those rules 78,927 times. An overview of the top 20 apps that most rules have been created for and also were broken can be found in Table 1.

Most rules were created for messaging applications such as Tencent QQ or WhatsApp, followed by social networking apps and web-browsers. Interestingly rules that have been broken most often have been created for the Android Contacts app (40.42 times on avg. per created rule). This app is used when e.g. selecting a contact that one wants to call. Resulting in the bizarre situation that users wanted to remove the basic functionality of making a call from their smartphone. This indicates that the main purpose of smartphones shifted from basic functionalities such as calling and messaging more towards always-connected internet devices.

It can also be seen from Table 1 that after the Android Contacts app people are most averse to stick to the rules they set up for Facebook and Twitter. This underpins peoples addiction to social networking applications [6].

Regarding rule types, 60.6% of the rules were restricted *Forever*, 21.9% *TimeOfDay* and only 17.5% were *Countdown* rules. This suggests that users are rather rigorous with restricting their personal application usage.

One would suspect that users would especially try to detox from games such as Angry Birds as well. Interestingly there was no game in the top 30 apps for which rules were created.

The overall daily usage of our application peaks at 9am in the morning, and then slowly levels off over the course of the day. This suggests that users prepare themselves with rules for the upcoming day.

We also analyzed the feedback from our users through the comment function of the Google Play Store. One particular interesting comment was *"I'm getting Facebook notifications and it's a torture!"*. Since we did not remove the notifications that forbidden applications would generate, users were able to see those. This apparently led to even higher detox effects. People also use it as an "alarm that will refrain [them] from wasting time during [their] work hours", and it "motivates [them] to stay away from [their] addictions". One user wrote that it "helps [them] to control [their] Android use habits".

App Name	# rules	# breaks	avg. breaks/rule
QQ	616	10489	17.03
WeChat (QQ)	544	7980	14.67
Weibo	388	3927	10.12
Browser	341	2488	7.30
Facebook	302	6767	22.41
QQ Space	263	2204	8.38
Youtube	249	1199	4.82
Chrome	189	2383	12.61
UC Browser	183	1576	8.61
Instagram	173	2337	13.51
RenRen	173	2050	11.85
Play Store	145	1014	6.99
Twitter	143	3115	21.78
Whatsapp	94	1563	16.63
Baidu	91	635	6.98
QQ (HD)	65	635	9.77
Fuubo	64	1295	20.23
MMS	55	933	16.96
Google+	41	539	13.15
Android Contacts	19	768	40.42

Table 1: The number of rules created, rule breaks and the ratio of breaks per rule, for the 20 most popular apps in AppDetox. Messenger apps (e.g. WhatsApp) are highlighted in cyan, Microblogging apps in blue, Web-browser apps in green and social media apps in yellow.

4. CONCLUSION & FUTURE WORK

This paper deals with the problem of people's addiction to the use of mobile apps. We presented *AppDetox*: an application that allows people to voluntarily create rules to detox from selected apps. Through an in-the-wild deployment of this app we investigated what types of policies people created to control their app usage, and to what degree they broke with their own rules. We found that users prepare themselves with setting rules for the day, and mostly restrict the use of messaging applications.

For future work, we will provide people with more fine-grained control over their personal application usage and implement additional rules (e.g. based on locations and time-contingent). We are also interested in understanding people's motivation for why they set specific rules, and the reasons for why they break with their rules.

5. REFERENCES

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