

Exploring UX Issues in Quantified Self Technologies

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The logo for KAIST (Korea Advanced Institute of Science and Technology) is displayed in a bold, blue, sans-serif font. The letters are thick and closely spaced. Below the text is a light blue, horizontal oval shadow that tapers at the ends, giving the logo a three-dimensional appearance.

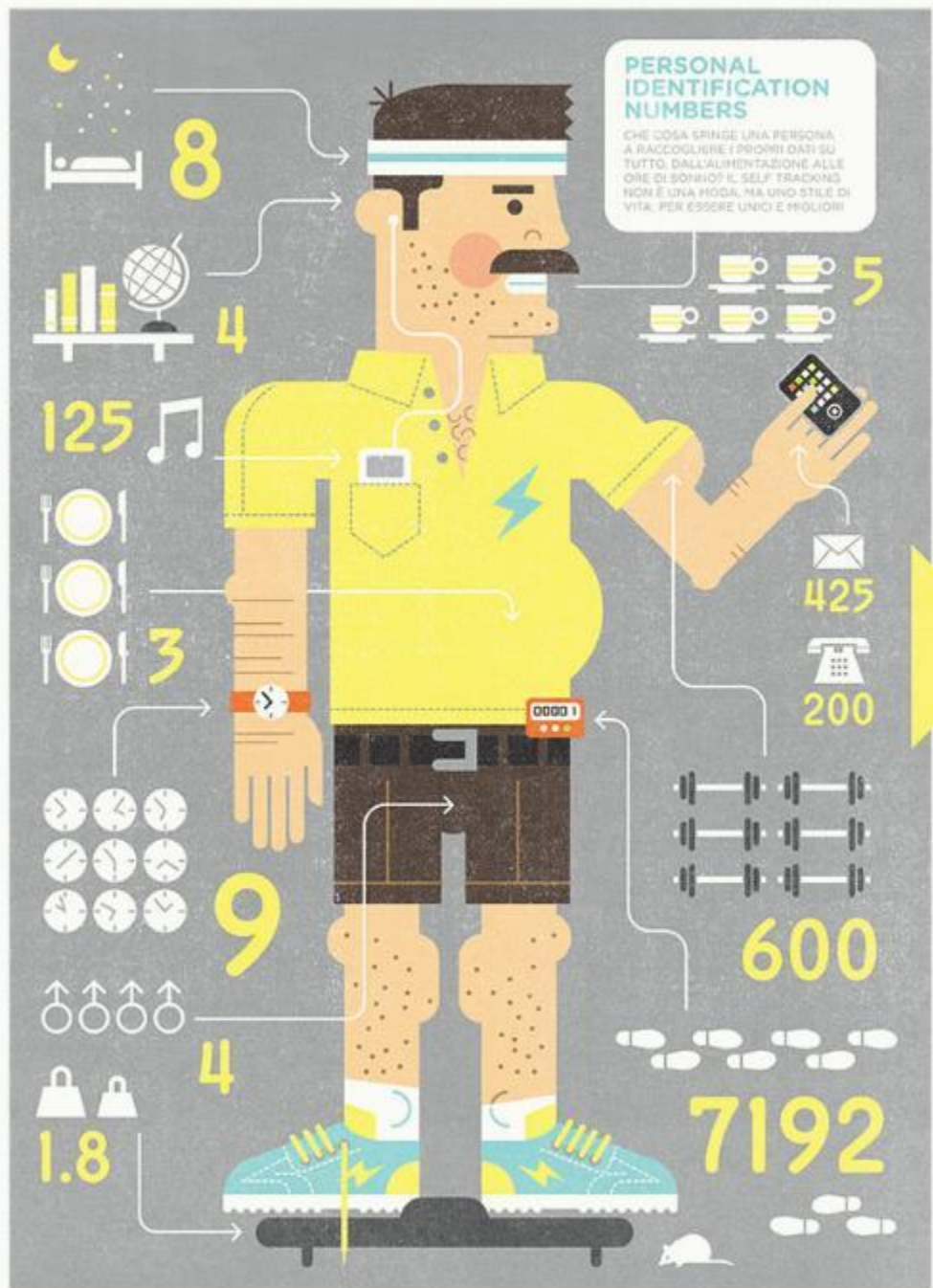
KAIST

QS

Quantified Self

Self knowledge through numbers

“A movement to incorporate technology into data acquisition on aspects of a person's daily life in terms of inputs.” - Wikipedia



Previously...

