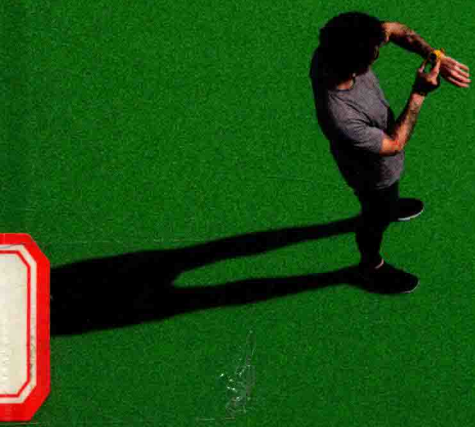
The Quantified Self



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The Quantified Self

A Sociology of Self-Tracking

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For Gamini Colless, my favourite self-tracker

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Lupton, D. (2013) Quantifying the body: Monitoring and measuring health in the age of mHealth technologies. *Critical Public Health*, 23 (4): 393–403.

Lupton, D. (2013) Understanding the human machine. *IEEE Technology & Society Magazine*, 32 (4): 25–30.

Lupton, D. (2014) Self-tracking cultures: Towards a sociology of personal informatics. In *Proceedings of the Twenty-sixth Australian Computer–Human Interaction Conference on Designing Futures 'The Future of Design'*, 77–86. Sydney, Australia: ACM (Association for Computing Machinery).

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Contents

Introduction

The concept of self-tracking using digital technologies has recently begun to emerge in discussions of the ways in which people can conduct their lives. Monitoring, measuring and recording elements of one's body and life as a form of self-improvement or self-reflection are practices that have been discussed since ancient times. The introduction of digital technologies that facilitate these practices has led to renewed interest in what self-tracking can offer and to an expansion of the domains and purposes to which these practices are applied.

This book is about contemporary self-tracking cultures, analysed from a critical sociological perspective. I use the term 'cultures' to encapsulate the view, adopted throughout the book, that the practices, meanings, discourses and technologies associated with self-tracking are inherently and inevitably the product of broader social, cultural and political processes. The book examines the influences, discourses, technologies, power relations and systems of thought that contribute to the phenomenon of self-tracking, the ways in which this phenomenon is spreading from the private realm into diverse social domains, and the implications of the self-tracking phenomenon for the politics of personal data, data practices and data materialisations.

Self-tracking practices are directed at regularly monitoring and recording, and often measuring, elements of an individual's behaviours or bodily functions. Some self-trackers simply collect information about themselves as a way of remembering and recording aspects of their lives, or to satisfy their curiosity about the patterns in their behaviours or body metrics that they may uncover. Others take an approach that is more specifically goal-oriented, seeking as they do to reflect on and make meaning out of the information they choose to collect and to discern patterns that will work to improve features such as their health, physical fitness, emotional well-being, social relationships or work productivity. Some self-trackers collect data on only one or two dimensions of their lives, and only for a short time. Others may do so for hundreds of phenomena and for long periods.

My interpretation of self-tracking in this book rests on the assumption that it involves practices in which people knowingly and purposively collect information about themselves, which they then review and consider applying to the conduct of their lives. Self-tracking differs, therefore, from covert surveillance or means of collecting information on people that result in data sets to which the subjects of monitoring do not have access. As I go on to demonstrate in later chapters, many forms of personal information are generated by people's routine engagements and transactions online or by their movements in spaces that are embedded with sensors or fitted with cameras that monitor them. Only a small proportion of this information is accessible to the subjects of this monitoring. Indeed in many cases people have no knowledge of what data are collected on them, where these data are stored and to what purposes they are used by other actors and agencies. These are examples not of self-tracking, but of tracking of the self by others.

Several terms in addition to self-tracking are used to describe the practices by which people may seek to monitor their everyday lives, bodies and behaviours; such terms are lifelogging, personal informatics, personal analytics and the quantified self. Lifelogging tends to be used to refer to the specific practice of using wearable computing devices such as cameras, sensors, and other computerised and automated ways of collecting personal information over a period of time.

