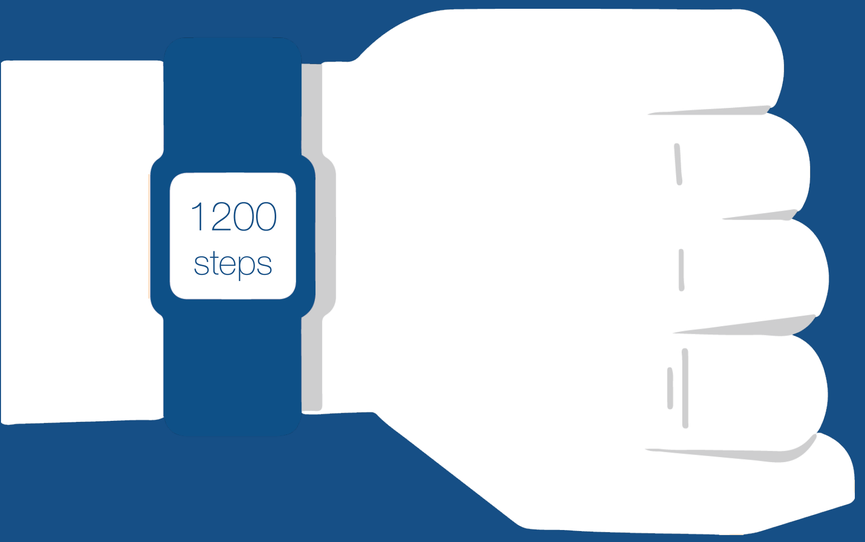
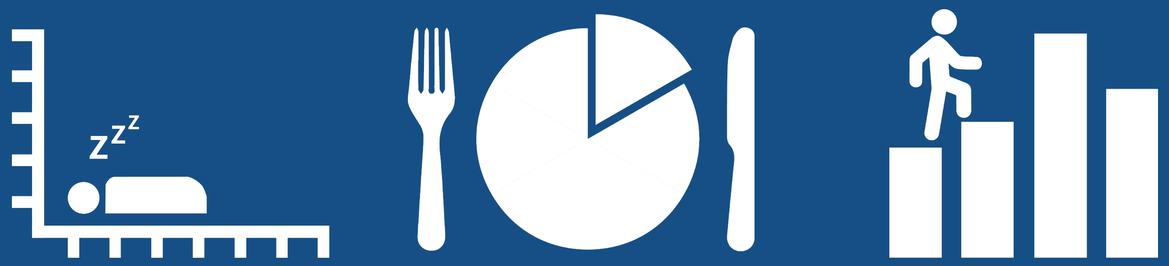