Li et al. proposed a stage-based model of technology use for self-tracking: preparation, collection, integration, reflection, and action. (CHI 2010)

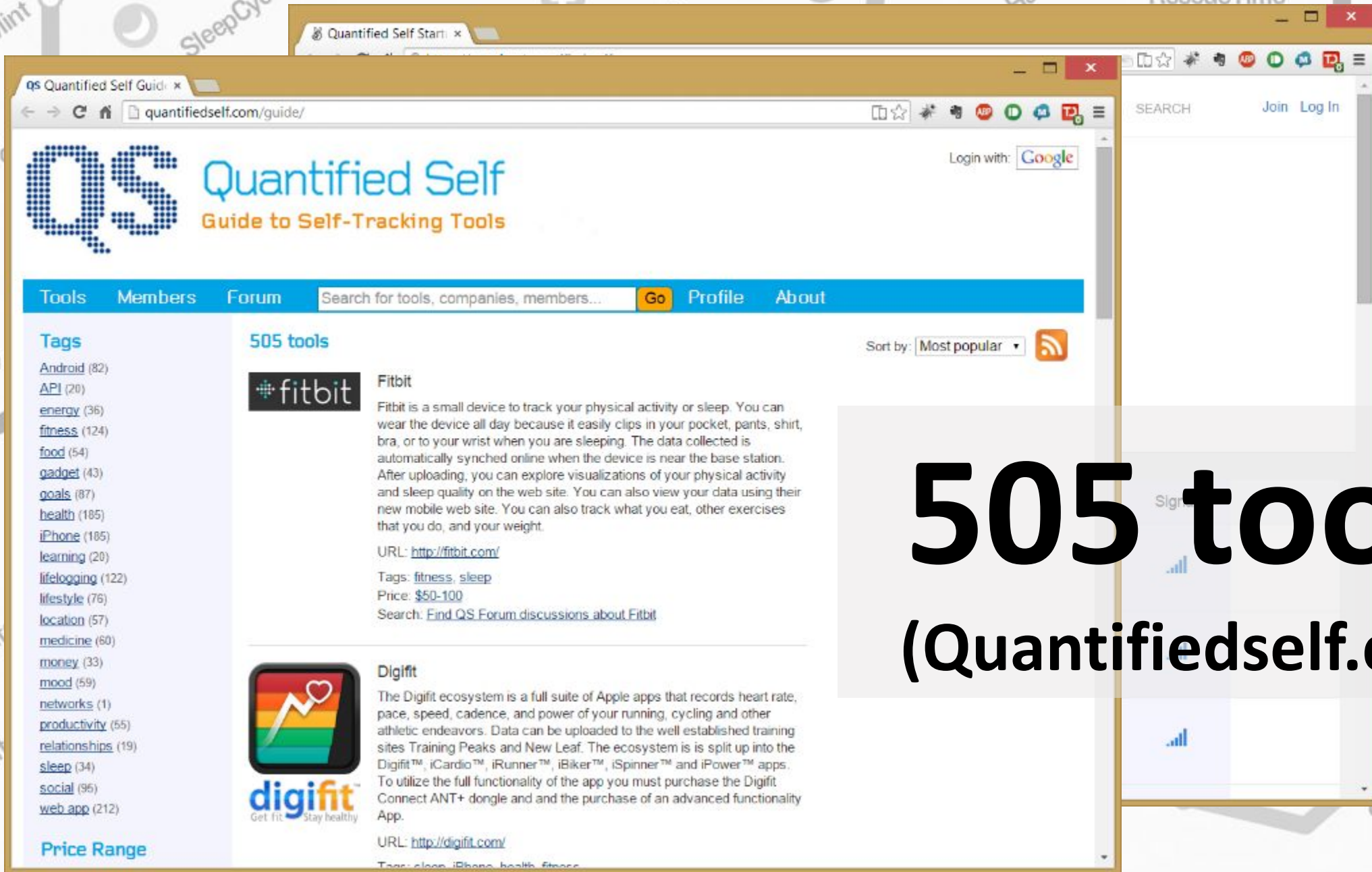
Choe et al. analyzed videos of QS offline event and identified Q-Selfer's common pitfalls. (CHI 2014)

Rooksby et al. showed that users often adopt multiple tracking devices and self-tracking are often considered social and collaborative. (CHI 2014)

Research Goal

To understand

- **what aspects of personal information** can be digitized by which technologies
 - **what the key UX issues** are with respect to such technologies
- “A person’s perception and responses that result from the use and/or anticipated use of a product, system or service.” – ISO 9241-11



505 tools (Quantifiedself.com)