The practice is not necessarily about self-improvement but may also be undertaken as a form of computerised memory or as a kind of recording information about a person's life for future generations. Personal informatics and personal analytics are terms that are used most often in academic literature on human–computer interaction. The title of this book denotes 'the 'quantified self' – a new term for describing self-monitoring practices that was invented in 2007 and has since gathered cultural resonance. While the quantified self overtly refers to using numbers as a means of monitoring and measuring elements of everyday life and embodiment, it can be interpreted more broadly as an ethos and apparatus of practices that has gathered momentum in this era of mobile and wearable digital devices and of increasingly sensor-saturated physical environments.

I first became interested in contemporary self-tracking cultures when I came across a reference to the Quantified Self movement in a news story a few years ago. I had a look at the Quantified Self website (Quantified Self, 2015c) and was fascinated to see the types of practices that 'quantifying the self' and attempting 'self-knowledge through numbers' (the site's motto) involved. As an academic in the fields of sociology and media and cultural studies who has written on a range of related topics (such as embodiment, selfhood, health and medicine, risk and digital cultures), I am interested in analysing self-tracking as a sociocultural phenomenon. My initial response to self-tracking was that it was an intriguing way of using forms of information to conduct practices of selfhood and embodiment. This, in itself, is an interesting topic to explore. However, over the period in which I have observed and sought to analyse self-tracking, it has become clear that the practice has expanded well beyond the domain of the individual, into a variety of social contexts and uses. In many cases self-tracking is a purely voluntary personal enterprise initiated by the person who is engaging in it. However, there are various ways in which self-tracking is being encouraged, or even enforced on people, predominantly so that the objectives of others are met; and such ways raise the question of exactly how voluntary self-tracking may be in these contexts. People are now frequently encouraged, 'nudged', obliged or coerced into monitoring aspects of their

lives so as to produce personal data that can then also be used for the purposes of others.

The digitisation of self-tracking has been a major impetus in these changes. Writing down thoughts in diaries or journals and recording everyday habits or body measurements through the time-honoured technologies of pen and paper are avenues of self-monitoring that have long-established histories. They remain practices in which some self-trackers continue to engage. Since the advent of computing, however, self-tracking has been transformed into major interconnected practices that have significant social, cultural and political implications.

First, the technologies and practices of self-tracking have become progressively digitised and automated, facilitating the ever more detailed measurement and monitoring of the body and everyday life in real time. Accessing information generated through digital technologies and sharing it with others are greatly facilitated via the processes of searching, retrieval and tagging with the help of software. Second, these personal details are now typically transmitted to and stored on cloud computing databases. As a consequence, accessibility to these details is no longer limited to the self-trackers themselves, as was the case in the days of paper journals and records, but personal details are potentially available to other actors and agencies. These include the developers of the devices and software that self-trackers use; third parties that may purchase these data from such developers; data-mining companies and their clients; and government agencies. Cybercriminals or hackers may illegally access the data and steal them for profit or malicious purposes. This has major repercussions on the privacy and security of the details that self-trackers collect about their bodies and lives, which are often of a very sensitive and intimate nature. And, finally, this personal information has become endowed with significant commercial and managerial value, as part of the digital data knowledge economy.

I employ the concept of 'lively data' in this book and frequently return to this concept in my efforts to theorise self-tracking cultures. I first came across this description of digital data in an article by Mike Savage (2013) in which the author used the phrase 'lively data' to denote the constant generation

of large masses of digital data as part of the digital data economy, and the implications of this practice for sociological research methods. Dave Beer's (2013) and Dave Beer and Roger Burrows' (2013) work on the circulations and politics of digital data has also contributed to my thinking about the vitality of these knowledge forms.

In my own work I have developed the notion of lively data still further, so as to denote the manifold ways in which personal digital data (whether deliberately generated for individuals' own purposes or collected by others about them) are vital. Not only are personal digital data continually generated, as Savage emphasises, but they are fundamentally about the lives of humans: about their bodily functions, behaviours, social relationships, moods and emotions. Digital data generate new forms of knowledge and new insights into people's bodies and selves. They are also contributing to livelihoods by generating profit for those who use them commercially or by facilitating the management and governance of people and populations. Furthermore, as outlined by Beer and Burrows (2013), these data have a vitality of their own in the digital data economy by virtue of the fact that they circulate, enact new forms of knowledge and are purposed and repurposed in many different ways. In other words they have their own social lives, which are quite independent of the humans who originally generated them. Digital data about people's lives are also vital in their effects. As I explain in greater detail later in this book, they have begun to play a significant role in influencing people's behaviours, sense of self, social relationships and, increasingly, their life chances and opportunities. Digital data have implications for people's employment, research material and profit. All of these properties of digital data are important to consider in a sociological analysis of self-tracking.