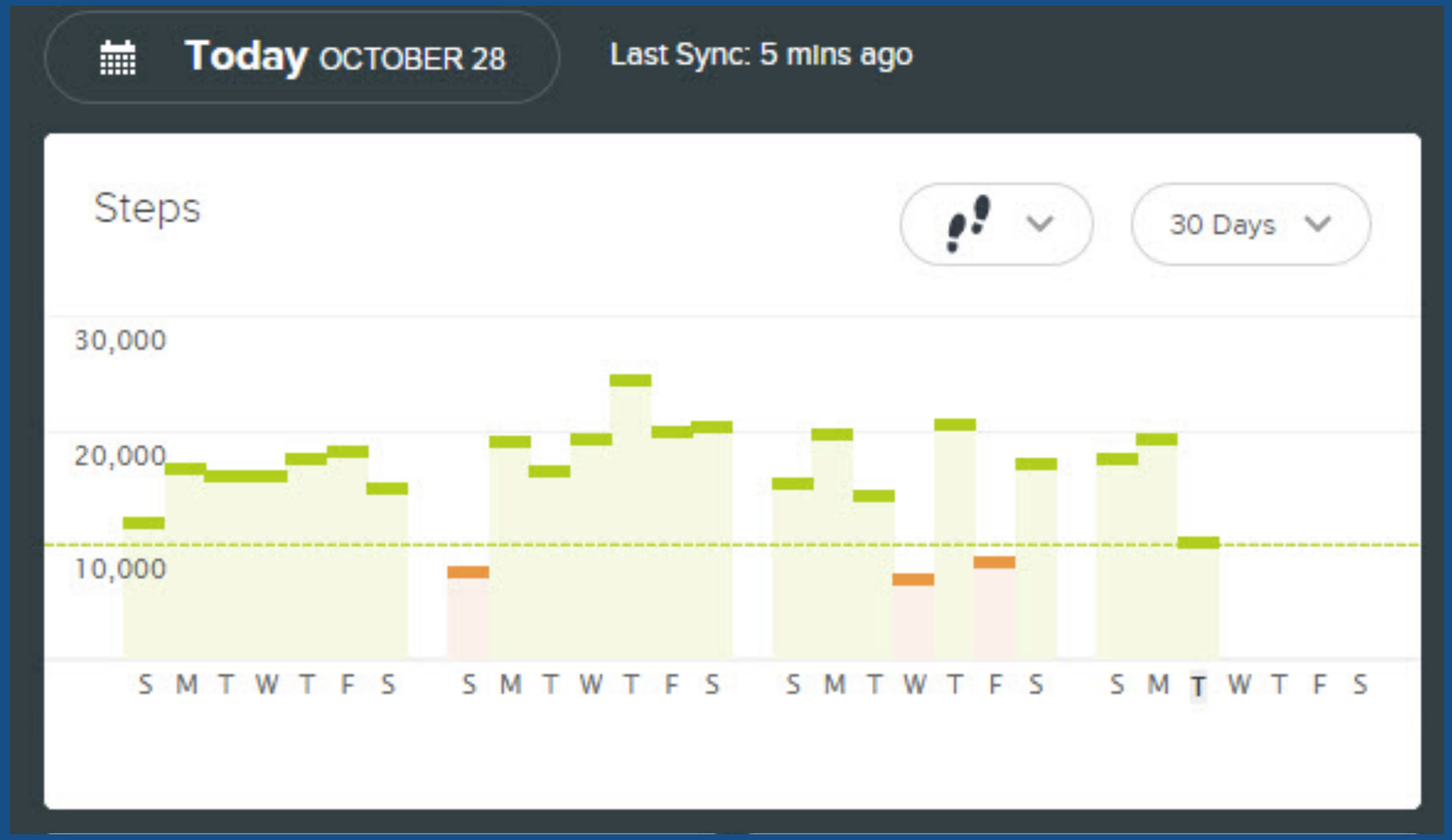
Exploring the Design Space of Glanceable Feedback for Physical Activity Trackers