Affinity diagramming



Tracking categories

Body Information

Psychological State and Traits

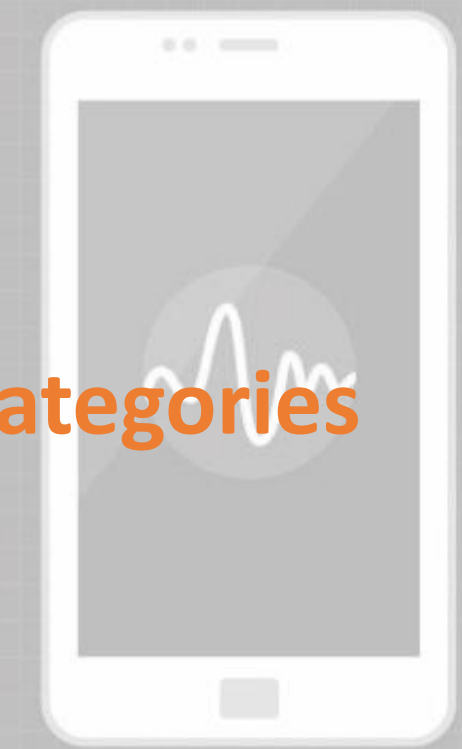
Activity

Social Interaction

Environmental & Property States

Others

6 categories



Tracking categories

Body Information

Psychological State and Traits

Activity

Social Interaction

Environmental & Property States

Others



Tracking categories

Body Information

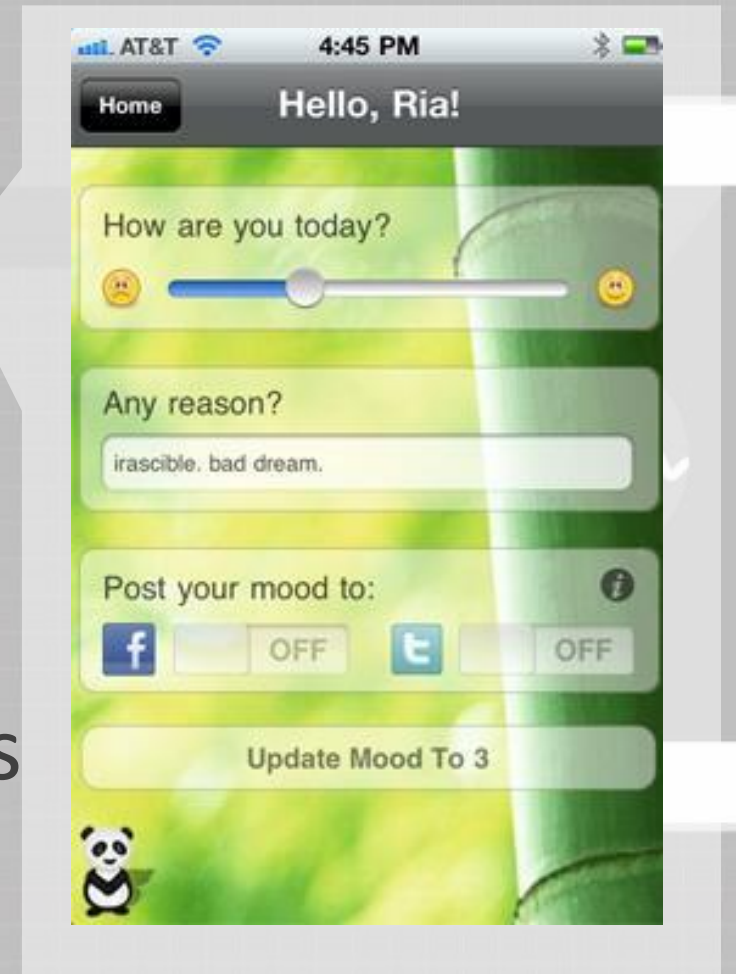
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Tracking categories

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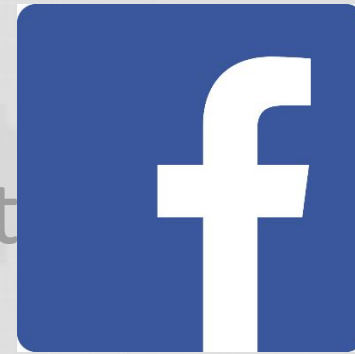
Psychological State and Traits

Activity

Social Interaction

Environmental & Property State

Others



Compared to previous work, there were several missing items (e.g., clothes, alertness)



209 reviews

- ❑ **Extracted sentences that expresses UX**
- ❑ **Content analysis using affinity diagraming**

UX Issues related to QS

1. Data Controllability
2. Data Integration
3. Data Accuracy
4. Data Visualization
5. Simplicity of User Input
6. Sharing and Privacy
7. Design
8. Engagement



1. Data Controllability

“I use the Zeo almost every night. [...] **It’ll get 4 stars as soon as I can wirelessly upload my Zeo data** to the Zeo site.” [Zeo Personal Sleep Coach]

“**The only real way to export data is through email which is kind of annoying.**” [Sleep Cycle]

