Gamification and undesign: exploring the affordances of digital detox apps with game features

Yukun You
University of Oslo
Gaustadalléen 21 Forskningsparken
0349 Oslo Norway
Yukun.You@media.uio.no

Faltin Karlsen
Kristiania University College
Prinsens gate 7-9
0107 Oslo Norway
Faltin.Karlsen@kristiania.no

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INTRODUCTION
Gamification, described as "the use of game design elements in non-game contexts" (Deterding et al. 2011), is a design strategy used to make technology more engaging or useful. It is used in various domains and for different purposes, including technology for health and exercise, education and learning, and business and management (Hamari et al. 2014). So-called *digital detox* apps also employ gamification design, such as the widely popular productivity app *Forest* (SeekrTech CO., LTD 2014).

Digital detox is a practice where people refrain from using digital technology or social media for a certain period. The main motivations can be to become more focused and productive during work or study, and to reduce stress and focus on social interaction in the physical world (Syvertsen 2020). The use of gamification design in digital detox apps raises the obvious question: how can an app that employs gamification design help people limit their phone use?

By analyzing three gamified productivity apps, this study aims to identify the motivational affordances of digital detox apps with game features and their implications for people's smartphone use and non-use. The research questions are: What are the gamification affordances employed by digital detox apps, and in what ways do the affordances motivate smartphone non/use? By illustrating the fluid boundaries between digital games and gamified apps, this study explores the limits and potential of gamification.

ANALYTICAL FRAMEWORK
The framework is based on two concepts: gamification affordances and undesign affordances. In this paper, affordances refer to the properties of an object that is perceived as actionable by a user (Gibson 1967, Norman 1999). Gamification affordances are motivational affordances (Weiser 2015), while undesign affordances are affordances that encourages and enables non-use.

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The analytical framework of this study is inspired by Hamari and his colleagues' (2014) typology of motivational affordances and Pierce's (2012) notions of self-inhibiting technology. The reason for this combined framework is that the concept of gamification does not fully capture affordances that inhibit use, which are important affordances in digital detox apps. In a literature review, Hamari and colleagues (2014) identify ten categories of motivational affordances: points, leaderboards, achievements/badges, levels, story/theme, clear goals, feedback, rewards, progress, and challenge. The undesign of technology is the intentional negation of technology, and self-inhibiting technologies refer to "user-specified settings or other choices that individual users can freely select in order to later inhibit users or even prevent them altogether" (Pierce 2012, p. 961). A similar idea that is described in HCI research, is to design "frictions" or affordances that slow down or interrupt use (Cox et al. 2016, Laschke & Hassenzahl 2011), in order to prompt reflection and more mindful interactions.

METHOD AND DATA

This study combines walkthrough method (Light et al. 2018) and thematic analysis (Braun & Clarke 2006). Walkthrough method requires the researchers to systematically track and document their own use of the app, from the onboarding process through daily use, to the use is ended. It allows researchers to directly engage with features, functions, and the flows of activities in the apps. The thematic analysis combines a deductive and inductive approach: we were informed by existing literature and guided by a priori coding scheme (e.g., the typology of gamification affordances mentioned above) to structure the analysis, and at the same time generated patterns inductively from the empirical data (e.g., to create categories of affordances by interpreting the raw data).

To select a sample of apps, we conducted a search on App Store and Google Play, employing keywords such as "digital detox", "digital disconnection", "digital break", "non-use", and "unplug". Based on app descriptions, reviews, popularity, and testing of a selection of apps, three apps were chosen for analysis. These are, *Forest* (SeekrTech CO., LTD 2014), *Hold* (Hold AS 2016), and *Freedom* (Eighty Percent Solutions Corporation 2011). In short, *Forest* and *Hold* are gamified timers that reward users for not using their phone and focus on their tasks, while *Freedom* is a blocker that help user limit access to apps and websites. The main data were collected through a two-week-walkthrough of each app, while texts and pictures from the app stores were used as supplementary data.

PRELIMINARY FINDINGS

Gamification affordances in *Forest* and *Hold* include rewards, points, coins, achievements, badges, leaderboard, levels, and progress. They also include affordances like timer, statistics, communities, notifications, and tagging. In particular, the affordance *timer* (see Figure 1, 2, and 3) is shared by all the apps and is one of the core gamification affordances. The timer represents a clear goal for users and their progress is quantified and visualized by a clock (and also an avatar in *Forest*).

Figure 1: *Forest* timer

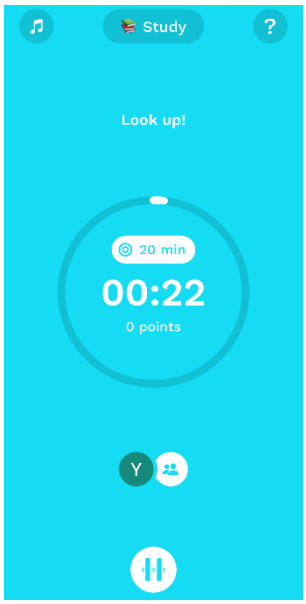

Figure 2: *Hold* timer

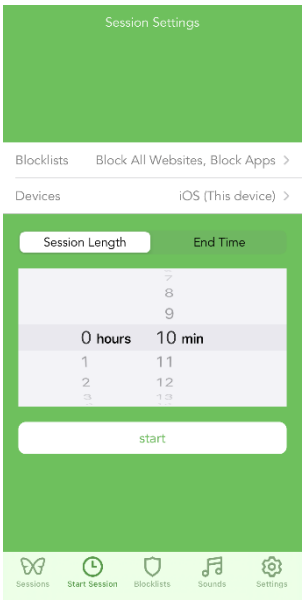

Figure 3: *Freedom* timer

Undesign affordances are found in much less variety, and consist mainly of blocking access to the smartphone, websites, or apps, partly or completely. Only *Freedom* offers the opportunity to block access to the smartphone completely, while in *Hold* and *Forest* the user might stop the timer, albeit with a small punishment: In *Forest* the plant will wither, and in *Hold*, the user will not earn potential points, a so-called *withering* affordance (Zagal et al. 2013).

Concerning the question about how the affordances in the apps might motivate the user, we find that they can paradoxically direct more attention towards the smartphone and invite more digital engagement. Though blockers like *Freedom* have simple functions with few gamification affordances, *Forest* and *Hold* are almost indistinguishable from ordinary causal games such as incremental games like *Cookie Clicker* (Dashnet 2013) and collecting games like *Pokémon GO* (Niantic, Inc 2016). For example, the detox apps may stimulate the user to alter habits, and perhaps cut down on certain types of unwanted uses but may also invite the user to create new habits similar to casual games that invite frequent logons to accomplish various goals that rely on a timer.

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