Ruben Gouveia, Fábio Pereira, Evangelos Karapanos, Sean Munson & Marc Hassenzahl



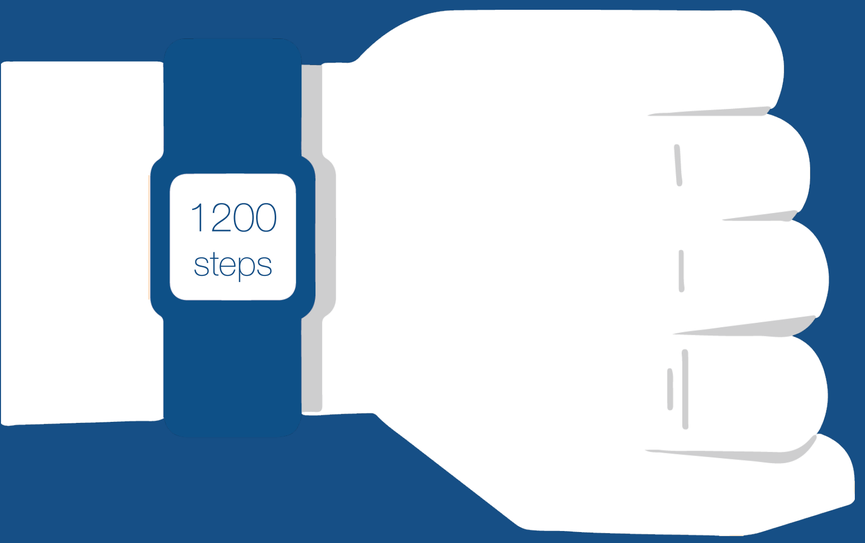
sleep food distance

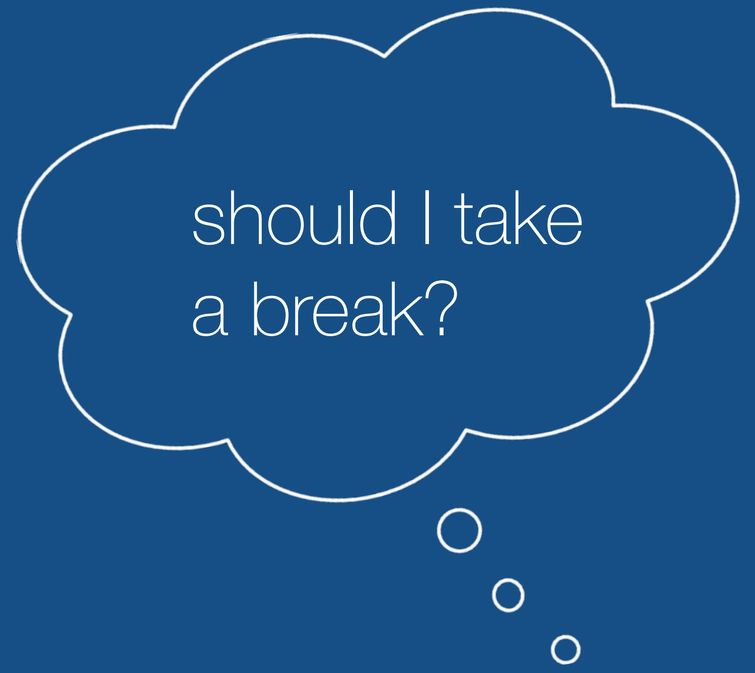
self-tracking tools have the potential of encouraging healthier lifestyles.



people **collect** data, **explore**, **reflect** and **take action** upon their behaviors

Li et al., 2010





activity trackers are also used to **regulate immediate behaviors!**

73%

of all interactions with trackers are driven by glances

Gouveia et al., 2015

how can we design **glanceable feedback interfaces** (gfi's) for activity trackers to best support positive behaviors?