“[...] **Minus one star for not getting on the computer-integration bandwagon** and providing a USB slot or wireless data upload feature like the famous Withings scale. [...]” [Omron full-body composition monitor HBF-516B]

2. Data Integration

“Twitter is a perfect tool for lifelogging! [...] I connect my twitter account with many quantified self tools like Quantter, Runkeeper, Fitbit, etc.” [Twitter]

“[...] I have created fan pages for Geolocation tool and Quantter great Quantified Self tool. I have connected Fitbit and Runkeeper to facebook, it’s a good way to interact more with friends about datas I share [sic].” [Facebook]

“Unlike Neurosky claims, you cannot actually see raw data with this app, it shows you 0 to 100 values that are not specified what they are (attention and meditation). I guess [they are] maybe alpha and beta waves?” [Meditation Journal]

“I love using foursquare whenever I go out to a venue or even sometimes a highway. **Because foursquare’s API is available, there are lots of cool, free tools that can help you visualize your accumulated foursquare data in cool ways.** [...]” [Foursquare]

3. Data Accuracy



“I have had the fitbit for 2 months now, and **have found it to be very helpful. It tracks my steps accurately,** and the battery life is very good. [...]” [Fitbit]

“Great app. Used it for couple of weeks at the same time as the ZEO. **However, I noticed Sleep Cycle isn't that accurate.**” [Sleep Cycle]

4. Data Visualization

“Wolfram Alpha here too. **Because it’s already nice visualised.**” [Give Me My Data]

“**This is a really fun way to share a visual timeline with a friend - no words, only pictures.** Only on Wednesday. **I’m a fan!**” [PhotoWednesday]

5. Simplicity of User Input

“[...] The best moodtracker. I’d recommend it. **Still, it takes too much time to track it.**” [Mood Panda]

“After a couple days of testing it’s still not the Moodtracker I was expecting. **I think it’s not good that you can overthink your mood.** [...] Also, for me it takes much time to track it.” [Mood Scope]

“This is a very light-weight tool I use to track my work hours on different projects. **I like that it’s single-click tracking, and colorful, too.**” [Tally Zoo]

6. Sharing and

“Quantter is very useful for me. [...] On Quantter I share a lot and I meet lots of old and new friends who quantify. I help my friends to use Quantter and to quantt daily efforts to reach their goal. Quantter has both english and french spoken cool communities. Feel free to join us [...]” [Quantter]

“FatSecret is [...]. Additionally, the site has a strong community for some healthy competition and/or get motivation from friends.” [FatSecret]

“The Withings scale is awesome. I just think of it and use it as a regular scale (with body fat estimate). Only this scale secretly logs my weight so that I can occasionally see how if I’m trending up or down. It doesn’t stop there! It also weighs my wife and son too! And it knows who is who! My wife’s data is safely hidden away so only she can access it. [...]” [Withings Wifi Bodyscale]

7. Design

“The Fitbit One is a great product. Great designed, [...]” [Fitbit]

“[...] Form factor issue 1: **the bulky size of the base station unit makes it very cumbersome** for travelers to consistently track their data. Form factor issue 2: more importantly for me, **the hard plastic headband piece disturbs my sleep.** [...]” [Zeo Personal Sleep Coach]

“**Doesn't look that fancy** but it doesn't have to because you close your eyes during meditating ;) Great app when you are new to meditating. Used it for QuantifiedJan.nl as well. Available for iPhone and Android” [Insight Timer]



8. Engagement

“[...] Still the product is so much fun, that it really engages you in tracking regularly. For me, that’s the really important thing.” [Withings Wifi Bodyscale]

“I tried Mappiness during weeks. Interesting but not very fun to be prompted each day.”
[Mappiness]

“I would give it four stars, but the truth is I only open the app about once a month or so.”
[Momento]

“Klout is a fun way to boost your ego. You get badges for doing nothing, YES I like badges, [...]” [Klout]

“[...] The reason to give it 4 stars was that I found myself stepping on it twice a day, and becoming overly concerned about weight fluctuations. [...]” [Withings Wifi Bodyscale]

Limitations

Our data was mostly from early adopters.

The anatomy of Internet reviews does not seem to deliver detailed information about situation of use

Preparation **Collection** **Integration** **Reflection** Action

UX Issues in our work

A stage-based model of personal informatics system – I. Li et al, CHI2010

Conclusion

We investigated UX issues related to QS technologies by **analyzing early adopter's data collected from [quantifiedself.com](https://www.quantifiedself.com)**

We **found five major themes**, namely body information, psychological states/traits, daily activity, social interactions, and environment/property states.

We **analyzed the key UX issues** related to the considered QS technologies, including data controllability, data integration, data accuracy, data visualization, input complexity, sharing/privacy, design, and user engagement.



Q&A



Q&A



Q&A