Quantified Self: Self Tracking for Health

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Introduction

Scientist, Head of department

Co-Founder, CEO

Co-Founder

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German Aerospace Center

medando

Quantified Self Meetup Cologne
My Motivation

Quantified Self – track myself

• With sensors
• With smartphone apps
Quantified Self

self knowledge through numbers
What is Quantified Self?

Self-knowledge through numbers

• Analyze trends and set goals to improve yourself

Recording of daily activities

• Fitness, sleep, location, ...
• Monitoring and display of information from various devices, services, and applications
Other Terms

- Self Tracking
- Life Hacking
- Life Logging
- ...
Google Trends: “Quantified Self” & “Health Apps”
Quantified Self Meetups

Quantified Self Meetup Groups

Groups: 149
Members: 26,413
Interested: 7,011
Cities: 113
Countries: 35

Powered by Leaflet
Objects of Tracking: Health-oriented

Well-being-oriented

- Body
- Mood
- Addictions
- Physical activities
- Nutrition
- Other

Directly health-oriented

- Chronic diseases
- No-chronic diseases
- General medication
- Symptoms
- Blood test results
- Insulin intake
- Blood sugar
- General daily records about health state
Objects of Tracking: Not-health-oriented

- **Environmental**
  - Temperature
  - Ozone concentration
  - Atmospheric pressure
  - Location
  - Rain
  - Clouds

- **Relationships**
  - Frequency
  - Quality
  - Sex

- **Other**
  - Finance
  - ToDos
  - Delays (Train, etc.)
Motivation
What People are Tracking?

- Health: 60%
- Environment: 60%
- Finance: 50%
- Nutrition: 50%
- Fitness: 50%

Studie QlikTech, August 2013
Five motivations

- Self-Design
- Self-Entertainment
- Self-Association
- Self-Discipline
- Self-Healing
Motivation Self-Design

Self-Design

• motivated by the possibilities of self-optimization
Motivation Self-Entertainment

Self-Entertainment

• motivated due to the “pleasure-bringing” aspects of self-tracking
Self-Association

• motivated by the prospect of community citizenship and self-individualizing aspects within a community
Self-Discipline

- motivated due to the self-gratification possibilities of self-tracking
Self-Healing

- motivated by the self-healing possibilities of self-tracking
Mean Motivation (Range 1-5)

- Self-Healing
- Self-Discipline
- Self-Association
- Self-Entertainment
- Self-Design

Well-being and health, Well-being, All

Source: Marcia Nißen, Quantified Self – An Exploratory Study on the Profiles and Motivations of Self-Tracking, Bachelor Thesis (2013)
Self-Assessment of Self-Tracking Categories

health-related

well-being

other

128
47
37
16
28
12
5

„Uncertain“ or „No“ in all three categories

Source: Marcia Nißen, Quantified Self – An Exploratory Study on the Profiles and Motivations of Self-Tracking, Bachelor Thesis (2013)
## Self Experiments

### Quantified Mind

**JOIN AN EXPERIMENT**

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Description</th>
<th>Find out now or Get started</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Time of Day Experiment</td>
<td>What sorts of tasks do you perform best at different times of day?</td>
<td>Find out now</td>
</tr>
<tr>
<td>The Breakfast Experiment</td>
<td>How does eating breakfast affect your mind for the remainder of the day?</td>
<td>Find out now</td>
</tr>
<tr>
<td>The Coffee Experiment</td>
<td>How does coffee affect your reaction time, problem solving, and more?</td>
<td>Find out now</td>
</tr>
<tr>
<td>The Sex Experiment</td>
<td>Does Sex increase or decrease your mental productivity?</td>
<td>Find out now</td>
</tr>
<tr>
<td>The Meditation Experiment</td>
<td>Does Meditation improve or harm your cognitive abilities?</td>
<td>Find out now</td>
</tr>
<tr>
<td>Create your own experiment</td>
<td>Create your own experiment to test the effects of exercise, food, or anything else.</td>
<td>Get started</td>
</tr>
</tbody>
</table>

Design experiments – Measure results – Improve yourself
Wearable Sensors, Devices, and Apps
Technologies for Self-Tracking

Deployed technologies for self-tracking

Source: Marcia Nißen, Quantified Self – An Exploratory Study on the Profiles and Motivations of Self-Tracking, Bachelor Thesis (2013)
Steps
Activity
Blood Pressure
Weight
Stress
Sleep
Coffee, Medication, Expenses, ...
Medando: **BloodpressureCompanion**

- **Current week**
  - 10/12/12 11:39 PM: 134/83 mmHg, 48 bpm
  - 10/12/12 4:36 PM: 133/78 mmHg, 51 bpm
  - 10/9/12 10:40 PM: 110/72 mmHg, 66 bpm
  - 10/7/12 9:50 PM: 109/72 mmHg, 61 bpm
  - 10/7/12 9:31 AM: 128/82 mmHg, 53 bpm

- **Distribution**
  - Normal: 24, 85.71%
  - Prehypertension: 3, 10.71%
  - Hypertension Stage 1: 1, 3.57%
  - Hypertension Stage 2: 0, 0.00%
  - Hypertensive Crisis: 0, 0.00%

- **Measurement list**

- **Measurement's analysis**

- **Add measurement**
  - Systolic: 120
  - Diastolic: 82
  - Pulse: 62

- **Add**

- **Details**
Wearable Technology

Many Devices, Sensors and Apps...

Data Exchange: The Internet of Things
Notification on Android
Sharing

Vitalwerte @vitalwerte_as

1 Dez
Meine Fitbit #Fitstats_DE für 11/30/2013: 6.816 Schritte und 5 km zurückgelegt. fitbit.com/user/22X4YM

Öffnen ← Antworten ↑ Retweeten ★ Favorisieren *** Mehr

Vitalwerte @vitalwerte_as

30 Nov
Mein #Blutdruck: 125/83, Puls: 55. Aufgezeichnet mit der @BlutdruckApp für #Android: blutdruckbegleiter.de #quantifiedself #mHealth

Details anzeigen ← Antworten ↑ Retweeten ★ Favorisieren *** Mehr

Vitalwerte @vitalwerte_as

30 Nov
Sleep as Android: Schlaf 30.11. 0:34 → 12:38 (11:58) Tiefschlaf 48%

#Sleep_as_Android
pic.twitter.com/tdfqNP1hsV

Öffnen ← Antworten ↑ Retweeten ★ Favorisieren *** Mehr
Data Analytics
Steps (Fitbit)

Activity

Steps  Distance  Floors  Time Active

Month graph

Steps

Distance

Floors

Time Active

Nov 02  Nov 08  Nov 14  Nov 20  Nov 26

Nov 02

Nov 08

Nov 14

Nov 20

Nov 26

20000

15000

10000

5000
Steps (Fitbit)

Activity

19792 steps taken
38 floors climbed
14.55 km traveled
3120 calories burned

Top Daily Step Badge
15,000 steps

Top Daily Climb Badge
25 floors
Weight (Withings)
Body Fat (Withings)
Activity (Nike Fuelband)

Dein Monatsdurchschnitt ist 53.258

1.008 Kalorien/Tag
11.279 Schritte/Tag
48% Tagesziele erreicht
0 Gewonnene Stunden/Tag
Activity & Location (Moves)

InterContinental San Francisco
- Walk 8 min
- Transport 13 min

Hunan Home's Restaurant
- Walk 11 min
- Walk 17 min
Blood Pressure vs. Weight
Conclusions

- Quantified Self community is growing
- Many more devices and apps
  - Mobile!
  - Wearable!
- Data analytics at the beginning
Discussion

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