Breakaway
Jafarinaimi et al., 2005

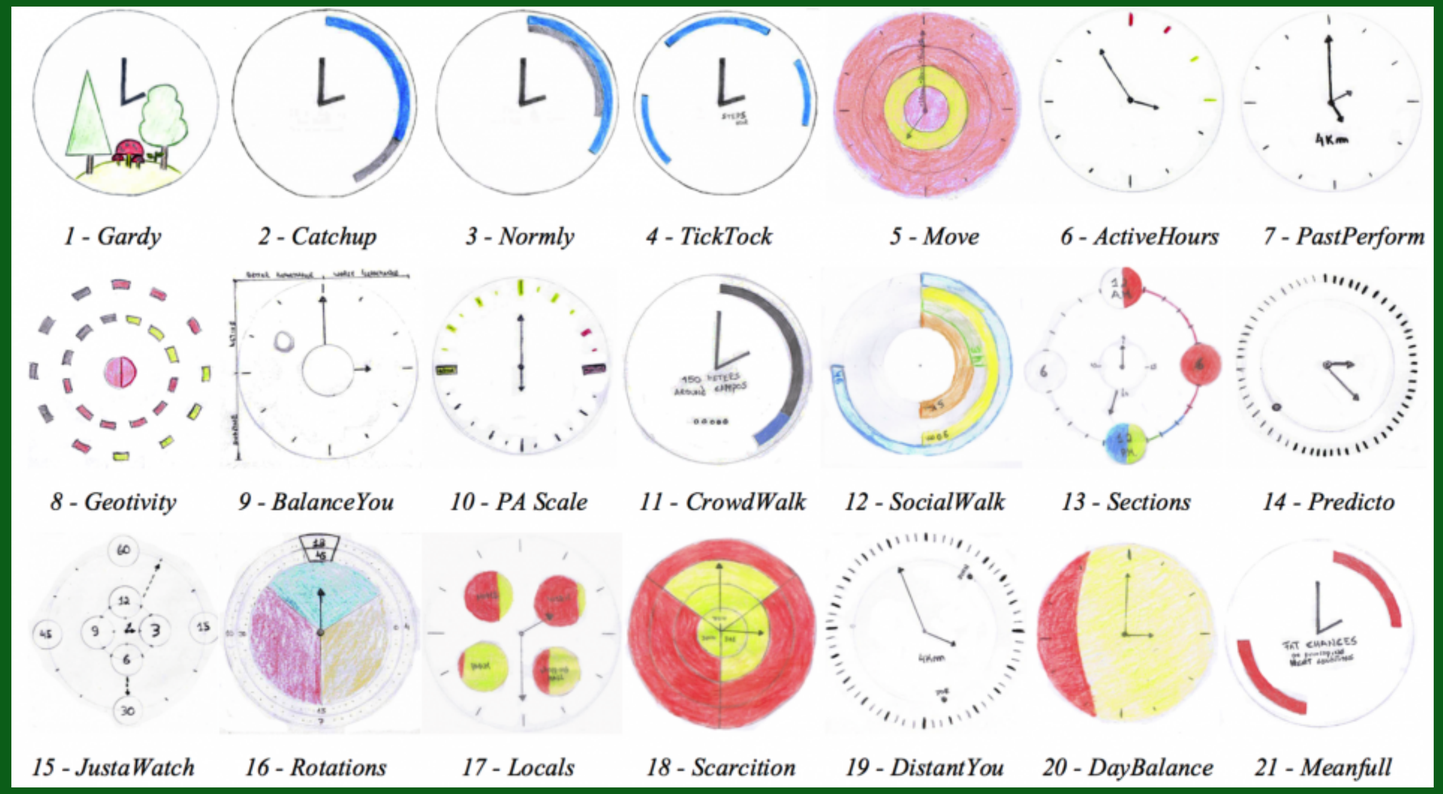
glanceable feedback should be consumed with a **quick visual glance**, working in the background while we attend to foreground activities

Mankoff et al., 2003

how can we design **glanceable feedback interfaces** (gfi's) for activity trackers to best support positive behaviors?

#1 what are some of the **attributes** that GFI should have for activity trackers?

#2 how do GFI **impact individuals behaviors**?



#1 what are some of the **attributes** that GFI should have for activity trackers?

#1 Abstract
#2 Integrate with existing activities
#3 Support comparison to targets and norms
#4 Actionable
#5 Lead to checking habits
#6 Act as proxy to further engagement

#1 Abstract

Abstracting data, as opposed to only displaying raw data, enables quick awareness and reflection on one's behaviors

all concepts abstracted numbers into abstract shapes - such as circles or stylized representations

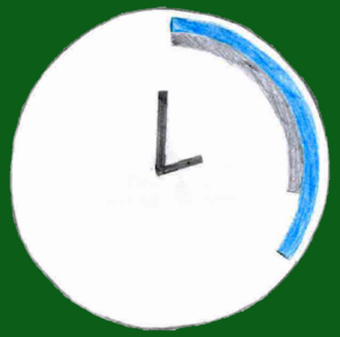
#2 Integrate with existing activities

Embedding feedback into **frequently accessed locations** - such as the background of one's phone, makes feedback **more likely to be glanced**

all concepts were designed on frequently performed action - checking the time

#3 Support comparison to targets and norms

Feedback that presents progress in comparison to a target **helps evaluate behaviors relative to a certain goal** rather than presenting raw data requiring further inferences.



