Chapter 1.1

Quantified Self, ideas and definitions

* Definitions
* Brief self tracking technologies
  + From tools allowing for tracking mood, sleep, food intake etc. to the pivotal use of sensors in smartphones and wearable devices
* Why do people engage in self-tracking?
* Applications of self-tracking
  + Sports Science examples
  + *“self-tracking is used in programs that involve monitoring location and drug use for probation and parole surveillance, alcohol and drug addiction programs, and family law and child custody monitoring.”*
  + Menstrual and reproductive health
  + Productivity in the workplace
  + Marketing, measuring crowd excitement
  + Mental health: Mood and quality and quantity of social interactions
  1. **Quantified Self: Collection and analysis of personal data**

**1.1.1** **Introduction and main ideas**

The concept of the quantified self refers to the collection and analysis of one’s personal data. The motivation for tracking varies between individuals, encompassing goals such as improving quality of life, making informed decisions, exploring ideas or theories, or simply out of curiosity. The quantified self can be summed up by the phrase: “self-knowledge through numbers.” This term was first introduced by Gary Wolf and Kevin Kelly in 2007, inspired by their observations of people tracking quantitative measurements like weight, calories consumed, spending habits, and daily moods[[1]](#footnote-1). While self-tracking has been practiced for thousands of years as a tool for self-improvement, recent advancements in digital technology—particularly in data storage, processing capacity, and biometric sensors—have driven personal analytics to new levels of popularity[[2]](#footnote-2).

Numerous researchers, engineers, and computer scientists have experimented with digital technology, specifically wearable computers, for self-tracking. Among the earliest pioneers was Canadian engineer Steve Mann, often called the “father of wearable computing.” Mann began his experiments with wearable computers in the 1970s and built his first wearable computer at the age of 12. By the 1980s, he was using these devices to log information about his daily activities. Mann’s work extended beyond simple tracking; he envisioned wearable technology as a way to create what he termed "mediated reality"—the ability to modify or enhance sensory experiences through digital augmentation[[3]](#footnote-3). In 1992, Mann founded the MIT Wearable Computing Project, where he continued to develop and refine his vision for wearables. By the mid-1990s, his devices could continuously record and broadcast his activities through what he called a “Wearable Wireless Webcam,” providing a live feed of his life. In 1998, Mann invented the smartwatch, marking an early form of lifelogging that captured both his environment and personal data, and effectively demonstrating the potential of wearable devices for self-tracking.

Historically, individuals have relied on pen and paper to track personal metrics of interest. However, advances in technology have transformed the way we collect and analyze self-data. Modern smartphones, for instance, are equipped with a wide range of sensors that enable the tracking of various metrics, such as steps, distance, and location. A growing number of mobile applications now help users monitor diverse aspects of their daily lives, including mood, food intake, physical activity, personal finances, and more.

Perhaps the most significant catalyst in the development and expansion of the quantified self movement has been innovation in biometric sensors. Wearable devices, such as smartwatches and fitness trackers, now allow individuals to monitor a variety of health indicators, including heart rate variability, blood oxygen levels, and body temperature. These wearables incorporate proprietary algorithms that process data from external sensors, like accelerometers and gyroscopes, converting raw motion data into useful metrics such as step counts or movement classifications. Additionally, many wearables are equipped with advanced sensors for tracking sleep patterns, offering users valuable insights into the quality and duration of their rest.

These devices not only collect raw data but also produce “endpoint” metrics that aggregate and simplify complex data for users. For example, trackers may generate “sleep scores,” which summarize sleep quality, while “readiness scores” assess an individual’s physical state and preparedness for the day ahead based on various biometric readings. These metrics provide valuable, actionable insights, contributing to the growing popularity of the quantified self movement by empowering individuals to make more informed decisions about their health and lifestyle.

**1.1.2 Reasons and motivations for self-tracking**

Some scientific work has been done to determine the types of people that typically engage in self-tracking. For example in a 2014 “Connected Life Report” by Nielsen it is mentioned that young adults aged between 25 and 34 are the most drawn to self-tracking, through the use of fitness tracking bands or mobile applications. They comprised 40 % of the sample. It also was revealed, that in the sample, women aged 30 to 39 were the majority of fitness and health mobile apps. The authors also mention that the owners of wearable devices, concretely fitness bands reported a higher income on average than the other respondents. One in third fitness band owner had declared an income of a 100000 USD or more in a household.

In 2014 Researchers from University of Washington and Microsoft have studied the community of people who self-track in the article “Understanding Quantified-Selfers’ Practices in Collecting and Exploring Personal Data”. They analyzed 52 video recordings of Quantified Self Meetup talks and extracted both qualitative and quantitative data. The study focused mainly on “extreme users”. Users, that remained motivated and passionate about self knowledge despite numerous obstacles and barriers. Researchers claim that the perspective of the extreme users can give valuable insight into understanding of the quantified self movement. The majority of the sample comprised of men (79%), however the authors mention that in the population, men and women are equally likely to engage in self-tracking, which aligns with the previously discussed “Connected Life Report” that also declared an evenly split sample in terms of gender. The authors describe the occupation of the participants. 40 % of them work at a startup and 37 % declare software engineering as their profession. Other common job descriptions were a data analyst or electrical engineer. The most commonly tracked items were: activity, food, weight, sleep, mood. People’s motivations behind self-tracking comprised of the desire to improve health, like curing or managing conditions, improving other aspects of life, like maximizing work performance, finding new life experiences, like exploring new things and having fun. Interestingly, the group of people claiming the motivation behind self-tracking to be improving cognitive performance comprised exclusively of software engineers and students. The goal of the people in this group was maximizing work efficiency and optimizing learning. For example, they gathered data about their use of time or cognitive performance by taking a cognitive test. The article then goes on to explain the 3 common mistakes that self-trackers make. First being tracking too many things, which can lead to fatigue or quick discouragement, as well as having too many formats and data sources too handle. Second mistake was identified as the lack of tracking of triggers and context. People can focus too much on tracking symptoms while omitting the context or other important factors. The third mistake was concluded to be the lack of academic rigors among the trackers, which can lead to misleading inferences.

Lupton, Deborah. *The Quantified Self: A Sociology of Self-Tracking*. Cambridge, UK: Polity, 2016.

Mann, Steve. “Mediated Reality.” *Linux Journal* 1999, no. 59es (March 1, 1999): 5-es.

Wolf, Gary. “Know Thyself: Tracking Every Facet of Life, from Sleep to Mood to Pain, 24/7/365.” *Wired*. Accessed November 12, 2024. https://www.wired.com/2009/06/lbnp-knowthyself/.

1. Gary Wolf, “Know Thyself: Tracking Every Facet of Life, from Sleep to Mood to Pain, 24/7/365,” *Wired*, accessed November 12, 2024, https://www.wired.com/2009/06/lbnp-knowthyself/. [↑](#footnote-ref-1)
2. Deborah Lupton, *The Quantified Self: A Sociology of Self-Tracking* (Cambridge, UK: Polity, 2016). [↑](#footnote-ref-2)
3. Steve Mann, “Mediated Reality,” *Linux Journal* 1999, no. 59es (March 1, 1999): 5-es. [↑](#footnote-ref-3)