From a sociological perspective, a number of interesting questions arise about the quest for monitoring and measuring elements of one's body, behaviour and habits. What are the tacit assumptions that underpin contemporary modes of self-tracking? Why are people attracted to self-tracking? How do they interpret and use the data they produce? How are concepts of the body, self, social relationships and social behaviours configured and negotiated via these data? How have the

ethos and practices of self-tracking been appropriated by other actors and agencies? What implications are there for data politics, data practices and the digital data knowledge economy? What are the power relations and power inequalities inherent in self-tracking cultures?

The book discusses all of these issues. In making my arguments I draw on material from a range of sources such as app and software descriptions and product reviews, news reports, white papers, social media and blog discussions – in addition to the existing literature on self-tracking published by researchers in the social sciences and human–computer interaction studies. To keep up to date with discussions on self-tracking, I used tools such as Twitter hashtags (#quantifiedself, #lifelogging and #selftracking), the Quantified Self website and various other websites devoted to self-tracking for regularly checking the content that people posted. A weekly update of articles and blog posts about self-tracking, collated by the Quantified Self website organisers, has been an invaluable resource. I searched for the work of artists and designers who are engaging in self-tracking practices (I viewed some exhibitions in person); and I checked for news reports on self-tracking by searching the web and by using the news database Factiva.

In Chapter 1, after a discussion of the early lifeloggers and experimental attempts to use wearable computing devices for self-tracking, I provide an overview of the varieties of self-tracking devices, apps and other software that are currently available. The chapter ends with a review of market research and academic studies that have sought to identify what types of people engage in self-tracking and how and why they do so. Chapter 2 reviews ways of analysing self-tracking rationales and practices from various sociocultural theoretical perspectives. These approaches offer opportunities to delve below the surface meanings and rationales of self-tracking cultures and to illuminate how these cultures operate and what the wider implications of their practices are. The discussion begins by outlining the value of sociomaterial perspectives and continues with more specific reviews of knowing capitalism and lively data, practices of selfhood and neoliberal politics, the cultural dimensions of embodiment, datafication, dataveillance and privacy.

The following three chapters then go on to build on these two initial overview chapters by concentrating closely on elements of self-tracking cultures. Chapter 3 focuses on portrayals and representations of the body and the self in self-tracking cultures, incorporating analysis of the reflexive monitoring self, affective dimensions of self-tracking, concepts of embodiment and control, and selfhood and surveillance. In Chapter 4 I move on to analysing the ways in which data are discussed and conceptualised as part of self-tracking. I examine the meaning and value of personal digital data; metricisation and the lure of numbers; materialisations of the data; artistic and design responses; and qualified selves and the importance of context. In the final substantive chapter, Chapter 5, I address the important issue of data politics. The chapter outlines in detail the ways in which the personal information generated through self-tracking is used by second and third parties. The discussion covers the modes of exploited, pushed, imposed and communal self-tracking, personal data security and privacy, and strategies of resistance to dataveillance. In the brief 'Final Reflections' chapter that concludes the book, I summarise its major themes and make some suggestions concerning the ways in which self-tracking cultures and practices, as well as academic research on these phenomena, might further develop.

1

'Know Thyself'

Self-Tracking Technologies and Practices

The tracking and analysis of aspects of one's self and one's body are not new practices. People have been recording their habits and health-related metrics for millennia, as part of attempts at self-reflection and self-improvement. What is indisputably new is the term 'the quantified self' and its associated movement, as well as the novel ways of self-tracking with the help of digital technologies that have developed in recent years. In this chapter I discuss contemporary self-tracking practices and technologies, from the days of early lifelogging techniques and wearable computing devices with which people experimented in the 1990s to the vast array of technologies that are available today. This is followed by a review of existing empirical research, which has focused on those who take up self-tracking and their experiences.