Normly compares the distance one has walked so far to that of other users with similar daily walking goals

#4 Actionable

Effective glanceable feedback interfaces should not only inform but also **instigate goal related actions**

CrowdWalk provides users with specific walking challenges

#5 Lead to checking habits

glanceable feedback should be able to sustain the frequency of glancing over the long run, or in other words to **instigate checking habits**

Gardy introduces new elements as users progress towards their goal

#6 Act as proxy to further engagement

glanceable feedback can be designed with the goal of creating “aha” moments, thus acting as cues for further engagement

Meanfull highlights patterns in user data through textual messages, while offering the opportunity to explore underlying data

deployment

#2 how do GFI **impact individuals behaviors**?

we prototyped **four** of our original 21 concepts, based on their **diversity** and how **practical** they were to implement

deployment

TickTock portrays periods in which one was physically active over the past hour

deployment

Normly compares one's goal completion to that of others having a similar walking goal

deployment

Gardy abstracts physical activity levels through a garden, blossoming as users progress towards their goal

deployment

Goal Completion presents one's progress towards their daily goal

deployment

participants	12, recruited through Reddit
duration	1 month (1 week per interface)
concepts	concepts were randomly ordered and assigned to participants
logs	behavioral data (number and duration of usage sessions, step count)

results

integrating feedback with **frequently performed activities** (such as checking the time) provides a promising path for self-monitoring tools

participants checked their smartwatch, on average **107** times per day, impacting their subsequent behaviors

results

participants were more likely to initiate a new walk when seeing a low number of steps in the last hour

Participants who saw they walked **10 min or less** over the past hour had a **77%** chance of starting a new walk in the **next 5 min**

results

participants were more likely to initiate a new walk when closely ahead or behind of others

participants would take an average of **5 minutes** to start a new walk, and walk **394 steps**, when seeing themselves ahead or behind others, up to **500 steps**

results

usage sessions

participants walked and engaged less while using *Gardy* as compared to any other watchfaces

Normly

122

TickTock

110

Goal Completion

108

Gardy

86

results

daily step count per interface

Normly

5460

TickTock

5150

Goal Completion

5340

Gardy

3760

takeaways

Glance able feedback has a **positive effect through its increased availability**

takeaways

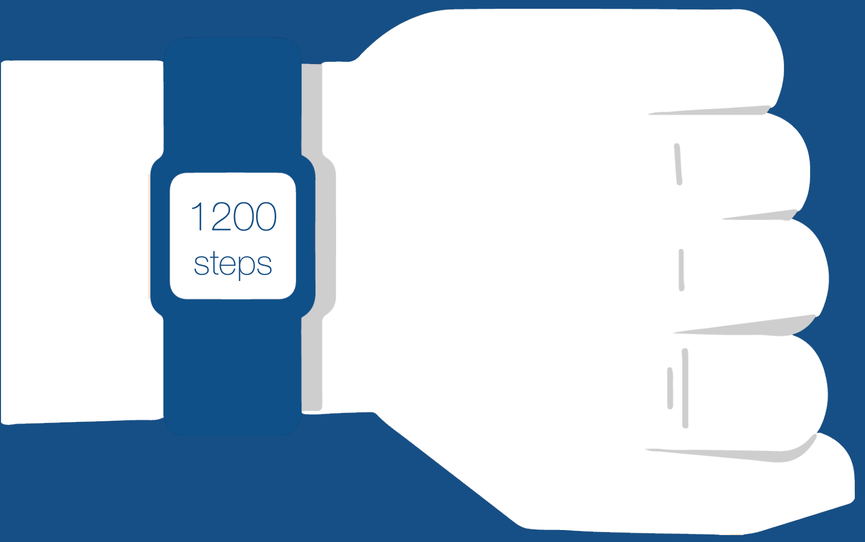
glanceable displays should be **carefully designed**, as they have high chances of being seen by others

glanceable interfaces should fit users **self-identity and fashion**

Consolvo et al., 2008

takeaways

Future studies are needed to assess the **long-term use and effects** of these interfaces



Exploring the Design Space of Glanceable Feedback for Physical Activity Trackers

Ruben Gouveia, Fábio Pereira, Evangelos Karapanos, Sean Munson & Marc Hassenzahl