The emergence of contemporary self-tracking

As I noted in the Introduction, various terms have been used over the years to describe self-tracking practices: lifelogging, personal informatics, personal analytics and the quantified self. Lifelogging is the most established term. The practice of lifelogging, under this name, emerged in the early days of personal computing, as computing engineers in research labs

were experimenting with techniques and technologies (Sellen and Whittaker, 2010). Gordon Bell, an American computer scientist at Microsoft Research, is well known for his long-term lifelogging project. Bell took inspiration from an idea expounded by the American presidential science advisor, Vannevar Bush, who wrote an essay published in 1945 in which he asserted his belief that humans' ability to remember could be enhanced by technology. In this essay Bush introduced his idea of the Memex, a mechanised device in which people could store all their documents, records, books, letters and memos, as well as newspapers and an encyclopaedia. He suggested that people could also wear small cameras on their forehands to capture details of their daily lives and add them to the Memex archive (MyLifeBits, 2015; Thompson, 2006). Beginning in 1998, Gordon Bell attempted to record as many aspects of his life as possible using digital technologies, including all his correspondence and documents (scanning paper documents as well as storing emails and so on), books he had read, photos, home movies and videos, computer files, mementos, meetings, conversations and phone calls. Bell started wearing a camera in 2000 and an early health-tracking armband, BodyMedia, in 2002. He instigated the MyLifeBits project for Microsoft, expanding on this endeavour (MyLifeBits, 2015).

The developers of wearable computing devices were also among the earliest to experiment with monitoring aspects of their lives through these technologies. The first international symposium on wearable computers was held in 1997 and included papers that focused mainly on the uses of such devices (for example head-mounted devices and clothing embedded with sensors) for performing work-related tasks (IEEE, 1997). The symposium also discussed using wearable technologies for the performing arts, identifying emotions in the wearer, assisting people with disabilities, and telemedicine.

The Canadian computing engineer Steve Mann, a contributor to this first symposium, was one of the most prominent advocates of and experimenters with wearable computers in those early days. Mann began experimenting with using wearable computers in the 1970s. By the early 1980s he was using these devices, which to contemporary eyes appear very

chunky and clunky, for recording personal information about his daily activities. Mann founded the MIT Wearable Computing Project at the MIT Media Lab in 1992. From 1993 on he wore a webcam and recorded and broadcast details of his everyday life in a continuous live feed, as part of his Wearable Wireless Webcam project. By 1998 Mann had reduced the size of his wearable recording device considerably and was wearing a pendant containing a camera as part of his attempts to create what he called a 'lifeglog' (a shortened version of the term 'cyborglog' or computerised automated lifelog) (Mann, 1997, 2013).

Artists and designers have experimented with lifelogging and wearable technologies for several decades. In 1974 Andy Warhol began a 'time capsule' project that continued until his death in 1987. It involved placing items that crossed his desk into cardboard boxes: books, catalogues, letters, photographs, newspapers and magazines, invitations and so on. By the time he died, he had accumulated over six hundred filled boxes, the contents of which have become archived and preserved at the Andy Warhol Museum (Allen, 2008). On Kawara, a Japanese conceptual artist who lived most of his adult life in the United States, spent decades noting down details of the people he met each day, the places he visited and the books he read. He developed a massive archive of these details that he enshrined in bound volumes. During an 11-year period, Kawara sent a postcard each day to friends and colleagues, recording the time he had awoken that morning and his geographical location. Each day for almost half a century – from 1966 to 2013 – Kawara also produced a 'date painting' recording each day's date; the 'date painting' was often accompanied by a storage box that usually contained a cutting from a newspaper published on that date. Another conceptual artist, the Italian Alberto Frigo, has embarked on a long-term lifelogging project that began when he was 24 and has spanned more than a decade thus far (Frigo, 2015). He plans to continue until 2040, when he turns 60: hence the title of his project, '2004–2040'. The project involves photographing every object that his right hand uses, as a way of monitoring his everyday activities. Frigo has also begun recording many other aspects of his life: details of his dreams, the songs he listens to, the external surroundings in